



Illinois Department of Natural Resources

One Natural Resources Way Springfield, Illinois 62702-1271
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Bruce Rauner, Governor
Wayne A. Rosenthal, Director

Authorization for Incidental Take and Implementing Agreement

Pursuant to the Illinois Endangered Species Protection Act (Act) (520 ILCS 10/5.5) and the regulations adopted to implement the Act (17 Ill. Adm. Code 1080), authorization is hereby granted to Metra for the incidental take of the State-endangered rainbow mussel (*Villosa iris*) and greater redhorse (*Moxostoma valenciennesi*) and the State-threatened spike (*Elliptio dilatata*), black sandshell (*Ligumia recta*), purple wartyback (*Cyclonaias tuberculata*), slippershell (*Alasmidonta viridis*), river redhorse (*Moxostoma carinatum*), and starhead topminnow (*Fundulus dispar*). The Illinois Department of Natural Resources (hereinafter referred to as Department) has determined that this taking is incidental to activities associated with the Metra Bridge Z-100 Improvement Project over the Fox River within Kane County, Illinois.

Procedural History

The Department received a Conservation Plan prepared by Metra on October 30, 2017, as a request for authorization for the incidental take of rainbow, spike, black sandshell, purple wartyback, and slippershell mussels; and greater redhorse, river redhorse, and starhead topminnow. The Department requested additional information on November 30, 2017, to make the conservation plan complete as prescribed by Ill. Adm. Code 1080.10. Additional information was received by the Department on January 29, March 20, and March 28, 2018. A conservation plan was approved by the Department on March 28, 2018. The public notice period and public comments will be detailed under #6 of the Compliance section below.

Compliance with the Illinois Endangered Species Protection Act

The Act includes six criteria which must be satisfied for the authorization of incidental take of an endangered or threatened species. These criteria and the Department's determination for each are listed below.

1. The taking will not be the purpose of, but will be only incidental to, the carrying out of an otherwise lawful activity:

The stated and apparent purpose of this proposed action is a bridge replacement and track addition for Metra Bridge Z-100 over the Fox River in Kane County. The bridge carries the Milwaukee District West Line over the Fox River and under U.S. Route 20 in Elgin, Illinois. The project will start with construction of temporary access roads to the east and west embankments. Three temporary causeways (totaling 37,300 square feet) will then be constructed and cofferdam

sheet piling will be installed. The downstream half of pier 1, 2, and 3 (east to west) will be constructed and construction of the abutments and approach embankment can begin. The Track 2 superstructure will be erected, shifting Metra traffic to the new alignment. The existing superstructure and piers will be removed. The second half of the new piers, abutments, and approach embankments will be constructed and, upon completion, cofferdams will be removed. The Track 1 superstructure will be erected. Finally, the causeway will be removed from the river. In total, five existing piers will be removed and three proposed piers installed. The project duration is estimated at two years. The proposed activities may result in direct burial or crushing of, or sedimentation disturbance to mussels and fish, or indirect impact as a result of noise and vibration that may reduce the reproductive success of the species. The resulting noise and vibrations may also temporarily disperse host fish necessary to the mussel's life cycle.

Total estimated area of impact within species habitat is 1.4 acres. The Department concurs that the take of rainbow, spike, black sandshell, purple wartyback, and slippershell mussels; greater redhorse, river redhorse, and starhead topminnow that could result from this project is not the purpose of Metra's activities, but is incidental to the carrying out of an otherwise lawful activity.

2. The parties to the conservation plan will, to the maximum extent practicable, minimize and mitigate the impact caused by the taking:

Proposed avoidance, minimization and mitigation were included in Metra's conservation plan.

To meet the "maximum extent practicable" standard, additional minimization and/or mitigation measures may be required beyond those proposed by Metra, based on the life history needs of the rainbow, spike, black sandshell, purple wartyback, and slippershell mussels; greater redhorse, river redhorse, and starhead topminnow.

All required minimization and mitigation measures are presented under the Authorization section below.

