

# Presentation to Newport City Council

## FINAL DESIGN UV DISINFECTION SYSTEM

August 25, 2009



**FUSS & O'NEILL**  
*Disciplines to Deliver*

# Presentation Outline

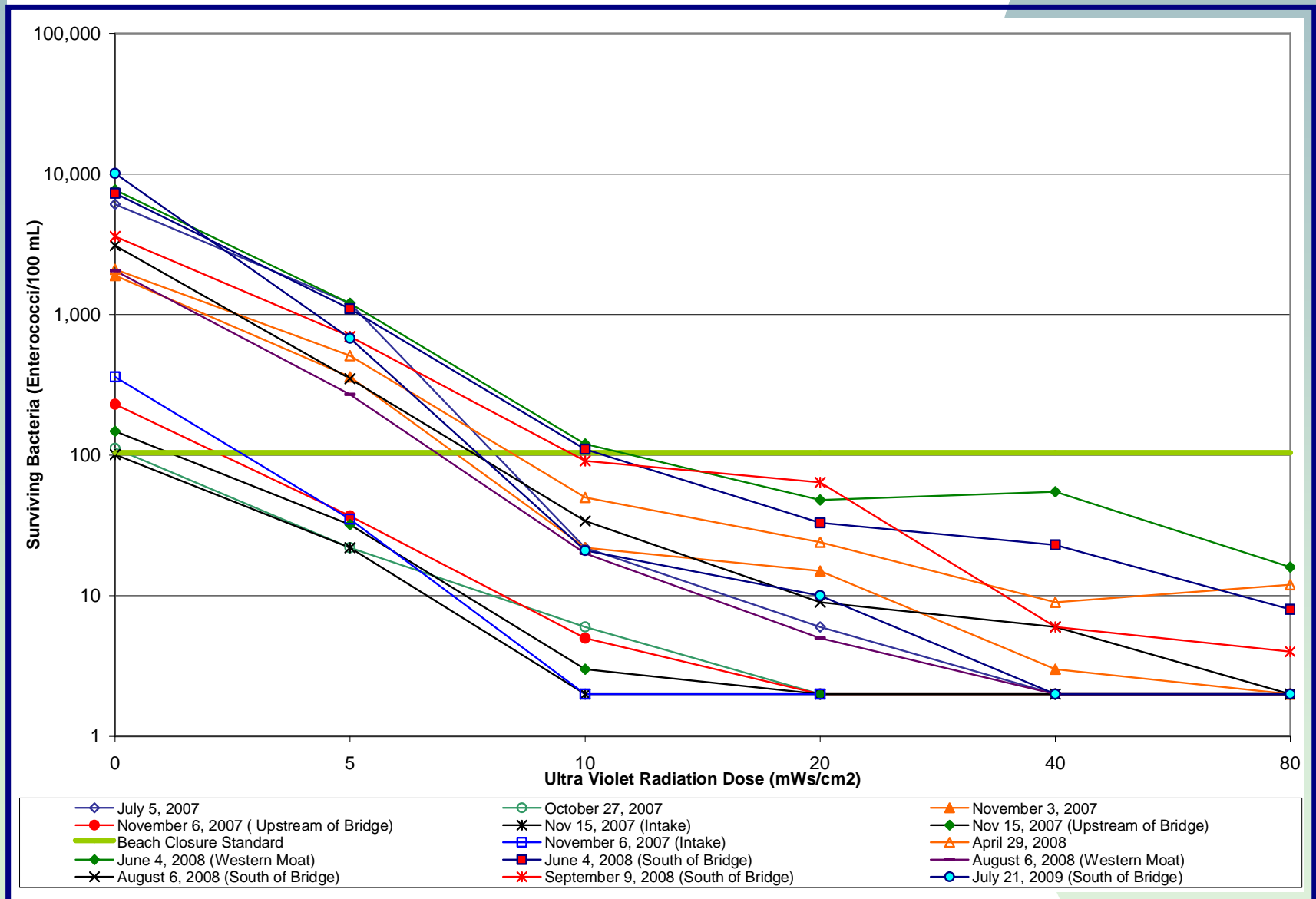
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- **Project Status**
- **Final Design – UV Disinfection**
- **Capital Costs**
- **Operation & Maintenance Costs**
- **Funding**
- **Implementation Schedule**

