



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 Consolidated Grain & Barge Co. (hereinafter referred to as CGB) for the incidental take of the Federally-endangered and State-endangered spectaclecase (*Cumberlandia monodonta*), sheepnose (*Plethobasus cyphus*), and Higgins eye (*Lampsilis higginsii*), State-endangered ebonyshell (*Fusconia ebena*), and State-threatened purple wartyback (*Cyclonaias tuberculata*), butterfly (*Ellipsaria lineolata*), spike (*Elliptio dilatata*), and black sandshell mussels (*Ligumia recta*). The US Army Corps of Engineers provided a determination of no effect on federally listed species dated November 9, 2017, for the currently proposed actions only. The Illinois Department of Natural Resources (hereinafter referred to as Department) has determined that this taking is incidental to activities associated with new mooring dolphin and pipe pile cluster installation (and potential future actions including dolphin removal/replacement, sheet pile removal/replacement/repair, and shoreline stabilization – take authorization for potential future actions includes only those State-listed species with no federal listing designation) near Gladstone, at approximate Mississippi River Mile 409.6 along the left (east) descending bank, Henderson County, Illinois. The project area is also located within the Mississippi River – Drew Chute Illinois Natural Areas Inventory Site (INAI #1439). 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

A Conservation Plan prepared by Mainstream Commercial Divers, Inc., on behalf of CGB, was submitted to the Department on February 27, 2018, as a request for authorization for the incidental take of spectaclecase, sheepnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels for currently proposed actions and State-listed species with no federal designation only for potential future actions. The Department requested additional information on March 27, and April 27, 2018, to make the conservation plan complete as prescribed by Ill. Adm. Code 1080.10. Additional information was received by the Department on April 20, and May 3, 2018. A conservation plan was approved by the Department on May 4, 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 to update the barge haul system by installing two new mooring dolphins and two new pipe pile cluster dolphins at Mississippi River Mile 409.6 in Henderson County. The two new tripod mooring dolphins will each be composed of a single 30-inch diameter pile and two 20-inch diameter batter piles located just upriver and downriver from the closest wood pilings to the existing dock. Each pile will be embedded into the river bed between approximately 25 and 30 feet. The two pipe pile cluster dolphins will be a cluster measuring approximately 72 inches in diameter once installed upstream of the terminal. They will also be embedded into the river bed between approximately 25 and 30 feet. Work will be completed from two barges, including one crane barge and one material staging barge. The barges will be secured with a maximum of two 36-inch diameter spud poles (maximum of 16 total spud pole locations for the entirety of the project). All three piles of each tripod dolphin and the pipe pile cluster dolphins will be driven into the river bed using a vibratory hammer and, if necessary, an impact hammer to finish the driving. Further project detail is provided in the conservation plan. In addition, CGB proposes potential future actions including dolphin removal/replacement, sheet pile removal/replacement/repair, and shoreline stabilization – take authorization for potential future actions includes only those State-listed species with no federal listing designation. All proposed activities may result in direct burial or crushing of, or sedimentation disturbance to spectaclecase, sheepsnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels, and/or may result in indirect impact due to noise and vibration that may disperse the host fish of mussel glochidia, potentially decreasing reproductive success of the species.

Total estimated area of impact within species habitat for the immediately proposed actions is **0.13 acre**. Potential future action footprints are estimated as follows: dolphin removal/replacement (0.13 acre), sheet pile removal/replacement/repair (0.01 acre), and shoreline stabilization (0.01 acre). The Department concurs that the take of spectaclecase, sheepsnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels that could result from the immediately proposed project is not the purpose of CGB's activities, but is incidental to the carrying out of an otherwise lawful activity. The Department further concurs that the take of **State-listed species with no federal listing designation** that could result from the potential future actions is not the purpose of CGB's activities, but are incidental to the carrying out of otherwise lawful activities.

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 CGB's conservation plan.

To meet the "maximum extent practicable" standard, additional minimization and/or mitigation measures may be required beyond those proposed by CGB, based on the life history needs of spectaclecase, sheepsnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, 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.