3. The parties to the conservation plan will ensure that adequate funding for the conservation plan will be provided.

Metra states that they have committed funds for the proposed project construction monitoring, and mitigation under their Capital Improvements Program, a grant funded through the TIGER Program, and contributions from the Canadian Pacific Railroad. Metra has committed adequate funding to support and implement all activities described in the Conservation Plan.

It is the Department's opinion that Metra's stated commitment to funding their proposed minimization and mitigation measures is sufficient to satisfy this criterion.

4. Based on the best available scientific data, the Department has determined that the taking will not reduce the likelihood of survival or recovery of the endangered or threatened species in the wild within the State of Illinois, the biotic community of which the species is a part, or the habitat essential to the species' existence in Illinois.

Rainbow (*Villosa iris*)

Rainbow is an Illinois state-endangered mussel species.

Habitat: The species is found in small to medium rivers, in riffles along the edges of emerging vegetation. They favor areas with moderate to strong currents with gravel and sand substrates.

Reproduction: Rainbow mussels are short-term brooders. Females retain glochidia in their gills from May to August. Glochidia are released and temporarily parasitize a host fish. Rainbow glochidial host fish include rainbow darter (*Etheostoma caeruleum*), bluebreast darter (*Etheostoma camurum*), green sunfish (*Lepomis cyanellus*), smallmouth bass (*Micropterus dolomieu*), largemouth bass (*Micropterus salmoides*), and yellow perch (*Perca flavescens*).

Population: Rainbow mussel populations are shrinking due to heavy sediment loadings associated with river/water management and impacts from the invasive zebra mussel.

Range in Illinois: In Illinois, rainbow mussels have been found in the Vermilion River and Fox River basins. Rainbow mussels have been found in 2 of 102 counties. There are currently 5 extant Element Occurrence Records for rainbow mussels in the Illinois Natural Heritage Database.

Incidental Take Authorizations: The Department has 1 previously issued or pending Incidental Take Authorizations for rainbow mussel related to an erosion control project in Vermilion County. This is the first authorization for the taking of rainbow in Kane County.

Spike (*Elliptio dilatata*)

Spike is an Illinois state-threatened mussel species.

Habitat: The species is found in small to large rivers with sand and gravel substrates. They are occasionally found in reservoirs and lakes, usually associated with outlet habitats dominated by swift currents.

Reproduction: Spike are short-term brooders. Females brood their young in their gills from May through August before releasing glochidia. Glochidia are released and temporarily parasitize a host fish. Spike glochidial host fish include gizzard shad (*Dorosoma cepedianum*), flathead catfish (*Pylodictis olivaris*), white crappie

(*Pomoxis annularis*), black crappie (*Pomoxis nigromaculatus*), and yellow perch (*Perca flavescens*).

Population: Spike populations are declining due to widespread degradation of habitat throughout its range. Dams, channelization and dredging can also impact glochidial host fish. They are also prone to impacts caused by the invasive zebra mussel.

Range in Illinois: In Illinois, spike have been found in the Mississippi, Illinois, Kaskaskia, Kankakee, Fox, Sangamon, Wabash, and Little Wabash River basins in eighteen (18) of 102 counties. There are currently forty-one (41) extant Element Occurrence Records for spike in the Illinois Natural Heritage Database.

Incidental Take Authorizations: There have been 10 previously issued or currently pending Incidental Take Authorizations for spike in Illinois. Previous projects include bridge replacements, pipeline installation, water treatment outfall, and diffuser installation. This is the second authorization reviewed by the Department for the taking of spike in Kane County, but the first authorization within Kane County has not been executed.

Black Sandshell (*Ligumia recta*)

Black sandshell is an Illinois state-threatened mussel species.

Habitat: The species is found in medium to large rivers in areas with strong currents. They favor substrates of gravel or firm sand.

Reproduction: Black sandshell mussels are long-term brooders. Females retain developing glochidia in their gills from August until the following July, after which glochidia are released. Gravid females are known to display their marginal papillae, moving them in a way that attracts fish hosts before releasing the parasitic glochidia. Black sandshell host fish include walleye (*Sander vitreus*), bluegill (*Lepomis macrochirus*), largemouth bass (*Micropterus salmoides*), sauger (*Sander canadensis*), white crappie (*Pomoxis annularis*), among many other fish species that have been suggested as possible hosts.

