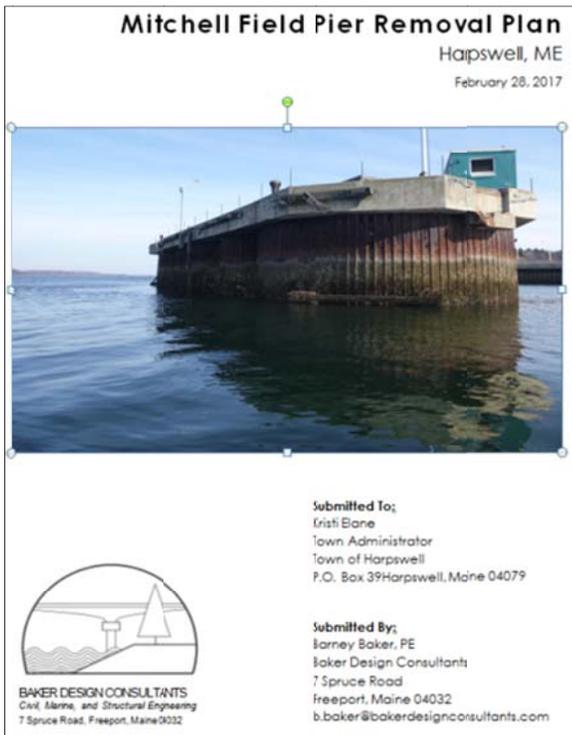


This HANDOUT is intended to provide a summary of the work completed by Baker Design Consultants (BDC) that support the recommended removal plan for the pier at Mitchell Field. A full report with detailed recommendations and costs is available on the Town Website at <http://www.harpswell.maine.gov>.

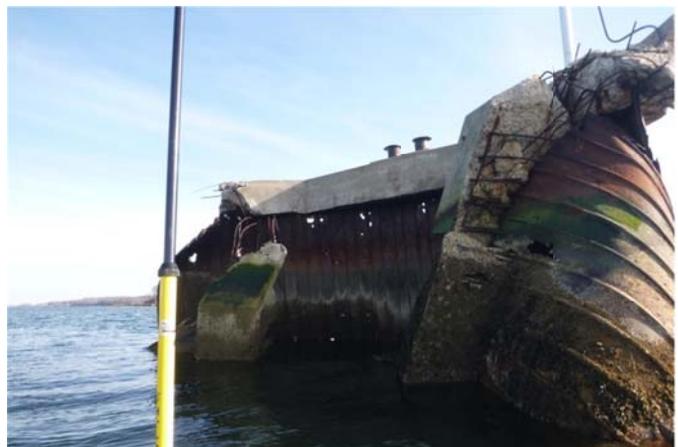


It should be recognized that all elements of the pier are in very poor condition with the exception of the stone armored Causeway. All elements seaward of the causeway (Mooring Dolphins, Breasting Platform, Approach Pier Viaduct and Small Boat Dock) have steel substructure components that are in a very advanced state of corrosion. **The pier is unsafe and has been fenced off by the Town to prevent pedestrian access.** A floatation boom has been placed around it to prevent approach by water. Removal of the pier will allow safe navigation of the area and will open the door to redevelopment of the waterfront at a scale that complements current recreational use and ongoing plans for a multi-use municipal waterfront.

## BRIEF HISTORY

The pier was put into service as a fuel terminal 65 years ago but has not been actively used in the past 25 years. Ownership was transferred to the Town of Harpswell along with the entire Mitchell Field parcel 15 years ago in 2001. In the intervening years, no viable rehabilitation or redevelopment program has emerged for the structure.

Today, the pier is a rapidly deteriorating relic of the past that serves no function or purpose. The window of opportunity for a controlled demolition of the pier is also rapidly closing. As elements of the structure deteriorate and collapse (North Dolphin-2012, Pump House-2015), the cost of demolition and removal rises.



## DEMOLITION PROGRAM CONSIDERATIONS

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The key parameters that drive the pier demolition program cost and timeframe are regulatory considerations, handling of demolition materials, opportunities for material recycling and the use of upland property at Mitchell Field to support the work activity.



