

SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT

for

Clark Brothers Dam, Inactive Water Line and Carpenters Dam Removal Projects Southington, Cheshire and Meriden, Connecticut

Supplemental to the 2013 Final Restoration Plan and Environmental Assessment for the Old Southington Landfill Superfund Site and the Solvents Recovery Superfund Site, Southington, CT

Prepared by

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Introduction

This Supplemental Environmental Assessment (SEA) has been developed by the U.S. Fish and Wildlife Service (Service) and the Connecticut Fund for the Environment and its bi-state program Save the Sound (CFE) to analyze and assess the environmental effects of removing:

- Carpenters Dam, Meriden, Connecticut;
- an exposed inactive water line, Cheshire, Connecticut; and
- Clark Brothers Dam, Southington, Connecticut.

This SEA was written to ensure that the environmental effects of the three fish barrier removal projects being proposed and funded by the Service are fully considered. It is called “supplemental” because a Restoration Plan/Environmental Assessment (Restoration Plan) that discussed these projects was published in 2013. At the time the original Restoration Plan was written, there was not enough information available about these three fish barrier removal projects to adequately assess their environmental effects. Therefore, the Service is now publishing this SEA in order to provide that additional information and analysis to the public.

All three structures are located along the main stem of the Quinnipiac River in southcentral Connecticut. The Clark Brothers Dam, the farthest upstream of the three structures, is a small, 5.5-foot-high run-of-river stone dam located in the Town of Southington. The exposed inactive water line is located approximately 300 feet upstream of Carpenters Dam in the Town of Cheshire. The inactive water line is 30” in diameter and completely spans the River, and results in a barrier to fish passage and a hazard to boaters. The Carpenters Dam, located in the City of Meriden, Connecticut, is the farthest downstream of the three structures, and is composed of a complex series of spillways ranging between 3 and 10 feet in height. Combined, the removal of the three structures will open over 16 miles of the Quinnipiac River and its tributaries to migratory fish.

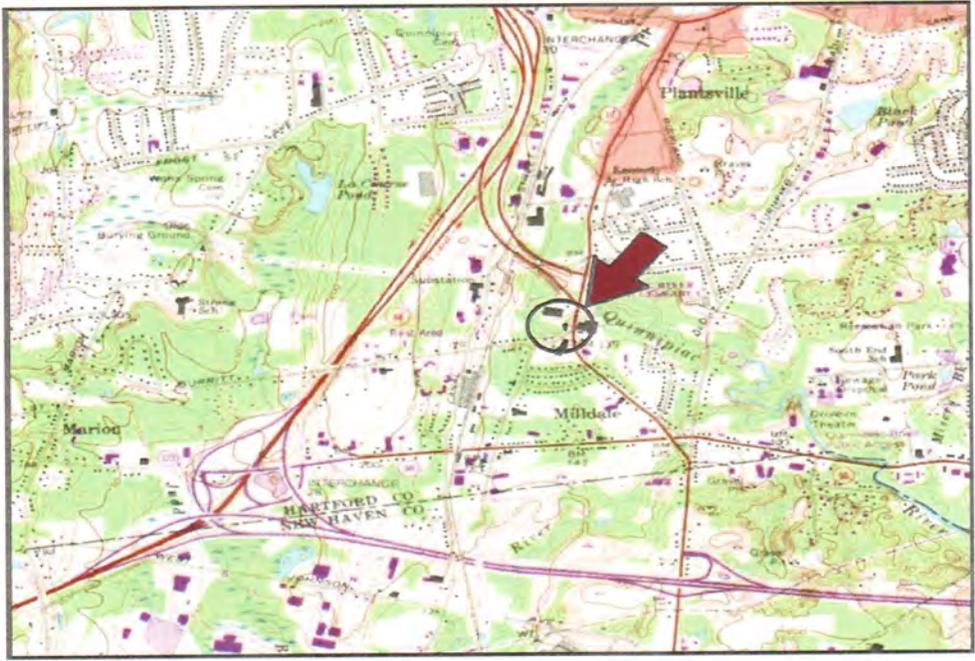
PROPOSED ACTION

Remove Clark Brothers Dam

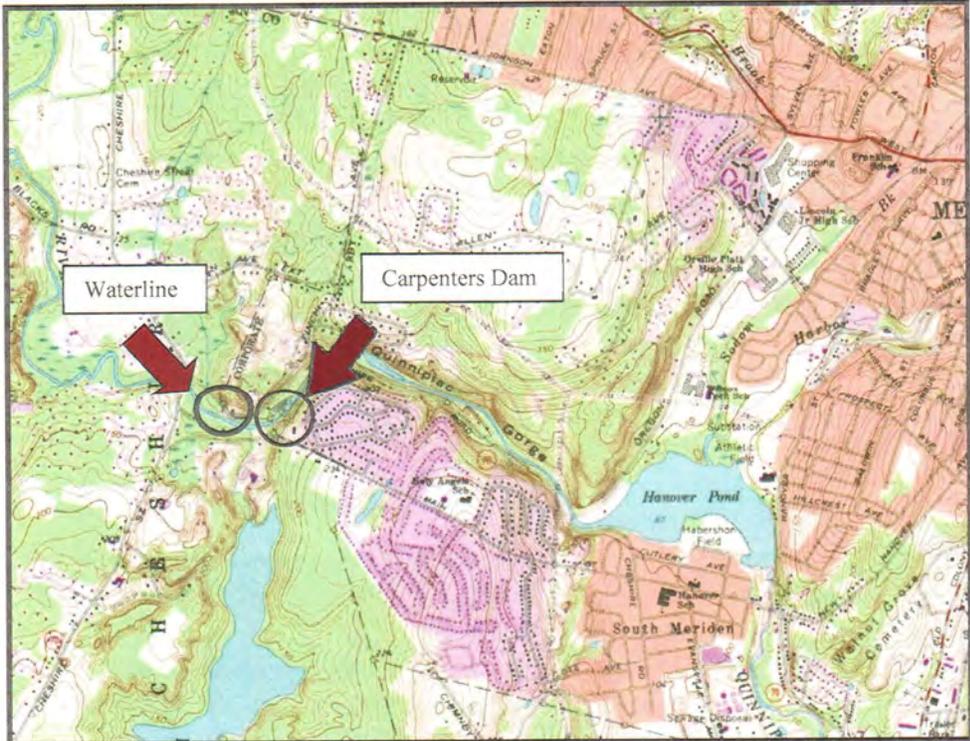
Remove Inactive Water Line

Remove Carpenters Dam

The CFE will be implementing the dam and inactive water line removal projects in partnership with the Service—the lead Federal agency on the project—and the Connecticut Department of Energy and Environmental Protection’s Inland Fisheries Division (DEEP). The two dam removals were previously evaluated and identified as preferred alternatives in the Final Restoration Plan and Environmental Assessment for the Old Southington Landfill Superfund Site and the Solvents Recovery Superfund Site, Southington, Connecticut (Restoration Plan), prepared by the Service in 2013 (USFWS 2013). Removal of the inactive water line was incorporated into the dam removal project in 2016 after the publication of the Restoration Plan.