Population: The statewide population is considered stable. However, the species has not recolonized its historical range due to habitat fragmentation, habitat degradation, and pollution from various sources.

Range in Illinois: Black sandshell are found in the Mississippi, Kaskaskia, Vermilion, Ohio, Kankakee, Rock, Iroquois, and Little Wabash River basins. There are currently 103 extant Element Occurrence Records for black sandshell in the Illinois Natural Heritage Database. They have been observed in thirty-one (31) of 102 Illinois counties.

Incidental Take Authorizations: The Department has thirty (30) pending or issued Incidental Take Authorizations for black sandshell. Types of projects included dredging, bridge removal and construction/replacement, boat dock construction, railroad construction, pier removal, dam removal, piling installation, riprap installation, oil pipeline construction, and diffuser installation. This is the second authorization reviewed by the Department for the taking of black

sandshell in Kane County, but the first authorization within Kane County has not been executed.

Purple Wartyback (*Cyclonaias tuberculata*)

Purple wartyback is an Illinois state-threatened mussel species.

Habitat: The species is predominately found in small to medium-sized streams and the main headwaters of large rivers. The species prefers gravel or mud substrates.

Reproduction: Purple wartyback is a short-term brooder, with females retaining glochidia in their gills from May to late August. Glochidia are released and temporarily parasitize a host fish. Purple wartyback glochidial host fish include black bullhead (*Ameiurus melas*), yellow bullhead (*Ameiurus natalis*), channel catfish (*Ictalurus punctatus*), and flathead catfish (*Pylodictis olivaris*).

Population: Purple wartyback populations are jeopardized by habitat degradation and pollution. They are also being impacted by non-native zebra mussels attaching themselves to the shell of purple wartyback.

Range in Illinois: In Illinois, purple wartyback are found in the Kankakee, Vermillion, Ohio, Fox, and Rock River basins. They have been found in 10 of 102 Illinois counties, including Champaign, Grundy, Iroquois, Kankakee, Massac, Ogle, Pulaski, Rock Island, Vermilion, and Will. There are currently forty (40) extant Element Occurrence Records for purple wartyback mussels in the Illinois Natural Heritage Database.

Incidental Take Authorizations: The Department has fourteen (14) previously issued or pending Incidental Take Authorizations for purple wartyback. Types of projects included bridge repair or installation and pipeline maintenance. This is the second authorization reviewed by the Department for the taking of purple wartyback in Kane County, but the first authorization within Kane County has not been executed.

Slippershell (*Alasmidonta viridis*)

Slippershell is an Illinois state-threatened mussel species.

Habitat: The species is predominately found in small to medium-sized creeks and headwaters of rivers in areas with flowing water, but they have also been found in larger rivers and lakes. They prefer sand, mud, or fine gravel substrates.

Reproduction: Slippershell is a long-term brooder, with females retaining glochidia in their gills for a year before release. Glochidia are released and temporarily parasitize a host fish. Slippershell glochidial host fish include banded sculpin (*Cottus carolinae*), mottled sculpin (*Cottus bairdi*), and johnny darter (*Etheostoma nigrum*).

Population: Slippershell populations have declined due to habitat degradation, poor water quality, increased siltation and pollution, and impacts from invasive zebra mussels.

Range in Illinois: In Illinois, slippershell have been found in the Sangamon, Embarras, Vermilion, Mackinaw, and Kishwaukee Rivers, as well as several smaller creeks and tributaries. They have been found in twenty (20) of 102 Illinois counties. There are currently sixty-nine (69) extant Element Occurrence Records for slippershell mussels in the Illinois Natural Heritage Database.

Incidental Take Authorizations: The Department has twenty (20) previously issued or pending Incidental Take Authorizations for slippershell. Types of projects included dredging, bridge removal and construction/replacement, pier removal, and piling installation. This is the fifth authorization for slippershell in Kane County. Two authorizations for take were executed on Tyler Creek, a tributary to the Fox River. One authorization was executed for a bridge project approximately 3.5 miles downstream. And, one Kane County authorization for slippershell remains under consideration by the Department.