**To satisfy regulatory authorities, the demolition program includes removal of all pier elements to the seabed with upland disposal.** In-water disposal of pier materials is not considered a viable option.

Because Mitchell Field has the space on shore to stockpile, process and separate demolition materials, recycling is possible and makes the project more economically viable for Contractors that bid on this work. Steel sheets, piling and reinforcement can be collected and delivered to scrap merchants. Concrete and stone ballast can be crushed and graded to provide granular material for other projects. **Barging materials to an offsite handling facility adds significant cost to the project.**

The speed at which the pier will be dismantled is determined by the rate of pier demolition by barge equipment and construction dive teams. The estimated timeframe for demolition is 10 to 15 months. The rate of activity on shore can proceed at a much faster pace. Therefore it is possible to limit some activities in the Laydown Area to winter months so as not to conflict with other activities on site.

## OPTIONS CONSIDERED

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**DO NOTHING** -The Do Nothing option leaves the pier to deteriorate. Eventually the substructure will fail and the structure will end up in a tangled mass on the seabed. In a collapsed state it will be more costly to remove. It is also likely that the regulatory authorities will require removal because of the hazard to safe navigation and the additional footprint of pier materials spewed across the seabed.

### ***OPTION B –ON SITE TRANSFER OF DEMOLITION MATERIAL***

**This is the recommended Option** with consideration of the key parameters that drive the pier demolition program. In this option, barges loaded with demolition materials are unloaded using a landside crane positioned at the end of the causeway. This allows pier demolition using crane mounted barges to proceed uninterrupted.

Once the demolition materials are transferred ashore, they are stockpiled in the Laydown Area behind the ADMIN Building for separation and processing before being trucked off site. **A temporary road is proposed with a direct connection to the Causeway that bypasses the beach area to separate the construction activity from this area.**

### ***OPTION C –Barging Demolition Material to an Offsite Transfer Facility***

All material with the exception of timber and steel components that can be transferred directly to waiting trucks or placed in a dumpster will be barged to an offsite location. This option minimizes any upland disturbance on the Mitchell Field site but adds the costs of barging the demolition materials to another site where they can be transferred ashore and processed.

The added costs to the project are considerable. A current pier demolition project in Cutler Maine is transferring all demolition materials to a facility in Rockland, adding an estimated \$2 Million to the project cost and several months to the project timetable.

### ***OPTION D -CREATION OF AN ARTIFICIAL REEF AT THE PIER SITE***

There are significant regulatory hurdles associated with the placement of any fill material on the seabed. No precedent could be found for artificial reef construction in Maine waters. Regulatory authorities have been contacted. This option is not possible or at best would have so many restrictions that it would not be economically feasible

The TABLE that follows provides a summary of the options for pier removal considered and the evaluation parameters. The recommended option is shaded.

Evaluation Parameter	Demolition Programs Considered			
	OPTION A	OPTION B	OPTION C	OPTION D
	DO NOTHING	ONSITE TRANSFER of demolition material	BARGING demolition material OFFSITE	ARTIFICIAL REEF from demolition material
<b>Cost</b>	MINIMUM Direct Costs (Security, Monitoring). HIDDEN costs reduce desirability of onsite Business Development.	MEDIUM DISPOSAL COST. Maintains all activity on site.	HIGH DISPOSAL COST of Barging demolition material to offsite upland location. Reduces number of Contractors able to bid on the project.	Potential LOW to MEDIUM DISPOSAL COST depends on regulatory permission to leave inert demolition materials on the seabed.
<b>Construction Window</b>	Not Applicable	10 to 15 months	15 to 20 months	6 to 9 months
<b>Regulatory Issues</b>	No apparent regulatory requirement to remove. Abandonment does not reduce Town liability.	MINIMAL Precedent set by MF Pumphouse removal and similar project in Cutler.	MINIMAL Precedent set by MF Pumphouse removal and similar project in Cutler.	EXTENSIVE permitting required with no guarantee of success.
<b>Construction Timing</b>	Removal cost increase with continued deterioration and collapse	Project requires 3 months for permitting final design and competitive Bid once funding is secured	Project requires 3 months for permitting final design and competitive Bid once funding is secured	Permitting could delay project 1- 2 years
<b>Onshore Construction</b>	No Direct Upland Impact	Onsite Crane & Truck Traffic to remove timber, reinforced concrete and steel components.	Onsite Crane & Truck traffic to remove Small Boat Dock. Limited truck traffic.	Onsite Crane & Truck traffic to remove and process timber, reinforced concrete and steel components.
<b>Neighborhood Impacts</b>	Long-term Visual Impact of Derelict Waterfront	Short-term NOISE associated with pier demolition and onsite material processing.	Short-term NOISE associated with pier demolition with limited upland activity.	Short-term NOISE associated with pier demolition and onsite material processing.
<b>Onsite Upland Space Requirements</b>	No Laydown Area Required	ADD designated area and access road in Lower Field for material handling and processing.	Limited material handling near Causeway approach using commercial dumpsters,	Area required for Contractor parking, trailer, portable toilets and service equipment near Causeway approach.
<b>Future Waterfront Development Opportunities</b>	Restricted by liability of activity in vicinity of pier.	Removal of existing pier opens area for boat ramp, municipal landing, mooring field, etc.	Removal of existing pier opens area for boat ramp, municipal landing, mooring field, etc.	Reef would reduce water depth for large commercial vessels/ships.
<b>Secondary Benefits</b>	Minimum Capital Expenditure	-Visual Impact Improved -Boat Ramp Material -Beach Bypass Route -Drainage Improvements	-Visual Impact Improved	-Visual Impact Improved



