



Stormwater Quality Management Committee

May 11, 2021



Item 5.

- Action to accept a presentation on the Coanda trash screen technology (***For possible action***)

WATER SHARK SYSTEMS, LLC

Taking a bite out of the storm water problem.

Steve Esmond, PE
Rene Gamero, QISP

May 11, 2021



WATER SHARK SYSTEMS, LLC

Clean water solutions company

We deliver high value and effective water treatment that assists companies in cleaning their storm water prior to discharge.

Las Vegas Office
4056 S Spitze Dr.
Las Vegas, NV 89103
866-605-1190

Anaheim Office
1185 North Van Horne Way
Anaheim, CA 92806
562-431-4300



Coanda Certifications

FULL CAPTURE CERTIFICATION

- California Water Board for the Statewide Stormwater Program
- LA Regional Board
- SF Regional Board
- SD Regional Board
- Specific approvals in other state, county and local jurisdictions.

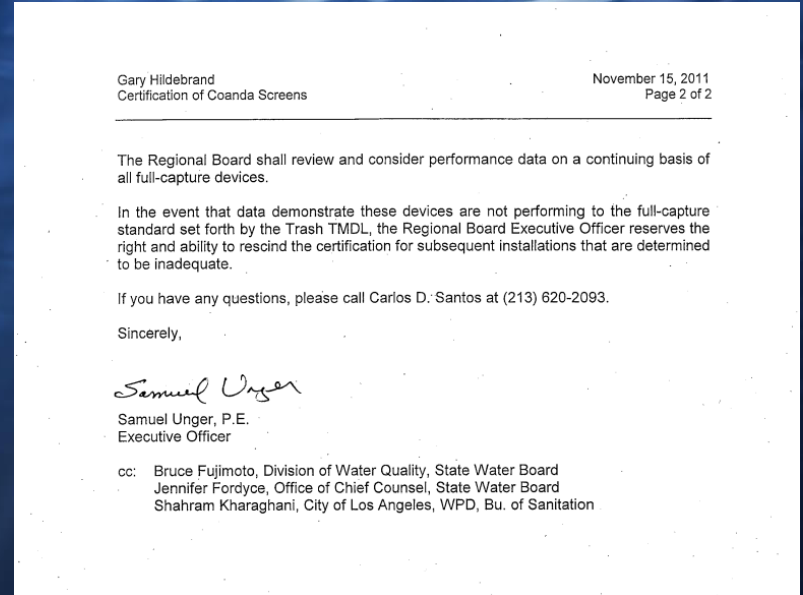
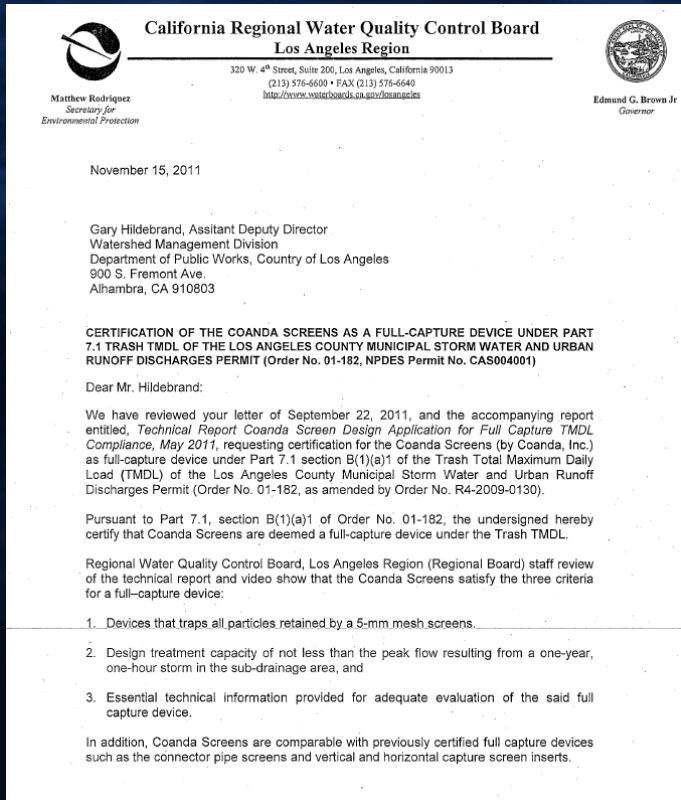
GROSS SOLIDS REMOVAL DEVICE (GSRD).