Clark Brothers Dam, Southington, CT



Waterline, Cheshire, CT and Carpenters Dam, Meriden, CT

The Restoration Plan was developed as part of a public process to determine the best way to utilize natural resource damage settlement funds (\$830,000) received by the Department of the Interior to compensate the public for injuries to natural resources caused by the release of hazardous substances from the two superfund sites. The Restoration Plan evaluated several alternatives for restoration activities in the Quinnipiac River watershed, including wetland

restoration, dam removal, acquisition of conservation land, enhancement of an existing recreational canoe trail, invasive plant control, and a no action alternative. The Restoration Plan determined that the preferred alternative would be to remove the Carpenters and Clark Brothers dams and enhance an existing recreation canoe trail. Based on the best information available at the time, the Restoration Plan determined that implementation of the preferred alternative would have no significant effects on the human environment, and a Finding of No Significant Impact (FONSI) was released by the Service along with the Restoration Plan in 2013.

At the time that the Restoration Plan was written, some details about the dam removal projects were unknown. In particular, the Service had limited information about the historic value of the two dams or the condition and function of the inactive water line just upstream of Carpenters Dam. This SEA is intended to provide additional details about how the barrier removals will be conducted and to more fully analyze the potential environmental effects of the projects. As this document is supplemental to the original Restoration Plan, only new and additional information relevant to the project is included.

CONCLUSION

Project will have no significant adverse effects on the human environment (includes ecological, socioeconomic, historic and cultural resources)

Taking into account all of the new information, this SEA concurs with the original Restoration Plan and finds that the two dam removal projects, along with the removal of an inactive water line, will have no significant effects on the human environment. Accordingly, a FONSI is being issued in conjunction with this SEA.

Timeline

Both Clark Brothers and Carpenters dams are planned to be removed during the summer/early fall of 2016. Design and permitting requirements for removal of the inactive water line will likely extend the timeline for its removal into 2017.

Purpose and Need

The purpose and need for the removal of Carpenters and Clark Brothers dams are the same as those described in the original Restoration Plan and are summarized below. The scope of these projects has been expanded to include removal of the inactive water line located upstream of Carpenters Dam.

The **need** for this dam and inactive water line removal project is that these structures currently cause adverse impacts to the Quinnipiac River and its floodplain ecosystem. Dams fragment rivers and cause adverse impacts to river and floodplain ecosystems, including reduced water circulation, altered flow regimes, and increased water temperatures. Dams also restrict movement of aquatic species, particularly migratory fish, which spawn in upstream habitats. Historically, the Quinnipiac River provided spawning habitat for migratory fish such as American shad, gizzard shad, alewife, blueback herring, sea lamprey, white perch, striped bass, sea-run brown trout and American eel.

Reestablishment of migratory fish populations in the upper reaches of the Quinnipiac River watershed would result in a healthier and more resilient ecosystem by increasing the watershed's productivity and ability to support a greater diversity of species. Fish that migrate from oceans into rivers and streams bring marine-derived nutrients which benefit the base of the food web through the release of eggs during spawning and partial post-spawning fish mortality (Jardine et al. 2009).

Removing these three fish passage barriers would open up 16 miles of river and stream habitat in the Upper Quinnipiac River watershed to migratory fish. Once these barriers are removed, almost the entirety of the Quinnipiac River main stem and the majority of the Eightmile River main stem would be passable to fish.

The **purpose** of the proposed project to remove the two dams and the inactive water line is to restore those natural resources that were injured by the Solvents Recovery Service Superfund Site and the Old Southington Landfill Superfund Site for the benefit of the American public. The Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (Superfund Law), as amended, authorizes natural resource trustees, such as the Service, to assess and recover compensation for injury to and/or loss of natural resources resulting from a release of a hazardous substances. In cases where compensation is recovered, the Service is obligated under the Superfund Law to use those funds to restore, replace or acquire the equivalent of the resources that were injured.

The Service determined that hazardous waste disposed of at the Solvents Recovery Service Superfund Site, including volatile organic compounds (VOCs), polychlorinated biphenyls (PCBs), and metals—as well as remedial activities to clean up the sites—degraded, and in some cases, destroyed 1.8 acres of wetlands, including a portion of the Quinnipiac River. This resulted in impacts to migratory birds and fish. At the Old Southington Landfill Superfund Site, the Service determined that erosion and remedial activities resulted in the permanent destruction of approximately 0.6 acre of palustrine emergent and forested wetland habitat. In addition, about 4.4 acres of Black Pond were contaminated with elevated levels of mercury, cadmium and other metals. The degradation and loss of these wetland and open water habitats adversely affected wetland-dependent wildlife, primarily migratory birds.

The Service, working with local communities near the superfund sites, determined that the removal of the Clark Brothers Dam, Carpenters Dam and the exposed water line, along with a separate project to enhance an existing canoe trail, would best restore the equivalent of natural resources that were injured by the superfund sites. Removal of the three fish passage barriers will have a beneficial effect on the Quinnipiac River watershed that the Service believes will compensate the public for the injuries to the River and its wetlands.

Public Involvement

The Draft Restoration Plan/Environmental Assessment (Draft Restoration Plan) was previously made available for public comment for more than 30 days at the end of 2012. The Service published a notice of availability of the Draft Restoration Plan in the Meriden Record-Journal and circulated the notice to State agencies, local organizations, and interested individuals.

Stakeholders from the affected watershed, government agencies, non-profit organizations, and the general public contributed a total of ten comments during the comment period. Comments ranged from endorsements of the overall Draft Restoration Plan, to endorsements with additional considerations and/or suggested reprioritizations, as well as additional project ideas, and general concerns regarding the watershed.

The actions being proposed in this SEA have not changed from the original Restoration Plan, with the exception of the inclusion of the inactive water line removal into the scope of the dam removal projects. Public hearings have been held by the local Inland Wetland Commissions that have already issued permits for both dam removals. Additionally, this SEA will be available for public comment for 2 weeks.

