

JUL 15 2013

Wildlife

Authorization for Incidental Take and Implementing Agreement

Pursuant to the Illinois Endangered Species Protection Act (520 ILCS 10/5.5) the Illinois Department of Transportation's (IDOT) authorization for the incidental take of the State threatened slippershell mussel (*Alasmidonta viridis*) in Grundy County, Illinois [associated with the Sherrill Road bridge over Valley Run Creek project] is hereby granted, subject to the terms and conditions described in the attached Authorization and Implementing Agreement. The Illinois Department of Natural Resources has determined that this authorized take is incidental to the modification of the Sherrill Road bridge over Valley Run Creek in Grundy County, Illinois.

Procedural History

SCI Engineering, Inc. (on behalf of the Grundy County Highway Department - GCHD) prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5). That plan and GCHD's request for authorization for the incidental take of slippershell mussels were received by the Illinois Department of Natural Resources (Department) on February 18, 2013. Public notice of GCHD's request for authorization of the incidental take of slippershell mussels was published in the Breeze Courier (Official State newspaper) and the Morris Daily Herald (local circulation) on March 1, March 8, and March 15, 2013. Public comments on GCHD's conservation plan were accepted by the Department until April 16, 2013. No comments were received by the public during the period of March 1, 2013 through April 16, 2013.

This project was initially submitted to the IDNR's Office of Realty and Environmental Planning (OREP) for review under the Endangered Species Consultation Process. Upon review within OREP, this project was then elevated to the IDNR's internal Incidental Take Authorization (ITA) committee. The ITA committee decided that this project should formally participate in the Incidental Take Authorization process and seek a formal ITA. At the request of the ITA committee, the OREP project manager was instructed to prepare a letter to the applicant suggesting modifications to the project [which would reduce impacts to the species of concern] and pursuit of a formal ITA – via submission of a Conservation Plan. That plan and GCHD's request for authorization for the incidental take of slippershell mussels were received by the Illinois Department of Natural Resources (Department) on February 18, 2013. Public notice of GCHD's request for authorization of the incidental take of slippershell mussels was published in the Breeze Courier (Official State newspaper) and the Morris Daily Herald (local circulation) on March 1, March 8, and March 15, 2013. Public comments on GCHD's conservation plan were accepted by the Department until April 16, 2013. No comments were received by the public during the period of March 1, 2013 through April 16, 2013. SCI Engineering, Inc. (on behalf of the GCHD) prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5).

Compliance with the Endangered Species Protection Act

The Illinois Endangered Species Protection Act includes six (6) criteria which must be met for the authorization of incidental take of an endangered or threatened species. These criteria and the Department's determination for each criterion 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 proposed action, to be carried out by the Grundy County Highway Department (GCHD), involves the removal and replacement of the structure which carries County Highway C16/Sherrill Road over Valley Run Creek in Grundy County. County Highway C16/Sherrill Road is also the Grundy/Kendall County line. The project area is surrounded by predominantly agricultural land with some residential

properties. Legal locality information for the project site, taken from the Lisbon, Illinois (7.5' series, 1991 edition, Photo Revised 1993) USGS topographic quadrangle map is as follows: Section 4, Township 34 North, Range 7 East and Section 33, Township 35 North, Range 7 East.

The bridge will be replaced in its existing location and no piling or bridge support structures will be placed in the creek. Aspects of proposed construction that will likely affect slippershell mussels include:

- excavation of the existing channel,
- changes in channel grade within the excavation area,
- alteration of substrate within the excavation area, and
- potential clearing of woody riparian vegetation upstream of the bridge.

Excavation of the existing channel will likely remove and kill any freshwater unionid mussels within the excavation area. Additionally, the regrading and armoring of the channel as proposed will likely create unsuitable habitat for unionids and prevent recolonization of the area. Changes in channel morphology could also affect hydraulic characteristics upstream and downstream of the excavated area.

