APPENDIX C: PROPOSED WORK CHECKLIST

The Proposed Work Checklist is intended to help applicants determine what tasks to include in the funding request to DER. The tasks listed comprise a typical culvert replacement project scope and are arranged in general project order. Applicants are not bound to the tasks/activities listed on the Proposed Work Checklist for the funding request but should consider including tasks that may have been omitted from the project's previous work history.

PROPOSED WORK CHECKLIST			
FIELD DATA COLLECTION			
PROJECT STATUS			**TASK**
Proposed	**Complete**	**Not Applicable**	
			Wetland Resources Delineation: *A wetland resource area delineated and flagged by a qualified person, including data plots.*
			River Substrate Analysis: *An analysis of stream characteristics and substrate to be used as a reference for the replacement crossing design.*
			Geotechnical Evaluation: *Geotechnical borings and substrate analysis for structural properties.*
			Radial Site Survey: *A detailed survey of the crossing area, including elevations of the crossing inverts, road surface, road edge, site utilities, approximately 50-100ft radius around crossing location.*
			Longitudinal Profile Survey: *A detailed survey of the stream profile several hundred feet upstream and downstream of the crossing locating stream features and elevations.*
			Hydrologic Study: *A calculation of existing storm events using standard methods and watershed characteristics to determine runoff volumes, time of concentration, and peak discharge.*
			Hydraulic Analysis: *Modeling of the existing crossing for water surface elevation, scour, and velocity to understand the hydraulic forces.*
			Recommended Replacement Summary: *A detailed summary of structure types evaluated and recommended structure type for the project location. Considerations include site constraints, ease of construction, structure lifespan, potential for erosion and head-cutting, stream stability and risk of stream channel adjustment, benefits to stream habitat, storm flow conveyance, potential to affect property or infrastructure, and cost of replacement.*

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DESIGN & ENGINEERING			
PROJECT STATUS			**TASK**
Proposed	**Complete**	**Not Applicable**	
			Preliminary Design Plans: *Design regarding footprint, dimensions, site constraint considerations, and resource area impacts.*
			Hydraulic Design: *Model the proposed structure for water surface elevation, scour, sediment transport, and velocity to understand the hydraulic forces and design the stream bed so that flow conditions and hydraulic dynamics in the culvert are comparable to the upstream and downstream stream channel and meet MassDOT standards when applicable.*
			Geotechnical Design: *Design the crossing within the limitations of the substrate characteristics and meet MassDOT standards when applicable.*
			Structural Design: *Design the crossing to meet the structural needs of the road type and meet MassDOT standards when applicable.*
			Construction Details: *Design the crossing with sufficient details for a contractor to construct the crossing and meet MassDOT standards when applicable.*
			Final Design Plans: *Complete all other design requirements for a P.E. to stamp the plans.*
PERMITTING			
PROJECT STATUS			**TASK**
Proposed	**Complete**	**Not Applicable**	
			Permitting: *Including required local, state and federal environmental and permit reviews.*
			Chapter 85, Section 35 MassDOT Review: *Replacement structure spans over 10ft are subject to MassDOT design requirements and review in accordance with MGL Chapter 85, Section 35. For more information about the MassDOT requirements see:* Municipal Small Bridge Program design requirements for new and full bridge replacement projects (PDF 98 KB)
The following are examples of permits that could be required for culvert replacement projects. Note that this list is not comprehensive and the need for the various permits listed may be dependent on the project scope.			
1) Notice of Intent (Conservation Commission)			*6) Massachusetts Historical Commission Project Notification Form*

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2) Massachusetts Endangered Species Act (MESA) Project Review	*7) Army Corps of Engineers 404 Programmatic General Permit*
3) *Massachusetts Department of Environmental Protection (DEP) Section 401 Water Quality Certificate*	8) *MassDOT Chapter 85, Section 35 Review*
4) *Massachusetts Department of Environmental Protection (DEP) Chapter 91 Waterways Jurisdictional Determination*	9) *FEMA Floodplain Letter of Map Revision/Conditional Letter of Map Revision*
5) Massachusetts Environmental Policy Act (MEPA) Filing	

CONSTRUCTION			
PROJECT STATUS			**TASK**
Proposed	**Complete**	**Not Applicable**	
			Construction Bidding: *Final construction specifications and project plans have been stamped and construction*
			Construction: *Explain the scope of construction in Section 5) i. on the Application Form.*

Project Meets the Massachusetts Stream Crossing Standards:

☐ **YES**

☐ **NO**

Projects requesting construction funds must meet the MA Stream Crossing Standards. If the project design is final but does not meet these criteria, or if the applicant is unsure, check this box to update and/or redesign the crossing to meet the MA Stream Crossing Standards before construction.