Greater Redhorse (*Moxostoma valenciennesi*)

Greater redhorse is an Illinois state-endangered fish species.

Habitat: Greater redhorse are a large, bottom-feeding fish that is typically found in fast-flowing, medium to large rivers, and are occasionally found in river reservoirs and large lakes. They prefer clear water with substrates of clean sand, gravel, or boulders. They have little tolerance of siltation and pollution, but can withstand some levels of pollution if sufficient current exists to keep spawning areas free of silt deposition.

Reproduction: Spawning occurs between May and June in shallow runs with sand and gravel substrates. During this time, male greater redhorses hold territories and are periodically visited by females ready to breed. Females enter spawning sites from downstream and will hold a position on or just above the substrate for 3-5 seconds. If not joined by a male, she will drift further downstream to try a different spot. After spawning occurs, eggs are buried in the substrate with their tails and no further parental care is given.

Population: Greater redhorse population decline has occurred because of poor water quality and habitat fragmentation.

Range in Illinois: In Illinois, greater redhorse has been found in the Vermilion, Kankakee, Illinois, Wabash, and Fox Rivers, including several smaller creeks and tributaries. Greater redhorse are found in 4 of 102 Illinois counties, including DeKalb, Kane, Kendall, and Livingston. There are currently 7 extant Element Occurrence Records of greater redhorse in the Illinois Natural Heritage Database.

Incidental Take Authorizations: The Department has 7 previously issued or pending Incidental Take Authorizations for greater redhorse. Previous projects included a bridge replacement, pipeline installation, and hydroelectric dam projects. This is the second authorization for the taking of greater redhorse in

Kane County. The first authorization executed for take of this species in Kane County involved a bridge project approximately 13.3 miles downstream.

River Redhorse (*Moxostoma carinatum*)

River redhorse is an Illinois state-threatened fish species.

Habitat: River redhorse is a large, bottom-feeding fish found in large clear creeks, rivers, and occasionally lakes. They prefer deep pools with moderate current over bedrock or gravel substrates, and are intolerant of high turbidity (murky water), siltation, and pollution.

Reproduction: Spawning occurs between April and May. During this time, adult river redhorse migrate to shallow riffles to spawn at night. Mating takes place when two males press a single female between them, and eggs and sperm are released from the three fish. River redhorse bury their eggs in fine gravel with their tails, and no further parental care is given.

Population: River redhorse population decline has occurred because of poor water quality and habitat fragmentation. The presence of river redhorse in an aquatic system is considered an indicator of good water quality.

Range in Illinois: In Illinois, river redhorse are found in the Vermilion, Kankakee, Illinois, Des Plaines, Wabash, Fox, and Mississippi Rivers, including several smaller creeks and tributaries. River redhorse are found in twelve (12) of 102 Illinois counties. There are currently twenty-eight (28) extant Element Occurrence Records of river redhorse in the Illinois Natural Heritage Database.

Incidental Take Authorizations: The Department has thirteen (13) previously issued or pending Incidental Take Authorizations for river redhorse. Previous projects included bridge replacements, a diffuser installation, hydroelectric dam construction, dam removal, railroad construction, and oil pipeline installation. Past applicants have been required to minimize instream project footprints, conduct instream work outside of fish spawning season, relocate fish trapped in cofferdams, and provide monetary support for future fish research. This is the second authorization for the taking of river redhorse in Kane County. The first authorization executed for take of this species in Kane County involved a bridge project approximately 13.3 miles downstream.

Starhead Topminnow (*Fundulus dispar*)

Starhead topminnow is an Illinois state-threatened fish species.

Habitat: Starhead topminnow is a small fish found in clear, well-vegetated floodplain lakes, swamps, and marshes. They prefer quiet areas in shallow backwater with submerged vegetation.

Reproduction: Spawning occurs between late spring to early summer in dense beds of aquatic vegetation. Eggs hatch in 9-11 days. Female starhead topminnow

are known to produce multiple clutches of eggs within a single breeding season. They reach sexual maturity after one year.

Population: Starhead topminnow populations have declined due to the draining of wetlands and other forms of habitat loss and degradation.