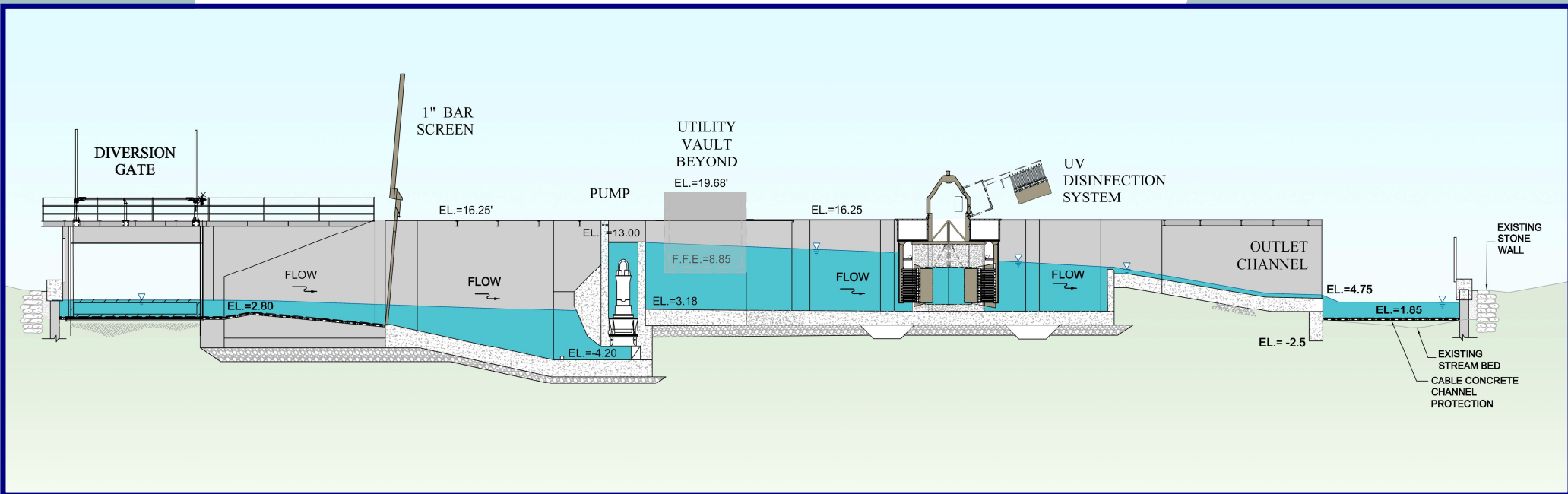
# Project Status

- **April 2007 – Dam and Moat Study Completed**
- **Oct. 2007 – Pilot Study of UV System Completed**
- **Oct. 2008 – Preliminary Design of UV System Completed**
- **April 2009 – Started Final Design of UV System**
- **Fall 2009 – Complete Permitting and Bid Construction**
- **Summer 2010 – Complete Construction**

