

12 NORTH MAIN STREET STABILIZATION OPTIONS
Former Abbot Worsted Company Mill

OPTIONS	1	2	3	4
	DEMOLITION + SITE CLEARING	MINIMAL STABILIZATION	PARTIAL DECONSTRUCTION + BASIC STABILIZATION	COMPREHENSIVE STABILIZATION + RESILIENCY UPGRADE
<p>Summary of Work:</p>  <p>Demolish and remove entire building complex, including floor slabs, foundations and footings. Demolish smokestack. Fill subterranean pits flush with grade with crushed stone and clean gravel fill.</p>	<p>Demolish and remove entire building complex, including floor slabs, foundations and footings. Demolish smokestack. Fill subterranean pits flush with grade with crushed stone and clean gravel fill.</p>	<p>Provide temporary timber and/or steel shoring and bracing to stabilize extant floor beams and cantilevered masonry wall segments, throughout. Maintain tarps at vulnerable (e.g., upward-facing rubble stone) masonry areas. Deeply cut and point most eroded and loosened masonry to prevent further damage or collapse; inject cracks with hydraulic lime grout; install crack monitor gauges. Provide temporary PVC roof drains as required.</p>	<p>Deconstruct and remove all timber floor framing and decking and designated masonry wall segments at main mill block and other badly-deteriorated areas. Brace and shore existing framing and masonry as required at south ell, bell tower and north wing. Rebuild loosened and/or collapsed masonry; deeply cut and point most eroded mortar joints to prevent further damage while re-setting loose stones; inject cracks with hydraulic lime grout; install crack monitor gauges. Provide metal cap flashing at all vulnerable (e.g., upward-facing) masonry areas.</p>	<p>Deconstruct and remove all timber floor framing and decking and designated masonry wall segments at main mill block and other badly-deteriorated areas. Repair/reset/rebuild deeply eroded stone masonry areas. Rebuild loosened and/or collapsed masonry, deeply cut and point most eroded mortar joints to prevent further damage while re-setting loose stones, conventionally cut and point remaining masonry and inject cracks with hydraulic lime grout. Erect wood- and/or steel-framed canopies to protect exposed masonry; integrate shade shelters, pergolas and/or viewing platforms as applicable.</p>
Estimated Construction Time	2 months	4 months	4 months	6 months

ASTM Uniformat II Level 2 Group Elements		Scope/Work/Bid Item Description				
A10 Foundations	A10.1	Standard Foundations -	[In F20: Demolish to flush grade condition.]	Provide new bearing pads for shoring and bracing.	Provide new footings and foundations for shoring and bracing.	Provide new footings and foundations for new structures and bracing and public amenities.
		Estimated cost:	\$0	\$50,655	\$75,983	\$88,646
	A10.2	Special Foundations - Penstock, Tailrace, etc.	[In F20: Remove all equipment and debris.]	Remove debris.	Remove debris. Frame new pressure-treated wood floor deck above pits.	Remove debris. Document and remove selected equipment. Treat concrete pit floors and sides with crystalline waterproofing compound, to prep surfaces for new hydropower project.
		Estimated cost:	\$0	\$7,500	\$15,000	\$25,000
A20 Basement Construction	A20.2	Basement Walls -	[In F20: Demolish freestanding basement walls, complete. Retain and bury basement/retaining walls at uphill sides.]	Brace and shore existing masonry walls as required. [In B20: Tuckpoint major and minor cracks with soft, sacrificial mortar and inject cracks with hydraulic lime grout; install crack monitor gauges.]	Brace and shore existing masonry walls as required. [In B20: Repoint eroded mortar joints as applicable; tuckpoint minor cracks with soft, sacrificial mortar; install crack monitor gauges; rebuild badly-deteriorated stonework; injection-grout and/or replace friable mortar.]	Brace and shore existing framing and masonry as required. [In B20: Repoint eroded mortar joints as applicable; tuckpoint minor cracks with soft, sacrificial mortar; install crack monitor gauges; rebuild badly-deteriorated stonework; injection-grout and/or replace friable mortar.]
		Estimated cost:	\$0	\$78,750	\$91,875	\$287,500

