ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Illinois Department of Natural Resources

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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 the Illinois Department of Transportation (hereinafter referred to as IDOT) for the incidental take of Higgins eye (*Lampsilis higginsii*), spectaclecase (*Cumberlandia monodonta*), sheepnose (*Plethobasus cyphyus*), butterfly (*Ellipsaria lineolata*), ebonyshell (*Fusconaia ebena*), and black sandshell mussels (*Ligumia recta*). The Illinois Department of Natural Resources (hereinafter referred to as Department) has determined that the taking is incidental to activities associated with the pedestrian bridge replacement over Sylvan Slough in the Mississippi River in Rock Island County. The bridge crosses Sylvan Slough from Moline, Illinois to Sylvan Island in the Mississippi River. The project area is located in Pool 15 near River Mile 485. The project area is also located within the Mississippi River – Moline Illinois Natural Areas Inventory Site (INAI #1295). The site is included on the Natural Areas Inventory due to the presence of specific suitable habitat occupied by endangered and/or threatened aquatic species.

Procedural History

The Department received a Conservation Plan prepared by IDOT on March 8, 2016, as a request for authorization for the incidental take of butterfly and black sandshell mussels. The Department requested additional information on April 6, 2016, to make the conservation plan complete as prescribed by Ill. Adm. Code 1080.10. Information was received by the Department on June 13, 2016. The Department requested further information on July 15, 2016. The final Conservation Plan was received from IDOT on July 25, 2016 (including an addition of the following mussel species: Higgins eye, spectaclecase, sheepnose, and ebonyshell). The public notice period will be detailed under #6 of the Compliance section below.

Compliance with the Illinois Endangered Species Protection Act

The Act includes six criteria that 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 only be incidental to, the carrying out of an otherwise lawful activity:

   The stated and apparent purpose of this proposed action is the replacement of the pedestrian bridge across Sylvan Slough in the Mississippi River between Moline, Illinois and Sylvan Island in Rock Island County. The project will include the construction of a temporary rock causeway, use of a floating barge causeway

anchored by spuds driven into the channel bottom, the demolition and removal of the existing bridge, and the construction of a new bridge in the existing bridge footprint. The new bridge will be constructed on the existing bridge piers. The new bridge will be 30 feet wide and 201 feet in length, with 175 feet overlying potential mussel habitat. **The total estimated suitable habitat impact area for this project is 6,778 square feet (0.15 acre).** Take of Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell, and black sandshell mussels could occur as a result of crushing or burial of individuals left behind following the relocation efforts when construction materials are placed into the riverbed, the temporary rock causeway is constructed, or if pieces of the demolished bridge are dropped into the river during removal. Noise and vibration resulting from construction may have an adverse effect on some life history stage of the mussels. Some mortality from relocation is expected. Construction and relocation activities may indirectly result in the short-term decrease to reproduction due to stress and/or disturbance to mussels. Construction may cause the displacement of glochidial fish hosts and increase sedimentation in mussel habitat areas. The take of Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell, and black sandshell mussels that could result from this project is not the purpose of IDOT'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 minimization measures were included in IDOT's conservation plan.

   To meet the "maximum extent practicable" standard, additional minimization and/or mitigation measures may be required beyond those proposed by IDOT, based on the life history needs of the Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell, and black sandshell mussels. **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:

   The IDOT states that funding to support the conservation plan will be included in funding for the overall project. IDOT has a contractual obligation with the Illinois Natural History Survey, who will be performing all mussel relocations and monitoring surveys.

   It is the Department's opinion that the IDOT'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 species

or threatened 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:

The **Higgins eye mussel** is a Federally-endangered and Illinois State-endangered mussel species. It is a medium-sized mussel that is known to inhabit large rivers. Literature supports that the species' preferred habitat consists of plant-free, stable areas of mixed sand and gravel, and that it is unlikely to be found in areas of shifting sand or silt.

Higgins eye mussels are bradytictic, or long-term brooders, meaning that the females will retain developing glochidia in their gills over winter and release them the following spring or summer. Higgins eye females will retain glochidia from September through May, with glochidial release occurring from May to August. As with other mussels, Higgins eye glochidia parasitize certain fish species until they grow into juvenile mussels. Possible glochidial host fish species for the Higgins eye include sauger (*Sander canadensis*), largemouth bass (*Micropterus salmoides*), smallmouth bass (*Micropterus dolomieu*), walleye (*Sander vitreus*), yellow perch (*Perca flavescens*), black crappie (*Pomoxis nigromaculatus*), and green sunfish (*Lepomis cyanellus*).

