UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
GREATER ATLANTIC REGIONAL FISHERIES OFFICE
55 Great Republic Drive
Gloucester, MA 01930

April 20, 2023

Laura A. Shick
Environmental Review Division
U.S. Department of Transportation
Federal Railroad Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

Re: Re-Initiation of Consultation, FRA Amtrak Connecticut River Bridge Replacement, Old Saybrook& Old Lyme, CT

Dear Ms. Shick:

We have completed our consultation under section 7 of the Endangered Species Act (ESA) in response to your letter received January 13, 2023, and revised March 3, 2023, regarding the above-referenced proposed project. In your letter, you made the preliminary determination that reinitiation of our previous consultation, dated August 28, 2013, is necessary due to changes in the design of the proposed project and because of the 2017 designation of Atlantic sturgeon critical habitat. You also requested our concurrence that the project, as modified by the described changes, is not likely to adversely affect listed species or designated critical habitat. Based on the information and analysis you provided, we concur with your determination that reinitiation of consultation is required as a result of the proposed modifications and critical habitat designation. Furthermore, based on our knowledge, expertise, and your materials, we concur with your conclusion that the proposed action is not likely to adversely affect any NMFS ESA-listed species or designated critical habitat. Therefore, no further consultation pursuant to section 7 of the ESA is required.

We would like to offer the following clarifications to complement your incoming request for consultation. As reported in the email from your office on April 13, 2023, the proposed project is expected to start in February of 2024 and is expected to be completed by September of 2029 (an estimated duration of 68 months). The action area is defined as "all areas to be affected directly or indirectly by the federal action and not merely the immediate area involved in the action" (50 CFR §402.02). Therefore, we agree with your description of the action area. Regarding listed species presence in your action area, there are four distinct population segments (DPSs) of Atlantic sturgeon listed as endangered (New York Bight, Chesapeake Bay, Carolina and South Atlantic) and one DPS listed as threatened (Gulf of Maine). Individuals from all DPSs have the potential to occur in the action area. As for the presence of listed sea turtle species, the threatened Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead and North Atlantic DPS of green, and the endangered Kemp's ridley and leatherback sea turtles can seasonally occur in your action area.

As part of your analysis effects of turbidity from conventional mechanical clamshell dredging, elevated suspended sediment levels of up to 191 mg/L could be present within a 2,400-foot

radius (732 meters) from the location of the dredge. We agree with your determination that the effects of turbidity on listed species in your action area are too small to be meaningfully measured or detected, and are therefore, insignificant. Lastly, regarding your analysis of effects to PBF 2 of Atlantic sturgeon designated critical habitat, the 1.04 acres of PBF 2 that will be impacted by the project's different components constitute a small (1.57 percent) of the 66 acres of soft bottom you determined to be present within the action area. We agree with your determination that the effects to the conservation function of PBF 2 will be too small to be meaningfully measured or detected, and therefore, will be insignificant.

On July 5, 2022, the U.S. District Court for the Northern District of California issued an order vacating the 2019 regulations that were revised or added to 50 CFR part 402 in 2019 ("2019 Regulations," see 84 FR 44976, August 27, 2019) without making a finding on the merits. On September 21, 2022, the U.S. Court of Appeals for the Ninth Circuit granted a temporary stay of the district court's July 5 order. On November 14, 2022, the Northern District of California issued an order granting the government's request for voluntary remand without vacating the 2019 regulations. The District Court issued a slightly amended order two days later on November 16, 2022. As a result, the 2019 regulations remain in effect, and we are applying the 2019 regulations here. For purposes of this consultation and in an abundance of caution, we considered whether the substantive analysis and conclusions articulated in the letter of concurrence would be any different under the pre-2019 regulations. We have determined that our analysis and conclusions would not be any different.

Reinitiation of consultation is required and shall be requested by the federal agency or by us, where discretionary federal involvement or control over the action has been retained or is authorized by law and: (a) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this consultation; or (c) If a new species is listed or critical habitat designated that may be affected by the identified action. No take is anticipated or exempted. If there is any incidental take of a listed species, reinitiation would be required. Should you have any questions about this correspondence please contact Roosevelt Mesa at (978) 281-9186 or by email at Roosevelt.Mesa@noaa.gov. For questions related to Essential Fish Habitat, please contact Sabrina Pereira with our Habitat and Ecosystem Services Division (978) 675-2178 or by email at Sabrina.Pereira@noaa.gov.

Sincerely,

Jennifer Anderson

Jennifer Anderson
Assistant Regional Administrator
for Protected Resources

EC: Pereira, NMFS/HESD; Nadjkovic, FRA
ECO: GARFO-2023-00357
File Code: H:\Section 7 Team\Section 7\Non-Fisheries\Federal Railroad\Conn River Bridge Replacement\FRA Amtrak CT River Bridge Replacement Old Saybrook CT_2023 reinitiation

U.S. Department
of Transportation

Federal Railroad Administration

1200 New Jersey Avenue, SE
Washington, DC 20590

December 29, 2022

Ms. Jennifer Anderson
Assistant Regional Administrator for Protected Resources
NOAA National Marine Fisheries Service
Greater Atlantic Region Protected Resources Office
55 Great Republic Drive
Gloucester, MA, 01930-2276
Via email: nmfs.gar.esa.section7@noaa.gov

Re: Request for Reinitiation of Section 7 Informal Consultation
Amtrak Connecticut River Bridge Replacement Project
Old Saybrook & Old Lyme, CT

Dear Ms. Anderson:

The Federal Railroad Administration (FRA) is providing financial assistance to the National Railroad Passenger Corporation (Amtrak) to replace the Connecticut River Bridge, which became operational in 1907 and is nearing the end of its useful life. The existing bridge is located along Amtrak's Northeast Corridor (NEC) at Milepost 106.89 between Old Saybrook and Old Lyme, Connecticut (Latitude: 41°18'39.32"N, Longitude: 72°20'54.96"W).

FRA anticipates providing funding for design and/or construction of the Connecticut River Bridge Replacement Project (the Project). Pursuant to the National Environmental Policy Act of 1969 (42 USC &4321 et seq.) (NEPA) and FRA's NEPA procedures, FRA and Amtrak prepared an Environmental Assessment (EA) in May 2014 for the Project. FRA issued a Finding of No Significant Impact (FONSI) in 2017. Amtrak has advanced the design for the channel specifications and the bridge clearances since FRA's issuance of the FONSI in 2017. FRA has determined that there will be effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered. With this letter, FRA requests reinitiation of consultation and seeks concurrence with our finding of "not likely to adversely affect" in accordance with Section 7 of the Endangered Species Act (ESA).

Consultation History

As part of the NEPA process for the Project, FRA submitted a request to NOAA National Marine Fisheries Service (NMFS) on June 17, 2013, to initiate informal Section 7 consultation (see *Enclosure A*). FRA's letter included relevant excerpts from the EA and concluded that the Project is not likely to adversely affect the following ESA-listed species under NMFS jurisdiction: shortnose sturgeon (*Acipenser brevirostrum*) and Atlantic sturgeon (*Acipenser oxyrinchus*). In an August 28, 2013, response, NMFS concurred with FRA's determination and stated no further consultation pursuant to Section 7 of the ESA was required for the Project (see *Enclosure B*).

Since that time, Amtrak has advanced the engineering design for the Project and is seeking several federal and state permits. Because of the design advancement, a request from the U.S. Coast Guard, and a new critical habitat designation for Atlantic sturgeon, FRA sent a request to reinitiate Section 7 consultation

request by letter to your office on August 31, 2020 (see *Enclosure C*). NMFS's September 15, 2020, response email identified the Atlantic sturgeon, shortnose sturgeon, and four sea turtles (Kemps ridley sea turtle [*Lepidochelys kempii*], loggerhead sea turtle [*Caretta caretta*], green sea turtle [*Chelonia mydas*], and leatherback sea turtle [*Dermochelys coriacea*]) as having the potential to be present in the general project vicinity (see *Enclosure D*). NMFS also disclosed the designation of a portion of the Connecticut River, including where the Project is located, as critical habitat for the New York Bight Distinct Population Segment (DPS) for Atlantic sturgeon. At that time, NMFS did not reinitiate consultation but requested additional information regarding potential project impacts to listed species and critical habitat.

The Project team is preparing a NEPA re-evaluation to assess any new potential impacts from the advanced engineering design and newly proposed incidental dredging (described below) and to account for the new critical habitat designation and other changes in environmental conditions since FRA's original NEPA decision. No changes to the Project's action area from the previous NMFS consultation are anticipated. Below please find the relevant excerpts from the draft NEPA re-evaluation, the 2017 FONSI, and the 2014 EA. This re-initiation of Section 7 informal consultation focuses primarily on the Connecticut River being designated as a critical habitat for the Atlantic sturgeon as well as addressing any potential impacts to listed species due to the updated Project design and proposed mitigation.

Updated Project Design and Potential Dredging

Project Design Refinements

Amtrak has advanced the design for the channel specifications and the bridge clearances since FRA's issuance of the FONSI in 2017. The proposed new bascule bridge would slightly increase the width of the existing channel from 148 feet to 150 feet and slightly shift the east edge of the channel 16.5 feet west towards the center of the Connecticut River. Because of the off-center nature of the existing channel and its location close to the eastern shoreline, the ebb tide current tends to pull marine vessels into Pier 5 (the west channel pier). Widening the horizontal clearance of the channel by two feet and relocating it westward towards the center of the river by 16.5 feet is expected to improve the safety for vessels passing beneath the bridge and reduce the risk of vessel-bridge pier collisions.

The new bridge would also provide a vertical clearance of 24 feet in the closed position—an increase of six vertical feet compared to the existing bridge. During the Project planning phase, several maritime stakeholders (including the Connecticut Marine Trades Association) requested an increase in the vertical clearance when the bridge is in the closed position, which Amtrak has accommodated in the new design plans. In the open position, the vertical clearance would be unlimited for a 90-foot-wide portion of the channel. The full channel width would have at least 74 feet of vertical clearance.

The number and nature of bridge support structures remains unchanged from the original design. Construction would require removal of seven existing piers and installation of nine new piers: six approach piers comprising drilled shafts supporting a reinforced concrete pier cap, one approach pier comprising a spread footing constructed within a cofferdam, and two moveable span piers comprising drilled shafts supporting a large concrete cap. It is assumed that 4.5-foot diameter drilled shafts would be sufficient for most piers, except at the west approaches, where 7-foot diameter drilled shafts may be required. Three drilled shafts would be required for each approach pier. Construction of the piers in this fashion would eliminate the need for cofferdams for this activity, except at Pier 9 for construction of the spread footing. In total, each new pier would take approximately two to three months to construct. Multiple piers would be constructed simultaneously. There is no change in methods described in the EA for removal of the existing bridge superstructure, which would be removed in its entirety following completion of construction of the new bridge. An approximately 53,400 square foot area of bridge structure would be removed, while the area of the proposed new approach and bascule span superstructure is approximately 62,800 square feet, a net increase of 9,400 square feet of overwater cover. The current proposed compensatory mitigation, described below under *Wetland and Open Water Impacts and Proposed Mitigation*, includes the enhancement of approximately 11-acres of brackish wetlands and the preservation of upland buffer along the Lieutenant River, approximately 0.5 mile east of the bridge replacement site, to mitigate for

approximately 3.7 acres of permanent impact. A mitigation ratio of 3:1 is proposed for permanent impacts to intertidal wetlands and unconsolidated shore. The current conceptual compensatory mitigation plan for the proposed Project may be modified based on agency input as the permitting process advances.

At the time of the 2014 EA, dredging activity was not foreseen. However, upon further design, Amtrak determined that incidental dredging would be required for the following:

- The removal and installation of submarine cables in the Connecticut River;
- Removal of unsuitable/unstable material under the proposed embankments, at the retaining walls, abutments, piers, and riprap scour protection; and
- Removal of material for additional water depth adjacent to the temporary trestle work platforms at each abutment for construction barge access.

An excavator or clamshell bucket dredge would be used for removal of sediment and unsuitable material. Dredging would occur within approximately 1.1 acres of subtidal and deepwater habitats of the Connecticut River not currently maintained by dredging. The technical specifications for construction restrict unconfined underwater excavation and dredging between March 1 and September 30. No dredging activity of any kind would occur from April through June to minimize disturbance to diadromous fish per CTDEEP recommendations. Dredging activities will be performed intermittently during the permissible work windows over a period of approximately two years. The total time available for unconfined dredging during this period is approximately eight months. Dredging work activities can be performed in multiple locations simultaneously as needed to complete work within the allowable timeframe.

Table 1 presents the anticipated approximate dredged/excavated material volumes, including one foot of over-dredge depth, for each activity below the mean high water (MHW) elevation of 1.71'. As shown in Table 1, a total of approximately 55,135 cubic yards of material would be removed below MHW. Dredged material would primarily consist of silt/sand sediments, while the excavation/dredging for the retaining walls, abutments, and riprap would also remove rocks, cobbles/gravel and sand. Prior to performing excavation or dredging, the Contractor responsible for the work will be required to collect sediment samples and perform chemical contaminant and physical analysis to determine the suitability of dredged materials for reuse. Dredged/excavated material not suitable for reuse due to structural concerns would be transported to an appropriate off-site upland facility (to be determined by the contractor) for temporary storage and chemical pollutant analysis prior to final disposition at an approved disposal site based on any contaminants identified during sediment testing. Material removed during dredging for submarine cable installation, if determined to be suitable for reuse, would be stored on a barge within a turbidity curtain and replaced in situ to backfill the trench after the installation of the cable. Material that is unsuitable for reuse as backfill for the submarine cable trench will be replaced with a suitable granular fill material to match the material removed during exploratory sampling. The approximate duration of the dredging and backfilling operation for submarine cables is one month. The unsuitable/unstable material under the proposed embankments would be replaced with free-draining material fill. The material dredged from the areas of the proposed retaining walls, abutments, and piers would be replaced with the proposed retaining walls, abutments, and piers. Dredged material from the base of the proposed embankments and at the base of the retaining walls and abutments would be replaced with riprap. The approximate amount of riprap to be installed remains unchanged from the previous design.

Table 1: Anticipated Volumes of Dredged and Excavated Material Below Mean High Water*

Excavation/ Dredging Adjacent to Embankment (cubic yards)	Excavation/ Dredging for Retaining Wall, Abutment, and Riprap (cubic yards)	Dredging for Temporary Trestle Structure for Barge Access (cubic yards)	Dredging for DrilledPiers (cubic yards)	Dredging for Submarine Cables (cubic yards)	Total (cubic yards)
± 25,000					**±55,135**

	± 15,570	± 6,820	± 4,590	± 3,155	

*Includes one foot overdredge

Wetland and Open Water Impacts and Proposed Mitigation

Amtrak minimized the impacts to tidal wetlands and open water of the Connecticut River to the extent possible through the use of retaining walls, riprap slopes, and other design measures that reduced the footprint of permanent impact and temporary disturbance, while improving the navigation benefits of the proposed Project. When considering the total impacts, the Essential Fish Habitat (EFH) assessment, submitted to NMFS under separate cover, uses field delineated wetland boundaries as the limit of disturbance. For state permitting and mitigation calculation purposes, impacts were calculated using the Connecticut Coastal Jurisdiction Line +1 ft. (CJL+1) as the limit of disturbance. Based on the CJL+1, the current proposed Project would result in permanent impact to approximately 3.7 acres of wetlands and open water and temporary impact to approximately 4.5 acres of wetlands and open water (see *Enclosure E*). Construction of the current proposed mitigation sites, described below, would result in temporary impact to approximately 10.5 acres of wetlands. The removal of the existing Connecticut River Bridge structures would result in approximately 0.27 acre of restored open water habitat.

While the Long Island Sound Blue Plan[i] mapping database does not indicate the presence of submerged aquatic vegetation (SAV) in the action area, Amtrak performed field surveys in August/September 2020 and on October 1, 2022 to confirm the presence or absence of SAV within the limits of Project disturbance. In August/September 2021, one approximately 0.35 acre area containing SAV was mapped during field surveys of the Project area. The area was located on the Old Saybrook side of the river, along the south side of the railroad embankment, just southwest of the railroad bridge. The mapped area was characterized by a limited amount (+/- 2% coverage) of eelgrass (*Zostera marina*), within an area dominated by gutweed (*Ulva intestinalis*), an algae. A more recent survey conducted in October 2022 found gutweed in this area, but there was no SAV present within the project disturbance limits. One approximately 0.06 acre area of sparse eelgrass was observed approximately 15-20 feet to the south of the Project disturbance limits. Based on the recent SAV survey, construction of the proposed Project would not result in any direct impact to SAV.

Amtrak is currently determining compensatory measures for permanent wetland impacts in coordination with CTDEEP and USACE through their respective permitting processes. Amtrak has identified two mitigation sites that could provide approximately 11 acres of mitigation through enhancement and restoration of degraded brackish wetlands. These two sites are located near the proposed project and fall within the larger coastal wetland system that is ecologically connected to the areas of Project-related impacts. The 17 Shore Road property is a 15-acre parcel, of which 12.22 acres are mixed wetlands, located along the Lieutenant River approximately 0.5 mile east of the bridge replacement site, and abuts the Amtrak right-of-way to the south. The parcel contains a mixture of uplands, palustrine forested wetlands, and estuarine emergent brackish wetlands. The mitigation plan includes restoration of approximately 6.7-acres of brackish wetlands at this site by increasing tidal flows, cleaning ditches, and excavating tidal pools and tidal flow paths to increase the proportion of the low marsh zone with regular tidal inundation and high marsh zone with periodic tidal inundation. Natural flow patterns would be recreated through widened, interconnected channels. Increased flow would result from clearing out accumulated sediment and marsh growth from existing channels, repairing, opening, and lining an existing four-foot culvert, and installing a new culvert under the access road to restore hydraulic connectivity that was previously impacted by construction of the railroad and access road. Additionally, invasive vegetation within uplands bordering the marsh would be removed and replaced with native shrubs, and the remainder of the site would be preserved as a vegetated wetland buffer. For additional benefits at this site, abutting wetland properties are to be utilized. The restoration plan would achieve a mitigation credit of 0.5-acre due to the preservation of 8.0 acres of vegetated wetland buffer; a mitigation credit of 0.1-acre for enhancement of a portion of the wetland within Amtrak's right-of-way that is located adjacent to the mitigation area; and a mitigation credit of 0.4 acre for enhancement of Nature Conservancy property wetlands adjacent to the improved area; bringing the total mitigation at this site to 7.7-acres. The Amtrak-owned property is a 3.25-acre parcel located between the Lieutenant River and Marvins Creek, on the south side of the tracks. Approximately 3.3 acres of

brackish wetland would be enhanced/restored by creating tidal channels that allow the daily high tide to reach a larger portion of the wetland and increase soil salinity. In addition, an ILF/mitigation bank payment may be made at a rate to be determined in coordination with the USACE. The current conceptual compensatory mitigation plan for the proposed Project may be modified based on agency input as the permitting process advances.