- Caltrans

NATIONAL BUILDING CODES



Coanda Certifications



Letter addressed to LA County Public Works from the CA Regional Water Quality Control Board.
(waterboards.ca.gov)



WORLDWIDE ADOPTION





HENRI COANDA
1886-1972

ROMANIAN
INVENTOR

AERODYNAMICS
PIONEER

BUILDER OF
WORLD'S FIRST JET
POWERED
AIRCRAFT

Inventor of the Coanda Effect:

"A moving stream of fluid in contact with a curved surface will tend to follow the curvature of the surface rather than continue traveling in a straight line."

US Patent No. 2,052,869

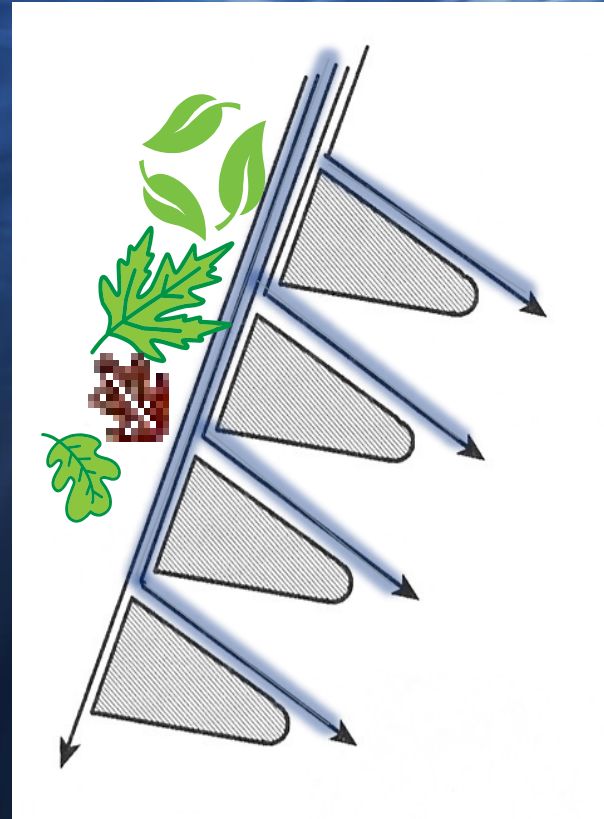
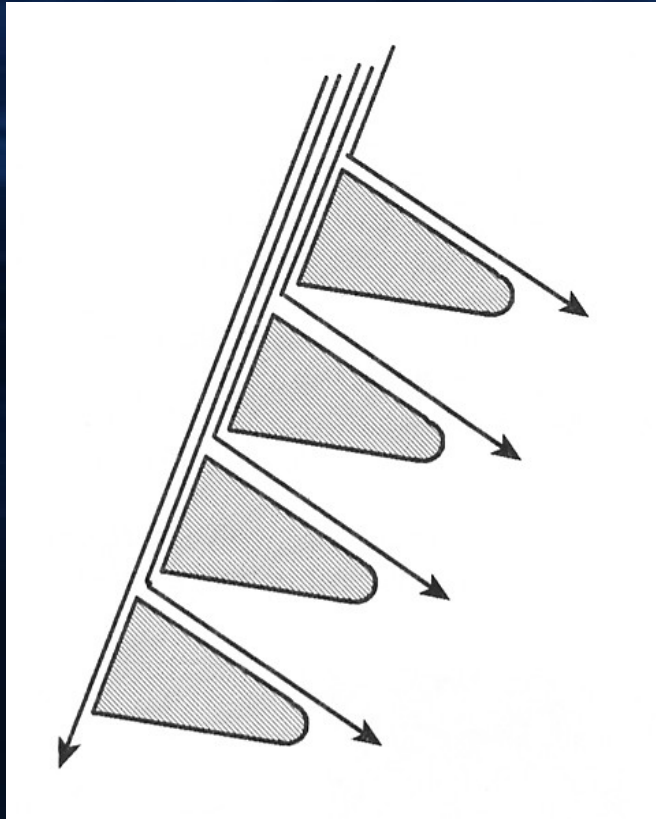
"Device for Deflecting a Stream of Elastic Fluid Projected into an Elastic Fluid"

