FRESH CREEK TECHNOLOGIES, INC.

Beyond the Green Infrastructure - what do you do with the trash and debris
Pollutant Capture Strategy

A. Gross Pollutants:

1. Post Consumer Containers (PCC)
   - Empty Bottles
   - Styrofoam cups
   - Styrofoam containers and plates
   - Plastic bags.

2. Leaves and sticks
3. Rocks
4. Shopping carts
5. >one inch matter
WHERE DOES IT COME FROM?
Premise:
Trash and sediment will always be part of run-off and will be part of LID unless removed.

Trash comes from:
1. Careless disposal of food packaging, drink containers, etc.
2. The enemy..................Which is US.
3. Exfoliation-Leaves, Bark, Branches etc.

Sediment comes from:
1. Wear and tear of vehicles and roads.
2. Wind bourn particles.
3. Erosion.
End of Pipe unit collects trash in nets after storm in a city park.
LA County DPW
Flood Maintenance Division
Hamilton Bowl

- 69” diameter pipe.
- End of Pipe NTT-2 model.
- \(Q = 70 \text{ cfs.}\)
- Area serviced: 270 acres.
- Designed for 1 hour storm at 0.6 inches per hour.
Installation and set-up

Rain event continues...
End-of-Pipe Netting TrashTrap®
Narragansett Bay Commission Outfall #218, Pawtucket, RI.

Design discharge 294 CFS at 17 f/sec.
Highest discharge 450 CFS.

10 net system.
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B. Sediment:

1. Minerals with s.g.=2-2.65
2. > 50 Microns
3. <25,000 Microns
Thomas R. Camp stated in his 1936 paper: “For particles removed 100%, the velocity of such particles may be designated as Vs and is equal to the discharge divided by the surface area.”
Conventional Sedimentation

L x W = A

Rise rate $Q / A \uparrow < \downarrow$ Particle removed.
Conventional Sedimentation

$L \times W = A$

Rise rate $Q / A \uparrow > \downarrow$ Particle is **NOT** removed.

For clean effluent, at a minimum the particle must settle the distance of the water level above the weir regardless of anything else.
Allen Hazen made proposition 14 in his 1904 paper: “As the action of a sedimentation basin is dependent upon its area and not upon its depth, one horizontal subdivision would provide two surfaces to receive sediment instead of one, and would double the amount of work that could be done”. Hazen concluded: “the only way in which the depth influences the efficiency of sedimentation is in preventing bottom velocities too great to allow deposition of sediment”.

L x W = A

Rise rate \( \frac{Q}{4 \times A} \) < Particle removed.
Horizontally projected sedimentation area

A₁ < A₂
Stacked cells means footprint savings.

Inclining means self-cleaning.

Small footprint and lots of area means less cost per area.

Less cost for water quality.
Hydro Dynamic Separator

As if a septic tank for stormwater
MAINTENANCE IS ESSENTIAL

- Oil soaking sock
- Trash
- Sediment
- Primary Chamber
Sediment on the floor is the common denominator.
It is not practical to expect a settler to perform economically for particles below 30 Microns. This is due to the exponential effect of particle size on required settling area in a settling system. This chart shows how <70 Microns particles seriously affect settling area and cost exponentially and larger particles are easily settled at low cost.
TREATMENT TRAIN
Design Flow

A

> 25,000 Microns Coarse Netting 1” SQ. 100% capture

50-25,000 Microns Inclined cells. 100% capture at 22.5 gpm/Ft²

B

0-50 Microns Filter cloth & Filter-Media about 2.1 gpm/Ft²

C

Receiving waters
Recharge Facilities
Detention

50-25,000 Microns Inclined cells. 100% capture at 22.5 gpm/Ft²
TREATMENT TRAIN
Excess Flow

A. Netting
B. Inclined Cells
C. Filter Media, Filter Cloth
PRE-TREAT to AVOID THIS

QUESTIONS?
VISIT
THE FRESH CREEK BOOTH 15