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

The state-listed slippershell mussel (*Alasmidonta viridis*) is known to inhabit creeks in the project area. The slippershell mussel tends to occur in permanent streams in heterogeneous substrate. They tend to prefer areas with some current velocity even during low discharge conditions and most often are found in shaded areas of streams. Slippershells are likely to occur in sandier substrate behind boulders. In a document dated April 2, 2012, the Illinois Department of Natural Resources (IDNR-OREP) requested a mussel survey be conducted to determine the possible impacts to this species.

The slippershell is known to exist within the project area, and due to the mussel's habitat requirements and small size, an Incidental Take Authorization (ITA) was requested. The number of individuals that may be taken cannot be accurately/fairly estimated (because no live slippershell specimens were discovered within the project area – July, 2012/see below). Construction limits for the proposed project have been reduced to the smallest area possible, in an effort to minimize impacts to the mussels and their habitat. Construction activity will be limited to approximately 25 feet downstream and upstream of the centerline of the bridge in an effort to minimize impacts to the mussels. Before construction begins, certified individuals will relocate any and all mussels, including slippershell mussels, located in the immediate vicinity of the structure (existing and proposed right-of-way), to a suitable habitat elsewhere in Valley Run Creek, if possible. An undetermined number of slippershell mussels may possibly remain and could be affected by the construction.

During a survey in July, 2012 (Illinois Natural History Survey - INHS), one (1) deceased (slippershell) individual was found in the area of the bridge replacement. Temporary habitat modification or degradation may lead to the death or injury to the listed species by significantly impairing behavioral patterns such as breeding, feeding, and/or sheltering. Even though relocation of mussels prior to the removal and replacement of the bridge will occur, some individuals may be taken by the project, as not all may be identified during the relocation survey that is proposed as part of the Conservation Plan for this project.

This project poses a high probability that slippershell mussels could be directly impacted during the construction of the proposed action. Any in-stream work activities during bridge removal and construction would likely affect the mussels and their habitat. Rip rap is proposed for placement under the bridge, which would likely also have a detrimental effect to the mussels.

Erosion and siltation have the greatest potential to harm the remaining mussels downstream from the work site. Thus, the GCHD resident engineer will be responsible to monitor all activities of the construction contractor(s), including compliance with the special provisions regarding mitigation and the use of best management practices (BMPs) to minimize erosion and siltation. Erosion and sediment control documentation will be included in the final/authorized project plans. This will include storm water pollution prevention measures, contractor weekly inspections of BMPs, and documentation of storm water erosion/siltation incidents.

All mussels will be removed from within the in-stream impact zone described above before any construction occurs. The mussels will be marked and then relocated to areas up (preferably) or downstream where mussel concentrations are known to exist. This relocation effort will minimize the potential for direct impacts to mussels located in "harm's way" and consequently any slippershell mussels that might be present within the footprint.

Regular inspections to ensure proper working order and maintenance of BMPs will be made weekly by the resident engineer. Additional inspections will be made right after heavy rain events as indicated in the erosion and sediment control plans. Additional soil conserving practices, including those not in the erosion control plans, will be implemented if eroded soil is noted to be leaving the jobsite or construction limits. Also, regular inspections shall be made by the GCHD's Resident Engineer, particularly during the period of the mussel relocation work. This will ensure that the mussel contractor(s) are closely coordinating the mussel removal and relocation effort(s).

Overall, GCHD shall ensure that all freshwater mussel surveys, and subsequent relocations, would be conducted prior to construction of the Sherrill Road bridge over Valley Run Creek project in Grundy County, Illinois. All mussels observed (listed and/or non-listed species) are to be relocated in order to minimize impacts.

Mussel surveys/relocations will be conducted using standard survey techniques including, but not limited to, searching by feel to methodically cover the area to be disturbed by the project, viewing boxes, wading in shallow water, and SCUBA in deeper water. All mussels found will be identified to species and all shells shall be uniquely marked using a non-lethal method – this will allow for identification during post-construction/follow-up surveys. Mussels will be relocated into areas of suitable habitat, in the same stream/river, preferably upstream of the construction site. Specifically, the transplant site will be close to the collection area and have similar to better water quality and substrate.