Project partners (the Service, CFE and DEEP) have also contacted American Indian Tribes, local historical societies, municipalities, State and Federal agencies, adjacent landowners and others in order to consult on the project, develop the most effective plan possible for implementing the project, and acquire all necessary permits.

Affected Environment

The affected environment includes portions of the Upper Quinnipiac River Watershed, which is described in detail in the original Restoration Plan (USFWS 2013, pp. 9-12). As part of the dam removal design and environmental compliance, an archaeological and historical assessment of Clark Brothers and Carpenters dams was conducted (Raber 2016). Additionally, sediment behind Clark Brothers Dam was analyzed for contaminants.

Historic and Archaeological Resources

Both Clark Brothers and Carpenters dams are historically significant and considered historic properties under the National Historic Preservation Act.

Clark Brothers Dam is a contributing element to Clark Brothers Factory No. 1, a property listed on the National Register of Historic Places (NRHP). While much of the Factory No. 1 site has been removed during the past 20 years, the Dam is still eligible for listing on the NRHP under Criterion D. Its significance “appears to rest primarily on its potential for new information as an individual structure” (Raber 2016).

Carpenters Dam is not currently listed on the NRHP, but is associated with the potentially significant Hough’s Mill archaeological site. The dam is eligible for listing on the NRHP under Criterion D and possibly Criterion C.

According to Raber (2016), there is a likelihood that archaeological resources associated with American Indian Tribes that traditionally used the Quinnipiac River and its floodplain exist below ground in the project area. However, given that the dam and water line removal project will not cause soil disturbance, these resources are not expected to be exposed and are therefore not considered a part of the Affected Environment of the project.

Sediment

Dams impound sediment and sometimes this sediment contains contaminants such as heavy metals, PCBs or other hazardous substances. There is no sediment impounded behind Carpenters Dam, therefore sediment sampling was not conducted upstream or downstream of the Dam.

Clark Brothers Dam is not breached and there is sediment deposition upstream of the Dam. The planned removal of the Clark Brothers Dam allows sediment to passively flow downstream and lets the river channel readjust naturally over time. Sediment upstream and downstream of the Clark Brothers Dam was tested for a variety of contaminants in order to ensure that the release of the sediment would not cause any adverse effects to the environment.

Sediment was tested for a variety of contaminants, including five chlorinated herbicides, cyanide, hexavalent chromium, 20 pesticides, nine Polycyclic Aromatic Hydrocarbons (PAHs), nine Polychlorinated Biphenyls (PCBs), 15 metals, and petroleum hydrocarbons. The results of these tests were then compared to State and Federal standards for contaminant concentrations, including human health criteria as well as freshwater sediment criteria. Freshwater sediment criteria were developed in order to predict the effects of contaminants on benthic invertebrates (organisms that live on the bottom of waterbodies).

Laboratory results indicate that the majority of analyzed contaminants were not detected in sediment samples collected upstream or downstream of the Clark Brothers Dam. Several PAHs were detected at concentrations above freshwater sediment guidelines. Because of the frequency with which similar concentrations of these PAHs are found in river sediments throughout Connecticut, it is assumed that these concentrations represent background conditions of not just the site or the watershed, but the greater region.

Threatened and Endangered Species

Two State-listed species of concern, the wood turtle (*Glyptemys insculpta*) and eastern box turtle (*Terrapene carolina carolina*), potentially occur in the vicinity of Carpenters Dam and the exposed inactive water line, and therefore could be affected by construction activities.

Additionally, a State-listed plant species of concern, the square sedge (*Carex squarrosa*), is known to occur in the vicinity of Carpenters Dam. Surveys were conducted for the square sedge on the project site and none were found; additionally, surveyors found that the habitat for the square sedge does not exist on the project site.

Habitat for the federally threatened northern long-eared bat is found at the Clark Brothers Dam, water line and Carpenters Dam project sites. Bats can be adversely impacted by the removal of trees, which provide roosting and maternity habitat. An intra-Service consultation under section 7 of the Endangered Species Act conducted with the Service's Endangered Species Program determined that the fish barrier removal projects are not likely to have an adverse effect on the northern long-eared bat.

Alternatives Analysis

NEPA requires that Federal agencies consider a reasonable range of alternatives to their proposed actions. Alternatives analyses were conducted at two different scales in the original Restoration Plan. On a broad scale, the Restoration Plan evaluated as alternatives completely different types of restoration projects, including wetland restoration, fish passage restoration, and invasive species control, as well as a “no action” alternative in which no restoration projects would be conducted. The Restoration Plan identified some restoration projects as preferred alternatives and others as non-preferred alternatives. The restoration of fish passage at the Carpenters Dam and Clark Brothers Dam was selected as a preferred alternative.

Within the context of the preferred alternative (fish passage restoration), the Restoration Plan considered several different construction methods for restoring fish passage at the Carpenters Dam and Clark Brothers Dam locations, including complete dam removal, partial breaches of the dams, and the installation of technical fishways. None of the three methods were found to have significant adverse effects on the human environment. Complete dam removal was selected as the preferred method because it provides greater environmental benefits than the other fish passage construction methods.

The 2013 Restoration Plan stated that a detailed study of both dam removal projects would be conducted and that alternatives to complete dam removal would only be reconsidered should new information show that complete dam removal was not feasible or would have unforeseen significant adverse impacts on the human environment.

Princeton Hydro, the engineering contractor, investigated the design issues surrounding dam removal and a historical and archaeological review of the project was completed by Raber Associates (Raber 2016). These studies did not uncover new information that would alter the Restoration Plan’s Finding of No Significant Impact, and project partners determined that the dam and inactive water line removal projects remain feasible and can be accomplished in a way that will have no significant effect on the environment. Therefore, complete removal of both dams remains the preferred alternative and is the only alternative being analyzed in this SEA.

Project Description

The full vertical extent of Clark Brothers Dam will be removed, allowing the passive release of sediment downstream. Upstream of the Dam, on river right, a 50-foot section of eroding streambank will be stabilized using stones taken from the Dam. Additionally, a deformable riffle will be constructed upstream of the Dam to help stabilize the river channel once the Dam is removed. The construction staging area will be located in the Apple Valley Bowl parking lot and a short construction entrance will be built in order to move equipment from the parking lot to the dam site. Once the project is completed, the construction entrance will be restored with native vegetation and interpretive signage discussing the historical value of the Dam will be developed and installed. Post-construction monitoring of the site will occur for 3 years.