by Henri Coanda, Sept. 1, 1936



HOW THE COANDA EFFECT WORKS

TILTED WEDGEWIRE SCREEN TECHNOLOGY



Connector Pipe Screens (CPS)



CPS MAINTENANCE ISSUES



Debris and water compete for the same openings, plugging the holes. These are not self-cleaning.



AUTOMATIC RETRACTABLE SCREENS (ARS) DON'T ALWAYS AUTOMATICALLY RETRACT



Labor-intensive cleaning always required



Advantages of Coanda Screens

“These screens have large flow capacities and are hydraulically self-cleaning without moving parts, so they require minimal maintenance.” *

* “Design Guidance for Coanda-Effect Screens,” Report No. R-03-03, U.S. Department of the Interior, Bureau of Reclamation Technical Service Center, Water Resources Services, Denver, Colorado, July 2003.



NO TRASH ACCUMULATION ON STREET
TRASH REMOVAL MADE EASY



COANDA SCREEN



CURB INLET INSTALLATION

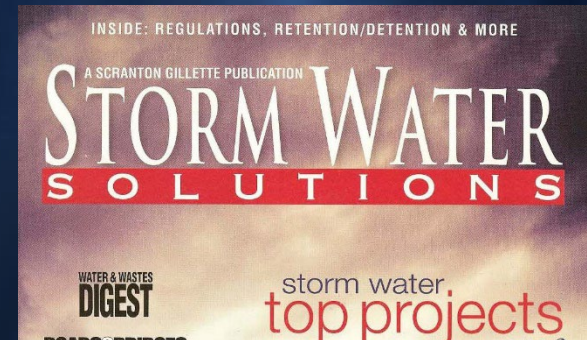


CHANNEL SCREENS



Features:

- Placed either in-line or off-line
- Engineered design ~ 100 cfs
- Screens & frames ~ \$30k
- TPC ~ \$150k



COANDA CHANNEL SCREEN



COANDA CHANNEL SCREEN AMAFCA



**1,200 cfs
Treatment
Capacity**



COANDA CHANNEL SCREEN SANTA ANA RIVER



URBAN TRASH (DOWNTOWN LA)



URBAN TRASH (DOWNTOWN LA)

	Description	Sieve Size, mm	Wt, %	Vol, %	Density, pcf
	Sediment & grass seeds	1.0	37	8	44
	Mulch, grass, fine bark	5.0	22	12	18
	Leaves, small sticks		26	42	6
	Trash: paper, plastics, cans, etc.		15	38	4



COANDA LIFE CYCLE

According to:

- LA County - more than 10 years
- USBR – more than 20 years
- Coanda – 30 to 40 years



COST COMPARISON

Structural BMP	Cost to Remove 1 lb. of TSS
Street Sweeping ¹	\$ 0.11 + disposal
Coanda	\$ 0.48
Detention Basin ¹	\$ 0.63
Sand Filters ¹	\$ 4.28
Infiltration Basin ¹	\$ 4.56
Catch Basin Insert ¹	\$ 4.65
Hydrodynamic Separator ¹	\$ 5.32

¹ Karen Nichols and Hilary Ahrens, "What's the Cost to Remove One Pound of Sediment From Stormwater?" StormCon 2011



Caltrans VS1 I-405 (Clog and Labor Intensive)



Nets & Booms (Clog and Labor Intensive)



SUMMARY

- Water Sharks has designing treatment systems since 2005.
- COANDA has over 30 years of experience in storm water engineering and treatment.
- Custom designed to treat site specific water issues like trash, sediment, metals, nutrients, COD, bacteria, and more.



We work on solutions with you together.



QUESTIONS?

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