Range in Illinois: In Illinois, starhead topminnows are found in the Illinois, Kankakee, and Fox Rivers, along with several lakes and smaller creeks and tributaries. They have been found in 11 of 102 Illinois counties, and there are currently twenty-one (21) extant Element Occurrence Records in the Illinois Natural Heritage Database.

Incidental Take Authorizations: There have been three previously issued or pending Incidental Take Authorizations for starhead topminnow in Illinois. This is the first authorization to be granted for the take of starhead topminnow in Kane County.

Based on the amount of habitat impacted by this project, the number of known occurrences of the rainbow, spike, black sandshell, purple wartyback, slippershell mussels; greater redhorse, river redhorse, and starhead topminnow in Illinois, an assessment of the potential effect of this project on individual mussels and fish in the project footprint, the conservation methods included in this authorization for take and the conservation plan, and the understanding that vulnerability and recovery information on the nine species remains limited; it is the conclusion of the Department that the taking anticipated as a result of the project will not reduce the likelihood of survival or recovery of the species in the wild within the State of Illinois, the biotic community of which the species are a part, or the habitat essential to the species' existence in Illinois.

5. Any measures required under Section 5.5(b)(6) of the Act will be performed.

Additional measures are listed below under "Authorization". This authorization is, by definition, subject to those terms and conditions and the signature of a representative from Metra indicates their commitment to performing those measures.

6. The public has received notice of the application and has had the opportunity to comment before the Department made any decision regarding the application.

Public notice of Metra's request for authorization of incidental take was published in the *Breeze Courier* (official state newspaper) on April 4, 2018, and in the *The Courier-News* on April 4, 11, and 20, 2018. A copy of the conservation plan was deposited at The Gail Borden Public Library, where it was available for public review. The deadline for public comment was May 20, 2018. No comments were received from the public.

Authorization

It is the determination of the Department that the measures to be implemented by Metra will adequately minimize and mitigate the anticipated taking of rainbow, spike, black sandshell, purple wartyback, and slippershell mussels; greater redhorse, river redhorse, and starhead topminnow associated with bridge replacement as part of the Metra Bridge Z-100 Improvement Project over the Fox River in Kane County, Illinois. Further the Department has concluded that the taking authorized herein will not reduce the likelihood of survival or recovery of rainbow, spike, black sandshell, purple wartyback, and slippershell mussels; greater redhorse, river redhorse, and starhead topminnow in the wild within the State of Illinois, the biotic community of which the species are a part, or the habitat essential to the species existence in Illinois. Additional listed aquatic species may inhabit the Fox River, this agreement does not authorize take of any species except rainbow, spike, black sandshell, purple wartyback, and slippershell mussels; greater redhorse, river redhorse, and starhead topminnow.

All terms and conditions included in the aforementioned conservation plan submitted by Metra to the Department are incorporated into this agreement by reference and are made a part thereof.

Pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5] and the Administrative Rules for the Incidental Taking of Endangered and Threatened Species [Ill. Adm. Code 1080.40(b)], this authorization is issued subject to the following terms and conditions, which may include additions or modifications to the minimization and mitigation measures proposed by Metra in the conservation plan:

1. This authorization is effective upon the signature of the Department and shall remain in effect for a period of **seven (7) years** from the date of the Department signature, unless terminated by written agreement of both parties.

This authorization may be revoked pursuant to the Act and Ill. Adm. Code 1080.80(b) if the Department finds that Metra has failed to comply with any of these terms and conditions or has been responsible for the taking of rainbow, spike, black sandshell, purple wartyback, and slippershell mussels; greater redhorse, river redhorse, and starhead topminnow beyond that which is incidental to the Metra Bridge Z-100 Improvement Project over the Fox River in Kane County, Illinois.

2. The effective period of this authorization may be altered by mutual written agreement between Metra and the Department. The Illinois Endangered Species Protection Board shall be notified of any such alteration.