A relocation area containing similar habitat and live unionids, preferably slippershells, will be established prior to mussel collection. A cursory survey of the impact area will be used to evaluate habitat conditions and informally estimate density and species composition. Using this information and starting at least 50 meters (m) upstream of the existing bridge, a suitable relocation area will be searched for within Valley Run Creek. A location at least 200 m downstream will also be searched if one upstream is not found. Aux Sable Creek or Collins Run may also be considered if no other area in Valley Run appears suitable. Once located, the relocation area will be marked with flagging tape, and GPS coordinates will be recorded. Collection will then commence within the impact area. GPS coordinates will be recorded around the perimeter of the collection area.

The ecological staff/freshwater mussel consultant(s) conducting this mussel relocation effort shall have extensive experience with Midwestern mussels. The mussel consultant will provide the Department (attn.: Joseph Kath) with a report detailing the results of all mussel surveys and relocation efforts within 60 days of completing all surveys/relocations [this report shall also be submitted by the consultant to the Illinois Natural Heritage Database and the Illinois Endangered Species Protection Board – *see below*]. In summary, mussel surveys and related relocations will occur only after Department authorization and prior to any construction activities. The measures discussed above should minimize the amount of habitat that is affected.

Illinois Department of Natural Resources
Division of Natural Heritage
Attn: Joseph Kath
One Natural Resources Way
Springfield, Illinois 62702-1271

Illinois Endangered Species Protection Board
Attn: Anne Mankowski
One Natural Resources Way
Springfield, Illinois 62702-1271

Illinois Department of Natural Resources
Natural Heritage Database
Attn: Tara Kieninger
One Natural Resources Way
Springfield, Illinois 62702-1271

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

This project will be funded by both Kendall County and Grundy County, Illinois. The estimated cost of the preferred bridge replacement alternative is \$241,753.50. The funds used will be Non-MFT (Motor Fuel Tax). Project costs generally include funding for design and implementation of erosion and sediment control measures. Additional soil conserving practices and measures necessary to deal with changed and unforeseen circumstances are typically funded through change order and force account practices. By law, the erosion and sediment control plan must be in place for the life of the project. All of the above discussed measures shall be funded directly by and through the Chief Executive/Financial Offices of Kendall County and Grundy County via the Kendall County Highway Department and the Grundy County Highway Department (primary applicant). This project is authorized by the Illinois Department of Transportation, who oversees the use of state-distributed funding among local agencies. Grundy County exclusively abides by the National Environmental Policy Act and all associated state and federal environmental laws in carrying out the mission of performing the most environmentally sensitive methods of planning and engineering.

The Grundy County Highway Department as well as Grundy and Kendall Counties, Illinois are responsible for securing authorization for the incidental take; securing all permits including NPDES, Section 404, and IDNR Office of Water Resources; inspection of the work and contractor compliance with the contract documents; and notifying the Illinois Department of Transportation when project construction has been completed in order to proceed with post-construction monitoring requirements.

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

-Slippershell (*Alasmidonta viridis*): As of June, 2013, there are 74 EORs (element occurrence records) for this species in the State of Illinois. The Sherrill Road project site occurs in Grundy County. As of June, 2013, the number of EORs for this species within Grundy County is 1. The most recent EOR for this mussel in Grundy County (Valley Run Creek) = 2007 (exact location in Valley Run Creek is not known). The major risk at this site for the slippershell is possible habitat loss and possible mortality via crushing from construction debris. Therefore, direct (financial) mitigation will be sought for this species – please see the Authorization section of this document for details.

The slippershell is fairly widespread in Illinois. The reason for inclusion on the list of endangered species in Illinois is primarily because of its severe reduction in range in the state.