Removal of the inactive water line has been added to the project scope since the publication of the Restoration Plan. Since the inactive water line currently blocks fish passage and is located

between Clark Brothers and Carpenters dams, leaving the structure in place would nullify the beneficial effects to fish passage of both dam removals. The inactive water line serves no current or future purpose, thus repairing or replacing the line is not worthwhile. It will be cut, removed and capped. There is an active watermain located at an unknown depth below the exposed inactive water line. It is possible that the active watermain is currently being protected from exposure by the inactive water line. If this is found to be the case, the active watermain will be replaced and buried at an appropriate depth. If necessary, the replacement of the active watermain will either be by directional drilling or mechanical replacement. The construction entrance for this project will be located at the City of Meriden pump house on Sindall Road, as well as on private property in the Town of Cheshire.

The full vertical extent of Carpenters Dam will be removed except for a small portion of the Dam that will be retained *in situ* (attached to the rubble mill wall on river left). The River will be allowed to adjust naturally after the Dam is removed (with no further mechanical manipulation of the channel). The construction entrance will begin at the Meriden pump house on Sindall Road and will avoid all historic resources in the vicinity of the Dam (Hough's Mill), with the exception of the Dam itself. Once the project is completed, the construction entrance will be restored and interpretive signage discussing the historical value of the Dam will be developed and installed. Post-construction monitoring of the site will occur for 3 years.

Princeton Hydro, the engineering firm responsible for designing the dam and inactive water line removal projects, has concluded that Carpenters Dam and the exposed inactive water line are not hydraulically connected. Thus, removing Carpenters Dam (planned for the fall of 2016) should not have any effect on, or compromise in any way, the inactive water line, which is not expected to be removed until 2017. The exposed inactive water line is aging infrastructure that spans the River and is positioned perpendicular to water flow. At any time, regardless of whether Carpenters Dam is present or removed, acts of nature such as ice dams or large woody debris could compromise this exposed line.

Environmental Consequences

The original Restoration Plan evaluated the environmental consequences of the preferred fish passage alternative (complete dam removal), non-preferred fish passage alternatives (fishways, partial dam removal), as well as the no action alternative. The discussion of environmental consequences presented here is intended to supplement, not duplicate, the original analysis in the Restoration Plan by providing additional details about the dam removal process; analysis of the environmental effects of the dam removal process for each dam; and information about what measures will be taken to ensure that implementation of the projects will cause no significant adverse effects to the environment.

There are beneficial and adverse environmental effects of removing the two dams and the inactive water line (Table 1). None of the anticipated effects, whether beneficial or adverse, are considered significant. It should be noted that the term "significant" has a very particular definition within the context of NEPA (40 CFR 1508.27). Stating that a beneficial or adverse effect is "insignificant" does not mean that the effect is unimportant or not meaningful, just that the effect does not rise to the level of significance within the context of NEPA.

The vast majority of environmental effects associated with both dam removals and the inactive water line removal will be long-term and beneficial. Removal of the inactive water line will reduce a serious existing boating hazard from a highly utilized section of the Quinnipiac River (one known fatality has occurred at this location), thus benefiting the local paddling community. Additionally, after removal, some reduction in localized flooding is anticipated upstream of the Clark Brothers Dam.

Another beneficial effect of removing both dams and the inactive water line will be the restoration of migratory fish passage to 16 miles of the Quinnipiac River. Migratory fish will regain access to historical upstream spawning habitats that were previously inaccessible. Removal of Clark Brothers Dam will restore sediment transport processes in the Quinnipiac River, allowing sediments and woody debris in the watershed to move downstream until reaching Hanover Pond and the Hanover Pond Dam. Movement of sediment is critical to maintaining instream river habitats such as riffles and pools, upon which fish and wildlife rely. Removing the dams and water line will also benefit floodplain wetland ecosystems by restoring more natural flooding regimes (timing and duration). Obstructions in waterways such as dams and pipelines cause changes in flooding patterns and these changes in turn can affect floodplain habitats and the ways in which these habitats are used by local fish and wildlife. Removing these barriers not only helps migratory fish but helps to sustain and promote healthy native floodplain ecosystems. The Inland Fisheries Division monitors passage of migratory fish at the Haakonsen Fishway in Wallingford and will monitor passage at Hanover Pond, both downstream of the project area. After fish passage at these two fishways, fish will have access to an additional 16 miles of free-flowing stream.

No delineated wetlands, as defined by the Army Corps of Engineers, will be affected by the removal of either dam or the inactive water line. Given that 1) the inactive water line does not significantly impound water (water actually flows under the line during low flows); 2) Carpenters Dam has a low head spillway and open notch/low-level outlet (which does not impound much water); and 3) Clark Brothers Dam is a small run-of-river dam with a limited impoundment area, the width of the Quinnipiac River at these locations is not expected to significantly change.

The dam removal projects are not expected to have any significant adverse effects on the human environment. Rather, the projects are anticipated to have biological, physical, and socioeconomic benefits and will compensate the public for injuries to natural resources caused by contamination from the Solvents Recovery Service and Old Southington Landfill superfund sites.

Table 1. Environmental effects of preferred alternative (removal of Clark Brothers Dam, Carpenters Dam and exposed water line)

Activity Description	Resources Affected	Short- or Long-Term	Adverse or Beneficial	Significant or Insignificant
Carpenters Dam - Tree removal along access route	Ecological	Short-term	Adverse	Insignificant - Several trees will be cleared to build a temporary construction entrance to Carpenters Dam. The construction entrance will be restored as soon as the project is finished and new trees will be planted. Additional measures are in place to prevent impact to trees beyond the trees identified for removal (including the protection of other trees' root zones). The Service conducted an intra-Service consultation under section 7 of the Endangered Species Act and determined that the proposed tree clearing is not likely to have an adverse effect on the northern long-eared bat, which is listed as threatened on the endangered species list and for which habitat exists in the project area.
Carpenters Dam - Construction of access road	Ecological	Short-term	Adverse	Insignificant - Some imported stone will be placed along the access road. It will be removed before project completion and area will be restored.
Carpenters Dam - Construction of access road	Ecological	Short-term	Adverse	Insignificant - There is the potential that two State-protected turtle species, including wood turtle (<i>Glyptemys insculpta</i>) and eastern box turtle (<i>Terrapene carolina carolina</i>), may be present in the vicinity of Carpenters Dam and the planned construction entrance for Carpenters Dam. To ensure that no species of concern will be harmed, silt fence will be placed around the boundary of the construction site to prevent individual turtles from moving into the project site during construction; straw bales will be placed along the cobble-bedded side channel; any turtles found while monitoring will be carefully moved and placed in a forested area at least 100 feet from the work area. Sightings will be documented and reported to DEEP Natural Diversity Database. The project team incorporated comments from a qualified wetland scientist/herpetologist into construction sequencing to prevent harm to any individuals. DEEP has concurred that implementation of these measures will avoid or significantly reduce potential impacts to State-listed species.
Carpenters Dam - Physical removal of dam	Ecological and Socioeconomic	Long-term	Beneficial	Insignificant - The removal of Carpenters Dam, which no longer serves any hydropower purpose and is in disrepair, will restore river connectivity, forested floodplain wetland habitats and functions, migratory fish passage and remove a boating/public safety hazard from the River. After dam removal, the river channel will be allowed to adjust naturally.
Carpenters Dam - Physical removal of dam	Ecological	Short-term	Adverse	Insignificant - Because the Dam will have to be removed from the river channel, and because the River will be allowed to adjust naturally after the Dam is removed, it is expected that there will be short-term increases in water turbidity associated with the dam removal.
Carpenters Dam - Physical removal	Socioeconomic	Long-term	Beneficial	Insignificant - Removal of Carpenters Dam is expected to have an indirect beneficial effect on the socioeconomic environment by making it easier for paddlers to access and travel down the river corridor. Currently, boaters have to portage around the Dam, which could be a deterrent to recreation. By increasing the ease with which people can recreate on the Quimmiac River, removing Carpenters Dam may beneficially affect local tourism and recreation.