Updated Species and Critical Habitat in the Action Area

The action area for the proposed Project includes the area within 0.5 miles of the Project site and mitigation site and is comprised of the footprint of the proposed new bridge, the existing bridge, areas used by work vessels and equipment staging, as well as the surrounding waters of the Connecticut and Lieutenant Rivers where the effects of in-water construction activities described below would be experienced. Atlantic sturgeon, shortnose sturgeon, and the four sea turtles that have the potential to be present in the action area were discussed in the 2014 EA. In September 2017, NMFS designated the portion of the Connecticut River where the proposed Project is located as critical habitat for the New York Bight Distinct Population Segment (DPS) of Atlantic sturgeon (50 CFR § 226.225). The New York Bight DPS, which includes the Connecticut River population of Atlantic sturgeon, is one of the populations protected under the ESA.

Atlantic Sturgeon/ Critical Habitat for Atlantic Sturgeon

According to the NMFS ESA Section 7 Mapper[ii], migrating and foraging subadult and adult Atlantic sturgeon may occur in the full reach of the Connecticut River, as well as the segment of the Lieutenant River where the mitigation site will be constructed, between mid-April through November while juveniles may occur year round**.** As discussed in the EA, although Atlantic sturgeon are expected to occur at least intermittently in the action area, the species is not found there in exceptionally high abundance based on its distribution within the Connecticut River and Long Island Sound and its association with deep-water areas of the river[iii] [iv]. The majority of Atlantic sturgeon (post-migrant juveniles) collected during trawl surveys in Long Island Sound and the lower portion of coastal rivers have been found in the Central Basin area of Long Island Sound[v] [vi]. Only a small percentage of those Atlantic sturgeon have been observed in the lower part of the Connecticut River. Atlantic sturgeon occurring in the action area are typically subadults (<1,100 mm fork length) primarily from the Hudson River population[vii] [viii]. Once they enter the river during late spring (May), the majority of Atlantic sturgeon are found in discrete, deep-water areas (>9 m in depth) upstream (RM 6-16) of the action area[ix]. Atlantic sturgeon leave the Connecticut River during early fall (September). There is not a spawning population in the Connecticut River[x]; therefore, Atlantic sturgeon eggs, larvae, and early juveniles (age-0 and 1) are not expected to occur in the action area. Based on recent correspondence with NMFS dated September 15, 2020 (see *Enclosure D*), juvenile Atlantic sturgeon are expected to occur in the action area, in addition to the subadults and adults already known to occur there. A study published in 2017 documented a small population of juvenile Atlantic sturgeon in the lower portion of the river between May and October, likely because the Connecticut River hosted a successful natural reproduction event in 2013[xi].

The Project and its associated action area are located within designated Atlantic sturgeon critical habitat (New York Bight DPS, Connecticut River Unit). River features crucial to the reproduction and recruitment in Atlantic sturgeon were considered when determining critical habitat. NMFS identified the following physical and biological features (PBFs) as essential to the conservation of Atlantic sturgeon[xii]:

- PBF #1—Hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0 to 0.5 parts per thousand (ppt) range) for settlement of fertilized eggs, refuge, growth, and development of early life stages;

- PBF #2—Aquatic habitat with gradual downstream salinity gradient of 0.5 up to as high as 30 ppt and soft substrate (e.g., sand, mud) between the river mouth and spawning sites for juvenile foraging and physiological development;

- PBF #3—Water of appropriate depth and absent physical barriers to passage (e.g., locks, dams,

thermal plumes, turbidity, sound, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support: (i) unimpeded movement of adults to and from spawning sites; (ii) seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary; and (iii) staging, resting, or holding of subadults or spawning condition adults. Water depths in main river channels must also be deep enough (e.g., at least 1.2 m) to ensure continuous flow in the main channel at all times when any sturgeon life stage would be in the river;

- PBF #4—Water, between the river mouth and spawning sites, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support: (i) spawning; (ii) annual and interannual adult, subadult, larval, and juvenile survival; and (iii) larval, juvenile, and subadult growth, development, and recruitment (e.g., 13°C to 26°C for spawning habitat and no more than 30°C for juvenile rearing habitat, and 6 milligrams per liter (mg/L) dissolved oxygen (DO) or greater for juvenile rearing habitat.

The Project's action area contains physical and biological features identified under PBFs #2, #3, and #4. Spawning habitat (PBF #1) does not occur in the action area, which is located too far downstream in high salinity waters and does not contain suitable hard substrate.

Shortnose Sturgeon

Based on recent correspondence with NMFS dated September 15, 2020 (see *Enclosure D*), spawning and early life stages of shortnose sturgeon are not expected to occur within the action area, but transient juveniles and adults could opportunistically forage in action area. According to the NMFS ESA Section 7 Mapper[xiii], migrating and foraging juvenile and adult shortnose sturgeon may also occur year-round in the reach of the Lieutenant River where the mitigation site is located. Juveniles and adults are expected to use these areas as overwintering grounds from mid-November to mid-April[xiv]. Shortnose sturgeon spawn in the spring between late April and late May at spawning grounds located well upstream of the action area near Montague, MA (RM 120)[xv]. Because of the location of spawning areas well upstream of the salt front and the action area, early life stages of shortnose sturgeon (eggs, larvae, juveniles age-0 and 1) do not occur in the action area[xvi]. Older juveniles are also not likely to occur in the action area during the spring and summer months as they typically migrate upstream during this time of the year[xvii]. Even during the rest of the year, juveniles are more commonly found upstream of the salt front.

Shortnose sturgeon are most likely to occur in the action area between late April and mid-May when river flows are greatest and salinities are low[xviii]. By mid-June, most shortnose sturgeon migrate to foraging areas upstream of RM 12 where they spend the summer months (August – October) foraging near the Holyoke Dam (RM 87) [xix]. During the fall months, adult shortnose sturgeon migrate to overwintering habitats near the spawning grounds in the freshwater portion of the river and remain there until spring[xx] [xxi].

Sea Turtles

NMFS correspondence dated September 15, 2020 (see *Enclosure D*) identified four species of sea turtles seasonally present in Long Island Sound and adjacent systems, including the Project area: Kemps ridley sea turtle, loggerhead sea turtle, green sea turtle, and leatherback sea turtle. According to the NMFS ESA Section 7 Mapper[xxii], migrating and foraging juvenile and adults of these species may occur seasonally in the area of the bridge replacement project as well as mitigation site. Sea turtles could pass through the action area in search of areas that support foraging, and may occasionally occur in the action area between May and November, with the highest concentration presence from June through October. The Kemps ridley sea turtle occurs in Long Island Sound and, in New York, has been documented as the most abundant sea turtle[xxiii]. Although the loggerhead sea turtle is found in concentrated numbers within New England, it is rarely found in Connecticut Waters[xxiv]. Green sea turtles have never been found along Connecticut's shorelines, but they may occasionally migrate through Connecticut's waters[xxv]. Leatherback sea turtles feed almost exclusively on jellyfish in offshore marine environments and are not expected to occur in the action area. These four species neither nest in the Connecticut River nor reside there year-round. Therefore, these species are only expected to occur within the action area as occasional transients.

Updated Effects Analysis

The effects of the updated proposed action on ESA species are summarized below for each potential stressor analyzed.

Sound

The NMFS Greater Atlantic Regional Fisheries Office (GARFO) Acoustics Tool[xxvi] was used to determine noise thresholds and to assess the potential effects to sturgeon and sea turtles exposed to elevated levels of underwater sound anticipated to be produced during construction of the proposed Project. In addition to the "peak" exposure criteria which relates to the energy received from a single pile strike, the potential for injury exists for multiple exposures to noise over a period of time; this is accounted for by the cSEL threshold. The cSEL is not an instantaneous maximum noise level but is a measure of the accumulated energy over a specific period of time (e.g., the period of time it takes to install a pile). Exposure to underwater noise levels of 206 dB re $1\mu Pa_{Peak}$ and 187 dB_{cSEL} can result in injury to sturgeon. Behavioral effects, such as avoidance or disruption of foraging activities, may occur in sturgeon exposed to noise above 150 dB re $1\mu Pa_{RMS}$. Similarly, exposure to underwater noise levels of 226 dB re $1\mu Pa_{Peak}$ and 189 dB_{cSEL} can result in injury to sea turtles. Behavioral effects, such as avoidance or disruption of foraging activities, may occur in sea turtles exposed to noise above 175 dB re $1\mu Pa_{RMS}$.

Drilling

Eight of the nine new bridge piers would be installed using drilled shafts rather than pile driving to reduce underwater noise impacts. Pier 9 would be constructed on a spread footing within a cofferdam. Compared to other methods of pile installation such as vibratory or impact pile driving, drilling provides a relatively quiet option by which to install piles[xxvii]. Noise at close range to pile drilling (30 m from the drilling operation) is anticipated to average 122 dB re 1µPa, which is below the levels thought to cause injury to sturgeon (206 dB re $1\mu Pa_{Peak}$ and 187 dB_{cSEL}) and sea turtles (226 dB re $1\mu Pa_{Peak}$ and 189 dB_{cSEL}), and only slightly higher than ambient noise levels (116 dB re 1µPa[xxviii]). The anticipated noise level is also below the levels thought to cause behavioral avoidance by sturgeon and sea turtles (150 dB re $1\mu Pa_{RMS}$ and 175 dB re $1\mu Pa_{RMS}$, respectively). Therefore, noise effects to sturgeon and sea turtles from drilling activities are discountable.

Pile driving

Pile driving within water is required for the construction of the west retaining wall, the construction of temporary trestle work platforms on the east and west abutments of the Connecticut River, the installation of a temporary trestle bridge over the Lieutenant River during construction of the mitigation site, and the installation of cofferdams.

The depth of water at the west retaining wall is no more than five feet. 14-inch Steel H-piles would be installed using impact hammers with plywood cushions within a cofferdam approximately 31 feet wide and 433 feet long.

Water depths where pile driving would occur for temporary trestle work platforms at the east and west abutments of the Connecticut River range from 0 to 12 feet. A total of 112 piles would be temporally installed along the east bank and 140 piles would be temporarily installed along the west bank. Steel Pipe piles between 30-inch and 36-inch diameter would be installed using a combination of vibratory and impact hammers; the use of 36-in Steel Piles is assumed for this analysis.

Water depths where pile driving would occur for the temporary trestle bridge over the Lieutenant River range from 0 to 8 feet. Twelve temporary 36-inch Steel Pipe piles would be installed using a combination of vibratory and impact hammers.

Cofferdams would be installed during construction of retaining walls, Pier 9, and bridge abutments, as well as during the demolition of existing piers, to minimize underwater noise. Water depth at the retaining walls and abutments varies approximately zero to 10 feet; water depth at Pier 9 is approximately 6 feet; and water

depth for demolition of existing piers varies from approximately 5 feet to 25 feet deep. Cofferdam construction would entail the installation of a series of interlocking 24-inch wide steel sheets using a vibratory hammer. The cofferdams would also prevent sturgeon and sea turtles from entering the work area. Cofferdams would remain in place for the extent of these activities; it is assumed that sheet piling for new construction would take approximately 15 weeks in aggregate but would likely occur during three separate periods (east side, west side, Pier 9), and demolition of existing piers would take approximately 22 weeks.

The estimated noise at the source of pile driving noise and distance to relevant thresholds for species in the action area was determined based on the GARFO Acoustic Tool spreadsheet (version updated 09/14/2020). Where exact water depths were not available for proxy projects, the nearest available water depths were used to calculate the estimates. For the 36" Steel Pipes, which would be installed using both impact and vibratory hammers, only the more conservative impact hammer was available as a proxy. Tables 2-5 were created using the GARFO Acoustic Tool and present the estimated sound levels and distances to species injury and behavioral thresholds associated with the proposed pile driving activities for the west retaining wall, temporary trestle work platforms, temporary trestle bridge, and cofferdam installations.

Table 2: Proxy Projects for Estimating Underwater Noise

Project Location	Water Depth (m)	Pile Size (inches)	Pile Type	Hammer Type	Attenuation rate (dB/10m)
Not Available	6	14"	Steel H-Type	Impact	5
Not Available	<5	36"	Steel Pipe	Impact	5
Not Available	15	24"	AZ Steel Sheet	Vibratory	5

Table 3. Proxy-Based Estimates for Underwater Noise

Type of Pile	Hammer Type	Estimated Peak Noise Level (dB_{Peak})	Estimated Pressure Level (dB_{RMS})	Estimated Single Strike Sound Exposure Level (dB_{sSEL})
14" Steel H-Type	Impact*	208	193	177
36" Steel Pipe	Impact	208	190	180
24" AZ Steel Sheet	Vibratory	182	165	165
*Wood cushion block on impact hammer results in an 11 to 26 dB reduction from unattenuated impact hammer underwater sound levels and pile driving within a cofferdam results in a 5 dB reduction in underwater noise.				

Table 4. Estimated Distances to Sturgeon Injury and Behavioral Thresholds

Type of Pile	Hammer Type	Distance (m) to 206dB_{Peak} (injury)	Distance (m) to 150 dB_{sSEL} (surrogate for 187 dBcSEL injury)	Distance (m) to Behavioral Disturbance Threshold (150 dB_{RMS})
14" Steel H-Type	Impact	14.0	64.0	96.0
36" Steel Pipe	Impact	14.0	70.0	90.0
24" AZ Steel Sheet	Vibratory	NA	40.0	40.0

Table 5. Estimated Distances to Sea Turtle Injury and Behavioral Thresholds

Type of Pile						

	Hammer Type	Distance (m) to Sea Turtle TTS (SEL weighted) 189 dB_{RMS}	Distance (m) to Sea Turtle TTS (Peak SPL) 226 dB_{Peak}	Distance (m) to Sea Turtle PTS (SEL weighted) 204 dB_{SEL}	Distance (m) to Sea Turtle PTS (Peak SPL) 232 dB_{Peak}	Distance (m) to Sea Turtle Behavioral Threshold 175 dB_{RMS}
14" Steel H-Type	Impact	NA	NA	NA	NA	46.0
36” Steel Pipe	Impact	NA	NA	NA	NA	40.0
24" AZ Steel Sheet	Vibratory	NA	NA	NA	NA	NA

Based on these tables, in order for a sturgeon to be exposed to potentially injurious levels of noise during installation of the 14” Steel H-type piles with an impact hammer, it would need to be within 14 meters (46 feet) of a single strike or within 64 meters (210 feet) of the pile being driven over any prolonged time period. This is extremely unlikely to occur as it is expected that sturgeon would modify their behavior at 96 meters (315 feet) from the pile driving and quickly move away from the ensonified area before cumulative injury levels are reached. Estimated distances to sea turtle injury are not available, but sea turtles would be expected to modify their behavior at 46 meters (150 feet) from the installed piles and quickly move away from the ensonified area before injury levels are reached. It should be noted that these are conservative distances as the planned cushioning of the impact hammer with a wooden block would result in an 11 to 26 dB reduction from unattenuated impact hammer underwater sound levels. Also, pile driving within a cofferdam results in a 5 dB reduction in underwater noise.

In order for a sturgeon to be exposed to potentially injurious levels of noise during installation of the 36” Steel Pipe piles with an impact hammer, it would need to be within 14 meters (46 feet) of a single strike or within 70 meters (230 feet) of the pile being driven over any prolonged time period. This is extremely unlikely to occur as it is expected that sturgeon would modify their behavior at 90 meters (295 feet) from the pile driving and quickly move away from the ensonified area before cumulative injury levels are reached. Estimated distances to sea turtle injury are not available, but sea turtles would be expected to modify their behavior at 40 meters (131 feet) from the installed piles and quickly move away from the ensonified area before injury levels are reached.

In order to be exposed to potentially injurious or behavioral disturbance levels of noise during installation of the 24” steel sheet cofferdam piles with a vibratory hammer, a sturgeon would need to be within 40 meters (131 feet) of the pile being driven and be exposed to this noise for a prolonged time period. This is extremely unlikely to occur as it is expected that sturgeon would modify their behavior at 40 meters from the pile driving and quickly move away from the ensonified area before cumulative injury levels are reached. Estimated distances to sea turtle injury and behavioral thresholds are not available but are presumed to be no greater than 40 meters since behavioral and injury thresholds for sea turtles are higher than those of sea turtles. Sea turtles would also be expected to modify their behavior around 40 meters from the installed piles and quickly move away from the ensonified area before cumulative injury levels are reached.

If any movements away from an ensonified area of the action area do occur during pile driving, it is extremely unlikely that these movements would affect essential sturgeon or sea turtle behavior as the Connecticut River is sufficiently wide enough within the action area (approximately 2,200 feet) to allow individuals to avoid the ensonified area while continuing to forage and migrate. To further protect sturgeon, pile driving activities would be limited to periods outside of the spring upstream migration as identified by anticipated regulatory permit conditions. Based on this analysis, FRA has determined that the effect of sound from construction activities on sturgeon and sea turtles is too small to be meaningfully measured, detected, or evaluated. Therefore, the effects are insignificant.

Habitat Structure and Disturbance

The existing habitat characteristics of the action area provide suitable foraging for Atlantic and shortnose

sturgeon. Construction and operation of the proposed Project would not alter the available habitat in a way that prevents sturgeon or sea turtles from using the action area as foraging grounds. Additionally, construction and operation of the new bridge would not cause any obstruction to movements of sturgeon or sea turtles, nor would it impede the use of the area as migratory pathway.

As previously mentioned, the removal of the existing Connecticut River Bridge structures would result in approximately 0.27 acre of restored benthic and open water habitat. The loss of water column due to installation of the new bridge support structures would be offset by the removal of the existing bridge support structures. Similarly, the benthic habitat recovered by the removal of existing bridge structures would be rapidly colonized by the surrounding benthic fauna, thereby offsetting the loss of habitat associated with the new bridge construction. The area of shading under and around the new bridge is generally equal to the area currently shaded by the existing bridge, which would be removed; therefore, effects on listed species from shading would be insignificant.

The proposed compensatory mitigation plan would result in the restoration of approximately 11 acres of brackish wetlands hydrologically connected and in close proximity to the impacted area. The proposed restoration of brackish creeks, creation of brackish pools, and enhancement of existing emergent brackish wetlands compared to existing conditions provides new and/or enhanced aquatic habitat within the vicinity of the action area. The excavation of new tidal channels and the cleaning and widening of existing channels will increase tidal flow throughout the wetlands, expanding the regularly inundated low marsh zone and providing additional aquatic habitat within created tidal pools and channels. Restored low marsh would enhance existing habitat by improving the functions provided by the wetlands, such as nutrient and organic matter production and transport, nutrient and contaminant removal, and sediment trapping, as well as providing habitat for forage fish and invertebrate species. The restoration may benefit shortnose sturgeon and Atlantic sturgeon and their critical habitat by creating soft substrate foraging habitat within the new tidal pools and channels.