CGB states that they are responsible for the implementation and operation of the barge terminal. CGB commits to the protection of the mussel species and assures that mussel relocation, mitigation, and monitoring surveys will be funded by them. CGB understands that if any additional activities are planned that may affect spectaclecase, sheepsnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels or other endangered or threatened species, coordination with the Department and the US Fish and Wildlife Service will be required.

The Department accepts this provision as assurance that adequate funding will be available to carry out the terms of the conservation plan.

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 is a part, or the habitat essential to the species' existence in Illinois.

Spectaclecase (*Cumberlandia monodonta*)

Spectaclecase is a Federally-endangered and Illinois state-endangered mussel species.

Habitat: The species is found in large rivers with swiftly flowing water. They inhabit areas among boulders in patches of sand, cobble or gravel in areas of reduced current.

Reproduction: Spectaclecase are short-term brooders and may spawn twice a year, releasing their glochidia from April to May and again from October to November. Glochidia are released in conglomerates of ten to hundreds of thousands of glochidia. Host fish for spectaclecase are unknown.

Population: Habitat loss and degradation are the primary cause of population decline. Spectaclecase mussels live close together in colonies, making them vulnerable to infestations of the invasive zebra mussel.

Range in Illinois: Spectaclecase have been found in the Mississippi River, in three (3) of 102 Illinois counties, including Henderson, Madison, and Rock Island Counties. There are currently three (3) extant Element Occurrence Records for spectaclecase in the Illinois Natural Heritage Database.

Incidental Take Authorizations: The Department has issued two (2) Incidental Take Authorizations for spectaclecase. Both were bridge replacement projects, located in Rock Island County, roughly 50 miles northeast of CGB's project. This is the first authorization for the taking of spectaclecase in Henderson County.

Sheepnose (*Plethobasus cyphus*)

Sheepnose is a Federally-endangered and Illinois state-endangered mussel species.

Habitat: The species is known to inhabit medium to large rivers in shallow areas of moderate to swift current. It inhabits gravel or gravel mixed with sand, but has also been found in areas of mud, cobble, and boulders.

Reproduction: Sheepnose 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 can gain access to host fish. Sauger (*Stizostedion canadense*) are confirmed host fish for sheepnose, but there are other unconfirmed species that could potentially be host fish.

Population: Sheepnose are declining in today's rivers due to the destruction of habitat through stream channelization, maintenance, and dam construction. Low dissolved oxygen levels, point and non-point source pollution are an ongoing threat to sheepnose.

Range in Illinois: The species has been found in the Mississippi, Rock, Ohio, Wabash, Kaskaskia, and Kankakee Rivers. They have been observed in six (6) of 102 Illinois counties, including Kankakee, Massac, Pulaski, Rock Island, Shelby and Will Counties. There are currently ten (10) extant Element Occurrence Records for sheepnose in the Illinois Natural Heritage Database.

Incidental Take Authorizations: The Department has seven (7) pending or issued Incidental Take Authorizations for sheepnose. Types of projects include an oil pipeline removal, a bridge installation, installation of a high-speed railway, and pipeline maintenance. Four (4) of the authorizations for sheepnose are for projects in the Kankakee River. Of the three (3) authorizations in the Mississippi River, CGB's project is approximately 50 miles southwest of two (2) bridge replacement project authorizations; and 70 miles southwest of a project authorized for alternate thermal standard and periodic dredging. CGB's project is the first authorization for the taking of sheepnose in Henderson County.

Higgins Eye (*Lampsilis higginsii*)

Higgins eye is a Federally-endangered and Illinois state-endangered mussel species.

Habitat: Higgins eye is a medium-sized mussel known to inhabit large rivers. Its preferred habitat consists of plant-free, stable areas of mixed sand and gravel. It is unlikely to be found in areas of shifting sands or silt.

Reproduction: Higgins eye are long-term brooders. Females will retain developing glochidia in their gills over winter and release them in June to July. Glochidia will parasitize sauger, largemouth bass, smallmouth bass, walleye, yellow perch, black crappie, and green sunfish.