Carpenters Dam – Physical removal	Historic	Long-term	Adverse	<p>Insignificant – Carpenters Dam is eligible for listing on the National Historic Register under Criterion D. The Dam occurs within the Hough's Mill archaeological site. All features associated with the site other than the Dam itself will be avoided, including the rubble mill walls to which the Dam is attached. In compliance with section 106 of the National Historic Preservation Act, the Service has developed a Memorandum of Agreement with the State Historic Preservation Office (SHPO) that identifies specific measures that will be taken to avoid and mitigate for impacts to historic properties. A portion of Carpenters Dam will be retained <i>in situ</i> for future understanding and enjoyment. A professional archaeologist has been contracted to document the Dam and any internal components that may be exposed during project-related activities. Documentation will include high-quality photography and measurement of exposed components with survey of elevations as appropriate, preparation of detailed sketch plans, and discussion of historic engineering context, including some attempt to assess the rarity of the Carpenters Mill concrete and stone ogee-type overflow weir section. All documentation will be provided to the SHPO for permanent archiving. The Service will also prepare and submit a brief history and description of Carpenters Dam to the <i>Society for Industrial Archaeology New England Chapter Newsletter</i> for publication.</p>
Inactive water line – Physical removal	Ecological	Short-term	Adverse	<p>Insignificant – Removing the inactive water line is anticipated to cause some short-term, localized direct adverse effects to ecological resources. It is likely that some trees will need to be removed in order for construction equipment to access the inactive water line. The Service conducted an intra-service consultation under section 7 of the Endangered Species Act and determined that the proposed tree clearing is not likely to have an adverse effect on the Northern long-eared bat, which is listed as threatened on the endangered species list and for which habitat exists in the project area. A temporary construction entrance will be created to access the inactive water line. It also may be necessary to replace a buried active watermain running under the River, which may be currently located too high in the substrate. This watermain replacement will be done either through directional drilling or by mechanical replacement. Mechanical replacement will require the installation of cofferdams in the River to divert water around the site so that a trench can be dug across the River and a new watermain installed at an appropriate depth. If mechanical replacement is the most viable option, project partners will apply for a permit under section 404 of the Clean Water Act and will work with the Army Corps of Engineers to determine the best way to minimize adverse effects to the River caused by diversion.</p>
Inactive water line - Physical removal	Ecological and Socioeconomic	Long-term	Beneficial	<p>Insignificant - Removing the inactive water line will have a direct beneficial effect on ecological resources by removing a blockage to migratory fish passage. Removing the inactive water line will have a direct socioeconomic benefit by removing a safety hazard.</p>
Inactive water line – Physical removal	Socioeconomic	Long-term	Beneficial	<p>Insignificant - Removal of the exposed water line is expected to have an indirect beneficial effect on the socioeconomic environment by making it easier for paddlers to access and travel down the river corridor. Currently, boaters have to portage around the inactive water line, which could be a deterrent to recreation. By increasing the ease with which people can recreate on the Quinipiac River, removing the inactive water line may beneficially affect local tourism and recreation.</p>

Clark Brothers Dam - Tree removal along access route	Ecological	Short-term	Adverse	Insignificant - Several trees will be cleared to build a temporary construction entrance to Clark Brothers Dam. The construction entrance will be restored as soon as the project is finished and new trees will be planted. Additional measures are in place to prevent impact to trees beyond the trees identified for removal (including the protection of other trees' root zones). The Service conducted an intra-service consultation under section 7 of the Endangered Species Act and determined that the proposed tree clearing is not likely to have an adverse effect on the Northern long-eared bat, which is listed as threatened on the endangered species list and for which habitat exists in the project area.
Clark Brothers Dam - Riverbank stabilization	Ecological	Long-term	Beneficial	Insignificant - There is a 50-foot section of riverbank upstream to the Dam that is heavily eroded. Stone from the Dam will be repurposed and placed at the foot of that bank to restore morphology and stabilization, as well as fish habitat.
Clark Brothers Dam - Physical removal	Ecological and socioeconomic	Long-Term	Beneficial	Insignificant - The removal of Clark Brothers Dam, which no longer serves any hydropower purpose, will restore river connectivity, forested floodplain wetland habitat and function, migratory fish passage and reduce some localized flooding. It will also remove an impediment to paddlers who use the River recreationally.
Clark Brothers Dam - Physical removal	Historic	Long-Term	Adverse	Insignificant - Clark Brothers Dam is listed on the NRHP as part of the Clark Brothers Factory No. 1 property. The Dam is still eligible for listing on the NRHP under Criterion D. The Service has developed a Memorandum of Agreement with the SHPO that identifies specific measures that will be taken to avoid and mitigate for impacts to historic properties. A professional archaeologist has been contracted to document the Dam and any internal components that may be exposed during project-related activities. Documentation will include high-quality photography and measurement of exposed components with survey of elevations as appropriate, preparation of detailed sketch plans, and discussion of historic engineering context. All documentation will be provided to the SHPO for permanent archiving. The Service will also prepare and submit a brief history and description of Carpenters Dam to the <i>Society for Industrial Archaeology New England Chapter Newsletter</i> for publication.
Clark Brothers Dam - Physical removal	Socioeconomic	Long-term	Beneficial	Insignificant - Removal of Clark Brothers Dam is expected to have an indirect beneficial effect on the socioeconomic environment by making it easier for paddlers to access and travel down the river corridor. Currently, boaters have to portage around the Dam or put in below the Dam, which could be a deterrent to recreation. By increasing the ease with which people can recreate on the Quinmpiac River, removing the Dam may beneficially affect local tourism and recreation. Additionally, removing Clark Brothers Dam will likely alleviate some flooding of the Apple Valley Bowl parking lot, which will benefit this local business.
Clark Brothers Dam - Physical removal	Ecological	Short-term	Adverse	Insignificant - Because the Dam will have to be removed from the river channel, and because the River will be allowed to adjust naturally after the Dam is removed, it is expected that there will be short-term increases in water turbidity associated with the dam removal.
Clark Brothers Dam - Stream stabilization	Ecological	Long-term	Beneficial	Insignificant - Stone from the Dam will be repurposed and used to create a deformable riffle in the river bed upstream of the Dam. This riffle is intended to change over time (i.e., "deform") and will assist in restoring river morphology and stabilization, as well as fish habitat.

