



North bank of Ipswich River showing exposed sewer interceptor and eroded bank.

Community Background

The Town of Ipswich is a coastal North Shore community with a population of approximately 4,000. Ipswich is home to over 900 acres of clam beds; Crane Beach a 5-mile barrier beach stretching from the Ipswich River to Essex Bay drawing 250,000 users annually; many businesses. Ipswich is an active participant in the Municipal Vulnerability and Preparedness program, having become an official MVP Community in 2019. During the Ipswich Community Resiliency Building (CRB) Workshop in February 2019 participants overwhelmingly agreed that wastewater infrastructure, in particular the Ipswich River Sewer Interceptor and Siphon, is one of the greatest current concerns and challenges presented by the town’s top hazards.



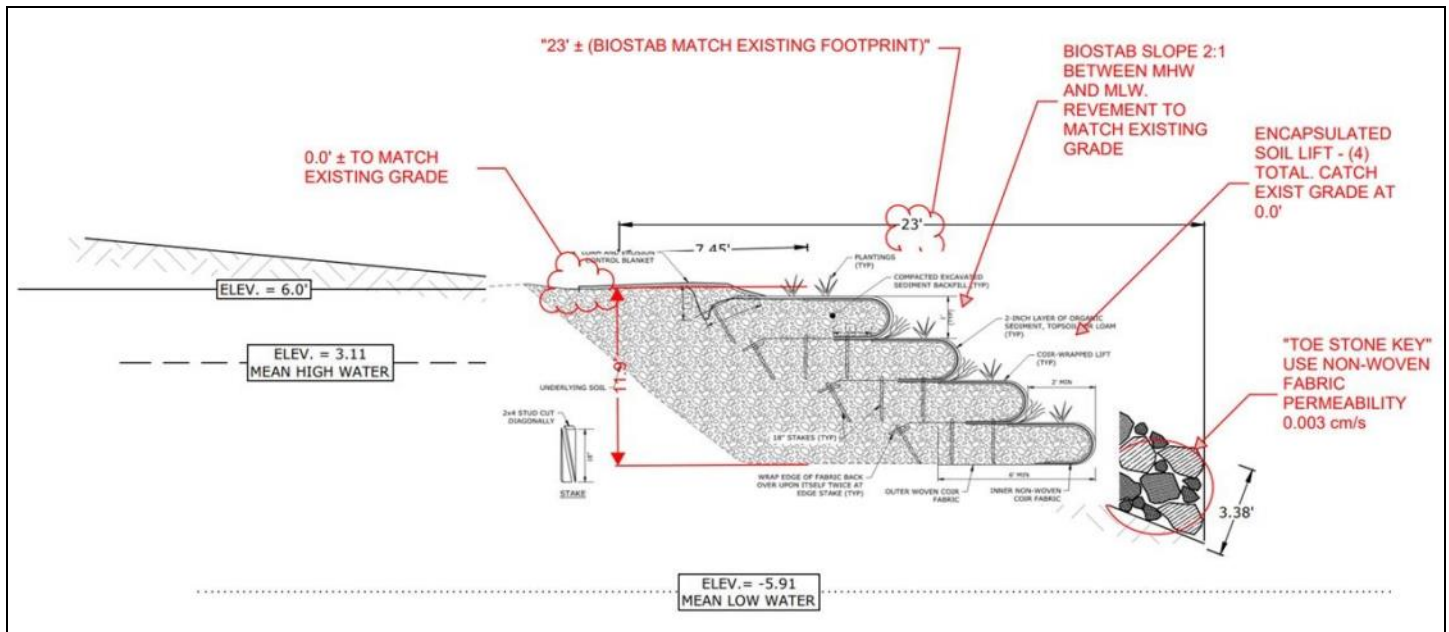
Project Goals

This project will lessen the impacts of climate hazards and build resilience of the Town’s vulnerable wastewater infrastructure and help mitigate the impending hazards identified in the Town’s MVP Plan while achieving natural based solutions, improving water and air quality, and promoting biodiversity.

Project Elements

1. Replacing the existing sewer siphon near the Choate Bridge with a new triple-barrel siphon and installing watertight sewer manhole cover
2. Rehabilitating and physically protecting the sewer interceptor from climate hazards
3. Stabilizing the shoreline through the use of coconut coir wrapped lifts combined with salt tolerant native plantings to reestablish the riparian area and provide habitat while also protecting the critical sewer infrastructure
4. Removal of invasive species and re-vegetation with native plantings, shrubs and

MVP REGION	Northeast
GRANT AWARD	\$117,802.50 (FY22)
MATCH AMOUNT, SOURCE	\$46,710 Town of Ipswich Cash Match; \$8,000 Town of Ipswich In-Kind Services Match
PROJECT TYPE	Construction and On-the-Ground Implementation
CORE VALUES EXEMPLIFIED	Employing Nature-Based Solutions; Achieving Broad and Multiple Community Benefits
OUTCOMES	Biostabilization plan implemented; native habitat created; community feedback incorporated
ADDITIONAL RESOURCES	https://www.ipswichma.gov/930/Ipswich-River-Sewer-Interceptor-Biostabi



forbs that will improve air quality, stabilize the soil and bank, provide habitat, and further enhance the waterway as a scenic community asset.

5. Stabilizing the bank from erosion and protecting the interceptor and siphon with habitat stones to compliment the coir wrap lifts and native plantings will harden the infrastructure and banks against future more intense and frequent storm events, increased river flows and sea level rise in the river.



Erosion Along Bank of Ipswich River. Site of Biostabilization work

Approach

Public & Stakeholder Meetings and Outreach – Public meetings, phone calls, site walks, and hearings were held. Website and Social Media resources provide project updates. Community education materials were provided in Spanish, Greek, and English.

Abutter Outreach - Wastewater Department staff met and corresponded tirelessly with abutters to keep abreast of project progress and to solicit feedback.

Resilient Engineering & Nature Based Approaches – Encapsulated soil lifts: biodegradable blankets filled with soil layered together create natural shorelines.

Project Outcomes

Biostabilization plan implemented nature-based solutions to improve natural systems for community and ecosystem adaptation sources to make a broad impact in the community and protect sewer. **Native plantings** and toe stone create new habitat. **Community feedback and participation** helped

Ipswich River Project

shape project: Design features resultant of community input include: native species planting plan; originally proposed permanent gravel or paved access road (heat sink), replaced with nature-based geofabric supported native grasses permanent access road; revetment stone placement to support marine habitat; resilient manhole covers along sewer system for vulnerable infrastructure to withstand 500-yr storm flood.



Mass ECAN field trip about community engagement, climate adaptation and ecological benefits related to the Ipswich Mill Dam Removal and nearby green infrastructure projects.

Lessons Learned

Communities embrace an attractive, functional, natural-based solution to traditionally hard infrastructure projects. Bio-design for riverbank stabilization and access roads can provide improved functionality while also being a more sustainable, resilient, and aesthetic option than tradition construction methods. It is never too early to engage regulatory and nonregulatory stakeholders. Allow time and budget for additional meetings and submissions.



North side streambank radius with stone toe and native plantings