Amtrak consulted with the CTDEEP Fisheries Division in April 2020. In May 2020, CTDEEP recommended a series of construction related measures including lighting restrictions, work windows, and the use of vibratory hammers during certain times. In March 2022, CTDEEP recommended that all in-water work, including the installation and removal of the temporary trestle bridge over the Lieutenant River, be prohibited from March 1 to June 1, to protect the spawning migrations of diadromous fish (see *Enclosure F* for CTDEEP correspondence). Seasonal in-water activity restrictions ensure that migratory pathways are not obstructed for spawning shortnose or Atlantic sturgeon. The proposed Project would implement all recommended conservation measures and seasonal restrictions.

When considering the localized nature of the Project-related impacts, the habitat gained by removal of the existing bridge, the implementation of the proposed compensatory mitigation plan, and the adherence to seasonal in-water work restrictions and conservation measures, the effects to sturgeon and sea turtles from the disturbance of potential habitat is too small to be meaningfully measured, detected, or evaluated. Therefore, effects are insignificant.

Dredging

Aquatic species can be captured in dredge buckets and may be injured or killed from entrapment in the bucket or burial in sediment during dredging and/or when sediment is deposited into the dredge scow. The action area is not known to support high densities of sturgeon or sea turtles. If a sturgeon or sea turtle were to be present during dredging, these highly mobile species would be expected to be able to move to avoid a slow-moving dredge bucket. Turbidity curtains, which would be installed with a minimum 1-foot gap at the river bottom, would also prevent sturgeon and sea turtles from encountering dredge equipment. Dredging activities would be localized and temporary and be performed outside of migratory time periods consistent with anticipated permit conditions and with recommended minimization and avoidance measures. Therefore, it is extremely unlikely that any sturgeon or sea turtle would be captured, injured, or killed as a result of entrapment in a dredge bucket.

A history of commercial and industrial use and existing combined sewer overflow located upstream of the Site indicate a possibility that sediments in the vicinity of the Project area may be contaminated[xxix]. Sediment sampling prior to dredging will confirm sediment characteristics, including grain size and contaminant levels. The use of closed bucket dredging can reduce suspended sediment concentrations in the water column, minimizing water quality impacts. Suspended sediments, turbidity, and water quality will be monitored prior to and during dredging, and minimization strategies, such as reducing speed of operations, will be implemented if suspended solids exceed established thresholds.

Total suspended solids (TSS) from conventional mechanical clamshell bucket dredging operations have been shown to range from 105 mg/L in the middle of the water column to 445 mg/L near the bottom (210 mg/L, depth-averaged)[xxx]. Furthermore, a study by Burton (1993)[xxxi] measured turbidity levels 500, 1,000, 2,000 and 3,300 feet from dredge sites in the Delaware River and were able to detect turbidity levels between 15 mg/L and 191 mg/L up to 2,000 feet from the dredge site. Based on these analyses, elevated suspended sediment levels of up to 445 mg/L may be present in the immediate vicinity of the clamshell bucket, and suspended sediment levels of up to 191 mg/L could be present within a 2,000-foot radius from the location of the clamshell dredge. TSS levels expected for mechanical dredging are below those shown to have adverse effect on sturgeon - sturgeon should not be exposed to TSS levels of 1,000 mg/L above ambient for longer than 14 days at a time to avoid behavioral and physiological effects[xxxii]. Additionally, turbidity curtains would be utilized to prevent the sediment loosened during dredging from entering the surrounding waters of the Connecticut River. The turbidity curtains would also prevent sturgeon and sea turtles from entering the area and thus, would prevent them from being exposed to the turbid water. Sediments in the dredge area are comprised primarily of coarse-grained sand in deeper channel areas and silt/sand near the shorelines and would not remain suspended for extended periods of time, especially because dredging would be performed intermittently as various Project elements are constructed. The river is approximately 2,200 feet wide in the action area and a sufficient zone of passage would be present for sturgeon and sea turtles to avoid any elevated turbidity.

While changes in behavior to avoid entrapment in a dredge bucket and/or increase in suspended sediments may cause sturgeon and sea turtles to alter their normal movements, any change in behavior due to dredging would be too small to be meaningfully measured or detected. Therefore, effects would be insignificant.

Water Quality

The effects of dredging on water quality are discussed above; however, other proposed in-water activities may increase turbidity in the action area. Studies of the effects of turbid waters on fish suggest that concentrations of suspended solids can reach thousands of milligrams per liter before an acute toxic reaction is expected[xxxiii]. Adverse effects have been shown above 580.0 mg/L for the most sensitive species of fish, with 1,000 mg/L more typical; see summary of scientific literature in Burton 1993[xxxiv]. Sturgeon should not be exposed to TSS levels of 1,000 mg/L above ambient for longer than 14 days at a time to avoid behavioral and physiological effects[xxxv].

Turbidity levels associated with drilling operations (average range of 10.0 to 120.0 mg/L)[xxxvi] [xxxvii] are expected to be only slightly elevated above background levels and are below those shown to have an adverse effect on sturgeon. Cofferdams would be installed to minimize suspended sediment concentrations during construction of retaining walls, Pier 9, and bridge abutments, as well as during the demolition of existing piers. Turbidity curtains would be used during construction of the new bridge and demolition of the existing bridge to contain and minimize the extent of sediment resuspension. As the construction activities would not produce TSS concentrations that would have an adverse effect on sturgeon and the effects of sediment resuspension would be minimized through the use of cofferdams and turbidity curtains, any effect on water quality from resuspended sediment would be too small to be meaningfully measured or detected.

No information is available on the effects of TSS on juvenile and adult sea turtles; however, sea turtles breathe air and would be able to swim away from the turbidity plume and are not expected to be adversely affected if they pass through the temporary plume[xxxviii]. Similarly, sturgeon are highly mobile and would either swim through the plume or make small evasive movements to avoid it. Movements to avoid

temporary plumes would also avoid exposure to potentially contaminated sediments in the water column as sediments would not remain suspended for extended periods of time. The proposed Project would likely not result in sturgeon or sea turtle exposure to pollutants or changes in water current or temperature. While the increase in suspended sediments may cause sturgeon and sea turtles to slightly alter their normal movements, the effect of these minor movements would be too small to be meaningfully measured or detected. Therefore, effects would be insignificant.

Prey Quantity/Quality

The soft bottom benthic community within the action area provides potential foraging habitat for Atlantic and shortnose sturgeon and three of the listed sea turtle species (leatherback sea turtles feed almost exclusively on jellyfish in offshore waters). Construction of the proposed Project would result in permanent and temporary impacts to benthic habitats. The permanently impacted benthic foraging habitat is a fraction of the similar available habitat in the lower Connecticut River and nearshore waters of the Long Island Sound and the rest of the 50,205 acres of subtidal habitat within the Connecticut National Estuary Research Reserve[xxxix]. FRA assumes 100% mortality for any sessile and infaunal benthic organisms present within the direct area of disturbance for installation of new structures or areas impacted by dredging/excavation activities across the 2.55 acres of temporarily and permanently disturbed soft substrate aquatic habitat. The direct loss of these organisms would have a highly localized effect and would not be expected to result in significant adverse impacts to the prey quantity/quality in the action area. TSS levels could reach levels that are toxic to benthic communities in the immediate vicinity of the clamshell bucket during dredging; however, the small area of the dredging activity (1.1 acres cumulatively over multiple months) would not result in meaningful reductions in the quality or quantity of prey currently available within the action area. Dense SAV beds that may provide foraging habitat for sturgeon and sea turtles are not present within the action area. While a limited amount (+/- 2% coverage) of eelgrass was observed during field surveys within an area dominated by gutweed south of the Project disturbance limits, the nearest mapped SAV bed is an isolated bed located approximately three miles from the Project area near the mouth of the Connecticut River and the nearest concentration of mapped SAV beds is over six miles away near the mouths of the Threemile and Fourmile Rivers[xl]. Based on the recent field surveys, construction of the proposed Project would not result in any direct impact to SAV. Potential indirect impacts would be minimized to the extent feasible by utilizing turbidity curtains to prevent the sediment loosened during construction activities from entering the surrounding waters where eelgrass may occur. Sediment resuspended during construction would be localized and dissipate quickly and have negligible impact on any sparse patches of SAV that may be present within the vicinity of the Project area when considering the temporal and spatial scale of the activity relative to ambient conditions. FRA acknowledges that SAV beds are dynamic and their extent and location could change over the duration of the Project. Therefore, annual monitoring of the existing SAV observed near the Project limits will be conducted to ensure there is no encroachment of eelgrass into the Project disturbance limits over the duration of Project construction.

The benthic communities surrounding temporarily disturbed areas are expected to recolonize the affected areas relatively quickly. Estuarine benthic invertebrates typically have evolved short times to maturity, high fecundities, and widely dispersed juvenile stages in response to the variable nature of their environment[xli]. As previously mentioned, the removal of the existing Connecticut River Bridge structures would result in approximately 0.27 acre of restored benthic and open water habitat. The benthic habitat recovered by the removal of existing bridge structures would be colonized by the surrounding benthic fauna, thereby offsetting a portion of the habitat loss associated with the construction of new structures. The new bridge support piers would provide new attachment substrate for the estuarine fouling community and foraging opportunities for those consumers that feed on attached biota, replacing the habitat currently provided by the existing bridge's in-water structures.

FRA has determined that the proposed Project would not have a significant effect on sturgeon or sea turtles from changes in the abundance, availability, accessibility, or quality of prey. The effects of the proposed action on prey quantity/quality for sea turtles and sturgeon are too small to be meaningfully measured, detected, or evaluated. Therefore, effects would be insignificant.

Vessels

The number of work vessels, primarily barges and push tugs, expected to be used simultaneously during construction would vary from two to 12. Baseline vessel traffic in this stretch of the Connecticut River consists of commercial traffic, mainly general contractors and the shipping of coal and oil by Moran Towing during the winter months. Commercial vessels include self-propelled dry cargo ships, towboats, and tugboats and non-propelled vessels such as barges and tankers. The river in the vicinity of the action area is also used heavily by recreational watercraft (power boats and sailing vessels) in May through October, when sturgeon and sea turtles are known to occur in the region. Sturgeon and sea turtles are likely to avoid injury from slower moving vessels since the individual has time to maneuver and avoid the vessel. As work vessel speeds would be limited to less than 10 knots, this would likely reduce the chances of collision with sturgeon and sea turtles. Therefore, it is not anticipated that vessel traffic associated with construction would result in a meaningful increase in the number of vessels above background levels, nor would work vessel movements be meaningfully different in speed, draft, or noise as compared with existing vessel traffic. There would be no increase in vessel traffic related to the proposed Project after construction is complete. The use of work vessels during construction of the proposed Project would not meaningfully increase the risk of interactions between sturgeon or sea turtles and vessels in the action area when added to baseline conditions. Based on this information, FRA has determined that any increase in the risk of vessel strike by deployment of work vessels during construction is too small to be meaningfully measured, detected, or evaluated. Therefore, the effects are insignificant.

In-Water Structures

The proposed Project would result in new in-water bridge support structures and the removal of existing in-water bridge structures. The loss of water column due to installation of the new bridge support structures would essentially be offset by the removal of the existing bridge support structures. The proposed new bascule bridge would provide for a navigation channel that slightly increases the width of the existing channel from 148 feet to 150 feet, with substantial open water areas remaining beneath the fixed span structures. As with the existing bridge support structures, these wide passages between structures are not expected to obstruct or impede sturgeon or sea turtle movements. The cofferdam to be temporarily installed during pile driving for construction of the west retaining wall would be approximately 31 feet wide and 433 long, thereby encompassing only 31 feet of the river's 2,200-foot width at this location, allowing ample space for sturgeon to migrate up and down the river. The effects of temporary construction structures and new in-water bridge support structures are too small to be meaningfully measured, detected, or evaluate. Therefore, the effects are insignificant.

Critical Habitat for Atlantic Sturgeon

The potential impacts of the proposed action on each PBF present in the action area are described in this section.

<u>PBF #2</u>

The Connecticut River in the vicinity of the action area is characterized by soft substrate and salinity levels ranging from less than 1 ppt to 30.5 ppt; therefore the action area contains physical and biological features identified under PBF #2. The proposed Project would result in the permanent loss of approximately 1.04 acres of soft substrate aquatic habitat and the temporary disturbance to approximately 1.51 acres of soft substrate aquatic habitat. This would modify designated critical habitat for Atlantic sturgeon (juvenile foraging and physiological development) and may temporarily displace them, but a 1.04 acres loss represents a small area relative to the available habitat within the approximately 547 kilometers (340 miles) of aquatic habitat in the Connecticut, Housatonic, Hudson, and Delaware rivers that is designated as critical habitat for the New York Bight DPS[xlii]. Additionally, the removal of the existing bridge would result in approximately 0.27 acre of restored benthic habitat and the proposed compensatory mitigation would provide additional soft substrate habitat within created tidal pools and channels. Therefore, the effects to the conservation function of PBF #2 would be too small to be meaningfully measured or detected and are thus insignificant.

<u>PBF #3</u>

Although the action area contains physical and biological features identified under PBF #3, Atlantic sturgeon are not expected to occur in significant numbers at this location. Transient sub-adults may be present as they move through shallower marine waters along the Atlantic coast and adults may be present as seasonal migrants in the deeper waters of the river channel within the action area. Given the width of the Connecticut River within the action area, the temporary addition of the cofferdams would not add a physical barrier to passage between the river mouth and upstream spawning sites necessary to support unimpeded movement of adults to and from spawning sites, seasonal movement of juveniles, and staging, resting, or holding of subadults or spawning condition adults. Additionally, the permanent impact to 1.04 acres of soft-bottom aquatic habitat would not create a physical barrier to fish passage. Sturgeon would have ample space to swim around temporary structures during construction. Additionally, seasonal in-water restrictions would prohibit turbidity causing activities during the sturgeon upstream migration period (late April through late July). Therefore, the effects to the conservation function of PBF #3 would be too small to be meaningfully measured or detected and are thus insignificant.

PBF #4

Temperature, salinity, and oxygen values of waters in the action area provide conditions that could support annual and interannual adult, subadult, and juvenile survival as well as juvenile and subadult growth, development, and recruitment. Therefore, the action area contains physical and biological features identified under PBF #4. Overwintering juvenile sturgeon are expected to occur much farther upstream in the river compared to the action area; any sturgeon that might occur in this region of the Connecticut River would likely be found in the deeper waters of the channel where water temperatures are warmer than those found in the shallower off-channel areas[xliii] [xliv], where the majority of in-water construction activity is proposed. As discussed above under water quality impacts, in-water activities would result in concentrations of TSS below those shown to have an adverse effect on sturgeon. Additionally, sediment resuspension would be minimized through the use of cofferdams and turbidity curtains, making any potential effect on water quality from resuspended sediment minimal and temporary. The proposed action would have insignificant effects on water depth, water flow, dissolved oxygen levels, salinity, temperature, or the ability for Atlantic sturgeon to migrate in the area. Therefore, the effects to the conservation function of PBF #4 would be too small to be meaningfully measured or detected and are insignificant.

Based on the analysis that the effects to the conservation functions of the three PBFs present within the action area would be too small to be meaningfully measured or detected and are insignificant, we have determined that the proposed action is not likely to adversely affect Atlantic sturgeon critical habitat.

Conclusion

The proposed Project would replace the Amtrak Connecticut River Bridge located between Old Saybrook and Old Lyme, Connecticut. Federally-listed shortnose sturgeon, Atlantic sturgeon, and four species of sea turtles are found seasonally within the action area. The action area also contains critical habitat for the New York Bight DPS for Atlantic sturgeon.

Based on the analysis that all effects of the proposed action, when added to the baseline conditions, would be insignificant and/or discountable, FRA has determined that the proposed action is not likely to adversely affect any listed species or critical habitat under NMFS jurisdiction. FRA concludes that the Project may affect, but is not likely to adversely affect Atlantic sturgeon, shortnose sturgeon, Kemps ridley sea turtle, loggerhead sea turtle, green sea turtle, and leatherback sea turtle. Additionally, the Project may affect, but is not likely to adversely affect Atlantic Sturgeon critical habitat. FRA requests your concurrence with these determinations. We have used the best scientific and commercial data available to complete this analysis. FRA understands that NMFS presumes that all activities would be implemented as described herein. FRA will promptly report any departures from the described activities to the Greater Atlantic Region Field Office.

If you have any questions about the Project or this request, please contact Amanda Nadjkovic, FRA Environmental Protection Specialist, at (984) 422-7127 or at amanda.nadjkovic@dot.gov. Please note that separate coordination is being undertaken with NOAA NMFS regarding potential impacts to Essential Fish

Habitat.

Thank you for working with FRA and Amtrak on this important rail improvement project.