Cumulative Effects

The cumulative effects of this project are expected to be beneficial, but not significant. Under NEPA, cumulative effects are considered within the context of the affected environment, which is the Quinnipiac River watershed. Much work has been done to improve fish passage in the Quinnipiac River. At several dam locations along the main stem of the River, fishways were installed where complete dam removal was not possible. As a result, Carpenters Dam, the inactive water line and Clarks Brothers Dam are some of the only remaining obstacles to fish passage on the Quinnipiac River main stem and their removal will open up more than 16 miles of the Quinnipiac River to migratory fish. Additionally, it is anticipated that emergent forested wetland habitat historically associated with the River prior to modifications caused by dam construction will regenerate in the wake of the dam removals. River connectivity will be improved, habitat will be restored for fish and other wildlife, and safe passage will be improved for people recreating on the river. This cumulative beneficial effect, as defined under NEPA, is insignificant, given how altered the Quinnipiac River watershed is overall and given that several dams along the River, while offering fish passage, still impede the flow of water and sediment through the river system.

There are no adverse cumulative effects associated with this project.

Consultation and Coordination

The following individuals, Federal, State and local agencies, Tribes, and non-governmental organizations were consulted during the development of this environmental assessment:

- The City of Meriden
- The Town of Cheshire
- The Town of Southington
- Apple Valley Bowl
- U.S. Fish and Wildlife Service
- U.S. Army Corps of Engineers
- Connecticut State Historic Preservation Office
- Connecticut Department of Energy and Environmental Protection Bureau of Water Protection and Land Reuse
- Connecticut Department of Energy and Environmental Protection Bureau of Natural Resources
- Meriden Historical Society
- Southington Historical Society
- Princeton Hydro
- Connecticut Ecosystems, LLC
- Raber and Associates
- Narragansett Indian Tribe
- Stockbridge-Munsee Community Band of Mohican Indians
- Mashuntucket Pequot Tribal Nation

- Mohegan Tribe of Indians of Connecticut
- Private landowners

The proposed project has been evaluated for consistency with applicable Federal State, and local laws, regulations, and programs. In addition to this environmental assessment, the following permits, applications and/or consultations are also required by local, State and Federal agencies:

- Connecticut Programmatic General Permit (U.S. Army Corps of Engineers)
- Statewide Inland Wetlands & Watercourses Activity Reporting
- State Historic Preservation Office consultation and Memorandum of Agreement
- Tribal Historic Preservation Office consultation
- CT Department of Transportation Encroachment Permit
- Natural Diversity Database Review
- Regional Water Authority Notification
- Aquifer Protection Area Notification
- Floodplain Application, Town of Cheshire
- Inland Wetland and Watercourse Commission Permit, Town of Cheshire
- Floodplain Application, Town of Southington
- Application to Conduct Regulated Activity within the Inland Wetlands or Watercourse, Town of Southington
- Floodplain Development Permit Application, City of Meriden
- Inland Wetland and Watercourse Commission Permit, City of Meriden
- Memoranda of Agreement for these projects have been developed with the dam and water line owners, as well as with adjacent landowners whose land is required to access the sites.

References

- Council on Environmental Quality. 2007. A Citizen's Guide to the NEPA *Having Your Voice Heard*. Executive Office of the President, Washington D.C.
- Jardine T. D., J.M. Roussel, S.C. Mitchell and R.A. Cunjak. 2009. Detecting Marine Nutrient and Organic Matter Inputs into Multiple Trophic Levels in Streams of Atlantic Canada and France. *American Fisheries Society Symposium* 69:427–445.
- Raber, M. 2016. Archaeological and Historical Assessment for Proposed Removal of Clark Brothers and Carpenters Dams on Quinnipiac River, Southington and Meriden, Connecticut. Prepared for Connecticut Fund for the Environment.
- USFWS. 2013. Final Restoration Plan and Environmental Assessment: Old Southington Landfill Superfund Site, Southington Connecticut and Solvents Recovery Service Superfund Site, Southington, Connecticut. U.S. Fish and Wildlife Service, Concord, NH. 37 pp.

**U.S. Department of the Interior Approval
Supplemental Environmental Assessment for**

**Clark Brothers Dam, Inactive Water Line
and Carpenters Dam Removal Projects
Southington, Cheshire and Meriden, Connecticut**

***Supplemental to the 2013 Final Restoration Plan and Environmental Assessment for the Old
Southington Landfill Superfund Site and the Solvents Recovery Superfund Site,
Southington, CT***

In accordance with U.S. Department of the Interior (DOI) policy regarding documentation for natural resource damage assessment and restoration projects (521 DM 3), the Authorized Official for the DOI must demonstrate approval of draft and final Restoration Plans and their associated National Environmental Policy Act documentation, with concurrence from the DOI's Office of the Solicitor.

The Authorized Official for the Old Southington Landfill and the Solvents Recovery Service Superfund Sites is the Regional Director for the U.S. Fish and Wildlife Service's Northeast Region.

This Environmental Assessment becomes a Federal document when evaluated and signed by the responsible Federal Official. By the signatures below, the Supplemental Environmental Assessment is hereby approved.

