Hydrology Demonstrators

Educational Training Equipment for the 21st Century

Bulletin 651A

H-6510

Drainage and Seepage Tank Demonstrator

Purpose

The Hampden **Model H-6510** Drainage and Seepage Tank Demonstrator has been developed to investigate water flow through permeable media. Using sand as the medium and two-dimensional models, flow lines can be determined as well as the distribution of up-lift pressure and seepage rates.

Description

This unit incorporates a mobile carrier with a sump tank, pump, starter, control valve, tank, adjustable overflow drains, tank drain, six pressure taps, dye injection tank with hose, model set, and graduated beaker.

Experiment Capabilities

- Uplift Pressure on Hydraulic Structures
- Seepage Through Earth Embankments
- Flow Under Wall Pilings
- Flow Nets in Porous Media (Sand)

Specifications

Control Panel:
- Motor-Starter switch
- Pilot Light
- Flow Control needle valve

Tank:
- 60" (1524 mm) long, 28" (711.2 mm) high by 4" (101.6 mm) inside dimensions
- Tank base and sides of stainless steel
- Front of tempered glass with stainless steel trim
- Rear panel of aluminum with six pressure port fittings
- Two adjustable overflow drains
- Tank drain with ball valve.

Sump Tank:
- 15 gallon (56.8 Liter) polypropylene with tank drain ball valve and three interconnection pipe fittings.

Model H-6510 Drainage and Seepage Tank Demonstrator shown with sand (not supplied)
Dimensions: 58"H x 60"W x 24"D, Shipping Weight: 650 lbs.

Pump:
- Centrifugal pump with sealess magnetic drive
- 5 GPM (18.9 L/min) maximum
- Service kit includes the Viton O-ring and impeller/ magnetic assembly
- Filter cartridge

Dye Injection System:
- Tank with control valve
- 5-ft. (1.54 meter) hose
- Holding bracket

Model Set:
- Lexan wall piling
- Lexan wall with foundation
- Earth dam facing
- Open Trench assembly

Accessories:
- Flexible tube set
- Graduated beaker
- Experiment Manual
- Pump service kit

Components Not Supplied:
- Medium, sand
- Stop watch

Mobile Carrier:
- 2" (51mm) square steel tubing finished in instrument tan texture
- Four swivel casters, two with locks.
- Plastic laminate top 1-1/16" thick (27mm) with Medite wood core.

Services Required

Electrical:
120V AC, 60 Hz, single-phase

Water:
Supply (fill sump tank)
Waste Drain (drain sump tank)

All Hampden units are available for operation at any voltage or frequency

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080503

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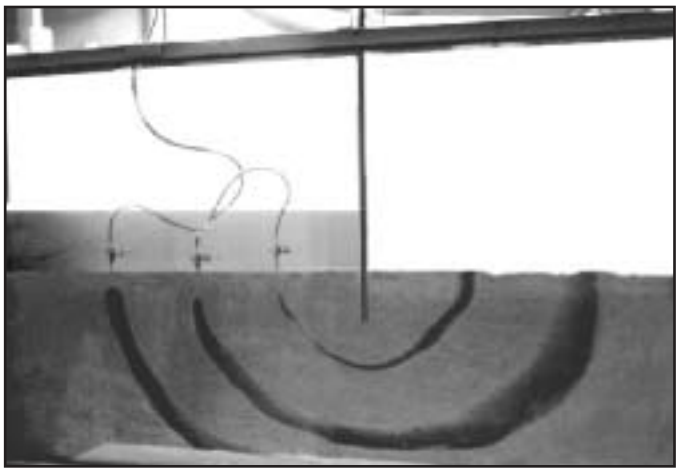
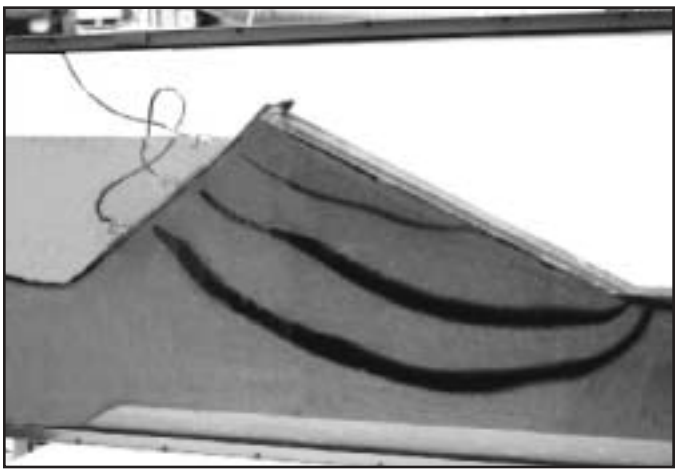
Flow Under Wall Pilings



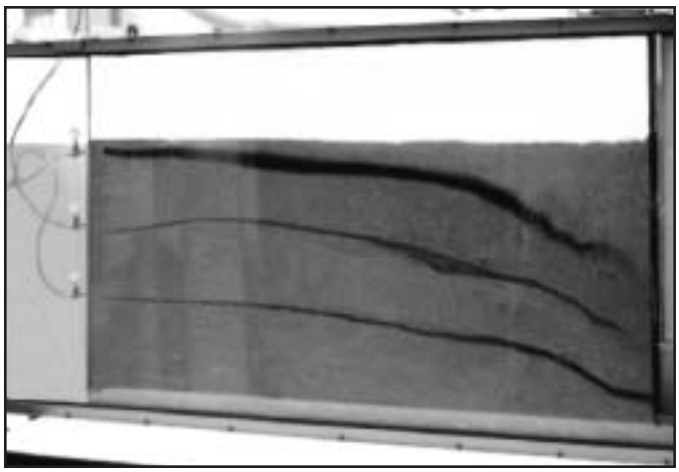
Purpose: To 1) demonstrate the lines of flow (path of percolation) under wall pilings (footings), 2) determine the rate of seepage, and 3) allow for the construction of equipotential lines (i.e. develop a "flow net").

Seepage Through Earth Embankments



Purpose: To 1) demonstrate the flow lines through a sloped earth embankment, 2) determine the rate of seepage, and 3) allow for the construction of equipotential lines (i.e. develop a "flow net").

Flow Nets in Porous Media (Sand)



Drainage (Seepage) Flow Through the Wall of an Open Trench

Purpose: To 1) demonstrate the flow lines through an open channel wall, 2) determine the rate of seepage, 3) correlate results with Darcy's Law, and 4) observe the effects of change in head and thus simulated pumping.

Uplift Pressure on Hydraulic Structures

Purpose: To 1) demonstrate direct pressures acting to uplift a retaining structure, and 2) construct a flow net.

All Hampden units are available for operation at any voltage or frequency

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