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Session B6- Installation of Denil fishways and eel ladders at brownfield sites

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Installation of Denil Fishways and Eel Ladders at Brownfield Sites



Prepared for:
Fish Passage 2011
June 2011



WOONASQUATTUCKET RIVER
WATERSHED COUNCIL

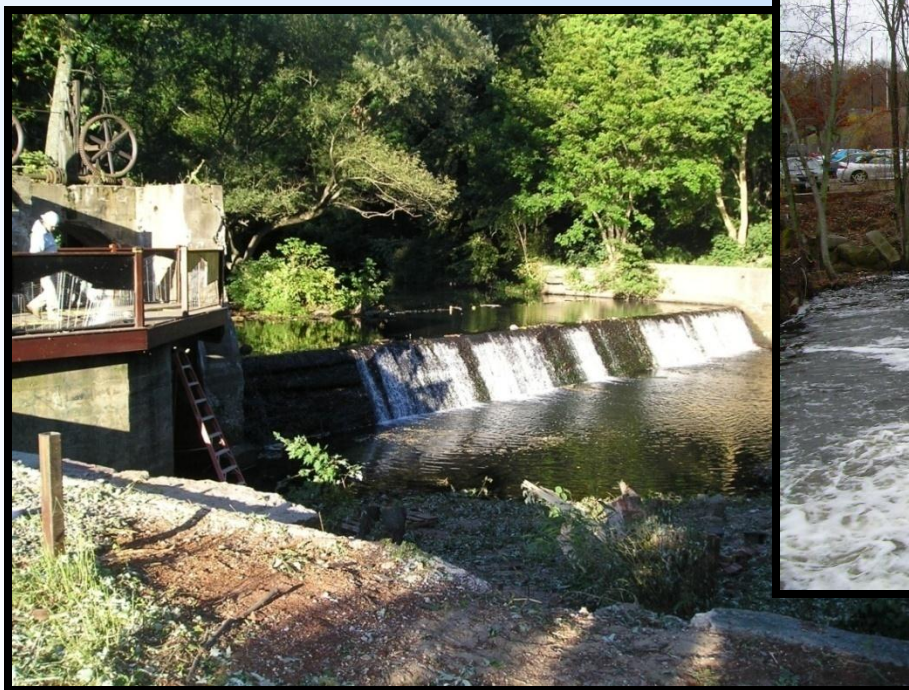
 NRCS Natural Resources
Conservation Service

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Project Partners

*Rising Sun Mills and Atlantic Mills Fishway Projects
Woonasquatucket River Fish Restoration Program
Providence, Rhode Island*

*U.S. Department of Agriculture
Natural Resources Conservation Service (NRCS)*

Rhode Island Department of Environmental Management (RIDEM)

US Fish and Wildlife Service (USFWS)

Other Project Partners:

*Woonasquatucket River Watershed Council
166 Valley Street, LLC (Rising Sun Mills)
City of Providence (Atlantic Mills)
EA Engineering, Science, and Technology, Inc.*

Restoration Objectives

Restore river herring (blueback herring and alewife), American shad, and American Eel to Woonasquatucket River



Woonasquatucket River Fish Restoration Program⁴



Partner Coordination

Rising Sun Mills Development – Condominium and office park (166 Valley Street LLC); as owner, responsible for permit applications and construction contract.

City of Providence – Owner of Atlantic Mills Dam and at Riverside Mills Park; responsible for permit.



NRCS – Responsible for funding design and 75% funding of construction

Woonasquackett River Watershed Council – Responsible for partial funding, watershed coordination, and Construction Contract

Project Overview

Conceptual Design of Denil Fish Ladder by D. Quinn (U.S. Fish and Wildlife Service)

EA Contracted by NRCS for:

- 30% Design – Plan and profile of fishway with all fish passage features defined for U.S. Fish and Wildlife Service review
- 60% Design – Construction details necessary for permitting
- Permit Applications – USACE RI Programmatic General Permit, RIDEM Wetlands Program, and RIDEM Water Quality Certification
- 100% Design Documents – Structural design, construction drawings, specification, bid pricing sheet, and construction cost estimate
- Construction Support – Weekly onsite meetings, review contractor submittals, resolution of design changes, review of fabrication drawings, and progress inspections

Rising Sun Mills Design Considerations

Structural integrity of existing dam and abandoned gate

Spillway discharge capacity and downstream fish bypass

Parking lot storm drain system



Rising Sun Mills Construction Challenges



Construction sequencing

Short construction window

Cold weather

Atlantic Mills Design Considerations

Water control

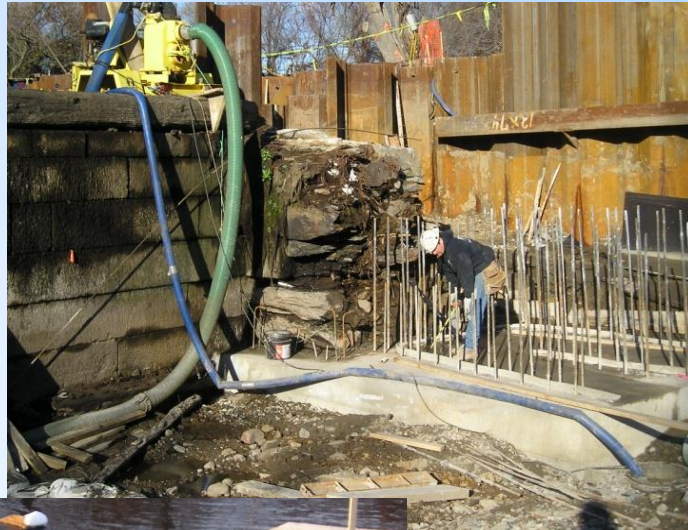
Condition of spillway crest

Active gas line

Unknown dam abutment conditions



Atlantic Mills Design Considerations (continued)



Abutment replacement

Flashboard redesign

Cold weather

Permitting Issues

Dewatering for construction

Water quality

Excavation material disposal



Brownfield Site Issues

Water quality

Excavation material disposal

Maintaining Brownfield cap integrity



Eel Ladders

Added to project after Denil fishway installation complete at both dams

Design integrated with Denil fishways

Solar operated/vandal protection



Lessons Learned

Be prepared for unknowns

Daily communications

Construction schedule



Lessons Learned (continued)

Select qualified contractor



Lessons Learned (continued)

Contractor communications and coordination



Project Status

Rising Sun Mills Denil fishway completed in December 2007

Atlantic Mills Denil fishway completed in January 2009

Eel ladders installed at both dams in summer 2009

RIDEM started monitoring and maintaining fish ladders starting in 2008 at Rising Sun and 2011 at Atlantic Mills (Paragon Dam removed in 2010).



Fish observed at Rising Sun Mills since 2008. Passage of river herring Atlantic Mills expected this year.