Any substantive changes, including but not limited to a change in the project footprint or a change in the State-listed species which could potentially be affected, will require that a new conservation plan be submitted to the Department to initiate the review and public notice process as required by the Act

3. This authorization may only be transferred upon approval and written authorization by the Department.

4. Notification to all on-site personnel shall be provided on the sensitive biological resources in the area, the identification of the listed species, regulations protecting the species, where the species might be found, avoidance areas, travel restrictions for equipment and vehicles, how to report sightings or incidents that may involve take, the importance of avoiding take of the species. **Metra shall submit a copy of the education materials to the Department.**
5. The Department reserves the right of entry by its staff or representatives to inspect species, potential habitat and species management practices.
6. Biological consultants employed by Metra shall be qualified in working with these species and hold the necessary permits for work with non-listed and listed species; these include an Illinois Department of Natural Resources (IDNR) Scientific Collection Permit as authorized under 17 Illinois Administrative Code 520, and an IDNR Endangered Species Permit as authorized under 17 Illinois Administrative Code 1070.
7. The salvage of non-listed aquatic life is hereby authorized by the Department with signature of this agreement per the Illinois Fish and Aquatic Life Code (515 ILCS 5/1-150).
8. Metra shall notify the Department's Endangered Species Program by email correspondence of construction commencement and completion of bridge replacement within the permit action area. A **project status report** shall be submitted to the Department within **90 days** of project completion (defined as bridge open for use) summarizing the implementation or status of minimization, mitigation, and restoration measures and evaluating the effectiveness of those measures and shall include a project photo log. An accounting of species removed during cofferdam dewatering and their abundances shall be included. The report shall also include a map and GPS coordinates of any listed species found within the project footprint, description of any injuries or mortalities, and the disposition of any individuals that were injured or killed.
9. Any discoveries of additional State-listed species beyond those identified in this agreement **halts work** and shall be reported to the Department within 48 hours accompanied by location information (photograph, map, and GPS coordinates).
10. Metra shall conduct, or cause to be conducted, the following pre-construction or construction efforts:
 - a. All in-stream work shall be conducted from temporary causeways.
 - b. No instream work shall occur between April 1 and June 30 to avoid fish spawning seasons. This restriction applies only to spawning season of the construction period when causeways and cofferdams are built. No instream restrictions apply once structures are in place.

- c. Cofferdams shall be used to facilitate construction. Work shall take place in periods of low flow to prevent failure of cofferdams.
 - d. All mussels, fish, and other aquatic species shall be removed from the coffered areas during dewatering and relocated outside the project area. Fish shall be released downstream of the project area and mussels shall be immediately relocated to the mussel recipient site used during relocation efforts. A report of species removed during cofferdam dewatering and their abundances shall be included in the project status report required under Item #8 above.
 - e. Erosion and sediment control measures shall be implemented in all areas. Disturbance of plants shall be minimized to prevent erosion and sedimentation.
 - f. Silt fences and other erosion control devices shall be inspected and maintained regularly, especially after events of heavy rain.
 - g. No construction debris shall be deposited into the river. Debris shall be removed and disposed in an upland location.
11. Metra shall conduct, or cause to be conducted, a thorough pre-construction relocation effort for freshwater mussels within the project area prior to construction commencement:
- a. Those conducting the search must be qualified at accurate identification of freshwater mussel species. All native freshwater mussels found during this search shall be relocated to suitable habitat pre-approved by the Department. Zebra mussels shall be removed from native freshwater mussel shells to the extent practicable and disposed of on dry land or in trash receptacles to desiccate. It is unlawful to release this injurious species back to aquatic habitat in Illinois per 17 Ill. Adm. Code 805.30(b). Equipment decontamination measures shall be deployed to prevent translocation of zebra mussels into new waterbodies.
 - b. Recipient site shall be surveyed to determine suitability; and mapping and justification shall be provided to the Department for approval. Recipient sites shall be in areas with suitable stable substrates, similar unionid assemblages, and low to no zebra mussel infestations.
 - c. The search shall be conducted during biologically suitable mussel relocation periods. The mussel relocation shall occur within 60 days prior to the onset of construction.
 - d. Mussels shall not be relocated when air temperatures are at or below 32 degrees Fahrenheit, nor when water temperatures are at or below 40 degrees Fahrenheit. All mussels will be held in mesh bags suspended in the river or in containers of water changed every hour (every half-hour when air temperatures are at or above 87 degrees Fahrenheit). Water in containers shall be taken from the river where the mussels were collected. No mussels shall be held for more than three (3) hours before being returned to suitable habitat in the river.
 - e. All listed mussels shall receive a unique marking to aid in identification of these individuals during monitoring. In addition, the non-listed mussels

relocated shall be etched or glitter-glued, such that they can be used to estimate survivorship of relocated mussels in later surveys.