Population: The species is rare or extirpated from much of their historical range. 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. Higgins eye was the first freshwater mussel species to gain federal protection in the United States.

Range in Illinois: Higgins eye have been found in the Mississippi River. They have been observed in five (5) of 102 Illinois counties, including Carroll, Henderson, Jo Daviess, Rock Island, and Whiteside Counties. There are currently 12 extant Element Occurrence Records for Higgins eye in the Illinois Natural Heritage Database.

Incidental Take Authorizations: The Department has five (5) pending or issued Incidental Take Authorizations for Higgins eye. Types of projects include bridge installations, dredging, and dolphin installation. All current Incidental Take Authorizations for Higgins eye are on the Mississippi River. CGB's project is roughly 50 to 80 miles southwest of all other authorizations. CGB's project is the first authorization for the taking of Higgins eye in Henderson County.

Ebonyshell (*Fusconaia ebena*)

Ebonyshell is an Illinois state-endangered mussel species.

Habitat: The species is known to inhabit large rivers in areas of swift current. They favor areas with stable sand or gravel substrates.

Reproduction: Ebonyshell are short-term brooders. Reproduction occurs from May to early fall, after which glochidia are released. Ebonyshell host fish include skipjack herring (*Alosa chrysochloris*), largemouth bass (*Micropterus salmoides*), white crappie (*Pomoxis annularis*), and black crappie (*Pomoxis nigromaculatus*).

Population: Ebonyshell were historically the most abundant mussel species in the Upper Mississippi River, but populations have declined dramatically over the past century. One cause for the decline of ebonyshell was their pearly-white interior shell that was highly prized by button-makers, leading to overharvest.

Range in Illinois: Ebonyshell have been found in the Mississippi, Illinois, Ohio, Wabash, and Little Wabash Rivers. There are currently 13 extant Element

Occurrence Records for ebonyshell in the Illinois Natural Heritage Database. The species has been observed in eight (8) of 102 Illinois counties, including Adams, Gallatin, Lawrence, Massac, Peoria, Pulaski, Rock Island, Vermilion, and Will Counties.

Incidental Take Authorizations: The Department has three (3) pending or issued Incidental Take Authorizations for ebonyshell. Types of projects include a bridge replacement and a dredge. One (1) authorization was executed for work on the Ohio River. The other two (2) authorizations were bridge replacement projects, located in Rock Island County, roughly 50 miles northeast of CGB's project. This is the first authorization for the taking of ebonyshell in Henderson County.

Purple Wartyback (*Cyclonaias tuberculata*)

Purple wartyback is an Illinois state-threatened mussel species.

Habitat: The species is predominantly 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 infestations of the non-native zebra mussel.

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

Incidental Take Authorizations: The Department has 14 previously issued or pending Incidental Take Authorizations for purple wartyback. Types of projects included bridge repair or installation, pipeline maintenance, and high-speed railway construction. Thirteen of the past authorizations occurred in the Fox, Kankakee, and Vermilion River basins. CGB's project is approximately 50 miles southwest of one (1) executed Incidental Take Authorization for a 0.12-acre bridge replacement in the Mississippi River. This is the first authorization for the taking of purple wartyback in Henderson County.

Butterfly (*Ellipsaria lineolata*)

Butterfly are an Illinois state-threatened mussel species.

Habitat: They are found in large rivers in areas with moderate to swift currents. They favor substrates of coarse sand and gravel.

Reproduction: Butterfly mussels are long-term brooders. Females retain developing glochidia in their gills from August until the following July. Glochidia are released and temporarily parasitize a host fish. Butterfly glochidial host fish include freshwater drum (*Aplodinotus grunniens*), green sunfish (*Lepomis cyanellus*), and sauger (*Stizostedion canadense*).

Population: 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.

Range in Illinois: In Illinois, butterfly mussels have been found in the Mississippi and Ohio Rivers, in 12 of 102 counties. There are currently 34 extant Element Occurrence Records for butterfly mussels in the Illinois Natural Heritage Database.