# Moat Sampling Results

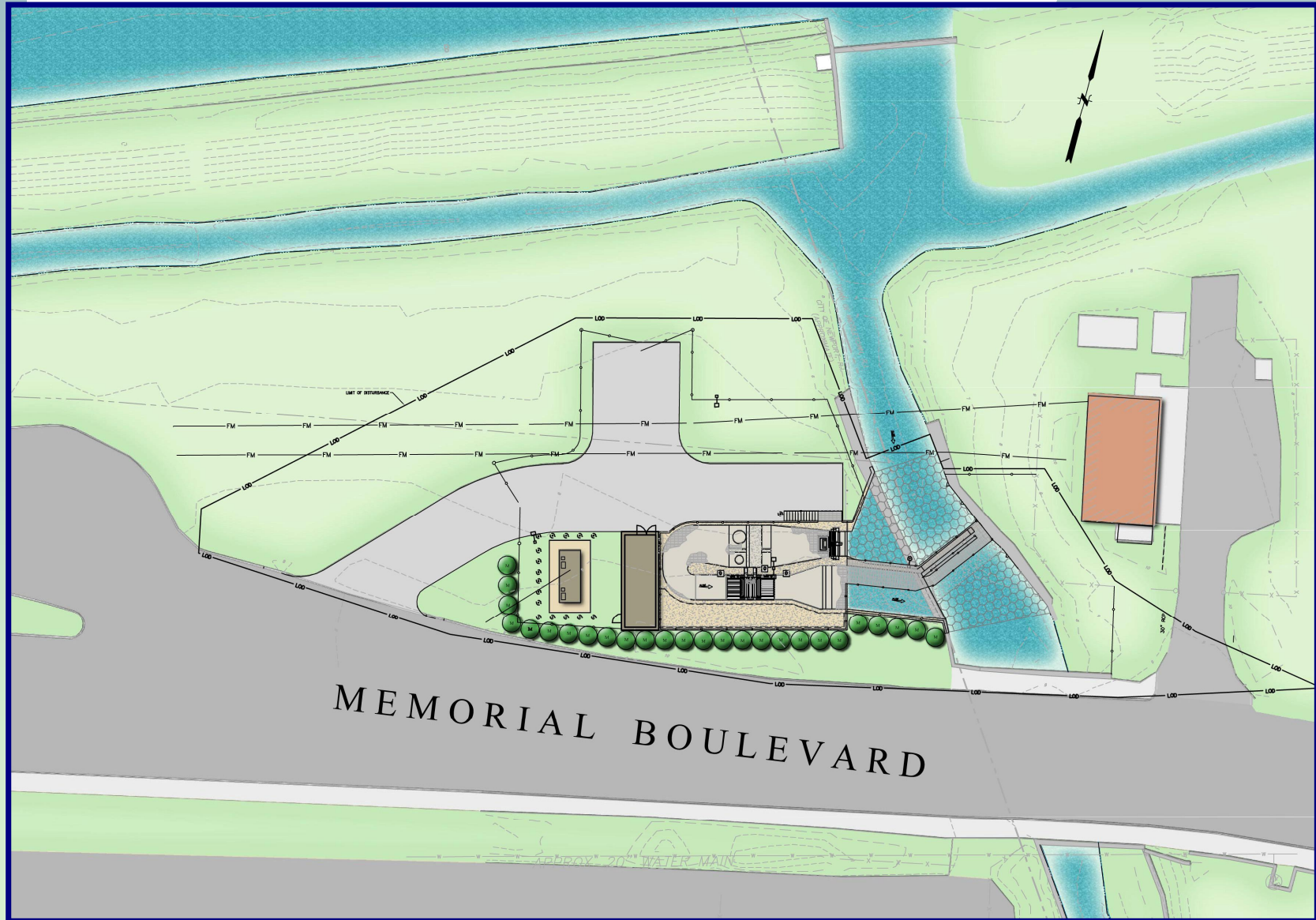


# Process Flow Section

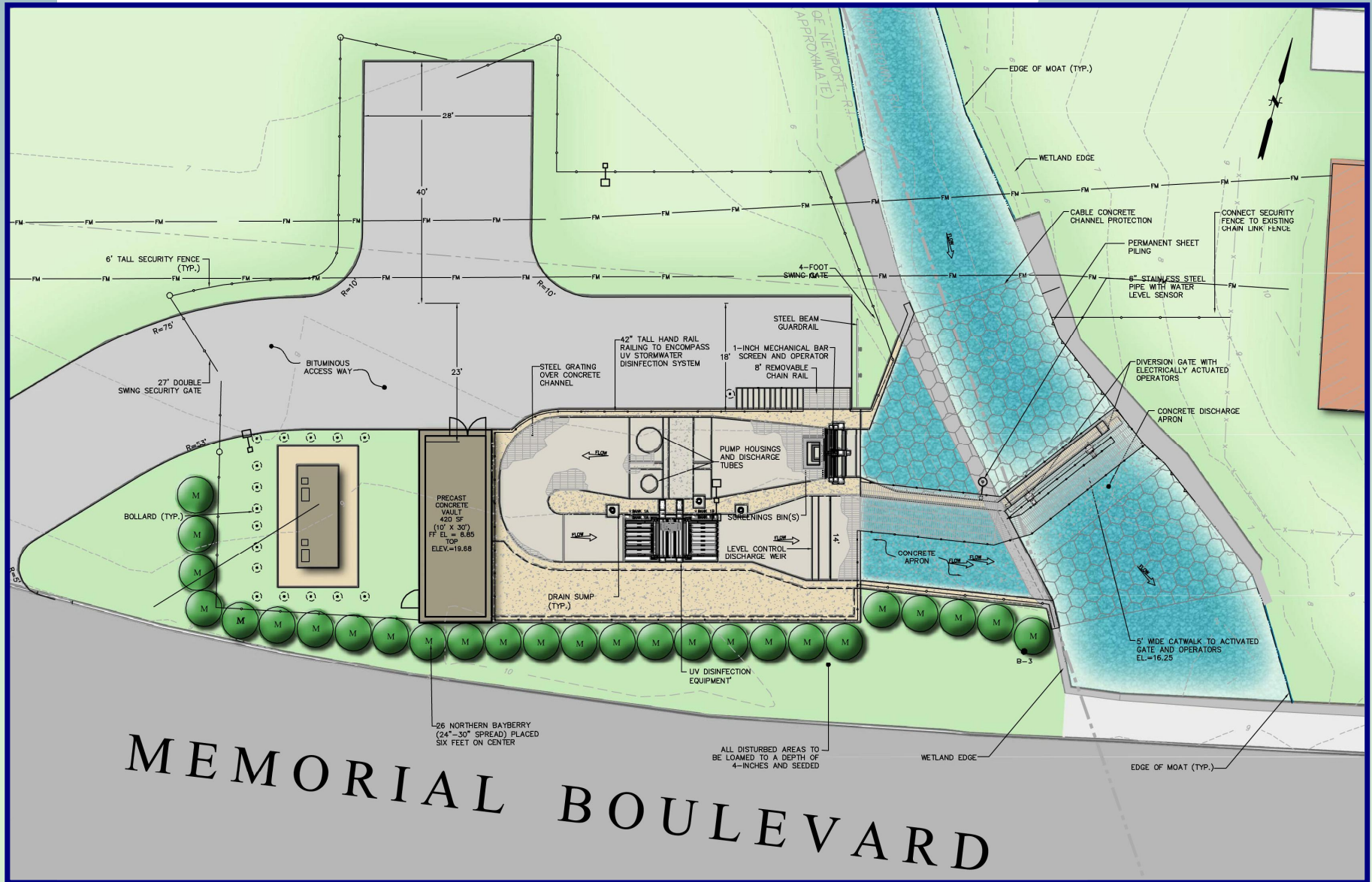


- **Moat Diversion Gate**
- **1" Bar Screen**
- **Pump Station**
- **UV Channel & System**
- **Instrumentation and Controls**
- **Discharge by Gravity back to Moat**