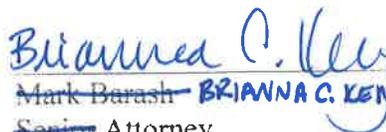
Approved:

Concurred:

 7/14/16

Wendi Weber
Regional Director
Northeast Region
U.S. Fish and Wildlife Service

Date

 7-14-2016
~~Mark Barash~~ **BRIANNA C. KENNY**
Senior Attorney
Northeast Region
Office of the Solicitor

UNITED STATES FISH AND WILDLIFE SERVICE

ENVIRONMENTAL ACTION STATEMENT

Within the spirit and intent of the Council of Environmental Quality's regulations for implementing the National Environmental Policy Act (NEPA) and other statues, orders, and policies that protect fish and wildlife resources, I have established the following administrative record and have determined that the action of the Supplemental Environmental Assessment for Clark Brothers Dam, Inactive Water Line and Carpenters Dam Removal Projects Southington, Cheshire and Meriden, Connecticut:

_____ is a categorical exclusion as provided by 516 DM 2 Appendix 1 and 516 DM 6, Appendix 1. No further documentation will therefore be made.

X _____ is found not to have significant environmental effects as determined by the attached Environmental Assessment and Finding of No Significant Impact.

_____ is found to have significant effects, and therefore further consideration of this action will require a notice of intent to be published in the Federal Register announcing the decision to prepare and EIS.

_____ is not approved because of unacceptable environmental damage, or violation of Fish and Wildlife Service mandates, policy, regulations, or procedures.

_____ is an emergency action within the context of 40 CRF 1506.11. Only those actions necessary to control the immediate impacts of the emergency will be taken. Other related actions remain subject to NEPA review.

Other supporting documents (list):

Final Restoration Plan and Environmental Assessment for the Old Southington Landfill Superfund Site and the Solvents Recovery Superfund Site, Southington, CT, August, 2013, U.S. Fish and Wildlife Service

Supplemental Environmental Assessment for Clark Brothers Dam, Inactive Water Line and Carpenters Dam Removal Projects Southington, Cheshire and Meriden, Connecticut



Regional Director / DOI Authorized Official

7/14/16

Date

**FINDING OF NO SIGNIFICANT IMPACT
SUPPLEMENTAL ENVIRONMENTAL ASSESSMENT
CLARK BROTHERS DAM, EXPOSED INACTIVE WATER LINE
AND CARPENTERS DAM PROJECT
SOUTHINGTON, CHESHIRE AND MERIDEN, CONNECTICUT**

The U.S. Fish and Wildlife Service (Service), in partnership with the Connecticut Fund for the Environment/Save the Sound and the Connecticut Department of Energy and Environmental Protection, is proposing to remove three barriers to fish passage located along the Quinnipiac River in southcentral Connecticut: Clark Brothers Dam in Southington, an exposed inactive water line in Cheshire, and Carpenters Dam in Meriden. The purpose of this project is to restore fish passage and natural river processes to the Quinnipiac River and eliminate hazards to recreational boaters on the River. Once completed, this project will restore access to an additional 16 miles of river and stream habitat in the Quinnipiac River watershed to migratory fish, including river herring and American shad.

These three fish passage barrier removal projects were analyzed in the Supplemental Environmental Assessment that accompanies this Finding of No Significant Impact (FONSI). The Supplemental Environmental Assessment expands upon the *Final Restoration Plan and Environmental Assessment for the Old Southington Landfill Superfund Site and the Solvents Recovery Superfund Site, Southington, Connecticut*, which was published in October 2013, along with a Finding of No Significant Impact. The Final Restoration Plan was developed in order to identify specific natural resource restoration projects that would compensate the American public for natural resource injuries caused by the release of hazardous substances from the two superfund sites.

The Final Restoration Plan evaluated the environmental effects of several restoration alternatives and the preferred alternative selected was the removal of Clark Brothers and Carpenters dams. The Restoration Plan was published in draft form and made available for a 30-day public comment period to allow for public review and involvement.

Since publication of the Final Restoration Plan in 2013, additional details about the two dam removal projects have emerged and the removal of an inactive, exposed water line located on the River between the two dams has been added to the scope of the project. This Supplemental Environmental Assessment was developed in order to share and evaluate with the public these additional project details. The Supplemental Environmental Assessment does not alter the alternatives analysis presented in the Final Restoration Plan.

The Supplemental Environmental Assessment, which is being published alongside this Finding of No Significant Impact, reaffirms the findings and conclusion of the Final Restoration Plan and Environmental Assessment that the dam removals will not have significant adverse effects on the human environment.

The Service expects some short-term adverse effects to ecological resources as a result of the dam and water line removals. These effects include minimal tree clearing, establishing construction entrances, increased noise from construction equipment and a temporary increase in water turbidity. To minimize these effects, the projects will be implemented during low-flow

periods with rigorous plans in place to minimize erosion, replant and restore construction entrances, and protect wildlife that may be utilizing the area at the time of construction.

Additionally, the Service anticipates that removal of both dams will have long-term adverse effects to historic properties. The Service worked with the Connecticut State Historic Preservation Office under section 106 of the National Historic Preservation Act to resolve adverse effects to historic properties and the two agencies have codified specific actions that the Service will take to resolve these adverse effects in a Memorandum of Agreement. The barrier removals are not anticipated to have any effect on American Indian cultural, archaeological or historic resources.

The beneficial effects of these fish passage barrier removal projects far outweigh the adverse effects. The full vertical extent of Clark Brothers Dam will be removed, restoring natural stream processes and allowing fish to migrate into the upper reaches of the Quinnipiac River watershed. The exposed inactive water line will be removed and capped, thus addressing a fish passage barrier and a public safety hazard. During high flows, the existing inactive water line is a hazard to recreational boaters (one known fatality). The full vertical extent of Carpenters Dam will be removed, thereby improving fish passage. A portion of Carpenters Dam on river left, where the dam attaches to a rubble mill wall, will be retained *in situ* for future enjoyment and understanding of the historic property.

Implementation of these three barrier removals will open up almost the entire extent of the main stem of the Quinnipiac River to migratory fish. Based upon review of the Supplemental Environmental Assessment, the Service reaffirms its original Finding of No Significant Impact for the two dam removal projects, published in 2013. The Service concludes that a Finding of No Significant Impact should be issued for the proposed project.