COST BENEFIT SUMMARY

- The work clears the Mitchell Field waterfront of all functionally obsolete obstructions that are in poor condition. This includes the Mooring Dolphins, Breasting Platform, Approach Pier and Small Boat Dock only. The Causeway is left intact to support future access to deep water.
- The demolition program includes removal of pier elements to the seabed with upland disposal as supported by state and federal regulatory agencies.
- Demolition materials are to be transferred ashore at Mitchell Field instead of barged to an offsite location. In this way, handling and transportation costs are kept to a minimum and the opportunity for material recycling and reuse are greatest.
- A Laydown Area on site for stockpiling and processing materials has been configured with a new direct road connector to Causeway construction that segregates the project from other activities at Mitchell Field.

CONSTRUCTION COMPARISON COSTS BY OPTION		OPTION A	OPTION B	OPTION C
		DO NOTHING	ONSITE TRANSFER of demolition material	BARGING demolition material OFFSITE
<b>MOBILIZATION/GENERAL ITEMS</b>			\$ 562,000	\$ 562,000
<b>Step I -DEMOLITION OF PIER</b> with Barge Mounted Equipment				
	Dismantle BREASTING & MOORING PLATFORMS Place material on barge		\$ 1,873,475	\$ 1,873,475
	Dismantle VIADUCT (Approach Pier) Place material on barge		\$ 651,441	\$ 651,441
<b>Step II -Transfer of Material to shore using Crane on Causeway</b>		Town has historically stabilized or removed pier sections after collapse occurs.		
	Site Preparation and Cleanup		\$ 145,000	\$ 145,000
	Transfer material from Barge to Haul Truck on Causeway		\$ 568,331	\$ 568,331
	Dismantle SMALL BOAT DOCK Direct transfer to truck on Causeway		\$ 176,970	\$ 176,970
<b>Step III -PROCESSING MATERIAL ON SHORE</b> and Transfer to a Recycling Facility			\$ 488,261	\$ 488,261
<b>Step IV -ADDED BARGE HAUL Material Offsite</b> (48hr Turnaround - 24hr Load/Unload, 24hr Steaming)			\$ -	\$ 1,993,346
	2019 Construction Subtotal		\$ 4,465,478	\$ 6,458,824
	Engineering and Contingencies	Unknown	\$ 401,893	\$ 598,728
	Project Total		\$ 4,867,371	\$ 7,057,551

HOW SOON COULD THIS HAPPEN

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March 2017	Town Approval
April 2017 to May 2017	Demolition Program Construction Documents
May 2017 to June 2017	Project Permitting
July 2017	Project Bid
August 2017	Construction Contract Award
October 2017	Onsite Construction Startup
December 2018	Onsite Construction Completion (Option B)
April 2019	Onsite Construction Completion (Add for Option C)