Sincerely,

Laura A. Shick
Supervisory Environmental Protection Specialist
Environmental Review Division
Office of Environmental Program Management
Office of Railroad Development

Enclosures

Enclosure A – Request for Informal Consultation, June 17, 2013
Enclosure B – NMFS Concurrence, August 28, 2013
Enclosure C – Request for Re-initiation of Informal Consultation, August 31, 2020
Enclosure D – NMFS Response to Re-initiation, September 15, 2020
Enclosure E – Temporary and Permanent Wetland Impacts Plan
Enclosure F – CTDEEP Fisheries Division Correspondence, May 8, 2020 and March 21, 2022

Cc: Sabrina Pereira, NMFS Habitat and Ecosystem Services Division
Zach Jylkka, Protected Resources Division, Greater Atlantic Regional Fisheries, NOAA Fisheries
Paula Kullberg, USACE
Nathan Margason, US EPA
Amanda Nadjkovic, FRA
Clarissa Fuller, Project Manager, Amtrak
Craig Caldwell, Director of Environmental Projects, Amtrak
Blake Hamilton, Lead NEPA Specialist, Amtrak
Benjamin Hawthorne, Project Manager, Hardesty & Hanover
Leslie Mesnick, Environmental Task Coordinator, The Calladium Group

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[i] CT Dept. of Energy & Environmental Protection. 2019. Long Island Sound Blue Plan Map Viewer. https://cteco.uconn.edu/viewer/index.html?viewer=blueplan
[ii] https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27
[iii] Savoy,T.and D.Pacileo. 2003. Movements and Important Habitats of Subadult Atlantic Sturgeon In Connecticut Waters.Transactions of the American Fisheries Society 132:1-8.
[iv] Savoy, T. and J. Benway. 2004. Food habits of shortnose sturgeon collected in the lower Connecticut River from 2000 through 2002. American Fisheries Society Monograph 9:353-360.
[v] Savoy,T.and D.Pacileo. 2003. Movements and Important Habitats of Subadult Atlantic Sturgeon In Connecticut Waters.Transactions of the American Fisheries Society 132:1-8.
[vi] Savoy, T. and J. Benway. 2004. Food habits of shortnose sturgeon collected in the lower Connecticut River from 2000 through 2002. American Fisheries Society Monograph 9:353-360.
[vii] Savoy,T.and D.Pacileo. 2003. Movements and Important Habitats of Subadult Atlantic Sturgeon In Connecticut Waters.Transactions of the American Fisheries Society 132:1-8.
[viii] Savoy, T. and J. Benway. 2004. Food habits of shortnose sturgeon collected in the lower Connecticut River from 2000 through 2002. American Fisheries Society Monograph 9:353-360.
[ix] Savoy,T.and D.Pacileo. 2003. Movements and Important Habitats of Subadult Atlantic Sturgeon In Connecticut Waters.Transactions of the American Fisheries Society 132:1-8.
[x] Kynard, B., P. Bronzi, and H. Rosenthal. 2012. Life history and behaviour of Connecticut River shortnose sturgeon and other sturgeons. World Sturgeon Conservation Society Special Publication no. 4. 320pp.
[xi] https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0175085
[xii] National Marine Fisheries Service (NMFS). 2017. Endangered and Threatened Species; Designation of Critical

Habitat for the Endangered New York Bight, Chesapeake Bay, Carolina and South Atlantic Distinct Population Segments of Atlantic Sturgeon and the Threatened Gulf of Maine Distinct Population Segment of Atlantic Sturgeon. https://www.federalregister.gov/documents/2017/08/17/2017-17207/endangered-and-threatened-species-designation-of-critical-habitat-for-the-endangered-new-york-bight

[xiii] https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27

[xiv] https://noaa.maps.arcgis.com/apps/webappviewer/index.html?id=1bc332edc5204e03b250ac11f9914a27

[xv] National Marine Fisheries Service (NMFS). 2011. Letter Regarding Essential Fish Habitat and Fish and Wildlife Coordination Act Species Information Request, National Railroad Passenger Corporation (Amtrak), Connecticut River Bridge Replacement Project, Old Saybrook, Middlesex County, and Old Lyme, New London County, Connecticut. October 24, 2011.

[xvi] Kynard, B., P. Bronzi, and H. Rosenthal. 2012. Life history and behaviour of Connecticut River shortnose sturgeon and other sturgeons. World Sturgeon Conservation Society Special Publication no. 4. 320pp.

[xvii] National Marine Fisheries Service (NMFS). 2011b. Biological Opinion on the Permits, Conservation and Education Division's Proposal to Issue a Permit (Number 15614 to Tom Savoy, Connecticut Department of Environmental Protection, Marine Fisheries, for Research on Shortnose Sturgeon in the Connecticut, Thames, and Housatonic Rivers, Connecticut. Issued May 19, 2011. 71pp.

[xviii] National Marine Fisheries Service (NMFS). 2011. Letter Regarding Essential Fish Habitat and Fish and Wildlife Coordination Act Species Information Request, National Railroad Passenger Corporation (Amtrak), Connecticut River Bridge Replacement Project, Old Saybrook, Middlesex County, and Old Lyme, New London County, Connecticut. October 24, 2011.

[xix] National Marine Fisheries Service (NMFS). 2011. Letter Regarding Essential Fish Habitat and Fish and Wildlife Coordination Act Species Information Request, National Railroad Passenger Corporation (Amtrak), Connecticut River Bridge Replacement Project, Old Saybrook, Middlesex County, and Old Lyme, New London County, Connecticut. October 24, 2011.

[xx] Savoy, T. 2004. Population estimate and utilization of the lower Connecticut River by shortnose sturgeon. American Fisheries Society Monograph 9:345-352.

[xxi] National Marine Fisheries Service (NMFS). 2011b. Biological Opinion on the Permits, Conservation and Education Division's Proposal to Issue a Permit (Number 15614 to Tom Savoy, Connecticut Department of Environmental Protection, Marine Fisheries, for Research on Shortnose Sturgeon in the Connecticut, Thames, and Housatonic Rivers, Connecticut. Issued May 19, 2011. 71pp.

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ENCLOSURES

ENCLOSURE A

U.S. Department
of Transportation

**Federal Railroad
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

JUN 17 2013

Mary Colligan, Assistant Regional Administrator
NOAA National Marine Fisheries Service
Protected Resources Division
55 Great Republic Drive
Gloucester, MA 01930-2276

Re: Request for Informal Consultation under Section 7 of the Endangered Species Act

Dear Ms. Colligan:

The National Railroad Passenger Corporation (Amtrak) is proposing to replace the Connecticut River Bridge, which is located near the mouth of the Connecticut River between the Towns of Old Saybrook and Old Lyme, CT. The Federal Railroad Administration (FRA) is serving as the lead federal agency for the preparation of an Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA).

Enclosed are the relevant excerpts from the preliminary EA to initiate informal consultation under Section 7(a)(2) of the Endangered Species Act (ESA). Specifically, preliminary drafts of Chapter 10, "Natural Resources", Chapter 12 "Construction Impacts", and Appendix C4 "Essential Fish Habitat Assessment" are attached for your review. As described in the enclosed chapters, the proposed action may affect, but is not likely to adversely affect, the following ESA-listed marine species: shortnose sturgeon (*Acipenser brevirostrum)* and Atlantic sturgeon (*Acipenser oxyrinchus)*. A similar conclusion was reached for the blueback herring (*Alosa aestivalis*), which was also given consideration in the analysis.

We request your concurrence with our "not likely to adversely affect" determinations, and hereby request informal consultation under Section 7 of the ESA. Please contact Ms. Andrea Martin of my staff at andrea.martin@dot.gov or 202-493-6201 regarding this consultation request.

Sincerely,

David Valenstein
Chief, Environment & Systems Planning Division
Federal Railroad Administration

Enclosures
Cc: John Brun, Amtrak
Leslie Mesnick-Uretsky, AKRF, Inc.

ENCLOSURE B

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
NORTHEAST REGION
55 Great Republic Drive
Gloucester, MA 01930-2276

AUG 28 2013

David Valenstein, Chief
Environment and Systems Planning Division
Federal Railroad Administration
U.S. Department of Transportation
1200 New Jersey Avenue, SE
Washington, DC 20590

Re: Replacement of Connecticut River Railroad Bridge

Dear Mr. Valenstein:

We have reviewed your June 17, 2013, request for consultation pursuant to Section 7 of the Endangered Species Act (ESA) of 1973, as amended, regarding proposed replacement of the Connecticut River Bridge. You have determined that the proposed action is not likely to adversely affect species listed by us under the ESA and request our concurrence with your determination. We agree with your determination; the justification for our concurrence is below.

Proposed Action
The National Railroad Passenger Corporation (Amtrak) is proposing improvements to the Connecticut River Bridge, which is located near the mouth of the Connecticut River between the Towns of Old Saybrook and Old Lyme, CT. The Federal Railroad Administration (FRA) is serving as the lead federal agency for this Environmental Assessment (EA). Amtrak has considered a range of improvement alternatives, including minor repairs, rehabilitation of the existing bridge, partial replacement, and complete replacement. Amtrak evaluated 21 build alternatives and identified the Preferred Alternative. The Preferred Alternative includes replacing the existing bridge with a new moveable two-track bridge along a new alignment to the south of the existing alignment. Two feasible options have been identified for the Preferred Alternative. One option would replace the existing bridge with a bascule bridge and would maintain the existing 150-foot channel width. The other option would replace the existing bridge with a vertical lift bridge. This option could potentially provide for a wider channel. The exact channel width would be determined during preliminary engineering; however, it would provide a minimum of 150 feet and a maximum of 200 feet.

Regardless of the type of moveable bridge and channel width, the Preferred Alternative would include ballast deck girders for the approach spans. It would require widening of the existing rail embankment for the bridge approaches. Based on Amtrak's previous experience with similar bridge replacement projects, a combination of embankments and retaining walls are assumed to be required for the bridge approaches. The use of retaining walls in certain locations would

minimize wetland impacts. The Preferred Alternative would include new navigation channel fenders, regardless of whether the channel is expanded.

The Preferred Alternative would involve the construction of temporary access roads and staging platforms along the existing Amtrak right-of-way and the shoreline to support in-water construction of embankments and retaining walls along the bridge approaches, new superstructure and substructure, and channel fender system. Following construction of the replacement bridge, the existing bridge would be decommissioned and removed.

While construction of the substructure is not anticipated to employ driven piles, limited pile driving may be required for the construction of temporary construction staging platforms. To decrease the need for additional platform width and its associated impacts, temporary barges may be used. On the west side of the bridge, options are limited due to the presence of wetlands. As a result, the contractor may have to construct temporary platforms over adjacent wetlands on the west shore of the river to construct the new approach embankment, retaining walls, and approach spans. The staging platforms would have minimal underwater footprints and may remain in place for the duration of the proposed bridge construction and existing bridge demolition.

The Preferred Alternative would not reuse any existing piers. It would require the construction of nine new piers—seven approach piers comprising drilled shafts supporting a reinforced concrete pier cap, and two moveable span piers comprising drilled shafts supporting a large concrete cap. The piers of the existing Connecticut River Bridge are founded either on rock or on timber piles installed into dense sand or gravel. This subsurface is anticipated to provide adequate foundation for new piers.

All new piers would require in-water construction in the Connecticut River. The contractor would construct the piers from barges placed in the river with an effort to minimize disruption to marine navigation. Three barges may be required—one to support the shaft drilling equipment, one to store materials, and one to hold any spoils or excavated material. It is assumed that 4.5-foot diameter drilled shafts would be sufficient for most piers, except at the west approaches, where 7-foot diameter drilled shafts may be required. Three drilled shafts would be required for each approach pier. Once each set of shafts is constructed, the contractor would construct a concrete pile cap on top. Construction of the piers in this fashion would eliminate the need for cofferdams. In total, each new pier would take approximately two to three months to construct. Multiple piers would be constructed simultaneously.

The existing Connecticut River Bridge would be removed after constructing the replacement bridge and diverting all train traffic from the existing span. The existing moveable span would likely be floated out on barges. Approach spans would be lifted off their piers with a crane and placed on a barge for removal. After the removal of the superstructure, the contractor would remove the substructure with a barge mounted crane after breaking up the piers into smaller and more easily removed pieces using an expansion demolition agent without the need for explosives. Depending upon U.S. Coast Guard requirements, the existing timber piles would be removed from the pier foundations and fender system, either by removing them completely or by cutting them off two feet below the mudline. Turbidity curtains during demolition would be used

to control any sediment that might be disturbed. Due to the nature and location of the river crossing and the need for continuous operations along the Northeast Corridor, complete avoidance of wetland and open water areas would not be feasible for the Preferred Alternative. Based on the conceptual bridge design described above, it is estimated that the Preferred Alternative would result in approximately 2.8 acres of permanent wetland impacts and 0.74 acres of permanent open water impacts. Removal of the existing Connecticut River Bridge may result in approximately 0.33 acres of restored open water, for a net project impact of 0.41 acres. Based on the conceptual bridge design and the anticipated construction means and methods, it is estimated that approximately 3.2 acres of wetlands and 2.0 acres of open water will be temporarily impacted during the construction period.

NMFS Listed Species in Action Area

The action area is defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action" (50 CFR § 402.02). For this project, the action area includes the project footprint of the proposed bridge, the bridge planned for demolition, areas used by barges and staging of equipment, as well as the surrounding waters of the Connecticut River where effects of drilling (e.g., increase in suspended sediment, underwater noise) will be experienced. This area is expected to encompass all of the direct and indirect effects of the proposed project.

The following NMFS ESA listed species may occur in the action area:

Shortnose Sturgeon

A population of endangered shortnose sturgeon (Acipenser brevirostrum) occurs in the Connecticut River. The population is largely divided by the Holyoke Dam, although limited successful downstream passage does occur. Modifications to this facility are currently ongoing to ensure the safe and successful upstream and downstream passage of fish, including shortnose sturgeon. Downstream of the Holyoke Dam, shortnose sturgeon wintering sites have been identified (SSSRT 2010) at Holyoke (rkm 140), Agawam (rkm 117), Hartford (rkm 86–82), and Portland, CT (~rkm 50).

The downstream population segment seems to only spawn occasionally below the dam with limited spawning success. Because of the distance from the nearest known spawning grounds (approx. 140 km from the spawning area just downstream of the Holyoke Dam) and the higher salinity of the action area, shortnose sturgeon eggs or larvae, whose occurrence is limited to the low salinity waters near the spawning grounds, and young of the year, whose occurrence is also restricted to areas of low salinity, will not occur in the action area.

The stream reaches near Hartford, CT and Portland, CT have been identified as summer feeding and overwintering areas (Savoy and Pacileo 2003). Shortnose sturgeon make seasonal movements into the estuary, presumably to forage (Buckley and Kynard 1985). Savoy (2004) summarizes research done of shortnose sturgeon use of the lower Connecticut River, including the estuary. Tagging and telemetry data demonstrate that many shortnose sturgeon make downstream movements into the estuary during times of high freshwater outflow. Shortnose sturgeon move into the reach near rkm 6-20 between late April and mid-May. Most shortnose

sturgeon leave this area for upstream foraging sites by mid-June, although some individuals stay in the estuary until late July. Based on this information, subadult and adult shortnose sturgeon may occur in the action area at least from late April through late July.

Atlantic Sturgeon

There are five DPSs of Atlantic sturgeon listed as threatened or endangered. Atlantic sturgeon originating from the New York Bight, Chesapeake Bay, South Atlantic and Carolina DPSs are listed as endangered, while the Gulf of Maine DPS is listed as threatened (77 FR 5880; 77 FR 5914; February 6, 2012). The marine range of all five DPSs extends along the Atlantic coast from Canada to Cape Canaveral, Florida.

Spawning is not known to occur in the Connecticut River and therefore there are no early life stages or juvenile Atlantic sturgeon in the river. After emigration from other natal estuaries, subadult and adult Atlantic sturgeon forage within the marine environment, typically in waters less than 50 m in depth, using coastal bays, sounds, and ocean waters (ASSRT 2007). Adult and subadult Atlantic sturgeon use the Connecticut River estuary for foraging during the spring, summer and fall. No Atlantic sturgeon are expected to be present in the Connecticut River during the winter months. Based on the best available information, subadult and adult Atlantic sturgeon originating from any of five DPSs could occur in the action area and are likely to be migrating and possibly foraging opportunistically.

Effects of the Action

Drilling-Acoustic Effects

Noise Associated with Drilling Operations

Based on the best available information on drilling operations, regardless of pile size, source/peak levels for underwater geotechnical drills have been estimated to range from 118 to 145 dB re 1μPa_{peak} (approximately 120 dB re 1μPa_{sSEL} and 130 dB re 1μPa_{RMS})[1] at one meter from the source, with underwater noise levels decreasing to 101.5 dB re 1uPa by 150 meters (76 FR 80893).

Physiological and Behavioral Effects to Atlantic or Shortnose Sturgeon

An interagency work group, including the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS), has reviewed the best available scientific information and developed criteria for assessing the potential of pile driving activities to cause injury to fish (Fisheries Hydroacoustic Working Group (FHWG) 2008). The workgroup established dual sound criteria for injury, measured 33 feet away from the pile, of 206 dB re 1 μPa_{Peak} and 187 dB accumulated sound exposure level (dB_{cSEL}; re: 1μPa^2•sec) (183 dB

[1] Note, sSEL and RMS values are estimates. The following equations were used to provide these estimates: sSEL=peak pressure-25; RMS=peak pressure-15 (developed by J. Stadler and D. Woodbury for NMFS pile driving calculations; see http://www.dot.ca.gov/hq/env/bio/fisheries_bioacoustics.htm). Additionally, based on NMFS equation to estimate cSEL levels for continuous noise sources: cSEL=dBrms - 10 log (duration of the sound source) (pers.comm., Amy Scholik, NMFS Protected Resources Acoustic Coordinator, email dated 4/26/2013), estimated cSEL levels will be below 187 dB_{cSEL} at any distance from the drill, regardless of the duration of the noise produced by drilling operations.

accumulated SEL for fish less than 2 grams). While this work group is based on the U.S. West coast, species similar to Atlantic sturgeon were considered in developing this guidance (green sturgeon). As these species are biologically similar to the species being considered herein, it is reasonable to use the criteria developed by the FHWG to assess Atlantic and shortnose sturgeon injury resulting from pile driving operations.

Additionally, for purposes of assessing behavioral effects of pile driving at several West Coast projects, NMFS has employed a 150 dB re 1 μPa_{RMS} sound pressure level criterion at several sites, including the San Francisco-Oakland Bay Bridge and the Columbia River Crossings. As we are not aware of any studies that have considered the behavior of Atlantic or shortnose sturgeon in response to pile driving noise, given the available information from studies on other fish species (*i.e.*, Purser and Radford 2011; Wysocki *et al.* 2007), we consider 150 dB re 1 μPa_{RMS} to be a reasonable estimate of the noise level at which exposure may result in behavioral modifications. As such, for the purposes of this consultation, we will use 150 dB re 1 μPa_{RMS} as a conservative indicator of the noise level at which there is the potential for behavioral effects. That is not to say that exposure to noise levels of 150 dB re 1 μPa_{RMS} will always result in behavioral modifications, but that there is the potential, upon exposure to noise at this level, to experience some behavioral response (e.g., temporary startle to avoidance of an ensonified area).

In summary, based on the best available information, we believe underwater noise at, or above, the following levels have the potential to cause injury or behavioral modification to Atlantic or shortnose sturgeon:

Organism	**Injury***	**Behavioral Modification**
Sturgeon	206 dB re 1 μPa_{Peak} and 187 dB_{cSEL}	150 dB re 1μPa_{RMS}

*Dual Criteria

Based on the information presented above, underwater noise levels anticipated to be produced during drilling operations (i.e., average 122 dB re 1μPa) will be below levels believed to cause injury or behavioral modification to species of sturgeon.[2] Therefore, we conclude that drilling noise effects to Atlantic sturgeon and shortnose sturgeon are discountable.