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B10 Superstructure	B10.1	Floor Construction - Extant Heavy-Timber Beams and Tongue-and-Groove Floor Decking	[In F20: Demolish floor construction, complete.]	Remove all deteriorated and/or structurally compromised timber floor assemblies (main mill block). Provide temporary shoring at floor. to remain at south ell.	Remove all deteriorated and/or structurally compromised timber floor assemblies (main mill block).	Remove all deteriorated and/or structurally compromised timber floor assemblies. Provide new floor assembly at south ell, complete; patch, repair and reinforce existing floor assemblies at north wing and bell tower, complete.
		Estimated cost:	\$0	\$45,006	\$29,862	\$147,292
	B10.2	Roof Construction -	[In F20: Demolish roof construction, complete.]	"Sister" extant but damaged roof framing members as required at south ell, belfry roof and north wing.	"Sister" extant but damaged roof framing members as required at south ell, belfry roof and north wing.	"Sister" extant but damaged roof framing members as required at south ell, belfry roof and north wing.
		Estimated cost:	\$0	\$22,295	\$22,295	\$22,295
	B10.3	Belfry - Architectural Millwork; Roofing and Flashing; Bell Assembly	Salvage historic bell and iron cresting and transport to Town of Westford Historical Society or storage facility. Demolish roof and wooden frame.	n/a	Provide new EPDM membrane roofing system at tower flat roof and asphalt shingle roofing assembly at mansard roof (4 sides). Prep and paint existing millwork and iron cresting "as-is."	Restore belfry architectural millwork in-kind; provide new trim, etc. to match missing components; prep and paint old and new wood. [See B30.1 for new roofing.]
	Estimated cost:	\$15,000	\$0	\$24,895	\$30,000	
B10.4	Smokestack	[In F20: Remove smokestack, complete: allow 1,700 sf/ 2,500 cf masonry demo.]	Deeply cut and point most eroded and loosened masonry to prevent further damage or collapse. Allow 375 sf deep repointing.	Reset loose bricks at upper courses; deeply cut and point most eroded mortar joints. Allow 35 sf / 47 cf rebuilding. Allow 800 sf deep repointing.	Reset loose bricks at upper courses; deeply cut and point most eroded mortar joints and conventionally cut and point remaining masonry. Allow 35 sf / 47 cf rebuilding. Allow 800 sf deep repointing. Allow 800 sf repointing.	
	Estimated cost:	\$0	\$9,375	\$21,925	\$39,525	
B10.5	Special Construction - Steel Overhead Rolling Crane Structure (Basement Level)	[In F20: Remove steel rolling crane assembly, complete.]	Inspect/assess steel structure and provide repairs as required. Use steel structure as part of temporary shoring, as applicable.	Inspect/assess steel structure and provide repairs as required. Use steel structure as part of temporary shoring, as applicable.	Inspect/assess steel structure; repair as needed and repurpose as <u>public viewing platform</u> as applicable.	
	Estimated cost:	\$0	\$16,800	\$16,800	\$140,000	