Higgins eye mussels are rare or extirpated from much of their historical range. Their decline is due to poor habitat conditions resulting from human river management, non-point and point-source water and sediment pollution, and the infestation of invasive zebra mussels (*Dreissena polymorpha*). The Higgins eye mussel was the first freshwater mussel species to gain federal protection in the United States. In Illinois, Higgins eye mussels have been found in the Mississippi and Rock Rivers. There are currently nine (9) extant Element Occurrence Records for Higgins eye mussels in the Illinois Natural Heritage Database in four (4) of 102 Illinois counties. The Department has four (4) pending or issued Incidental Take Authorizations for the Higgins eye mussel. Types of projects included dredging, bridge removal and replacement, and pier removal. This is the third authorization for potential take of Higgins eye mussel in the Mississippi River in Rock Island County.

In August and September 2014, personnel from Ecological Specialists, Inc., performed surveys for freshwater mussels approximately one mile upstream of the subject project area at the I-74 Bridge replacement project site. Five (5) Higgins eye mussels were found as a result of the 2014 survey. In May 2015, a brail survey for mussels was conducted by the Illinois Natural History Survey in Sylvan Slough at the pedestrian bridge project site. No Higgins eye mussels were found as a result of this survey. An additional survey of the pedestrian bridge project area was conducted in August 2015 by personnel from Ecological Specialists, Inc. No Higgins eye mussels were found as a result of this survey. Relocation efforts for the upstream I-74 Bridge replacement project are currently ongoing. As of September 6, 2016, 368 Higgins eye mussels have been found

and relocated thus far during the I-74 Bridge replacement project. IDOT estimates that no take of Higgins eye mussels will occur as a result of this project.

The **spectaclecase mussel** is a Federally-endangered and Illinois State-endangered mussel species. It is known to inhabit large rivers with swiftly flowing water. They are usually found among boulders in patches of sand, cobble, or gravel in areas of reduced current.

Spectaclecase mussels are thought to be tachytictic, or short-term brooders, releasing their glochidia from early April to late May. Some researchers believe it is possible that spectaclecase mussels are capable of producing two broods per year, one in the spring or early summer and another in the fall; however, this has not been confirmed. Spectaclecase mussels produce the smallest known glochidia of any North American mussel. Glochidia are released in capsules called conglutinates. A single conglutinate may contain ten to hundreds of thousands of glochidia, and females may release between 50 and 90 conglutinates at a time. Despite this extremely high reproductive potential, evidence shows that spectaclecase glochidia have extremely low survival rates to adulthood. Host fish for spectaclecase glochidia are unknown, but glochidia were found in one instance on bigeye chub (*Hybopsis amblops*) and pealip redhorse (*Moxostoma pisolabrum*).

Spectaclecase mussels live close together in colonies, which makes them particularly vulnerable to infestations of the invasive zebra mussel. In Illinois, spectaclecase mussels have been found in the Mississippi River in Hancock, Henderson, Madison, Mercer, and Rock Island Counties. There are currently three (3) extant Element Occurrence Records for spectaclecase mussels in the Illinois Natural Heritage Database in three (3) of 102 Illinois counties. There has been one (1) previously issued Incidental Take Authorization for spectaclecase mussel in Illinois. This is the second authorization for potential take of spectaclecase mussel in the Mississippi River in Rock Island County.

In August and September 2014, personnel from Ecological Specialists, Inc., performed surveys for freshwater mussels approximately one mile upstream of the subject project area at the I-74 Bridge replacement project site. Seventeen (17) spectaclecase mussels were found as a result of the 2014 survey. In May 2015, a brail survey for mussels was conducted by the Illinois Natural History Survey in Sylvan Slough at the pedestrian bridge project site. No spectaclecase mussels were found as a result of this survey. Relocation efforts for the upstream I-74 Bridge replacement project are currently ongoing. As of September 6, 2016, 22 spectaclecase mussels have been found and relocated thus far during the I-74 Bridge replacement project. IDOT estimates that no take of spectaclecase mussels will occur as a result of this project.

The **sheepnose mussel** is a Federally-endangered and Illinois State-endangered mussel species. It is known to inhabit medium to large rivers in shallow areas of moderate to swift current. The species usually inhabits gravel or gravel mixed with sand, although it has also been found in areas of mud, cobble, and boulders.