- f. **A report including, but not limited to, the survey methodology utilized, water temperature, habitat structure, the species and numbers of mussels located, length, sex (if discernable), the number of growth rings (i.e. an approximation of age), and the unique identification marker of each mussel individual sampled indicating whether recruitment is evident, and a map of the species locations and areas surveyed shall be provided to the Department within 90 days of completion of the mussel relocation.**
12. Metra shall conduct, or cause to be conducted, the following post-construction monitoring measures for freshwater mussels within the impact area and the recipient site during Year 2 following construction completion:
 - a. A thorough survey for freshwater mussels within the project area and the recipient site. A 25-meter buffer around the recipient site shall also be surveyed to detect dispersal from the recipient site.
 - b. **A report including, but not limited to, the survey methodology utilized, water temperature, habitat structure, the species and numbers of mussels located (noting any marked individuals at the recipient site and/or buffer), length, sex (if discernable), the number of growth rings (i.e. an approximation of age) and the unique identification marker of each mussel individual observed indicating whether recruitment is evident, an analysis of mussel survival rates at the relocation site, and a map of the species locations and areas surveyed shall be provided to the Department within 90 days of completion of the survey.**
 13. Metra shall conduct, or cause to be conducted, the following post-construction monitoring measures for fish within the impact area during Year 2 following construction completion:
 - a. A thorough survey for fish within a reach centered on the project area.
 - b. The survey shall use Department protocols (two, thirty-minute runs of pulsed-DC electro-fishing) and shall be conducted between August 1 and October 31.
 - c. **A report including, but not limited to, the survey methodology utilized, a map of the surveyed reach, recorded abundance of each encountered species for each thirty-minute run, an estimate of mean width and depth within the surveyed reach, and a qualitative description of survey reach characteristics (e.g. flow, substrate, habitat composition). Photos (which include distinguishing characteristics) of listed species shall be included in the report. The report shall be provided to the Department within 90 days of completion of the survey.**
 14. Mitigation to the maximum extent practicable is required by the Act. Mitigation requirements for this authorization are as follows:

- a. Metra shall provide funding in the amount of **\$37,922** to the Illinois Wildlife Preservation Fund earmarked to bring conservation benefit to the species for which this agreement is executed.
- b. The mitigation shall be provided **within 90 days of execution of this agreement**. Mitigation payments are nonrefundable, including events of revocation or termination.

Mitigation values are based on the Department's best current understanding of the species life history needs and impact analysis relevant to the project site's proposed conceptual design elements available at the time of review.

15. All reports, notifications, and other project documentation shall be submitted to:

Illinois Department of Natural Resources
Office of Resource Conservation
Endangered Species Program – Incidental Take Authorization Coordinator
One Natural Resource Way
Springfield, IL 62702-1271

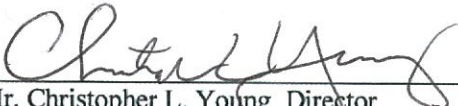
(217)557-8243
DNR.ITAcordinator@illinois.gov


The Department's Endangered Species Program shall provide all reports required under this agreement to the Illinois Endangered Species Protection Board and to the Department's Natural Heritage Database.

- 16. The Metra official identified below is authorized to execute this agreement. Execution by Metra indicates acceptance of all terms and conditions described in this authorization.
- 17. The execution of this agreement does not waive or excuse the responsibilities of Metra to comply with other Federal, State, or local regulations, including but not limited to obtaining any required permits for the execution of this project.

For the Illinois Department of Natural Resources:

For Metra:


Mr. Christopher L. Young, Director
Office of Resource Conservation


Joseph Ott, PE
Metra Director of Construction

6/28/18
Date

6/26/18
Date