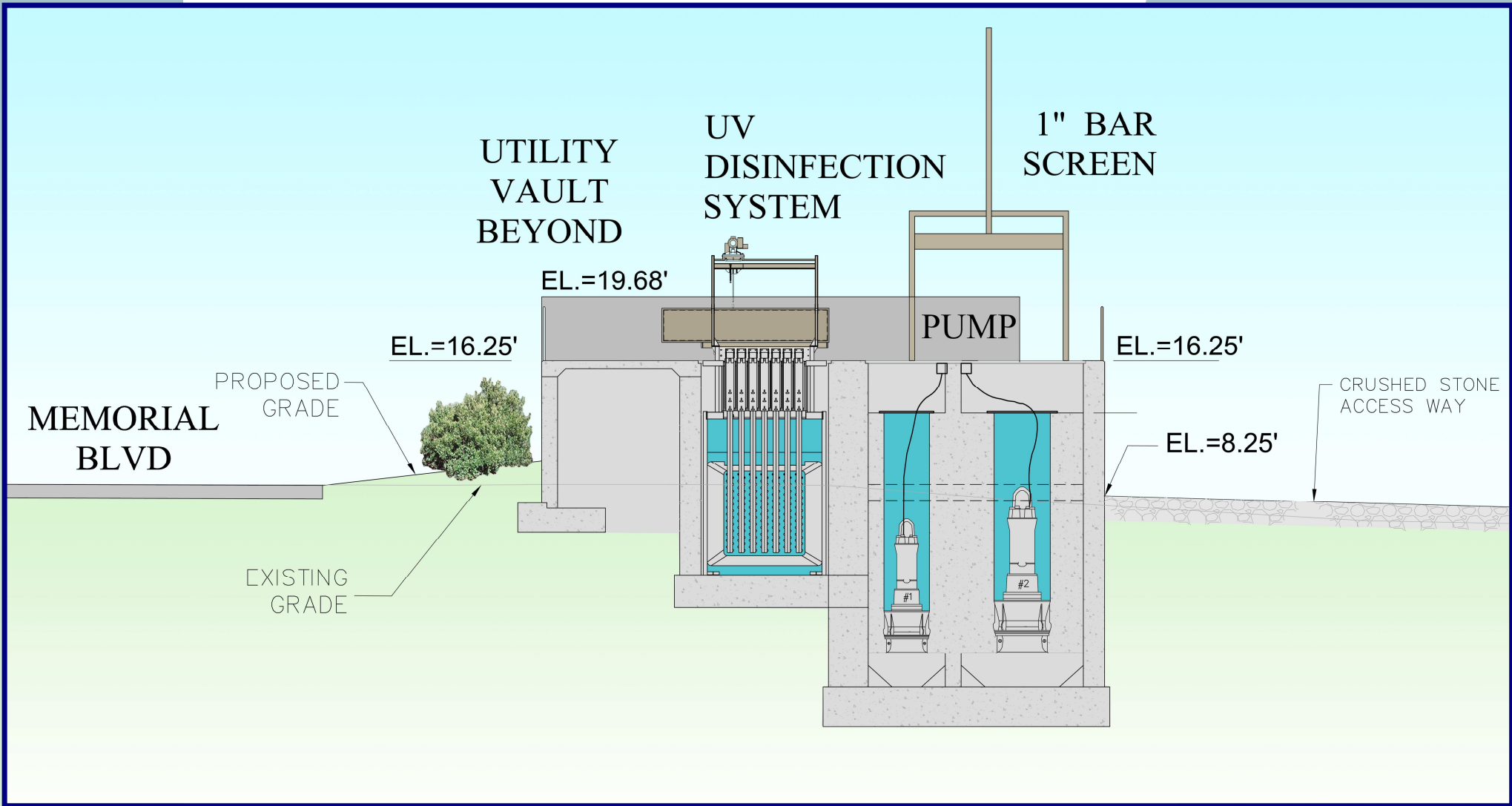
# Site Plan - Overall



# Site Plan

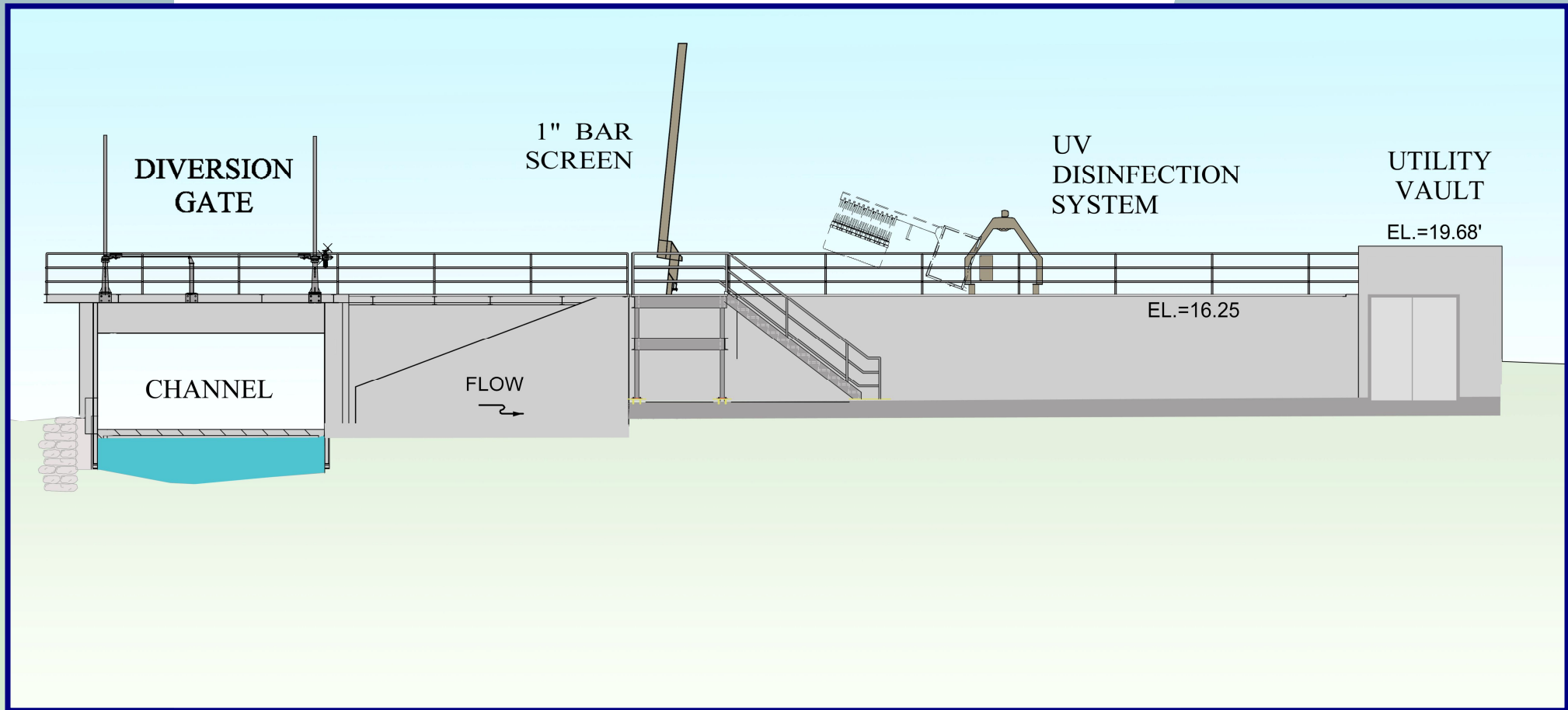


# Cross Section - East

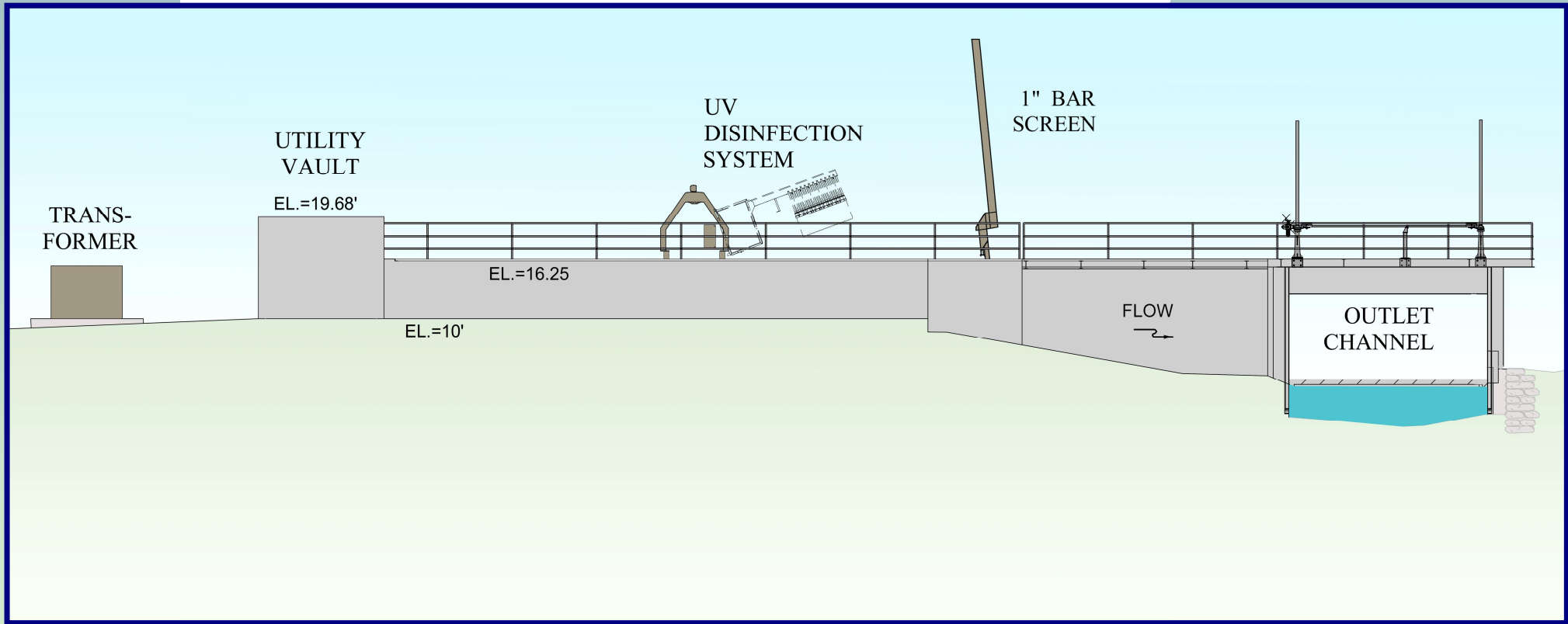




# North Elevation



# South Elevation



# Proposed View from Boulevard

EXISTING



PROPOSED



# Proposed View from Pavilion



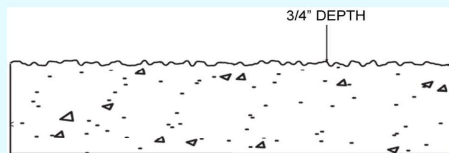
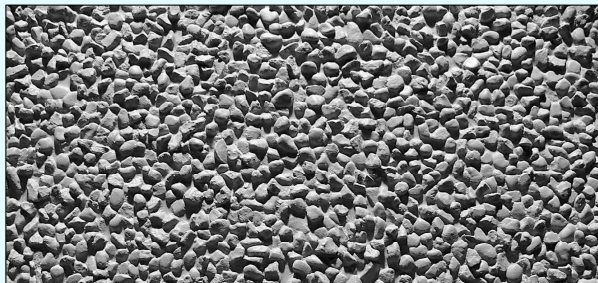
**EXISTING**



**PROPOSED**

# Concrete Wall/Vault Textures

**Texture #T330 Pea Gravel  $\frac{3}{4}$ "**



*Measurements are approximate*



**PEA GRAVEL**

**Pattern #12016 New Brick  
(Keyed)**

Elastomeric/Urethane Formliner



Specifications:

Maximum relief	$\frac{3}{16}$ "
Average relief	$\frac{3}{16}$ "
Liner thickness <small>Includes internal plywood backing</small>	$1 \frac{3}{8}$ "
Brick size	$2 \frac{1}{4}$ " - $7 \frac{5}{8}$ "