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B20 Exterior Enclosure	B20.1.1	Stone Masonry Bearing Walls - Supported	[In F20: Remove all stone masonry walls: allow 21,230 sf / 42,500 cf masonry demo.]	Deeply cut and point most eroded and loosened masonry to prevent further damage or collapse, inject cracks with hydraulic lime grout; install crack monitor gauges. Allow 7,200 sf deep repointing. Allow 150 lf crack injection.	Rebuild loosened and/or collapsed masonry, deeply cut and point most eroded mortar joints to prevent further damage while re-setting loose stones, inject cracks with hydraulic lime grout; install crack monitor gauges. Allow 650 sf/cf rebuilding. Allow 850 sf deep repointing. Allow 130 lf crack injection. Allow 700 sf / 1,400 cf masonry demolition.	Rebuild loosened and/or collapsed masonry, deeply cut and point most eroded mortar joints to prevent further damage while re-setting loose stones, conventionally cut and point remaining masonry, inject cracks with hydraulic lime grout. Allow 500 sf/cf rebuilding. Allow 4,600 sf deep repointing. Allow 6,300 sf repointing. Allow 150 lf crack injection. Allow 3,100 sf / 6,200 cf masonry demolition.
		Estimated cost:	\$0	\$183,000	\$94,600	\$426,500
	B20.1.2	Stone Masonry Bearing Walls - Cantilevered/ and/or Unsupported	[In F20: Remove all stone masonry walls: allow 3,150 sf / 6,500 cf masonry demo.]	Deeply cut and point most eroded and loosened masonry to prevent further damage or collapse, inject cracks with hydraulic lime grout; install crack monitor gauges. Allow 2,600 sf deep repointing.	Rebuild loosened and/or collapsed masonry; deeply cut and point most eroded mortar joints to prevent further damage while re-setting loose stones, inject cracks with hydraulic lime grout; install crack monitor gauges. Allow 1,600 sf/cf rebuilding. Allow 5,700 sf deep repointing. Allow 3,800 sf / 7,600 cf masonry demolition.	Rebuild loosened and/or collapsed masonry; deeply cut and point most eroded mortar joints to prevent further damage while re-setting loose stones, conventionally cut and point remaining masonry and inject cracks with hydraulic lime grout. Allow 400 sf/cf rebuilding. Allow 350 sf deep repointing. Allow 7,500 sf repointing. Allow 3,800 sf / 7,600 cf masonry demolition.
		Estimated cost:	\$0	\$65,000	\$420,500	\$370,750
	B20.2	Exterior Doors - Extant Single-leaf Doors and Overhead Doors	[In F20: Remove all doors.]	n/a	n/a	Replace and/or reconstruct selected doors.
		Estimated cost:	\$0	\$0	\$0	\$5,000
	B20.3.1	Masonry Window Openings	n/a	Shore-up failed stone masonry window surrounds; allow 12 openings.	Repair and repoint designated splayed stone masonry window surrounds; allow 24 openings.	Repair and repoint all splayed stone masonry window surrounds to remain.
		Estimated cost:	\$0	\$6,000	\$12,000	\$75,000
	B20.3.2	Extant Wood Double-hung Window Assemblies.	n/a	At selected window openings, open operable windows part way; provide plywood boarding assemblies with drilled-hole vents; allow 36 openings.	At all exterior window openings, open operable windows part way; provide plywood boarding assemblies with prefab louver vents.	Remove all intact windows and store in secure area on site. At all exterior window openings, provide plywood boarding assemblies and prefab louver vents.
		Estimated cost:	\$0	\$5,760	\$41,280	\$45,780

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B30 Roofing	B30.1	Roof Coverings: Built-up tar roofing.	[In F20: Remove all roofing, complete.]	Patch holes in existing roofing with self adhesive membrane, as required; allow 250 sf.	Provide single-ply, fully-adhered membrane roofing/flashing system at north wing, complete.	Provide single-ply, fully-adhered membrane roofing/flashing system (including fascia, drip edges, scuppers, etc.) at south ell and north wing, complete. - Provide new membrane roofing system (rigid underlayment, adhered membrane, flashing) at belfry low (cornice) roof. - At belfry tower roof, provide new "lifetime" architectural asphalt shingle roof and associated underlayment and flashing, complete.
		Estimated cost:	\$0	\$2,500	\$70,900	\$113,480
C10 Interior Construction	C10.1		[In F20: Remove all interior construction, complete.]	n/a	n/a	[In F20: Demolish interior construction throughout.]
		Estimated cost:	\$0	\$0	\$0	\$0
D50 Electrical	D50.2 D50.3	Lighting and Power; Communications and Security	[In F20: Remove all electrical wiring, equipment and devices, complete.]	Provide temporary power feed and panel board for temporary lighting and power.	Provide power feed (overhead from existing poles) and panel board for temporary lighting and power.	Provide semi-permanent power feed and panel board for security lighting and power. Provide fire detection and alarm system, where appropriate and practicable.
		Estimated cost:	\$0	\$10,000	\$10,000	\$160,638
F20 Selective Building Demolition (or Full Demolition)	F20.1	Building Elements Demolition: Selective or full demolition of interior and/or exterior elements, as noted.	Demolish entire complex, including smokestack, stone and brick masonry walls, doors, windows, timber roof and floor framing, steel crane structures, piping, wiring, fixtures, equipment, furnishings, finish materials, column and perimeter wall footings and basement floor slabs. Fill penstock and other pits with crushed stone and clean, compacted gravel.	Remove all deteriorated and/or structurally compromised timber roof assemblies, complete; retain interior non-load-bearing partitions, furnishings, etc.	Remove all deteriorated and/or structurally compromised timber roof assemblies, complete. Remove all interior non-load-bearing partitions, furred-out GWB walls, carpeting, tile, suspended acoustic tile assemblies and furnishings, complete.	Remove all deteriorated and/or structurally compromised timber roof assemblies, complete. Remove built-up roofing and underlayments at south ell and north wing. Remove all interior non-load-bearing partitions, furred-out GWB walls, carpeting, tile, suspended acoustic tile assemblies and furnishings, complete.
		Estimated cost:	\$801,507	\$2,163	\$69,703	\$76,914