Water Quality Effects of Dredging and Drilling Operations

No dredging is anticipated during this project. Drilling operations will disturb sediments and may cause a temporary increase in suspended sediments. Silt curtains will be employed during in-water work. If any sediment plume does occur, it is expected to be localized to the project area. Turbidity levels associated with drilling operations are expected to be only slightly elevated above background levels (average range of 10.0 to 120.0 mg/L) (ACOE 2001, Anchor

[2] NOAA fisheries recognizes that a single strike SEL (sSEL) below 150 dB re 1μPa_{sSEL} will not contribute to the overall cSEL because it has virtually no effect on a fish; that is it will never accumulate to levels reaching 187 dB re 1μPa_{cSEL} and therefore, are considered levels of "effective quiet (Stadler and Woodbury 2009)." As such, sSel levels of 120 dB re 1μPa_{sSEL}, will not attain a cSEL level of 187 dB re 1μPa_{cSEL} at any distance from the pile being drilled.

Environmental 2003), while dredging operations are expected to produce turbidity levels of approximately 50.0-75.0 mg/L (ACOE 2001).

Studies of the effects of turbid waters on fish suggest that concentrations of suspended solids can reach thousands of milligrams per liter before an acute toxic reaction is expected (Burton 1993). TSS is most likely to affect sturgeon if a plume causes a barrier to normal behaviors or if sediment settles on the bottom affecting sturgeon prey. As Atlantic and shortnose sturgeon are highly mobile, they are likely to be able to avoid any sediment plume and any effect on movements is likely to be insignificant. While the increase in suspended sediments may cause Atlantic sturgeon or shortnose sturgeon to alter their normal movements, any change in behavior is likely to be insignificant as it will only involve movements to alter course out of the sediment plume and is not likely to affect the overall movement or migration ability of sturgeon. Additionally, the TSS levels expected for drilling (10.0 to 120.0 mg/L) are below those shown to have an adverse effect on fish (580.0 mg/L for the most sensitive species, with 1,000.0 mg/L more typical; see summary of scientific literature in Burton 1993) and benthic communities (390.0 mg/L (EPA 1986)); therefore, effects to benthic resources that sturgeon may eat are unlikely. Based on this information, the effect of suspended sediment resulting from drilling activities on Atlantic sturgeon or shortnose sturgeon will be insignificant.

Vessel Traffic

The proposed project will not result in new vessel routes since this area of the river is already open to vessel traffic and contains a similar bridge in the action area. However, as listed species of sturgeon may occur in the action area where barges may be transiting to and from there is a potential for vessels to interact with these listed species.

Atlantic Sturgeon

Although there have been no documented reports of barges colliding with Atlantic sturgeon, vessel strikes have been identified as a threat to Atlantic sturgeon and this species is known to be vulnerable to interactions with vessels. While the exact number of Atlantic sturgeon killed as a result of being struck by boat hulls or propellers is unknown, it is an area of concern. The factors relevant to determining the risk to Atlantic sturgeon from vessel strikes are currently unknown, but they may be related to size and speed of the vessels, navigational clearance (i.e., depth of water and draft of the vessel) in the area where the vessel is operating, and the behavior of Atlantic sturgeon in the area (e.g., foraging, migrating, etc.). As described above, Atlantic sturgeon are likely to be primarily using the action area as a migration corridor to and from spawning, overwintering, and/or foraging sites along the U.S. eastern coastline. Based on available information, it is believed that when migrating, Atlantic sturgeon are found primarily at mid-water depths (Cameron 2010) and while foraging, within the bottom meter of the water column. As depths within the navigable portions of the action area are 10 to 21 feet mean lower low water, there should be sufficient clearance between the underkeel of the barge and the bottom that Atlantic sturgeon should be able to continue essential behaviors (e.g., migration, foraging) without an interaction with a barge. However, Atlantic sturgeon are not restricted to these depths, and on occasion, have been known to occur in the upper water column. Similar to sea turtles, it may be assumed that Atlantic sturgeon are more likely to avoid injury from slower-moving vessels since the sturgeon has more time to maneuver and avoid the vessel. As the speed

of the barge/towing vessel is expected to move slowly (e.g., no more than 5.0 knots), this will likely reduce the chances of collision with an Atlantic sturgeon. Based on this and the best available information, an interaction of a barge/vessel and an Atlantic sturgeon is discountable.

Shortnose Sturgeon

There is limited information on the effects of vessel operations on shortnose sturgeon; however, it is believed that as shortnose sturgeon are benthic species, that their movements are limited to the bottom of the water column and that vessels operating with sufficient navigational clearance would not pose a risk of ship strike. As depths within the navigable portions of the action area are 10 to 21 feet mean lower low water and shortnose sturgeon are expected to occur within the bottom meter of the water column, there is sufficient clearance between the underkeel of a barge and the bottom that a shortnose sturgeon will be able to continue essential behaviors (e.g., migration, foraging) without an interaction with barge. As a result, we expect a vessel strike by any of the barges operating in the action area to be extremely unlikely to occur. Based on this and the best available information, we have concluded that an interaction between a barge and a shortnose sturgeon is discountable.

Other Construction Activities/Effects

The removal of the existing bridge would include disconnecting the moveable span and approach spans, then floating them away on barges. The foundation piers would be broken into smaller pieces using an expansion demolition agent, which would result in smaller, more manageable pieces to lift onto barges with a crane(s) and remove without the use of explosives. Depending on USCG requirements, deconstruction of the existing bridge may involve pile extraction (i.e., pulling of piles) or cutting the piles at the mud line. Turbidity curtains will be placed around the extraction activities to minimize the area of turbidity exposure. Extracting piles will result in a temporary increase in suspended sediment; however, turbidity levels and resultant effects to ESA listed species of sturgeon from pulling piles will be the same as described above for drilling operations (see above for analysis). Therefore, the effects to Atlantic sturgeon or shortnose sturgeon from pile extraction will be insignificant. If piles are removed via cutting, the noise effects of cutting piles on shortnose sturgeon or Atlantic sturgeon will be discountable as the engine used to drive the hydraulics is located above the surface of the water, and thus, the actual pile cutter is silent. In addition, the construction and installation of the replacement platform and fendering system will occur above the water line where shortnose sturgeon and Atlantic sturgeon do not occur and thus, no direct or indirect effects to these species will result from these proposed construction activities.

Additionally, once installation of the new bridge is completed, areas of shading under and) around the bridge will be present. Although shading can impact dissolved oxygen levels, the area under consideration is generally equal to the area currently shaded by the existing bridge which will be removed. As such, the additional shading caused by this project will have an insignificant effect on shortnose and Atlantic sturgeon. The width of navigable passage under the new bridge will be between 150-200 feet wide, with substantial open water areas remaining beneath the fixed spans. As with the existing bridge, the new bridge will not cause any obstruction to migration for shortnose and Atlantic sturgeon and thus, will not alter the habitat in any way that prevents shortnose or Atlantic sturgeon from using the action area as a migratory

pathway and/or foraging grounds. Therefore, there would not be any disruption of essential behaviors. Based on this information, the effects of the planned Connecticut River bridge on shortnose and Atlantic sturgeon are expected to be insignificant and discountable.

Conclusions

Based on the analysis that any effects to listed species of shortnose and Atlantic sturgeon will be insignificant or discountable, we are able to concur with your determination that the proposed project is not likely to adversely affect any listed species under NMFS jurisdiction. Therefore, no further consultation pursuant to section 7 of the ESA is required.

Reinitiation of consultation is required and shall be requested by the Federal agency or by the Service, where discretionary Federal involvement or control over the action has been retained or is authorized by law and: (a) If new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered in the consultation; (b) If the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in the consultation; or (c) If a new species is listed or critical habitat designated that may be affected by the identified action. No take is anticipated or exempted. If there is any incidental take of a listed species, reinitiation would be required. Should you have any questions about this correspondence please contact Kevin Madley at (978) 282-8494 or by e-mail (Kevin.Madley@noaa.gov).

Sincerely,

for John K. Bullard
Regional Administrator

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Ec: Boelke, NMFS/HCD
Madley, NMFS/NER

File Code: H:\Section 7 Team\Section 7\Non-Fisheries\DOT\Federal Railroad\2013\S7consult_ConnR_bridgereplacement
PCTS: NER-2013-9984

ENCLOSURE C

U.S. Department
of Transportation

**Federal Railroad
Administration**

1200 New Jersey Avenue, SE
Washington, DC 20590

August 31, 2020

Mark Murray-Brown
Endangered Species Act Section 7 Coordinator
NOAA National Marine Fisheries Service
Greater Atlantic Region Protected Resources Office
55 Great Republic Drive
Gloucester, MA, 01930-2276
Via email: nmfs.gar.esa.section7@noaa.gov

Re: Amtrak Connecticut River Bridge
Old Saybrook & Old Lyme, CT
Request for Re-initiation of Informal Consultation under Section 7 of the Endangered Species Act

Dear Mr. Murray-Brown:

The National Railroad Passenger Corporation (Amtrak) is proposing the replacement of the Connecticut River Bridge, which became operational in 1907 and is nearing the end of its useful life. The existing bridge is located along Amtrak's Northeast Corridor (Milepost106.89) between Old Saybrook and Old Lyme. The U.S. Department of Transportation's Federal Railroad Administration (FRA) has provided funding to Amtrak for project planning and design, and may provide funding for construction of the project. Pursuant to the National Environmental Policy Act of 1969 (42 USC &4321 et seq.) (NEPA) and FRA's NEPA procedures, FRA and Amtrak prepared an Environmental Assessment (EA) in May 2014 for the Connecticut River Bridge Replacement Project (Project). FRA issued a Finding of No Significant Impact (FONSI) in 2017.

As part of the NEPA process, the Project team submitted a request to NOAA National Marine Fisheries Service (NMFS) on June 17, 2013 to initiate informal consultation under Section 7(a)(2) of the Endangered Species Act (ESA) (see *Enclosure A*). Our letter stated that the proposed Project was not likely to adversely affect any listed species under NMFS jurisdiction. In an August 28, 2013 response, NMFS concurred with the determination, and that no further consultation pursuant to Section 7 of the ESA was required (see *Enclosure B*).

Amtrak is advancing the design and permitting for the Project. This includes preparation of a United States Coast Guard (USCG) Bridge Permit Application. USCG recently requested documentation to confirm the validity of the NMFS informal consultation, as it is seven years old. NOAA Fisheries and FRA staff discussed the Project during a teleconference on June 8, 2020, including the NMFS designation of the Connecticut River as critical habitat for the New York Bight distinct population segment (DPS) of Atlantic sturgeon in 2017. At the time of the 2014 EA and previous informal consultation with NMFS, Atlantic sturgeon in Connecticut were designated as "threatened" and the New York Bight DPS was designated as federally endangered, but the Connecticut River was not designated as critical habitat. Because of the recent designation and because several years have passed since FRA's initial consultation,

the Project team intends to resubmit for NMFS's consideration an updated assessment of the Project's potential impacts on Essential Fish Habitat (EFH) and threatened and endangered species. Before we proceed, we are requesting your office provide any updated information on threatened and endangered species in the Project area.

If you have any questions about the Project or this consultation request, please contact me at laura.shick@dot.gov or (202) 366-0340. FRA looks forward to continuing consultation with your office to advance this important railroad project.

Sincerely,

Laura A. Shick
Supervisory Environmental Protection Specialist
Environment & Project Engineer Division
Office of Railroad Policy & Development

Enclosures

Cc: Karen Greene, Mid-Atlantic EFH Coordinator, NMFS Habitat Conservation Division
Zach Jylkka, Fisheries Biologist, Protected Resources Division, Greater Atlantic Regional Fisheries Office, NOAA Fisheries
John Brun, Technical Project Manager, Amtrak
Craig Caldwell, Director of Environmental Projects, Amtrak
Craig Rolwood, Project Manager, Hardesty & Hanover
Leslie Mesnick, Environmental Task Coordinator, Calladium Group

ENCLOSURE D

Gmail **Emma Willinger <emma@calladiumgroup.com>**

Amtrak Connecticut River Bridge: Request for Re-initiation of NMFS Informal Consultation under Section 7 of the Endangered Species Act

3 messages

Emma Willinger <emma@calladiumgroup.com> Mon, Aug 31, 2020 at 3:37 PM
To: nmfs.gar.esa.section7@noaa.gov
Cc: laura.shick@dot.gov, Karen.Greene@noaa.gov, zachary.jylkka@noaa.gov, "Brun, John" <BrunJ@amtrak.com>, caldwec@amtrak.com, Craig Rolwood <crolwood@hardestyhanover.com>, Leslie Mesnick <leslie@calladiumgroup.com>

Dear Mr. Murray-Brown,

On behalf of Amtrak and FRA, please find attached the enclosed correspondence for the Amtrak Connecticut River Bridge Replacement Project.

Thank you,

Emma Willinger, Junior Environmental Planner | The Calladium Group
540 President Street, 3rd Floor | Brooklyn NY 11215

914-559-8020 | emma@calladiumgroup.com

Sec7 Reinitiation Package_FRA to NMFS_CT River Bridge_08312020.pdf
1697K

Zachary Jylkka - NOAA Federal <zachary.jylkka@noaa.gov> Fri, Sep 4, 2020 at 1:25 PM
To: Emma Willinger <emma@calladiumgroup.com>
Cc: "Shick, Laura (FRA)" <laura.shick@dot.gov>, "Brun, John" <BrunJ@amtrak.com>, caldwec@amtrak.com, Craig Rolwood <crolwood@hardestyhanover.com>, Leslie Mesnick <leslie@calladiumgroup.com>, Alison Verkade - NOAA Federal <alison.verkade@noaa.gov>, Roosevelt Mesa - NOAA Affiliate <roosevelt.mesa@noaa.gov>

Hi Emma,

Thank you for your email and the attached letter. We will get you a response as soon as possible.

Best,
Zach
[Quoted text hidden]
--
Zach Jylkka
Fisheries Biologist
Protected Resources Division
Greater Atlantic Regional Fisheries Office
NOAA Fisheries
Gloucester, MA 01930
zachary.jylkka@noaa.gov
office: (978) 282-8467
Pronouns: (he/him/his)

For additional ESA Section 7 information and Critical Habitat guidance, please see:
https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-consultation-technical-guidance

50 Years of Science, Service, and Stewardship

Roosevelt Mesa - NOAA Affiliate <roosevelt.mesa@noaa.gov> Tue, Sep 15, 2020 at 11:21 AM
To: Emma Willinger <emma@calladiumgroup.com>
Cc: "Shick, Laura (FRA)" <laura.shick@dot.gov>, "Brun, John" <BrunJ@amtrak.com>, caldwec@amtrak.com, Craig Rolwood <crolwood@hardestyhanover.com>, Leslie Mesnick <leslie@calladiumgroup.com>, Alison Verkade - NOAA Federal <alison.verkade@noaa.gov>, Zachary Jylkka - NOAA Federal <zachary.jylkka@noaa.gov>

Ms. Willinger:

We received your email on August 31, 2020 regarding the Amtrak Connecticut River Bridge Project between Old Saybrook & Old Lyme, CT. In your letter you requested information regarding the presence of all listed species including threatened and endangered species, and critical habitat that may occur in or in the vicinity of the proposed project. Please note that you can also look up species presence in your project area by using our ESA Section 7 Mapper: https://noaa.maps.arcgis.com/apps/webappviewer/ index.html?id= 1bc332edc5204e03b250ac11f9914a27. We offer the following comments.

Endangered Species Act

Atlantic Sturgeon

Atlantic sturgeon are present in the waters of the Connecticut River and its adjacent bays and tributaries. The New York Bight, Chesapeake Bay, Carolina, and South Atlantic Distinct Population Segments (DPSs) of Atlantic sturgeon are endangered; the Gulf of Maine DPS is threatened. Transient adult and subadult Atlantic sturgeon originating from any of these DPSs could occur in the proposed project area to opportunistically forage. Additionally, as detailed in Savoy et al. 2017 (paper attached), researchers collected several juvenile Atlantic sturgeon from the lower portion of the Connecticut River between May and October, evidencing the presence of juvenile individuals in the Connecticut River and a successful natural reproduction event that most likely took place in the river in 2013. Adult, subadult, and juvenile Atlantic sturgeon are expected to occur in the proposed project area.

On August 17, 2017, NOAA Fisheries published a final rule designating critical habitat for the Gulf of Maine, New York Bight, Chesapeake Bay, Carolina, and South Atlantic DPSs of Atlantic sturgeon (82 FR 39160). The effective date of the rule was September 18, 2017. The action you have proposed will occur in an area that is designated as critical habitat for the Atlantic sturgeon New York Bight DPS. The physical or biological features (PBFs) of designated critical habitat for the conservation of Atlantic sturgeon are those habitat components that support successful reproduction and recruitment. These features include:

1) Hard bottom substrate (e.g., rock, cobble, gravel, limestone, boulder, etc.) in low salinity waters (i.e., 0.0-0.5 parts per thousand range) for settlement of fertilized eggs, refuge, growth, and development of early life stages;

2) Aquatic habitat with a gradual downstream salinity gradient of 0.5 up to as high as 30 ppt and soft substrate (e.g., sand, mud) between the river mouth and spawning sites for juvenile foraging and physiological development;

3) Water of appropriate depth and absent physical barriers to passage (e.g., locks, dams, thermal plumes, turbidity, sound, reservoirs, gear, etc.) between the river mouth and spawning sites necessary to support: (1) unimpeded movements of spawning adults to and from spawning sites; (2) seasonal and physiologically dependent movement of juvenile Atlantic sturgeon to appropriate salinity zones within the river estuary, and; (3) staging, resting, or holding of subadults or spawning condition adults. Water depths in main river channels must also be deep enough (e.g., at least 1.2 m) to ensure continuous flow in the main channel at all times when any sturgeon life stage would be in the river, and;

4) Water, between the river mouth and spawning sites, especially in the bottom meter of the water column, with the temperature, salinity, and oxygen values that, combined, support: (1) spawning; (2) annual and

interannual adult, subadult, larval, and juvenile survival; and (3) larval, juvenile, and subadult growth, development, and recruitment (e.g., 13°C to 26°C for spawning habitat and no more than 30°C for juvenile rearing habitat and 6 mg/L or greater dissolved oxygen for juvenile rearing habitat).

PBFs 2 through 4 are present within the action area and we would expect the project's effects on each individual PBF present to be analyzed.

Shortnose Sturgeon

Shortnose sturgeon are present in the waters of the Connecticut River and could occur in their adjacent bays and tributaries. Shortnose sturgeon are listed as endangered throughout their range. Transient juveniles and adult individuals could occur in the proposed project area to opportunistically forage. Also, from mid-November to mid-April juveniles and adult individuals are expected to use the area as overwintering grounds (Buckley & Kynard 1985; Kynard et al. 2012). Due to the habitat and salinity in the lower Connecticut River, spawning and early life stages are not expected to occur.