**BRICK**

**Pattern #1203 New England Drystack**

Elastomeric/Urethane Formliner



Specifications:

Maximum relief	2"
Average relief	$1 \frac{1}{4}$ "
Liner thickness <small>Includes internal plywood backing</small>	$2 \frac{3}{4}$ "
Stone size	3" - 24"

*Stone sizes approximate*



**STONE**

# Suggested Stone Texture & Planting



# Opinion of Construction Costs

Item	Cost
Controls & Instrumentation	\$201,000
Electrical	\$395,000
Process Equipment	\$2,437,000
Site - Civil	\$420,000
Structural	\$993,000
Misc Construction, Engineering, Support	\$735,000
Contingency @ 4%	\$208,000
<b>Total Project</b>	<b>\$5,389,000</b>

# Opinion of O&M Costs

ITEM	24-hr Event	24-hr Event PLUS 24-hr Base Flow (16.5 cfs)
Power	\$ 62,000	\$ 114,000
Lamp Replacement	\$ 27,000	\$ 55,000
Ballast Replacement	\$ 16,000	\$ 16,000
Labor	\$ 32,000	\$ 59,000
<b>TOTAL</b>	<b>\$ 137,000</b>	<b>\$ 244,000</b>



# Funding

Capital Costs with 4% Contingency	\$ 5,389,000
Earmark through USEPA	- \$ 286,000
RIDEM Grant	<u>- \$2,500,000</u>
Narragansett Bay & Watershed Restoration Bond	
<b>TOTAL NET CAPITAL</b>	<b><u>\$ 2,603,000</u></b>

Note:

Total does not include ARRA funding which may reduce capital costs by another 10 to 13%.

# Middletown/RIDOT Contributions

- **Middletown/RIDOT contribute about 20% of the flow to Moat.**
  - 20% of \$2,603,000 = \$520,600
- **For comparison, Newport Ave. outfall contributes 3.1% of the flow to Moat**
  - 3.1% of \$2,603,000 = \$80,700
  - Compared to \$1,250,000 for proposed constructed wetland for that outfall.

# Next Steps

- **Complete Permitting (October 2009)**
- **Complete Design/Bid Documents (October 2009)**
- **Advertise Bid (October 2009)**
- **Award Bid, Start Construction (December 2009)**
- **Complete Construction (Summer 2010)**