Incidental Take Authorizations: The Department has 12 previously issued or pending 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. All current Incidental Take Authorizations for butterfly are along the Mississippi River. They are all between 50 to 80 miles northeast of CGB's project. This is the first authorization for the taking of butterfly in Henderson 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 18 of 102 counties. There are currently 41 extant Element Occurrence Records for spike in the Illinois Natural Heritage Database.

Incidental Take Authorizations: There have been ten (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. Seven (7) of the previous authorizations were in the Fox or Kankakee River basins. Two (2) projects are located 80 and 92 miles northeast of CGB's project, on the Rock River in Whiteside County. Another is approximately 50 miles northeast of CGB's project on the Mississippi River in Rock Island County. This is the first authorization for the taking of spike in Henderson County.

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 31 of 102 Illinois counties.

Incidental Take Authorizations: The Department has 29 pending or issued Incidental Take Authorizations for black sandshell. Types of projects include 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. There are 11 other Incidental Take Authorizations for projects located along the Mississippi River. Eight are located northeast within Rock Island County. The closest project was riprap installation approximately 14 miles north of CGB's project. This is the first authorization for the taking of black sandshell in Henderson County.

Based on the amount of habitat impacted by this project, the number of known occurrences of spectaclecase, sheepnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels in Illinois, an assessment of the potential effect of this project and potential future actions including dolphin removal/replacement, sheet pile removal/replacement/repair, and shoreline stabilization (take authorization for potential future actions includes only those State-listed species with no federal listing designation) on individual mussels 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 species remains limited; it is the conclusion of the Department that the taking anticipated as a result of these projects 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 CGB 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 CGB's request for authorization of incidental take was published in the *Breeze Courier* (official state newspaper) on May 9, 2018, and in the *The Hawk Eye* on May 9, 16, and 24, 2018. A copy of the conservation plan was deposited at the Henderson County Library, where it was available for public review. The deadline for public comment was June 22, 2018. No comments were received from the public.

Authorization

It is the determination of the Department that the measures to be implemented by CGB will adequately minimize and mitigate the anticipated taking of spectaclecase, sheepnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels associated with new mooring dolphin and pipe pile cluster installations and potential future actions including dolphin removal/replacement, sheet pile removal/replacement/repair, and shoreline stabilization (take authorization for potential future actions includes only those State-listed species with no federal listing designation) in Henderson County, Illinois. Further the Department has concluded that the taking authorized herein will not reduce the likelihood of survival or recovery of spectaclecase, sheepnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels 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. Additional listed aquatic species may inhabit the Mississippi River. this agreement does not authorize take of any

species except spectaclecase, sheepsnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels.

All terms and conditions included in the aforementioned Conservation Plan submitted by CGB 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 CGB in the conservation plan:

1. This authorization is effective upon the signature of the Department and shall remain in effect for a period of **ten (10) years** from the date of the Department signature, unless terminated by written agreement of both parties. It is the understanding of the Department, based on the estimated timespan necessary to complete the barge terminal upgrades, that this project may extend beyond the 10-year agreement term. The term of the permit may be reviewed and extended by the Department in accordance with Authorization condition #2 below upon written request by CGB no less than three months prior to expiration. Review and analysis of CGB's Conservation Plan took into consideration the potential infrastructure upgrades; mitigation was calculated accordingly. See Authorization condition #14 below for the Department's position on future review and analysis regarding mitigation.

This authorization may be revoked pursuant to the Act and Ill. Adm. Code 1080.80(b) if the Department finds that CGB has failed to comply with any of these terms and conditions or has been responsible for the taking of spectaclecase, sheepsnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels beyond that which is incidental to new mooring dolphin and pipe pile cluster installations and potential future actions including dolphin removal/replacement, sheet pile removal/replacement/repair, and shoreline stabilization (take authorization for potential future actions includes only those State-listed species with no federal listing designation) at the Gladstone Terminal at Mississippi River Mile 409.6 in Henderson County, Illinois.