Wendi Weber, Regional Director
Northeast Region
U.S. Fish and Wildlife Service
Department of the Interior Authorized Official

7/14/16

Date

**MEMORANDUM OF AGREEMENT
BETWEEN THE UNITED STATES FISH AND WILDLIFE SERVICE
AND THE
CONNECTICUT STATE HISTORIC PRESERVATION OFFICE**

PURSUANT TO 36 CFR 800.6(c) AND 33 CFR 325, APPENDIX C
REGARDING REMOVAL OF THE CLARK BROTHERS AND CARPENTERS DAMS,
SOUTHINGTON AND MERIDEN, CONNECTICUT

WHEREAS, the United States Fish and Wildlife Service (Service), as lead Federal agency, intends to provide financial and technical assistance for the removal of Clark Brothers and Carpenters Dams (the "Project") on the Quinnipiac River in Southington, Hartford County, Connecticut and Meriden, New Haven County, Connecticut, respectively, and this is an undertaking subject to review under section 106 of the National Historic Preservation Act (NHPA, 54 USC §800.6(c)(i)); and

WHEREAS, the Project will be accomplished using settlement funds provided by the Service from the United States Department of the Interior Natural Resource Damage Assessment and Restoration Account (Solvents Recovery Service and Old Southington Landfill Sub-Accounts); and

WHEREAS, the Connecticut Fund for the Environment/Save the Sound (CFE), the project proponent, is acting as program administrator for the Project based upon design and regulatory permitting plans prepared by Princeton Hydro; and

WHEREAS, the Project requires Federal regulatory authorization from the United States Army Corps of Engineers; and

WHEREAS, the Service, working in consultation with the Connecticut State Historic Preservation Office (CTSHPO), has determined that the Project will have an adverse effect on the Clark Brothers Dam, which is listed on the National Register of Historic Places as a contributing element to Clark Brothers Factory No. 1; and

WHEREAS, the Service, working in consultation with the CTSHPO, has determined that the Project will have an adverse effect on Carpenters Dam, which is eligible for listing on the National Register of Historic Places; and

WHEREAS, the Service has consulted with the CTSHPO pursuant to applicable regulations found in 36 CFR Part 800 and 33 CFR Part 325, Appendix C (Procedures for the Protection of Historic Properties) of the National Historic Preservation Act (NHPA) (16 U.S.C. 470f) and has provided the documentation required by 36 C.F.R. 800.11 to the CTSHPO; and

WHEREAS, the Service invited the Narragansett Indian Tribe to participate in this section 106 consultation process and received no response; and

WHEREAS, the Service invited the Mashantucket Pequot Tribal Nation to participate in this section 106 consultation process and received no response; and

WHEREAS, the Service invited the Stockbridge-Munsee Community Band of Mohican Indians to participate in this section 106 consultation process and received a formal declination; and

WHEREAS, the Service invited the Mohegan Tribe of Indians of Connecticut to participate in this section 106 consultation process and, after accepting the invitation and reviewing the historic and archaeological assessment and engineering plans developed for the Project, the Mohegan Tribal Historical Preservation Officer concluded that no properties of cultural, religious or historic significance to the Mohegan Tribe of Indians of Connecticut will be adversely affected by the Project as it is proposed; and

WHEREAS, the Service has coordinated with and solicited input from local communities potentially interested in historic resources to participate in the section 106 and National Environmental Policy Act consultation processes; and

WHEREAS, in accordance with section 106 of the NHPA, the Service invited the Advisory Council on Historic Preservation (ACHP) to participate in the consultation process and the ACHP has determined that its participation in the consultation to resolve adverse effects is not necessary; and

NOW THEREFORE, the Service and the CTSHPO agree that the Project shall be implemented with the following stipulations in order to take into account the effects of the Project on historic properties:

STIPULATIONS

The Service shall ensure that the following measures are carried out in consultation with the CTSHPO:

1. Prior to any demolition or construction activities, the Service, through its program administrator CFE, shall retain an archeologist who meets the Secretary of the Interior Standards to monitor and professionally document the dams and any internal components that may be exposed during project-related activities. Documentation shall meet the State-level documentation standards of the CTSHPO and, at a minimum, include indexed high-quality photographs (particularly when the impoundments upstream of the dams are dewatered), a site plan, and narrative text. Final documentation shall be provided to the CTSHPO for permanent archiving and public accessibility.
2. The Service, through its program administrator CFE, shall retain an archeologist to prepare and submit a brief history and description of Carpenters and Clark Brothers Dams, including project-related information, photographs, and maps, to the *Society for Industrial Archeology New England Chapter Newsletter* for publication.
3. The Service, through its program administrator CFE, will ensure that if previously unidentified historic or archaeological resources are discovered at any point during implementation of the Project, all work will be suspended and the CTSHPO will be contacted. The Service and the CTSHPO will apply the NHPA criteria to any such identified resources in order to determine listing eligibility and consultation requirements pursuant to 36 CFR § 800.4.

4. A portion of Carpenters Dam will be retained *in situ* for future understanding and enjoyment.

DISPUTE RESOLUTION

Should any signatory to this Memorandum of Agreement (MOA) object within thirty (30) days to any actions proposed or carried out pursuant to this MOA, the Service shall consult with the CTSHPO to resolve the objection. If the Service determines that the objection cannot be resolved, then the Service shall forward all documentation relevant to the dispute to the ACHP. Within thirty (30) days of receipt of all pertinent documentation, the ACHP will either:

1. provide the Service with recommendations, which the Service shall take into account in reaching a final decision regarding the dispute; or
2. notify the Service that it will comment pursuant to 36 CFR § 800.6(b), and then proceed to comment. Any recommendations or comments provided by the ACHP shall be understood to pertain only to the subject of the dispute; the Service responsibility to complete all actions under the MOA that are not subjects of the dispute will remain unchanged.

AMENDMENTS

This MOA may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date a copy is signed by all signatories and filed with the ACHP.

DURATION

This MOA shall continue in full force and effect until three (3) years after the date of the last signature of a signatory party or the completion of the Project and the fulfillment of Stipulations, whichever comes first.

If any signatory to this MOA determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties in an attempt to develop an amendment to the MOA. If, within 30 days (or another time period agreed to by all signatories), an amendment cannot be reached, any signatory may terminate the MOA upon written notification to the other signatories. In the event that the MOA is terminated, the Service will either execute a revised MOA with signatories pursuant to 36 CFR § 800.6(c) or request the comments of the ACHP under 36 CFR §800.7(a).

EXECUTION of this Agreement by the Service and the CTSHPO, its subsequent filing with the ACHP, and implementation of its terms, evidences that the Service has afforded the ACHP the opportunity to comment on the Project and that the Service has taken into account the effects of the Project on historic and archaeological resources.

SIGNATORIES

U.S. FISH AND WILDLIFE SERVICE

*Acting
for*
Eric L. Dertlebe
Thomas R. Chapman, Supervisor, New England Field Office

Date: 6/24/2016

CONNECTICUT STATE HISTORIC PRESERVATION OFFICE

Kristina Newman-Scott
Kristina Newman-Scott, State Historic Preservation Officer

Date: 6/30/16