Sea Turtles

Four species of Endangered Species Act (ESA) listed threatened or endangered sea turtles under our jurisdiction are seasonally present in Long Island Sound and adjacent systems, including the proposed project area: the threatened Northwest Atlantic Ocean distinct population segment (DPS) of loggerhead, North Atlantic DPS of green, and the endangered Kemp's ridley and leatherback sea turtles. Sea turtles could occasionally be found in the waters near the project area between May and November, with the highest concentration of sea turtles present from June through October.

As project details develop, we recommend you consider the following effects of the project on sturgeon and sea turtles:

- For any impacts to habitat or conditions that temporarily render affected water bodies unsuitable for the abovementioned species, consider the use of timing restrictions for in-water work.
- For activities that increase levels of suspended sediment, consider the use of silt management and/or soil erosion best practices (i.e., silt curtains and/or cofferdams).
- For activities that may affect underwater noise levels, consider the use of a soft start, cushion blocks, and other noise attenuating tools to avoid reaching noise levels that will cause injury or behavioral disturbance to sturgeon and sea turtles - see the table below for more information regarding noise criteria for injury/behavioral disturbance in sturgeon and sea turtles.

Behavioral and Physiological (Injury) Thresholds for ESA-Listed Species in NMFS' Greater Atlantic Region

Species	Thresholds	Units
Sturgeon Behavioral	150	dB re 1 µPA RMS
Sturgeon Physiological	206	dB re 1 µPA Peak
Sturgeon Physiological (>2g)	187	dB re 1 µPa2s cSEL
Sea turtle behavioral	175	dB re 1 µPA RMS
Sea Turtle Temporary Threshold Shift (TTS, SEL weighted)	189	dB re 1 µPa2s SEL
Sea Turtle Temporary Threshold Shift (TTS, Peak SPL)	226	dB re 1 µPA Peak
Sea Turtle Permanent Threshold Shift (PTS, SEL weighted)	204	dB re 1 µPa2s SEL
Sea Turtle Permanent Threshold Shift (PTS, Peak SPL)	232	dB re 1 µPA Peak

Depending on the amount and duration of work that takes place in the water, listed species of sturgeon and sea turtles may occur within the vicinity of your proposed project. The federal action agency will be responsible for determining whether the proposed action may affect listed species. If they determine that the proposed action may affect a listed species, they should submit their determination of effects, along with justification and a request for concurrence to the attention of the Section 7 Coordinator, NOAA Fisheries, Greater Atlantic Regional Fisheries Office, Protected Resources Division at nmfs.gar.esa.section7@noaa.gov. Please be aware that we have recently provided on our website guidance and tools to assist action agencies with their description of the action and analysis of effects to support their determination. See - https://www.fisheries.noaa.gov/new-england-mid-atlantic/consultations/section-7-consultations-greater-atlantic-region. After receiving a complete, accurate comprehensive request for consultation, in accordance to the guidance and instructions on our website, we would then be able to conduct a consultation under section 7 of the ESA. Should project plans change or new information

become available that changes the basis for this determination, further coordination should be pursued. If you have any questions regarding these comments, please contact me (978-281-9186; roosevelt.mesa@noaa.gov).

Magnuson-Stevens Fishery Conservation and Management Act - Essential Fish Habitat

The MSA requires Federal agencies to consult with the NMFS on any action or proposed action authorized, funded, or undertaken by the agency that may adversely affect essential fish habitat (EFH) identified under the MSA [16 U.S.C. § 1855(b)(2)]. The statute defines EFH as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity" [16 U.S.C. § 1853(a)(7) and § 1802(10)]. You can access the resources on EFH consultations from: https://www.fisheries.noaa.gov/new-england-mid-atlantic/habitat-conservation/essential-fish-habitat-assessment-consultations.

Thank you,
Roosevelt Mesa

[Quoted text hidden]

--
Roosevelt Mesa
Environmental Specialist
Integrated Statistics, Inc. | In support of NOAA Fisheries
Greater Atlantic Regional Fisheries Office
Protected Resources Division
roosevelt.mesa@noaa.gov | Office: 978-281-9186
Pronouns: (he/him/his)

ENCLOSURE E

TO NEW HAVEN

TO BOSTON

Boston Post Road (RT. 1)

MATCHLINE INSET

Limits of the Project Disturbance (typ.)

Field flagged wetlands (typ.)

Field flagged wetlands (typ.)

Limits of the Project Disturbance (typ.)

ANY STAGING AREAS AND PATHS TO BE RETURNED TO EXISTING CONDITION AT COMPLETION OF USE

100 50 0 100 200

SCALE IN FEET
SCALE 1" = 100'

MATCHLINE

INSET

ANY STAGING AREAS AND PATHS TO BE RETURNED TO EXISTING CONDITION AT COMPLETION OF USE

DISTRUBANCE LIMITS SHEET 3 OF 8

EXISTING ACCESS PATH TO BE REESTABLISHED AFTER PROJECT COMPLETION NO TEMPORARY RETAINING STRUCTURES TO REMAIN AT PROJECT COMPLETION

MATCHLINE INSET

AMTRAK ROW (typ.)

AMTRAK ROW (typ.)

Legend

- Vegetated area below CJL+1 ft. and Intertidal wetland permanently filled
- Vegetated area below CJL+1 ft. and Intertidal wetland temporary disturbed
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas permanently filled
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas temporary disturbed
- Subtidal wetland (area) permanently dredged and/or filled
- Subtidal wetland (area) temporary disturbed
- Deep water temporary disturbed
- Deep water permanent dredge and fill
- Subtidal SAV (submerged aquatic vegetation)

Legend

- Tidal Wetland Boundary - Coastal Jurisdiction Line (CJL=2.9') + 1 foot - elevation 3.9'
- High Tide Line (HTL) - elevation 3.04'
- Mean High Water (MHW) - elevation 1.71'
- Field located Wetland boundary
- Limits of the Project disturbance
- Amtrak ROW

NOTE:
FOR BASE MAP USED WSP SITE PLAN SERIES CV-101 THRU CV108. COLOR ANNOTATIONS HAVE BEEN ADDED TO DEMONSTRATE PERMANENT AND TEMPORARY DISTURBANCE AREAS TIDAL WETLAND AND WATER.

40 20 0 40 80

SCALE IN FEET
SCALE 1" = 40'

MATCHLINE DWG **P-102D**

FILE NAME: 21204-CV-101_108.DWG
PRINT DATE/TIME: 2/11/2022 2:09 PM
PLOT SCALE: AS NOTED
STANDARD PEN TABLE: YES

No.	Revisions	Date	By

Office of Chief Engineer
STRUCTURES
National Railroad Passenger Corporation
30th Street Station, Philadelphia, Pennsylvania 19104

Approved	Date

100% SUBMISSION

HARDESTY & HANOVER, LLC
ENGINEERING
1501 Broadway New York, NY 10036
WSP 4 Penn Center
1600 JFK Blvd. Suite 510
Philadelphia, PA 19103

OLD SAYBROOK CONNECTICUT

REPLACEMENT OF MB 106.89 OVER CONNECTICUT RIVER

DISTRUBANCE LIMITS SHEET 1 OF 8

Designed	CB	Drawn	CB/MD	Checked	KM	Date	09/30/2021

Project Code:	XXX XXX
WBS:	000000
Sheet No.	OF 000
Dwg. No.	P-101D

TO NEW HAVEN

TO BOSTON

MATCHLINE DWG **P - 101D**

MATCHLINE DWG **P - 103D**

ANY STAGING AREAS AND PATHS TO BE RETURNED TO EXISTING CONDITION AT COMPLETION OF USE

PROTECT EXISTING EQUIPMENT

Limits of the Project Disturbance (typ.)

Field flagged wetlands (typ.)

PERMANENT ACCESS PATH TO BE CONSTRUCTED AFTER REMOVAL OF TEMPORARY ACCESS PATH, NO TEMPORARY RETAINING STRUCTURES TO REMAIN AT PROJECT COMPLETION

LIMIT OF DISTURBANCE (TYP)

EXISTING CATENARY POLES TO REMAIN (TYP)

AMTRAK ROW (typ.)

F/O

EX T2 106+0098

EX T2 106+0100

EX T2 106+0200

EX T2 106+0300

EX T2 106+0400

EX T2 106+0500

AMTRAK ROW (typ.)

Field flagged wetlands (typ.)

NOTE:
FOR BASE MAP USED WSP SITE PLAN SERIES CV-101 THRU CV108. COLOR ANNOTATIONS HAVE BEEN ADDED TO DEMONSTRATE PERMANENT AND TEMPORARY DISTURBANCE AREAS TIDAL WETLAND AND WATER.

Legend

- Vegetated area below CJL+1 ft. and Intertidal wetland permanently filled
- Vegetated area below CJL+1 ft. and Intertidal wetland temporary disturbed
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas permanently filled
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas temporary disturbed
- Subtidal wetland (area) permanently dredged and/or filled
- Subtidal wetland (area) temporary disturbed
- Deep water temporary disturbed
- Deep water permanent dredge and fill
- Subtidal SAV (submerged aquatic vegetation)

Legend

- Tidal Wetland Boundary - Coastal Jurisdiction Line (CJL=2.9') + 1 foot - elevation 3.9'
- High Tide Line (HTL) - elevation 3.04'
- Mean High Water (MHW) - elevation 1.71'
- Field located Wetland boundary
- Limits of the Project disturbance
- Amtrak ROW

40 20 0 40 80

SCALE IN FEET
SCALE 1" = 40'

No.	Revisions	Date	By

Office of Chief Engineer
STRUCTURES
National Railroad Passenger Corporation
30th Street Station, Philadelphia, Pennsylvania 19104

Approved	Date

100% SUBMISSION

HARDESTY & HANOVER, LLC
ENGINEERING
1501 Broadway New York, NY 10036
WSP 4 Penn Center
1600 JFK Blvd. Suite 510
Philadelphia, PA 19103

OLD SAYBROOK CONNECTICUT

REPLACEMENT OF MB 106.89 OVER CONNECTICUT RIVER

DISTRUBANCE LIMITS SHEET 2 OF 8

Designed	CB	Drawn	CB/MD	Checked	KM	Date	09/30/2021

Project Code:	XXX XXX
WBS:	000000
Sheet No.	OF 000
Dwg. No.	P-102D

FILE NAME: 21204-CV-101_108.DWG
PRINT DATE/TIME: 2/11/2022 3:47 PM
PLOT SCALE: AS NOTED
STANDARD PEN TABLE: YES

TO NEW HAVEN

TO BOSTON

MATCHLINE DWG P-102D

MATCHLINE DWG P-104D

AMTRAK ROW (typ.)

Field flagged wetlands (typ.)

MEET EXISTING STA: 106+0757.47

EXISTING CATENARY POLES WEST OF 106+1100 TO REMAIN (TYP)

Limits of the Project Disturbance (typ.)

TYPE "C-G" CATCH BASIN

PERMANENT ACCESS PATH (9' MIN.) TO BE CONSTRUCTED AFTER REMOVAL OF TEMPORARY ACCESS PATH, NO TEMPORARY RETAINING STRUCTURES TO REMAIN AT PROJECT COMPLETION

EXISTING BALLAST AND SUBBALLAST TO REMAIN

EXISTING SURFACE GRADES AND SURFACE TYPES (INCLUDING RIPRAP AND GRAVEL) TO BE RESTORED AT PROJECT COMPLETION (TYP.)

SINGLE ARM CANTILEVER CATENARY POLE (TYP.), SEE ET SHEETS

TYPE "C-G" CATCH BASIN

EXIST TRACK 2 ℄

EXIST TRACK 1 ℄

T1 106+0800 T1 106+0900 T1 106+1000 T1 106+1100 T1 106+1200 T1 106+1300 T1 106+1400 T1 106+1500 T1 106+1600 T1 106+1700

T2 106+0900 T2 106+1000 T2 106+1100 T2 106+1200 T2 106+1300 T2 106+1400 T2 106+1500 T2 106+1600

Limits of the Project Disturbance (typ.)

WESTERN LIMIT OF FULL DEPTH TRACK CONSTRUCTION. CONTRACTOR TO COORDINATE TRACK TIE IN WITH AMTRAK

MEET EXISTING STA: 106+0807.32

AMTRAK ROW (typ.)

LIMIT OF DISTURBANCE (TYP)

Field flagged wetlands (typ.)

WESTERN LIMIT OF GRADING WORK

Vegetation area below CJL+1 ft. and Intertidal wetland permanently filled. Area=0.490 ac.

Vegetation area below CJL+1 ft. and Intertidal wetland temporary disturbed. Area=0.395 ac.

EMBANKMENT SCOUR PROTECTION

PROP TRACK 1 ℄

PROP TRACK 2 ℄

Field flagged wetlands (typ.)

EXISTING SURFACE GRADES AND SURFACE TYPES (INCLUDING PLANTINGS) TO BE RESTORED AT PROJECT COMPLETION (TYP.)

Limits of the Project Disturbance (typ.)

Legend

- Vegetated area below CJL+1 ft. and Intertidal wetland permanently filled
- Vegetated area below CJL+1 ft. and Intertidal wetland temporary disturbed
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas permanently filled
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- Subtidal wetland (area) permanently dredged and/or filled
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- Deep water temporary disturbed
- Deep water permanent dredge and fill
- Subtidal SAV (submerged aquatic vegetation)

Legend

- Tidal Wetland Boundary - Coastal Jurisdiction Line (CJL=2.9') + 1 foot - elevation 3.9'
- High Tide Line (HTL) - elevation 3.04'
- Mean High Water (MHW) - elevation 1.71'
- Field located Wetland boundary
- Limits of the Project disturbance
- Amtrak ROW

NOTE:
FOR BASE MAP USED WSP SITE PLAN SERIES CV-101 THRU CV108. COLOR ANNOTATIONS HAVE BEEN ADDED TO DEMONSTRATE PERMANENT AND TEMPORARY DISTURBANCE AREAS TIDAL WETLAND AND WATER.

40 20 0 40 80

SCALE IN FEET
SCALE 1" = 40'

FILE NAME: 21204-CV-101_108.DWG
PRINT DATE/TIME: 2/1/2022 5:11 PM
PLOT SCALE: AS NOTED
STANDARD PEN TABLE: YES

No.	Revisions	Date	By

Amtrak®

Office of Chief Engineer
STRUCTURES
National Railroad Passenger Corporation
30th Street Station, Philadelphia, Pennsylvania 19104

Approved	Date

100% SUBMISSION

HARDESTY & HANOVER, LLC
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1600 JFK Blvd. Suite 510
Philadelphia, PA 19103

OLD SAYBROOK CONNECTICUT

REPLACEMENT OF MB 106.89 OVER CONNECTICUT RIVER

DISTRUBANCE LIMITS SHEET 3 OF 8

Designed	CB	Drawn	CB/MD	Checked	KM	Date	09/30/2021

Project Code:	XXX XXX
WBS:	000000
Sheet No.	OF 000
Dwg. No.	P-103D

TO NEW HAVEN

TO BOSTON

MATCHLINE DWG P-103D

MATCHLINE DWG P-105D

EXISTING SIGNAL HOUSE, LOCATION A TO BE REMOVED AFTER PROPOSED TRACK 2 IS PLACED INTO SERVICE

EXISTING TIMBER CRIB RETAINING STRUCTURE TO BE REMOVED

AMTRAK ROW (typ.)

PERMANENT ACCESS PATH (9' MIN.) TO BE CONSTRUCTED AFTER THE REMOVAL OF TEMPORARY ACCESS PATH ; NO TEMPORARY RETAINING STRUCTURES TO REMAIN AT PROJECT COMPLETION

TYPE "C–G" CATCH BASIN

Limits of the Project Disturbance (typ.)

TYPE "C–G" CATCH BASIN

TYPE "C–G" CATCH BASIN

EXISTING BALLAST AND SUBBALLAST TO REMAIN

EXIST TRACK 2 ℄

EXIST TRACK 1 ℄

Field flagged wetlands (typ.)

Field flagged wetlands (typ.)

CHAIN LINK FENCE GATE

20' PERMANENT ACCESS PATH

SIGNAL HOUSE LOCATION A, SEE CS SHEETS

TYPE "C–G" CATCH BASIN

563 LF CHAIN LINK FENCE

Vegetation area below CJL+1 ft. and Intertidal wetland temporary disturbed. Area=0.046 ac.

ANY AREA DISTURBED BY TRESTLE PILES SHALL BE RESTORED TO EXISTING CONDITION

EXISTING SURFACE GRADES AND SURFACE TYPES (INCLUDING RIPRAP AND GRAVEL) TO BE RESTORED AT PROJECT COMPLETION (TYP.)

Field flagged wetlands (typ.)

TYPE "C–G" CATCH BASIN

EXISTING WEST ABUTMENT OF EXISTING CONNECTICUT RIVER BRIDGE – SEE STRUCTURES PLANS FOR EXTENT OF DEMOLITION

FLOOD

EBB

PERMANENT 20' ACCESS PATH

Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas permanently filled. Area= 0.184 ac.

Field flagged wetlands (typ.)

AMTRAK ROW (typ.)

EMBANKMENT SCOUR PROTECTION

LIMIT OF DISTURBANCE (TYP)

EXISTING SURFACE GRADES AND SURFACE TYPES (INCLUDING PLANTINGS) TO BE RESTORED AT PROJECT COMPLETION (TYP.)

Vegetation area below CJL+ 1 ft. and Intertidal wetland temporary disturbed. Area= 0.367 ac.

PROP TRACK 1 ℄

PROP TRACK 2 ℄

SINGLE ARM CANTILEVER CATENARY POLE (TYP.), SEE ET SHEETS

Limits of the Project Disturbance (typ.)

AMTRAK ROW (typ.)

CONCRETE ENDWALLS

RIPRAP EMBANKMENT SCOUR PROTECTION TO SERVE AS RIPRAP OUTLET PROTECTION

Vegetation area below CJL+ 1 ft. and Intertidal wetland permanently filled. Area=1.601 ac.

Intertidal Unconsolidated Shore, containing rocks, cobble/gravel, and sand (beach), area temporary disturbed. Area=0.020 ac.

DOUBLE ARM CANTILEVER CATENARY POLE (TYP.), SEE ET SHEETS

SECURITY POLE, SEE ES–101

C&S PULLBOX

WEST RETAINING WALL, SEE RW SHEETS

WALL SCOUR PROTECTION

Limits of the Project Disturbance (typ.)

WEST ABUTMENT FOR NEW CONNECTICUT RIVER BRIDGE, SEE STRUCTURES SHEETS

DREDGE AREA FOR CONSTRUCTION BARGES SHALL REMAIN POST CONSTRUCTION

Subtidal area temporary disturbed. Area= 0.618 AC.