2. The effective period of this authorization may be altered by mutual written agreement between CGB and the Department. The Illinois Endangered Species Protection Board shall be notified of 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 spectaclecase, sheepsnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels, regulations protecting the species, where the species might be found, avoidance areas, travel restrictions for equipment, how to report sightings or incidents that may involve take, the importance of avoiding take of the species, and response protocol if the species are found. **CGB 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 potential habitat and species management practices.
6. Biological consultants employed by CGB shall 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. CGB shall provide a detailed project proposal to the Department and the US Fish and Wildlife Service to initiate review of any potential future actions including dolphin removal/replacement, sheet pile removal/replacement/repair, and shoreline stabilization. Potential future actions may require pre-construction surveys. If federally listed species are located during pre-construction surveys, a revision to the current Conservation Plan may be required necessitating public notice.
9. CGB shall notify the Department's Endangered Species Program by email correspondence of construction commencement and completion of each project within the permit action area. A **project status report** shall be submitted to the Department within **90 days** following completion of each project summarizing the implementation of minimization and mitigation 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, description of any injuries or mortalities, and the disposition of any individuals that were injured or killed.
10. 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).
11. CGB shall conduct, or cause to be conducted, the following pre-construction or construction efforts:

- a. All in-stream work shall be conducted from barges.
 - b. No cofferdams or temporary causeways shall be installed.
 - c. No equipment shall be placed in the stream except for the use of barge spuds.
 - d. The use of a vibratory hammer, and potentially impact hammer, shall be limited to two days for each dolphin (for a total of eight days for installation of all proposed dolphins).
12. CGB shall conduct, or cause to be conducted, a thorough pre-construction relocation effort for freshwater mussels within the project area prior to construction commencement for the immediate and potential future projects:
- 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 prior to entering the waterway, if applicable, and upon project completion to prevent translocation of zebra mussels into new waterbodies.
 - b. Relocation site has been approved by the Department. Nearby upstream relocation site was chosen due to similar depth, similar substrate, proximity to the mouth of Henderson Creek, and few invasive zebra mussels.
 - c. A survey of the relocation site shall occur prior to placement of relocated mussels to establish baseline conditions.
 - d. 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.
 - e. Mussels shall not be relocated when air temperatures are at or below 32 degrees Fahrenheit or at or above 95 degrees Fahrenheit, nor when water temperatures are at or below 59 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.
 - f. 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.
 - g. **A report including, but not limited to, the survey methodology utilized (for relocation site and project action area), 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 relocated**

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.

13. CGB shall conduct, or cause to be conducted, a thorough survey for mussels within the project action area and the relocation site and their respective buffer areas, in Years 1 and 5 following construction completion for each proposed project.
 - a. A thorough survey for freshwater mussels, comprised of a combination of semi-quantitative and qualitative searches, within the project area and the relocation site. A 25-meter buffer around the relocation site shall also be surveyed to detect dispersal from the relocation 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 relocation site and/or buffer), length, sex (if discernable), the number of growth rings (i.e. an approximation of age) indicating whether recruitment is evident, the unique identification marker of each relocated mussel individual observed, 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.**

14. Mitigation to the maximum extent practicable is required by the Act. Mitigation requirements for this authorization are as follows:
 - a. CGB shall provide funding in the amount of **\$22,321** to the Illinois Wildlife Preservation Fund to be earmarked to bring conservation benefit of spectaclecase, sheepsnose, Higgins eye, ebonyshell, purple wartyback, butterfly, spike, and black sandshell mussels.
 - b. At this time, the Department believes that the specified mitigation sufficiently meets the “maximum extent practicable” as defined by the Act for the term of this Authorization and for the immediately proposed project, as well as the potential future projects. Future reviewers will make a determination as to whether the mitigation standard met herein is sufficient for any potential term extensions based on the known life history information of the covered species at that time and on the accumulated understanding of the interface between barge terminal upgrades and the covered species.
 - c. Mitigation for potential take of federally listed species at the potential future projects will be determined by the US Fish and Wildlife Service at the time of review.
 - d. The donation 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.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 CGB official identified below is authorized to execute this agreement. Execution by CGB 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 CGB 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:



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

8/1/18

Date

For Consolidated Grain & Barge Co.:



Jeff Noble
Midwest Region Project Manager

7-27-18

Date