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	F20.2	Hazardous Component Abatement: Abate and remove asbestos, lead-based paint, sludge, animal waste and microbial growth previously concealed or inaccessible and not removed during the Phase I Abatement program. Estimated cost:	Concurrent with demolition and site clearing, abate previously concealed and/or inaccessible hazardous materials in accordance with all applicable Federal, state and local regulations. Allow... \$25,000	Concurrent with required selective demolition, abate previously concealed and/or inaccessible hazardous materials in accordance with all applicable Federal, state and local regulations. \$25,000	Concurrent with required selective demolition, abate previously concealed and/or inaccessible hazardous materials in accordance with all applicable Federal, state and local regulations. \$25,000	Concurrent with selective demolition, abate previously concealed and/or inaccessible hazardous materials in accordance with all applicable Federal, state and local regulations. Remove and/or encapsulate components coated with lead-bearing paint, in accordance with OSHA and all applicable regulations. \$35,000	
G10 Site Preparation	G10.1	Site Clearing Estimated cost:	Clear and remove all vegetation throughout work area. \$10,000	Clear and remove any new vegetation, and/or any areas excluded from Phase I scope, within work area. \$10,000	Clear and remove any new vegetation, and/or any areas excluded from Phase I scope, within work area. \$10,000	Clear and remove any new vegetation, and/or any areas excluded from Phase I scope, within work area. \$10,000	
	G10.3	Site Earthwork Estimated cost:	Fill voids; leave site good and level (restore naturally sloping grade) throughout limit of work. \$15,000	Minor re-grading at north elevation and northeast corner to mitigate site drainage issues. \$12,500	Minor re-grading at north elevation and northeast corner to mitigate site drainage issues. \$12,500	Regrade as needed to accommodate interim adaptive use as public open space \$20,000	
G20 Site Improvements	G20.3 G20.4 G20.5	Paving; Site Development Landscaping Estimated cost:	n/a \$0	n/a \$0	n/a \$0	Reconstruct deteriorated stone and concrete retaining walls designated to remain. Provide asphalt walkways to and through stabilized site. \$25,000	
			DEMOLITION + SITE CLEARING	MINIMAL STABILIZATION	PARTIAL DECONSTRUCTION + BASIC STABILIZATION	COMPREHENSIVE STABILIZATION + RESILIENCY UPGRADE	
Cost of Work - Unburdened			\$866,510	\$552,300	\$1,065,120	\$2,144,320	
25%	Design Contingency @ 25%		\$216,630	\$138,080	\$266,280	\$536,080	
35%	General Reqts. / Bond / Permits / OH&P, CMP, etc. @ 35%		\$379,100	\$241,630	\$465,990	\$938,140	
Compliance Mitigation (Hazmat, Environmental Monitoring)			\$5,000	\$5,000	\$5,000	\$10,000	
TOTAL			\$1,467,240	\$937,010	\$1,802,390	\$3,628,540	
			\$/sf	\$43.83	\$27.99	\$53.84	\$108.40