Subtidal area permanently filled. Area= 0.278 AC.

Subtidal area permanently dredged for barge mooring. Area= 0.178 ac.

NOTE:
FOR BASE MAP USED WSP SITE PLAN SERIES CV-101 THRU CV108. COLOR ANNOTATIONS HAVE BEEN ADDED TO DEMONSTRATE PERMANENT AND TEMPORARY DISTURBANCE AREAS TIDAL WETLAND AND WATER.

40 20 0 40 80

SCALE IN FEET
SCALE 1" = 40'

Legend

- Vegetated area below CJL+1 ft. and Intertidal wetland permanently filled
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- Subtidal wetland (area) permanently dredged and/or filled
- Subtidal wetland (area) temporary disturbed
- Deep water temporary disturbed
- Deep water permanent dredge and fill
- Subtidal SAV (submerged aquatic vegetation)

Legend

- Tidal Wetland Boundary - Coastal Jurisdiction Line (CJL=2.9') + 1 foot - elevation 3.9'
- High Tide Line (HTL) - elevation 3.04'
- Mean High Water (MHW) - elevation 1.71'
- Field located Wetland boundary
- Limits of the Project disturbance
- Amtrak ROW

No.	Revisions	Date	By

Office of Chief Engineer
STRUCTURES
National Railroad Passenger Corporation
30th Street Station, Philadelphia, Pennsylvania 19104

Approved	Date

100% SUBMISSION

HARDESTY & HANOVER, LLC
ENGINEERING
1501 Broadway New York, NY 10036
WSP
4 Penn Center
1600 JFK Blvd. Suite 510
Philadelphia, PA 19103

OLD SAYBROOK CONNECTICUT

REPLACEMENT OF MB 106.89 OVER CONNECTICUT RIVER

DISTRUBANCE LIMITS SHEET 4 OF 8

Designed	CB	Drawn	CB/MD	Checked	KM	Date	09/30/2021

Project Code:	XXX XXX
WBS:	000000
Sheet No.	OF 000
Dwg. No.	P-104D

FILE NAME: 212004-CV-101_108.DWG
PRINT DATE/TIME: 2/12/2021 10:45 AM
PLOT SCALE: AS NOTED
STANDARD PEN TABLE: YES

TO NEW HAVEN

CONNECTICUT RIVER

TO BOSTON

FLOOD

EBB

MATCHLINE DWG **P - 104D**

MATCHLINE DWG **P - 106D**

Limits of the Project Disturbance (typ.)

ANY AREA DISTURBED BY TRESTLE PILES SHALL BE RESTORED TO EXISTING CONDITION

ST/STA BK 106+3174.44
STA AHD 106+3163.25

EXISTING BRIDGE PIER (TYP.) TO BE REMOVED SEE STRUCTURES SHEETS

Deepwater temporary disturbance.
Remove 4 existing piers 0.027ac. x 4 = 0.108 ac.
Install 4 new piers 0.0155 x 4 = 0.062 ac.
Total temporary disturbance area =0.170ac

Limits of the Project Disturbance (typ.)

Old Saybrook (Middlesex County) / Old Lyme (New London County)

Deepwater temporary disturbance (typ.)
Area =1.017 ac.

Limits of the Project Disturbance (typ.)

EXISTING FENDER TO BE REMOVED, SEE STRUCTURE SHEETS

Deepwater temporary disturbance
Area=0.027ac.

EXISTING BRIDGE TO BE REMOVED, SEE STRUCTURE SHEETS

WEST MITER RAIL

EXISTING MOVABLE SPAN OF BRIDGE

EAST MITER RAIL

EXIST TRACK 1 ℄

EXIST TRACK 2 ℄

T1 106+3000 T2 106+3000 T1 106+3100 T2 106+3100 T1 106+3200 T2 106+3200 T1 106+3300 T2 106+3300 T1 106+3400 T2 106+3400 T1 106+3500 T2 106+3500 T1 106+3600 T2 106+3600 T1 106+3700 T2 106+3700 T1 106+3800 T2 106+3800 T1 106+3900 T2 106+3900 T1 106+4000 T2 106+4000

PIER 1

PIER 2

PIER 3

PIER 4

PIER 5

PIER 6

PIER 7

PROP TRACK 1 ℄

PROP TRACK 2 ℄

PROPOSED BRIDGE PIER (TYP.)

PROPOSED MOVABLE SPAN OF BRIDGE

LIMIT OF DISTURBANCE (TYP)

Subtidal area temporary disturbance.
Area= 0.274 AC.

DREDGE AREA FOR CONSTRUCTION BARGES SHALL REMAIN POST CONSTRUCTION

Subtidal area permanently dredged for barge mooring. Area= 0.092 ac.

Deepwater dredged & filled permanently.15 new drilled shafts.
Total area of permanent disturbance 0.009 ac.

REMOVE EXISTING SUBMARINE CABLES AND INSTALL PROPOSED SUBMARINE CABLES (NO RIVER MATERIAL TO BE REMOVED FROM SITE, RIVER MATERIAL TO BE REUSED AS FILL FOR TRENCHES AFTER INSTALLATION OF CABLES) SEE SHEETS E–038, ES–102, ET–113, ET–157, AND ET–158.

Deepwater dredged & filled permanently. 56 new drilled shafts.
Total area of permanent disturbance 0.020 ac.

Deepwater dredged & filled permanently.
64 new drilled shafts.
Total area of permanent disturbance 0.024 ac.

Legend

- Vegetated area below CJL+1 ft. and Intertidal wetland permanently filled
- Vegetated area below CJL+1 ft. and Intertidal wetland temporary disturbed
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas permanently filled
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas temporary disturbed
- Subtidal wetland (area) permanently dredged and/or filled
- Subtidal wetland (area) temporary disturbed
- Deep water temporary disturbed
- Deep water permanent dredge and fill
- Subtidal SAV (submerged aquatic vegetation)

Legend

- Tidal Wetland Boundary - Coastal Jurisdiction Line (CJL=2.9') + 1 foot - elevation 3.9'
- High Tide Line (HTL) - elevation 3.04'
- Mean High Water (MHW) - elevation 1.71'
- Field located Wetland boundary
- Limits of the Project disturbance
- Amtrak ROW

NOTE:
FOR BASE MAP USED WSP SITE PLAN SERIES CV-101 THRU CV108. COLOR ANNOTATIONS HAVE BEEN ADDED TO DEMONSTRATE PERMANENT AND TEMPORARY DISTURBANCE AREAS TIDAL WETLAND AND WATER.

40 20 0 40 80
SCALE IN FEET
SCALE 1" = 40'

No.	Revisions	Date	By

Office of Chief Engineer
STRUCTURES
National Railroad Passenger Corporation
30th Street Station, Philadelphia, Pennsylvania 19104

Approved	Date

100% SUBMISSION

HARDESTY & HANOVER, LLC
ENGINEERING
1501 Broadway New York, NY 10036
WSP
4 Penn Center
1600 JFK Blvd. Suite 510
Philadelphia, PA 19103

OLD SAYBROOK CONNECTICUT

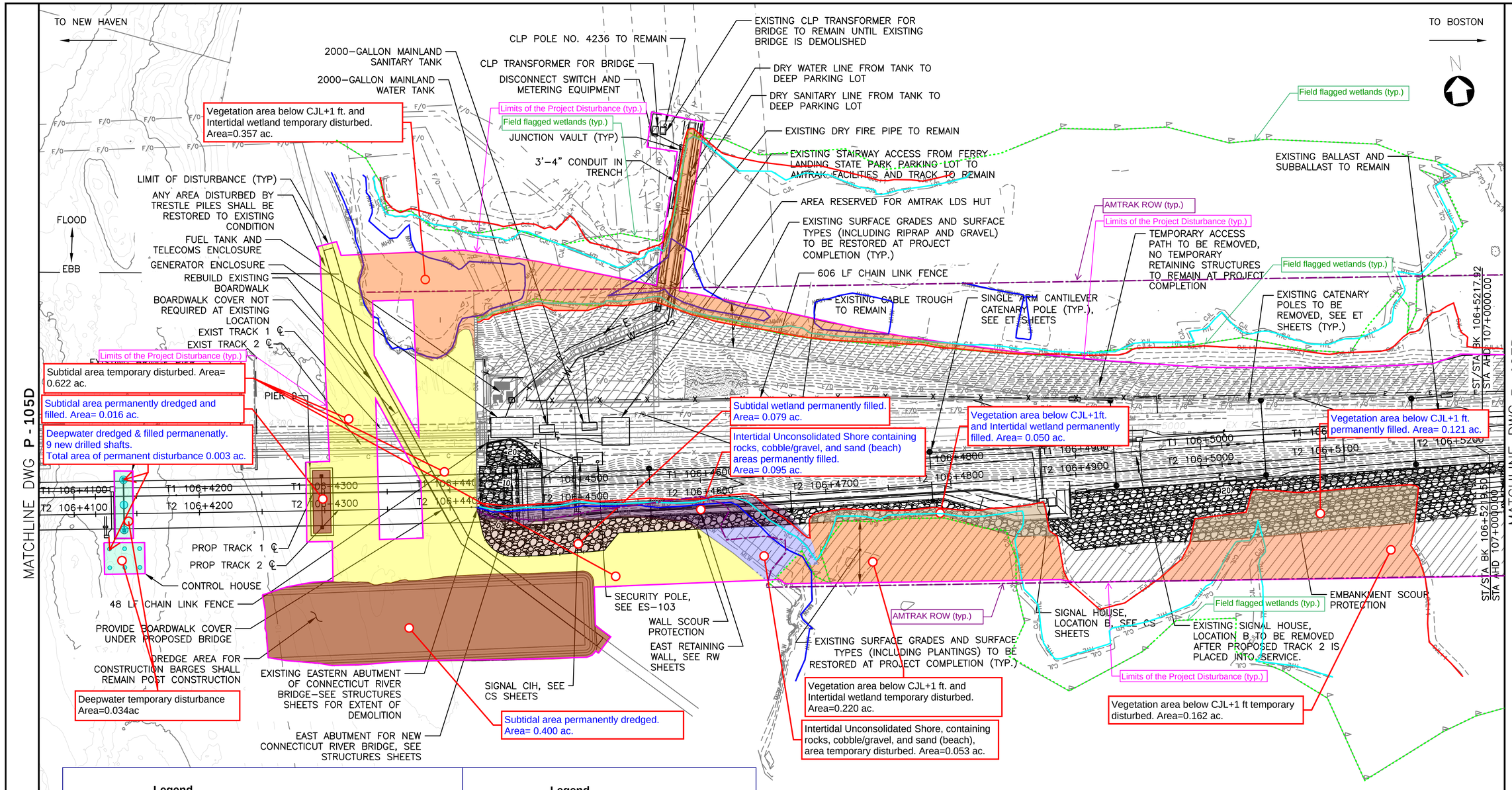
REPLACEMENT OF MB 106.89 OVER CONNECTICUT RIVER

DISTRUBANCE LIMITS SHEET 5 OF 8

Designed	CB	Drawn	CB/MD	Checked	KM	Date	09/30/2021

Project Code:	XXX XXX
WBS:	000000
Sheet No.	OF 000
Dwg. No.	P-105D

FILE NAME: 212004-CV-101_108.DWG
PRINT DATE/TIME: 2/14/2022 9:17 AM
PLOT SCALE: AS NOTED
STANDARD PEN TABLE: YES



Legend

- Vegetated area below CJL+1 ft. and Intertidal wetland permanently filled
- Vegetated area below CJL+1 ft. and Intertidal wetland temporary disturbed
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas permanently filled
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas temporary disturbed
- Subtidal wetland (area) permanently dredged and/or filled
- Subtidal wetland (area) temporary disturbed
- Deep water temporary disturbed
- Deep water permanent dredge and fill
- Subtidal SAV (submerged aquatic vegetation)

Legend

- Tidal Wetland Boundary - Coastal Jurisdiction Line (CJL=2.9') + 1 foot - elevation 3.9'
- High Tide Line (HTL) - elevation 3.04'
- Mean High Water (MHW) - elevation 1.71'
- Field located Wetland boundary
- Limits of the Project disturbance
- Amtrak ROW

NOTE:
FOR BASE MAP USED WSP SITE PLAN SERIES CV-101 THRU CV108. COLOR ANNOTATIONS HAVE BEEN ADDED TO DEMONSTRATE PERMANENT AND TEMPORARY DISTURBANCE AREAS TIDAL WETLAND AND WATER.

SCALE IN FEET
SCALE 1" = 40'

No.	Revisions	Date	By

Office of Chief Engineer
STRUCTURES
National Railroad Passenger Corporation
30th Street Station, Philadelphia, Pennsylvania 19104

Approved	Date

100% SUBMISSION

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ENGINEERING
1501 Broadway New York, NY 10036
WSP
4 Penn Center
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OLD SAYBROOK CONNECTICUT

REPLACEMENT OF MB 106.89 OVER CONNECTICUT RIVER

DISTRUBANCE LIMITS SHEET 6 OF 8

Designed	CB	Drawn	CB/MD	Checked	KM	Date	09/30/2021

Project Code:	XXX XXX
WBS:	000000
Sheet No.	OF 000
Dwg No.	P-106D

FILE NAME: 21004-Cv-101_108.DWG
PRINT DATE/TIME: 2/14/2022 9:22 AM
PLOT SCALE: AS NOTED
STANDARD PEN TABLE: YES

TO NEW HAVEN

TO BOSTON

N

MATCHLINE DWG P - 106D

MATCHLINE DWG P - 108D

Limits of the Project Disturbance (typ.)

AMTRAK ROW (typ.)

EASTERN LIMIT OF NEW FULL TRACK CONSTRUCTION, CONTRACTOR TO COORDINATE TRACK TIE IN WITH AMTRAK.

Field flagged wetlands (typ.)

Vegetation area below CJL+1 ft. and Intertidal wetland temporary disturbed. Area= 0.023 ac.

LIEUTENANT RIVER

FLOOD

EBB

Limits of the Project Disturbance (typ.)

Lieutenant River deepwater temporary disturbance. Area = 0.068

Vegetation area below CJL+1 ft. and Intertidal wetland temporary disturbed. Area = 0.029 ac.

EXIST TRACK 1 ℄

EXIST TRACK 2 ℄

STA: 107+0277.83 BEGIN TRACK SHIFT

TEMPORARY ACCESS PATH TO BE REMOVED, NO TEMPORARY RETAINING STRUCTURES TO REMAIN AT PROJECT COMPLETION

CATENARY POLE (TYP.), SEE ET SHEETS

,TING CATENARY POLES EAST 107+0900 TO REMAIN (TYP.)

STA: 107+0950.63 MEET EXISTING BEGIN RESURFACING

ANY AREA DISTURBED BY TRESTLE PILES SHALL BE RESTORED TO EXISTING CONDITION

AMTRAK ROW (typ.)

Field flagged wetlands (typ.)

T1 107+0100

T2 107+0100

T1 107+0200

T2 107+0200

T1 107+0300

T2 107+0300

T1 107+0400

T2 107+0400

T1 107+0500

T2 107+0500

T1 107+0600

T2 107+0600

T1 107+0700

T2 107+0700

T1 107+0800

T2 107+0800

T1 107+0900

T2 107+0900

EX T1 107+1000

EX T2 107+1000

EX T1 107+1100

EX T2 107+1100

EX T

EX T

STA: 107+0359.71 BEGIN TRACK SHIFT

EASTERN LIMIT OF GRADING WORK

PROP TRACK 1 ℄

PROP TRACK 2 ℄

EXISTING LIEUTENANT RIVER BRIDGE TO REMAIN

STA: 107+0903.46 EXISTING MEET RESURFACING BEGIN

EMBANKMENT SCOUR PROTECTION

LIMIT OF DISTURBANCE (TYP)

AMTRAK ROW (typ.)

EXISTING SURFACE GRADES AND SURFACE TYPES (INCLUDING PLANTINGS, RIPRAP, OR GRAVEL, AS APPLICABLE) TO BE RESTORED AT PROJECT COMPLETION (TYP.)

Limits of the Project Disturbance (typ.)

Field flagged wetlands (typ.)

Field flagged wetlands (typ.)

Limits of the Project Disturbance (typ.)

Field flagged wetlands (typ.)

AMTRAK ROW (typ.)

Legend

- Vegetated area below CJL+1 ft. and Intertidal wetland permanently filled
- Vegetated area below CJL+1 ft. and Intertidal wetland temporary disturbed
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas permanently filled
- Intertidal Unconsolidated Shore containing rocks, cobble/gravel, and sand (beach) areas temporary disturbed
- Subtidal wetland (area) permanently dredged and/or filled
- Subtidal wetland (area) temporary disturbed
- Deep water temporary disturbed
- Deep water permanent dredge and fill
- Subtidal SAV (submerged aquatic vegetation)

Legend

- Tidal Wetland Boundary - Coastal Jurisdiction Line (CJL=2.9') + 1 foot - elevation 3.9'
- High Tide Line (HTL) - elevation 3.04'
- Mean High Water (MHW) - elevation 1.71'
- Field located Wetland boundary
- Limits of the Project disturbance
- Amtrak ROW

NOTE:
FOR BASE MAP USED WSP SITE PLAN SERIES CV-101 THRU CV108. COLOR ANNOTATIONS HAVE BEEN ADDED TO DEMONSTRATE PERMANENT AND TEMPORARY DISTURBANCE AREAS TIDAL WETLAND AND WATER.

40 20 0 40 80

SCALE IN FEET
SCALE 1" = 40'

No.	Revisions	Date	By

Amtrak®

Office of Chief Engineer
STRUCTURES
National Railroad Passenger Corporation
30th Street Station, Philadelphia, Pennsylvania 19104

Approved	Date

100% SUBMISSION

HARDESTY & HANOVER, LLC
ENGINEERING
1501 Broadway New York, NY 10036
WSP
4 Penn Center
1600 JFK Blvd. Suite 510
Philadelphia, PA 19103

OLD SAYBROOK CONNECTICUT

REPLACEMENT OF MB 106.89 OVER CONNECTICUT RIVER

DISTRUBANCE LIMITS SHEET 7 OF 8

Designed	CB	Drawn	CB/MD	Checked	KM	Date	09/30/2021

Project Code:	XXX XXX
WBS:	000000
Sheet No.	OF 000
Dwg. No.	P-107D

FILE NAME: 21004-CV-101_108.DWG
PRINT DATE/TIME: 2/12/2022 5:22 PM
PLOT SCALE: AS NOTED
STANDARD PEN TABLE: YES

TO NEW HAVEN

TO BOSTON

Limits of the Project Disturbance (typ.)

SHORE ROAD (RT.156)

Field flagged wetlands (typ.)