Sheepnose mussels are short-term brooders, with reproduction occurring between May and July. Glochidia are released in conglutinates that mimic food organisms of fish, so that they are eaten and glochidia gain access to host fish. Sauger are the only confirmed host fish of sheepnose glochidia, but lab experiments have been successful with flathead minnow (*Pimephales promelas*), central stoneroller (*Campostoma anomalum*), and brook stickleback (*Culaea inconstans*).

Sheepnose mussels are declining in today's rivers due to their management as navigation canals. Dams, channelization, and dredging increase siltation, physically alter habitat conditions, and block the movement of fish hosts. In Illinois, sheepnose mussels have been found in the Mississippi, Rock, Ohio, Wabash, Kaskaskia, and Kankakee Rivers. There are currently nine (9) extant Element Occurrence Records for sheepnose mussels in the Illinois Natural Heritage Database in 4 of 102 Illinois counties. The Department has five (5) pending or issued Incidental Take Authorizations for sheepnose mussels. Types of projects included an oil pipeline, diffuser installation, railroad construction, and a dredge/pier removal. This is the third authorization for potential take of sheepnose mussel in the Mississippi River in Rock Island County.

In August and September 2014, personnel from Ecological Specialists, Inc., performed surveys for freshwater mussels approximately one mile upstream of the subject project area at the I-74 Bridge replacement project site. One (1) sheepnose mussel was found as a result of the 2014 survey. In May 2015, a brail survey for mussels was conducted by the Illinois Natural History Survey in Sylvan Slough at the pedestrian bridge project site. No sheepnose mussels were found as a result of this survey. An additional survey of the pedestrian bridge project area was conducted in August 2015 by personnel from Ecological Specialists, Inc. No sheepnose mussels were found as a result of this survey. Relocation efforts for the upstream I-74 Bridge replacement project are currently ongoing. As of September 6, 2016, 30 sheepnose mussels have been found and relocated thus far during the I-74 Bridge replacement project. IDOT estimates that no take of sheepnose mussels will occur as a result of this project.

The **butterfly mussel** is an Illinois State-threatened mussel species. It is known to inhabit large rivers in areas of moderate to swift current, and is usually found in substrates of coarse sand and gravel.

Butterfly mussels are long-term brooders, with females retaining developing glochidia in their gills from August until the following July. Known glochidial

host fish for this species are freshwater drum (*Aplodinotus grunniens*), green sunfish, and sauger.

Butterfly mussel populations are shrinking due to a decline in habitat conditions associated with river/water management, impacts from the invasive zebra mussel, and from overharvest caused by the button and pearl industries. In Illinois, butterfly mussels have been found in the Mississippi and Ohio Rivers. There are currently 33 extant Element Occurrence Records for butterfly mussels in the Illinois Natural Heritage Database in 12 of 102 Illinois counties. The Department has ten (10) pending or issued Incidental Take Authorizations for butterfly mussels. Types of projects included dredging, construction of offshore structures, bridge removal and replacement, riprap installation, and boat dock installation. This is the fifth authorization for potential take of butterfly mussel in the Mississippi River in Rock Island County.

In August and September 2014, personnel from Ecological Specialists, Inc., performed surveys for freshwater mussels approximately one mile upstream of the subject project area at the I-74 Bridge replacement project site. There were 48 butterfly mussels found as a result of the 2014 survey. In May 2015, a brail survey for mussels was conducted by the Illinois Natural History Survey in Sylvan Slough at the pedestrian bridge project site. There were two (2) butterfly mussels found as a result of this survey. An additional survey of the pedestrian bridge project area was conducted in August 2015 by personnel from Ecological Specialists, Inc. There were 18 butterfly mussels found as a result of this survey. Relocation efforts for the upstream I-74 Bridge replacement project are currently ongoing. As of September 14, 2016, an estimated 1,000 butterfly mussels have been found and relocated thus far during the I-74 Bridge replacement project. IDOT estimates that take of 69 butterfly mussels could occur as a result of this project.

The **ebonyshell mussel** is an Illinois State-endangered mussel species. It is known to inhabit large rivers in areas of swift current. It is usually found in stable sand or gravel substrate.

Ebonyshell mussels are short-term brooders. Reproduction takes place from May to early fall, after which glochidia are released. The primary host fish for ebonyshell glochidia is the skipjack herring (*Alosa chrysochloris*); although literature supports that it is possible that largemouth bass, white crappie (*Pomoxis annularis*), and black crappie could also be hosts for this species.