MATCHLINE

INSET

MATCHLINE INSET

Vegetation area below CJL+1 ft. and Intertidal wetland temporary disturbed. Area = 0.002 ac.

TEMPORARY ACCESS PATH TO BE REMOVED, NO TEMPORARY RETAINING STRUCTURES TO REMAIN AT PROJECT COMPLETION

EXISTING SURFACE GRADES AND SURFACE TYPES (INCLUDING PLANTINGS, RIPRAP, OR GRAVEL, AS APPLICABLE) TO BE RESTORED AT PROJECT COMPLETION (TYP.)

AMTRAK ROW (typ.)

EXISTING CATENARY POLES TO REMAIN (TYP.)

EXIST TRACK 1 ℄

EXIST TRACK 2 ℄

LIMIT OF DISTURBANCE (TYP)

MATCHLINE DWG P-107D

POE: 107+2374.26

POE: 107+2343.39

NOTE:
FOR BASE MAP USED WSP SITE PLAN SERIES CV-101 THRU CV108. COLOR ANNOTATIONS HAVE BEEN ADDED TO DEMONSTRATE PERMANENT AND TEMPORARY DISTURBANCE AREAS TIDAL WETLAND AND WATER.

40 20 0 40 80

SCALE IN FEET
SCALE 1" = 40'

FILE NAME: 21204-CV-101_108.DWG
PRINT DATE/TIME: 2/12/2022 7:28 PM
PLOT SCALE: AS NOTED
STANDARD PEN TABLE: YES

No.	Revisions	Date	By

Amtrak®

Office of Chief Engineer
STRUCTURES
National Railroad Passenger Corporation
30th Street Station, Philadelphia, Pennsylvania 19104

Approved	Date

100% SUBMISSION

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WSP
4 Penn Center
1600 JFK Blvd. Suite 510
Philadelphia, PA 19103

OLD SAYBROOK CONNECTICUT

REPLACEMENT OF MB 106.89 OVER CONNECTICUT RIVER

DISTRUBANCE LIMITS SHEET 8 OF 8

Designed	CB	Drawn	CB/MD	Checked	KM	Date	09/30/2021

Project Code:	XXX XXX
WBS:	000000
Sheet No.	OF 000
Dwg. No.	P-108D

ENCLOSURE F

Connecticut Department of
Energy & Environmental Protection
Bureau of Natural Resources
Fisheries Division

DEEP Fisheries Consultation Form

To the Applicant - Prior to the submission of your license application to the Connecticut Department of Energy & Environmental Protection (DEEP) Water Planning and Management Division (WPMD) or Land and Water Resources Division (LWRD), please complete Part I below and e-mail the following to deep.inland.fisheries@ct.gov:

1. this completed DEEP *Fisheries Consultation Form*;
2. a site location map,
3. a PDF version of the proposed project plans including a site survey of existing conditions (if available), and
4. photos of the site.

Fisheries Division staff will contact you if further details are needed. Once the Fisheries Division staff returns the completed form to you, please include the form, and any signed plans (if applicable) in your license application submittal to DEEP.

Part I: Applicant and Site Information (*to be completed by APPLICANT)*

1. Applicant/Registrant Information

Name: National Railroad Passenger Corporation (Amtrak)
Mailing Address: 30th Street Station
City/Town: Philadelphia State: PA Zip Code: 19104
Business Phone: 215-349-3070 Ext.: _____
Contact Person: John Brun, P.E., Phone: 215-349-3070 Ext: _____
E-mail Address: BrunJ@amtrak.com

2. Engineer/Surveyor/Agent Information (list as applicable)

Name: Martinez Couch & Associates, LLC
Mailing Address: 1084 Cromwell Avenue
City/Town: Rocky Hill State: CT. Zip Code: 06067
Business Phone: 860-436-4364 Ext.: _____
Contact Person: Rima Laukaitis, P.E. Phone: 860-436-4364 Ext: 628
E-mail Address: rlauk@martinezcouch.com
Service Provided: Permitting services

3. Site Location:

Name of Site: Amtrak Connecticut River Bridge Replacement
Address of Site or Location Description: The Connecticut River Bridge
City/Town: Old Saybrook & Old Lyme State: CT Zip Code: _____
Parcel Location/Tax Assessor's Reference: Map _____ Block _____ Lot _____
Name of Stream or Waterbody: Connecticut River

4. Activity: Check the box best describing your activity: (check all that apply):

- ☐ new public/fishing access;
- ☐ new docks and marinas on the Connecticut River;
- ☒ coastal/tidal dredging projects;
- ☐ activities in inland/non-tidal waterbodies and watercourses;
- ☐ withdrawal of water from a non-tidal/inland river, stream, pond or lake;
- ☐ withdrawal of water from a wetland, marsh, swamp, or bog hydrologically connected to a non-tidal/inland river, stream, pond or lake;
- ☐ withdrawal of groundwater from stratified drift deposits hydrologically connected to a non-tidal/inland river, stream, pond or lake.

Note: Fisheries consultation is **not required** for docks and marinas on Long Island Sound.

Part I: Applicant and Site Information *(to be completed by APPLICANT) (continued)*

5. **DEEP Pre-application Contact:** Indicate name of permit analyst or engineer, if applicable.
   Michael Grzywinski
6. **Project Description:** Provide or attach a brief, but thorough, description of the project including any measures to protect, enhance or restore fish populations:

   See the Project Discription attached.

Part II: Fisheries Determination *(To be completed by DEEP Fisheries Staff only)*

To Fisheries Staff - This completed consultation form is required to be submitted as part of an application to DEEP. The application has not yet been submitted to DEEP. Please review the enclosed materials and determine whether the project will significantly impact any fisheries or fisheries habitat. You may provide comments or recommendations regarding the proposal. Send this completed form to the applicant and copy the DEEP analyst, if known, or the applicable WPMD/LWRD Supervisor. If the proposed work **WILL** significantly impact any fisheries and/or habitat or if you have any comments or concerns regarding the regulatory review for this project, contact the DEEP analyst, if known, or the applicable WPMD/LWRD Supervisor.

DEEP FISHERIES DIVISION DETERMINATION

Date Consultation Form received: 4/9/20

Please check applicable boxes and return the completed Consultation Form to the applicant:

- ☐ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat;
- ☑ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat **if the below Recommendations are followed**; and/or,
- ☐ I have determined that the work described in Part I of this form and attachments **WILL NOT** significantly impact any fisheries and/or habitat **if the design features shown on the attached plans are incorporated**. Fisheries staff to sign and date plans and return to the applicant with the completed Consultation Form.

COMMENTS/RECOMMENDATIONS (or check here if these are attached following this page: ☑):

See attached memo.

"By entering my name below, I agree that I am providing my legal signature, and am legally bound by the determination above."

Signature of Fisheries Division Staff — Date: 5/8/20

Bruce Williams — Print Name of Fisheries Division Staff

EP Fisheries Biologist — Title

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

Marine District Headquarters

333 Ferry Road • Old Lyme, CT 06371 www.ct.gov/deep affirmative Action/Equal Opportunity Employer

MEMORANDUM

May 8, 2020

To: Rima Laukatis, P.E. Project Manager
Martinez Cough & Associates, LLC

From: Bruce Williams, Fisheries Biologist
Fisheries Division, Diadromous Fish and Habitat Conservation and Enhancement (HCE) programs, DEEP Marine Headquarters, Old Lyme

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Subject: Fisheries Consultation for the Proposed Amtrak Connecticut River Bridge Replacement, Old Saybrook – Old Lyme, CT

Scope of Project:

The National Railroad Passenger Corporation (Amtrak) is proposing to replace the Connecticut River Railroad Bridge in its entirety with a new bascule bridge and then demolish the existing structure. The new bridge will be constructed approximately 52' south of the existing bridge. The new structure will increase the channel width by 2' and move the channel location approximately 14.5' west toward the center of the river. It will have a vertical clearance of 24' in the closed position (an increase of 6'compared to the existing bridge). In the open position the vertical clearance will be unlimited for a 90' wide portion of the channel with a minimum of 74' of clearance for the entire channel. The new bridge will be comprised of a two-track electrified movable railroad bridge and approach spans at grade that tie into the existing railroad. The existing bridge will remain operational during new bridge construction.

The approaches will be realigned to the new bridge, requiring an expansion of the embankments and new abutments within the Amtrak right-of-way resulting in a permanent impact below the tidal wetlands boundary of approximately 4.92 acres, with 2.54 acres occurring below MHW.

Nine new piers will be constructed to support the bridge. The easternmost pier, plus possibly one of the bascule piers will be cast in place behind sheet pile cofferdams. All other piers will be comprised of drilled shaft piles with concrete caps. Cofferdams will not be required to construct these piers, but a steel casing will be driven with vibratory hammers prior to drilling.

After the new bridge is completed, the existing stone piers will be demolished behind cofferdams using an expansion agent to break apart the piers and the pieces will be removed by crane. The existing timber piles comprising the pier foundations and the fender system will be either pulled or cut off two feet below the mudline. All bridge components and debris will be removed by barge. Temporary construction platforms may be staged over wetlands and open water. Some

dredging may be required to align the new bridge channel with the existing navigation channel. Permission may also be sought to use some of the parking and storage areas of the DEEP Marine Headquarters and Ferry Landing State Park. The boardwalk under the bridge will need to be closed and partially dismantled for construction access for an undefined period.

The work is scheduled to begin in 2022 and finished in 2025.

Potential Construction Impacts:

1. The Connecticut River supports important spawning runs of the following species of diadromous (migratory) fish: Alewife, Blueback Herring (listed as State Special Concern), American Eel, American Shad, Atlantic Salmon, Atlantic Sturgeon (Federal and State Endangered), Shortnose sturgeon (Federal and State Endangered), Striped Bass, White Perch, Gizzard Shad, Hickory Shad, and Sea Lamprey. These species migrate between fresh and saltwater and projects that involve dredging, pile driving, blasting and hoe ramming are routinely reviewed to determine if these activities should be restricted during the migration period for these fish. These projects are also reviewed to access their impact on other fish species and aquatic organisms in the area.

2. The commercial shad fishery is open on the Connecticut River from April 1 through June 15. Fishing occurs only at night, and is prohibited from sundown on Friday night to sundown on Sunday night. Shad fishermen drift gill nets between the I-95 Baldwin Bridge and the Railroad Bridge and between the Railroad Bridge and Saybrook Point. Very often the nets are either set or retrieved quite close to the Railroad Bridge. Barges used in the construction or demolition may interfere with the ability of fishermen to these areas and loud construction noises at night may scare fish or interrupt their migration.

3. Amtrak proposes to close and remove a portion of the boardwalk under the bridge that is part of Ferry Landing State Park and possibly use some of the parking and storage areas at the park and DEEP Marine Headquarters for construction access. The park is a popular destination for people who want to enjoy the lower Connecticut River estuary and its wildlife. People come to picnic, walk, fish, and view wildlife and activities on the river. The park is particularly well known as a good place to fish, especially from the 1,000 foot long boardwalk that extends from the park south under the railroad bridge to the mouth of the Lieutenant River.

   The park is designated by the Fisheries Division as an Enhanced Opportunity Shore Fishing Site, meaning that length limits are reduced for certain species caught from the park waterfront and fishing pier. Shore-based anglers typically do not encounter as many legal size fish as do boat-based anglers, and so this affords shore-based anglers more opportunity to keep fish for consumption. The Enhanced Opportunity Shore Fishing Program is an important element of the DEEP Bureau of Natural Resources strategy of increasing participation in recreational fishing, and Ferry Landing State Park is one of the most popular shoreline fishing destinations in Connecticut. The most commonly caught species at Ferry Landing State Park are Striped Bass, Bluefish, Hickory Shad, White Perch, White Catfish, and blue crabs. Fishing generally occurs from late April into

October. The number of people fishing in the month of April tends to be low, but increases rapidly through May. From mid-June through the first few weeks in October, the parking lots are usually full and use of the boardwalk is typically heavy, especially in years when blue crabs are abundant.

Recommendations to Reduce Construction Related Impacts on Fisheries Resources:

1. To reduce the noise impacts from driving sheet pile and shaft casings, only vibratory hammers should be used during the diadromous fish migratory period from April 1 to June 30, inclusive. The use of impact hammers is acceptable outside of this timeframe.

2. To minimize construction related turbidity, full depth turbidity curtains should be deployed prior to driving any sheet pile or shaft casings. Due to strong tides and currents the fabric for the curtains should be composed of a heavy woven pervious material to create a flow-through medium, which will reduce the pressure on the curtains and keep them in the same relative shape and location at all tides and river flows.

3. Diadromous fish may utilize the entire width of the Connecticut River during their migration, but primarily migrate up the navigation channel in the middle of the river. To ensure the middle of the river is relatively undisturbed during the spring migration, construction or demolition of piers should be limited to either the western-most three (piers# 1, 2, and 3) or easternmost three (piers# 7, 8, and 9) during the spring migration period from April 1 to June 30. At no time during this period should in-water construction or demolition occur in the middle of the river or simultaneously at more than three piers.

4. Many species of diadromous fish migrate at night and bright artificial lights may interfere with their migration. During the spring migration period from April to June 30, artificial lighting over the water should be limited to navigation lights and any lighting typically required for the operation of the railroad bridge.

5. The pulling or cutting of timber piles should be prohibited from April 1 to June 30, inclusive.

6. All timber piles and stone piers should be removed to at least two feet below the mud line.

7. All dredging should be prohibited from April 1 to June 30, inclusive.

8. Due to noise concerns, the use of hoe rams should be prohibited from April 1 to June 30, inclusive.

9. To prevent damage to benthic aquatic organisms, any work done from barges should only occur when there is sufficient tide to prevent vessels from grounding.

Recommendations to Reduce Impacts to the Commercial American Shad Fishery:

1. All loud construction related activities including drilling piles and driving sheet pile or shaft casings (even by vibratory means), should be prohibited from sunset to sunrise during the commercial shad fishing season from April 1 to June 15, inclusive.

2. Given the scope of the bridge project, some interference with shad fishing might be unavoidable, but Amtrak should try to minimize interference to the greatest extent practical. It may be possible to plan when and where work barges will be placed and when large vessel traffic occurs so that interference is minimized. To facilitate this, Amtrak should establish a plan of communications with the fishermen in order to coordinate activities as best as possible. During construction, the fishermen could be notified of impending bridge construction activities that might affect them. The Fisheries Division can provide a list of the fishermen actively fishing the area and contact information after securing their approval to provide that information.

Recommendations for Mitigation for the Loss of Recreational Opportunities:

The Fisheries Division will seek mitigation for the loss of recreational opportunities at Ferry Landing State Park during construction. It is understood that sections of the existing fishing pier may need to be removed to facilitate construction. The simple reconstruction of what was already there must be part of the bridge replacement project and in no way constitutes 'mitigation'. Mitigation should include work that is an expansion of existing recreational features and should be commensurate with the magnitude of public access impacts at the park, and would most likely take the form of improved public access. Potential options include renovating or improving the boardwalk, including portions that are not directly affected by the construction. These options may include the retention and repurposing of the easternmost pier (pier #9) of the existing railroad bridge as part of an expanded fishing pier, construction of a new fishing access platform in lieu of the use of a bridge pier, or other options that Amtrak may wish to propose.

Repurposing of the easternmost pier for fishing access would involve constructing an elevated section of walkway from the existing boardwalk to the pier with sufficient clearance under the walkway to accommodate the passage of floating debris, ice and small boats. A fishing platform could either be constructed atop the pier or suspended from it. The deeper water available at the piers provides a different fishing experience and different target species as compared to fishing from the existing boardwalk or the shore.

The Fisheries Division is aware of a number of examples of old highway and railroad bridges around the country being put to reuse as fishing piers. While most of the existing Amtrak bridge would not lend itself to such reuse for a number of access, safety and design reasons, perhaps a small portion of the bridge, namely one of its piers, could be reused in this way.

The Fisheries Division in no way wishes to limit ideas for access enhancements at Ferry Landing and would welcome creative ideas from Amtrak. We encourage the appropriate project team representatives to contact DEEP as soon as project design efforts have advanced to a point where

impacts at Ferry Landing have been determined so that a more detailed exchange of ideas for mitigation can occur

cc:
Steve Gephard, Supervising Fisheries Biologist, Fisheries Division
Peter Aarrestad, Director, Fisheries Division
Michael Grzywinski, Environmental Analyst 3, Land & Water Resources Division
Douglass Patterson, Maintenance Supervisor II

Connecticut Department of
ENERGY &
ENVIRONMENTAL
PROTECTION

Marine District Headquarters

333 Ferry Road • Old Lyme, CT 06371 www.ct.gov/deep affirmative Action/Equal Opportunity Employer

MEMORANDUM

March 21,2022

To: Clarissa N. Fuller, Principal Project Manager
Major Capital Delivery
400 West 31st Street, 5th Floor, New York, NY 10001

From: Bruce Williams, Fisheries Biologist
Fisheries Division, Diadromous Fish and Habitat Conservation and Enhancement (HCE) programs, DEEP Marine Headquarters, Old Lyme

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Subject: Fisheries Consultation for the Proposed Amtrak Lieutenant River Construction Access – Old Lyme, CT

Scope of Project:

The National Railroad Passenger Corporation (Amtrak) is proposing to develop a temporary construction access along the north side of the existing rail line in Old Lyme. This access includes a temporary trestle over the Lieutenant River.

Potential Impacts:

The Lieutenant River supports a diverse fish community, including spawning runs of diadromous Alewife and Blueback Herring (a Connecticut state-listed species of special concern). The Fisheries Division monitors the passage of these fish on the Lieutenant River at three different fishways in Old Lyme, the first located at Lower Millpond, the second at Upper Millpond, and the third at Rogers Lake. The annual combined count of Alewife and Blueback Herring at the Lower Millpond fishway has exceeded 37,000 fish in recent years, with Alewife comprising the majority.

Recommendations to Reduce Impacts on Fisheries Resources and Recreational Fishing:

1. To protect the spawning migrations of Alewife and Blueback Herring the Fisheries Division recommends that all in-water work, including the installation and removal of the temporary trestle bridge over the Lieutenant River, be prohibited from March 1 to June 1, inclusive. These dates correspond to the period in which diadromous fish are observed migrating upstream at the Lower Millpond fishway.
2. The Lieutenant River is a navigable waterway with residential boat docks located upriver of the proposed temporary trestle bridge. The design of the trestle should allow for the

passage of boats and if at any time the river is closed to navigation, AMTRAK will need to consult with the DEEP Boating Division on the closure period.

cc:
Matthew Goclowski, Supervising Fisheries Biologist, Fisheries Division
Peter Aarrestad, Director, Fisheries Division
Michael Grzywinski, Environmental Analyst 3, Land & Water Resources Division