Ebonyshell was historically the most abundant mussel species in the Upper Mississippi River, but populations have declined dramatically over the past century. One cause of the ebonyshell's decline was that its pearly-white interior shell was highly prized by button-makers, which led to its overharvest. In Illinois, they have been found in the Mississippi, Illinois, Ohio, Wabash, and Little

Wabash Rivers. There are currently 12 extant Element Occurrence Records for ebonyshell mussels in the Illinois Natural Heritage Database in eight (8) of 102 Illinois counties. The Department has issued two (2) previous Incidental Take Authorizations for ebonyshell. Types of projects included a dredging project and a bridge removal and replacement. This is the second authorization for potential take of ebonyshell mussel the Mississippi River in Rock Island County.

In August and September 2014, personnel from Ecological Specialists, Inc., performed surveys for freshwater mussels approximately one mile upstream of the subject project area at the I-74 Bridge replacement project site. There were two (2) weathered dead ebonyshell mussel shells found as a result of the 2014 survey. In May 2015, a brail survey for mussels was conducted by the Illinois Natural History Survey in Sylvan Slough at the pedestrian bridge project site. No ebonyshell mussels were found as a result of this survey. An additional survey of the pedestrian bridge project area was conducted in August 2015 by personnel from Ecological Specialists, Inc. No ebonyshell mussels were found as a result of this survey. Relocation efforts for the upstream I-74 Bridge replacement project are currently ongoing. As of September 6, 2016, no ebonyshell mussels have been found and relocated thus far during the I-74 Bridge replacement project. IDOT estimates that no take of ebonyshell mussels will occur as a result of this project.

The **black sandshell** mussel is an Illinois State-threatened mussel species. It is found in medium to large rivers in areas with strong currents. The species is known to prefer substrates of coarse sand, gravel, cobble, or silt.

Black sandshell mussels are long-term brooders, with females retaining developing glochidia in their gills from August until the following July, after which glochidia are released. Gravid female black sandshells 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, bluegill (*Lepomis macrochirus*), largemouth bass, sauger, white crappie, and many others that have been suggested as possible hosts.

Black sandshell populations have declined due to habitat degradation. In Illinois, black sandshells have been found in the Mississippi, Kaskaskia, Vermilion, Ohio, Kankakee, Rock, Iroquois, and Little Wabash Rivers, as well as several smaller creeks and tributaries. There are currently 97 extant Element Occurrence Records for black sandshell mussels in the Illinois Natural Heritage Database in 30 of 102 Illinois counties. The Department has 26 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 sixth authorization for potential take of black sandshell in the Mississippi River in Rock Island County.

In August and September 2014, personnel from Ecological Specialists, Inc., performed surveys for freshwater mussels approximately one mile upstream of the subject project area at the I-74 Bridge replacement project site. There were 222 black sandshell mussels found as a result of the 2014 survey. In May 2015, a brail survey for mussels was conducted by the Illinois Natural History Survey in Sylvan Slough at the pedestrian bridge project site. No black sandshell mussels were found as a result of this survey. An additional survey of the pedestrian bridge project area was conducted in August 2015 by personnel from Ecological Specialists, Inc. There were 19 black sandshell mussels found as a result of this survey. Relocation efforts for the upstream I-74 Bridge replacement project are currently ongoing. As of September 14, 2016, an estimated 5,500 black sandshell mussels have been found and relocated thus far during the I-74 Bridge replacement project. IDOT estimates that take of 73 black sandshell mussels could occur as a result of this project.

Based on the amount of habitat impacted by this project, the number of known occurrences of the Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell, and black sandshell mussels in Illinois, an assessment of the potential effect of this project on individual mussels in the project footprint, the conservation measures included in this authorization for incidental take, and the understanding that vulnerability and recovery information on the species remains limited; the Department has concluded that the taking proposed herein will not reduce the likelihood of survival or recovery of the Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell, and black sandshell mussels 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:

   These measures are listed below under "Authorization." This authorization is, by definition, subject to those terms and conditions and the signatures of representatives of IDOT indicate 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 IDOT's request for authorization of incidental take was published in the *Breeze-Courier* (official state newspaper) on July 27, 2016, and in the *The Dispatch and the Rock Island Argus* on July 27 and August 10, 2016. However, Illinois Administrative Code 1080.20 requires that public notice be published in the local newspaper for three consecutive weeks. Therefore, public notice was reinitiated in the *Breeze-Courier* on August 12, 2016 and in the *The Dispatch and the Rock Island Argus* on August 12, 19, and 26, 2016. A copy of the conservation plan was deposited at the Moline Public Library, where it was

available for public review. The deadline for public comment was September 26, 2016. No comments were received from the public.

Authorization

It is the determination of the Department that the measures that will be implemented by IDOT will adequately minimize and mitigate the anticipated taking of Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell, and black sandshell mussels incidental to activities associated with the pedestrian bridge replacement over Sylvan Slough in the Mississippi River in Rock Island County. Further, the Department has concluded that the take authorized herein will not reduce the likelihood of survival or recovery of the Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell, and black sandshell mussels 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 are known to inhabit this reach of the Mississippi River, this agreement does not authorize take of any species except Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell, and black sandshell mussels.

All terms and conditions included in the conservation plan submitted by IDOT 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 IDOT 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 all parties.

   This authorization may be revoked pursuant to the Act and Ill. Adm. Code 1080.80(b) if the Department finds that IDOT has failed to comply with any of these terms and conditions or has been responsible for the taking of Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell, or black sandshell mussels beyond that which is incidental to activities associated with the pedestrian bridge replacement over Sylvan Slough in the Mississippi River in Rock Island County.

2. The effective period of this authorization may be altered by mutual written agreement between IDOT 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 federal or 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 is non-transferable.

4. On-site personnel shall be educated on the sensitive biological resources in the area, the identification of listed mussel species, regulations protecting the species, where the species might be found, avoidance areas, how to report sightings or incidents that may involve take, and the importance of avoiding take of the species, and response protocol if the species are found. IDOT shall submit a copy of all 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 IDOT shall hold the necessary permits for work with non-listed and listed species; these include an Illinois Department of Natural Resources Scientific Collection Permit and an Illinois Department of Natural Resources Endangered Species Permit.

7. IDOT shall notify the Department's Endangered Species Program of construction commencement and completion of the pedestrian bridge replacement project. Any discoveries of additional listed species beyond those identified in this agreement shall be reported to the Department within 48 hours accompanied by location information (photograph and GPS coordinates).

8. IDOT shall conduct, or cause to be conducted, the following pre-construction or construction efforts:

    a. All barges and watercraft used for construction activities shall be inspected for the presence of zebra mussels prior to placing the barges into the Mississippi River and shall be completely out of water for 10 days to ensure proper drying and reduce potential infestation by zebra mussels.
    b. Materials shall be transported to and from the construction/demolition areas by temporary rock causeway or floating barge causeway as needed.
    c. Debris shall not be allowed to collect at the bottom of the river. Any debris that falls into the water shall be removed by the contractor during the same work day as soon as is practicable.
    d. All spoil from construction shall be taken offsite. No fill or construction materials shall be left in the river.
    e. No explosive demolition shall take place.
    f. The existing bridge shall be hand cut and removed via barge to limit debris from entering the river.
    g. A temporary rock causeway shall be built to facilitate construction access to the site. The causeway landing shall be field adjusted as possible to utilize as much of the existing rock/shale stone shelf/bedding located along the waterline and near shore rather than placing rock in mussel habitat.
    h. Erosion and sediment control measures shall be implemented in all areas affecting riparian zones. Disturbance of vegetation shall be minimized to prevent erosion

and sedimentation. All disturbed areas shall be seeded or otherwise stabilized upon completion of construction activities. Rocks removed from the temporary rock causeway after construction is complete shall be placed on side slopes to aid in slope stabilization.

9. IDOT shall conduct, or cause to be conducted, the following mussel survey and relocation efforts:

    a. A thorough search for freshwater mussels within the project footprint. The search shall be conducted during biologically suitable mussel relocation periods. All freshwater mussels found shall be identified to species and enumerated. Listed species shall be marked to aid in follow-up monitoring and determining relocation survivability. Those conducting the search must be qualified at accurate identification of freshwater mussel species. All native freshwater mussels found during this search shall have zebra mussels removed from their shells and be relocated to suitable habitat.
    b. Relocation sites must be pre-approved by the Department.
    c. All federal and State-listed mussels shall receive Passive Integrated Transponder tags to aid in identification of these individuals during monitoring.
    d. Mussels will 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 80 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 the locality from which they were taken or previously authorized relocation sites.
    e. **A report including, but not limited to, the survey methodology utilized, the species and numbers of mussels located (noting juveniles), the size class (0-3, 4-10, 11+) of each marked individual sampled indicating whether recruitment is evident, an accounting of marked individuals, and maps of the area searched and the relocation site shall be provided to the Department within 90 days of completion of the survey and relocation effort.**

10. **Within 60 days of construction completion (open to public)**, the IDOT shall provide the Department with a project status report summarizing the implementation of minimization, mitigation, and restoration measures and evaluating the effectiveness of those measures and shall include a project photo log. The report shall also include a map and GPS coordinates of any listed species found within the project footprint after the relocation effort, a description of any injuries or mortalities, and the disposition of any individuals that were injured or killed.

11. IDOT shall conduct, or cause to be conducted, the following post-construction freshwater mussel monitoring efforts:

a. Monitoring of mussel populations shall be conducted within the project footprint and at the relocation site(s) during the 1st and 3rd years after construction completion.
b. Mussel surveys shall not take place when air temperatures are at or below 32 degrees Fahrenheit, nor when water temperatures are at or below 40 degrees Fahrenheit. If mussels are removed from the water during surveys, they 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 80 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 the locality from which they were taken or previously authorized relocation sites.
c. **Detailed reports including, but not limited to, the survey methodology utilized, the species and numbers of mussels located (noting any marked individuals), the size class (0-3, 4-10, 11+) of each marked individual sampled indicating whether recruitment is evident, an analysis of survival rates, and a map of the species locations, shall be provided to the Department within 90 days of completion of each monitoring event.**

12. The salvage and relocation of non-listed aquatic species is hereby authorized by the Department with signature of this agreement per the Illinois Fish and Aquatic Life Code (515 ILCS 5/1-150).

13. IDOT shall mitigate for the taking of listed species to the maximum extent practicable by bringing conservation benefit to the species potentially impacted.

    On July 15, 2016, the Department granted IDOT and the Iowa Department of Natural Resources an Incidental Take Authorization for the take of Higgins eye, spectaclecase, sheepnose, butterfly, ebonyshell, and black sandshell mussels incidental to the replacement of the I-74 Bridge over the Mississippi River between Moline, Illinois, in Rock Island County, and Bettendorf, Iowa, in Scott County. The currently proposed Sylvan Slough Pedestrian Bridge project is approximately one mile downstream of the I-74 Bridge replacement project, therefore the substantial mitigation package developed was deemed applicable to both IDOT projects.

    An Intergovernmental Agreement was executed on May 10, 2016, between the Department, the Iowa Department of Natural Resources, and the US Fish and Wildlife Service regarding the collaborative development of a conservation strategy to serve as mitigation for take associated with the I-74 Bridge replacement project. The following mitigation proposals for the I-74 Bridge were agreed to by IDOT for implementation:

    a. A large-scale study of Pool 15 will occur in three phases to map habitat and mussel distribution consisting of compilation and mapping of existing data, quantitative sampling to map the distribution of existing mussel beds in channel border habitat and provide calibration for larger scale sampling, and poolwide sampling to determine density and population estimates.

b. A study will be conducted to investigate the effects of increasing resident mussel density at varying rates resulting from the I-74 Bridge replacement project mussel relocation.
c. A two-year mussel education and outreach staff position to serve as the point of contact, to develop education materials, to conduct classroom and public interpretive outreach, to perform media and community education, and to develop and coordinate a social media presence.
d. A five-year effort to inoculate host fish with mussel glochidia and perform free release of 10,000 inoculated fish annually near the project impact in cooperation with the Genoa National Fish Hatchery's Native Mussel Recovery Program.

Above synopses are abbreviated descriptions of the agreed-to mitigation projects. Implementation of each of the mitigation projects shall follow the more detailed proposals provided to IDOT with further negotiation, as necessary, with the natural resource agencies. Mitigation value is estimated to be in excess of $545,000.00.

Mitigation valuations 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.

14. The DOT shall submit reports on all surveys within 90 days of survey completion.

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.ITAcoordinator@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 IDOT official identified below is authorized to execute this agreement. Execution by IDOT 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 IDOT 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:

Dr. James Herkert, Director
Office of Resource Conservation

10-5-16
Date

For Illinois Department of Transportation:

Mr. Kevin Marchek
Region Two Engineer

10-5-2016
Date