The state-listed slippershell mussel (*Alasmidonta viridis*) is known to inhabit creeks in the project area. The slippershell mussel tends to occur in permanent streams in heterogeneous substrate. They tend to prefer areas with some current velocity even during low discharge conditions and most often are found in shaded areas of streams. Slippershells are likely to occur in sandier substrate behind boulders. For the Sherrill Road project, the slippershell (one – deceased) was found directly under the existing bridge in July, 2012 (INHS). However, the amount of creek bed that will be disturbed due to this project is minimal, and there should be adequate suitable slippershell habitat nearby.

The relocation of all mussels encountered will make it unlikely that a significant number of individuals will be exposed to threats related to the Sherrill Road bridge over Valley Run Creek in Grundy County, Illinois.

The following *Project Alternatives* were considered for the Sherrill Road bridge project:

- *No Build*: One alternative that would not result in the take of listed freshwater mussels is the “no build” alternative. This means the bridge would not be replaced and would eventually deteriorate until it is unusable by the community. This alternative was dismissed due to the presently deteriorated condition of the bridge and the need for a safe structure in this location.
- *Relocation of Sherrill Road Bridge*: This alternative would consist of rerouting Sherrill Road. However, Valley Run Creek would still need to be crossed; therefore slippershell mussels could still be impacted. Moreover, the costs and impacts associated with a new roadway in addition to a new bridge would be significantly higher and not economically feasible for the County.
- *Preferred Alternative*: The preferred alternative consists of the removal and replacement of the existing bridge, SN 032-3000. The channel of Valley Run will be excavated with 2:1 side slopes. The channel will be excavated approximately 145 cubic yards. Approximately 285 square yards of stone riprap class A4 will be placed in the channel and on the embankment.

As stated in the April 1996 Technical Report (working draft) titled - "Measures to minimize harm to *Lampsilis higginsi* [federally endangered Higgins Eye mussel] caused by passage of commercial navigation vessels in the upper Mississippi River" [prepared by the U.S. Army Corps of Engineers-Waterways Experiment Station]:

Relocation is one of several methods that can be used to protect freshwater mussels. Relocation can be used to recolonize areas where previous populations were extirpated, to remove mussels from proposed construction sites, to boost numbers of endangered species, and/or to protect against high densities of the zebra mussel (*Dreissena polymorpha*). The survival of relocated mussels is closely linked to habitat quality. As of 2013, the States of Michigan, West Virginia, Ohio, Florida, Georgia, Minnesota, Wisconsin, and Ontario, Canada have formal mussel relocation protocols related to a variety of projects including road/bridge construction, pipelines, stream relocations, etc.

Relocation sites should have the same conditions of substratum type and stability, and water velocity as the original habitat. Research from the federally endangered Higgins Eye mussel (*Lampsilis higginsi*) recovery team, under the guidance of the United States Fish and Wildlife Service, has determined that minimal mortality (<12%) and high recovery rate (>88%) were shown when aerial exposure of mussels was less than four (4) hours and when relocations were conducted in spring or autumn when air (12-18 C) and water temperature (15-23 C) were moderate.

5. Any measures required under Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.40(b)], will be performed:

Additional measures are listed below under "Authorization." This authorization is, by definition, subject to those terms and conditions and official GCHD's signature(s) on this authorization 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:

SCI Engineering, Inc. (on behalf of the Grundy County Highway Department - GCHD) prepared a conservation plan as described by the Illinois Endangered Species Protection Act (520 ILCS 10/5.5). That plan and GCHD's request for authorization for the incidental take of slippershell mussels were received by the Illinois Department of Natural Resources (Department) on February 18, 2013. Public notice of GCHD's request for authorization of the incidental take of slippershell mussels was published in the Breeze Courier (Official State newspaper) and the Morris Daily Herald (local circulation) on March 1, March 8, and March 15, 2013. Public comments on GCHD's conservation plan were accepted by the Department until April 16, 2013. No comments were received by the public during the period of March 1, 2013 through April 16, 2013.

Authorization

It is the determination of the Department that the measures to be implemented by GCHD will adequately minimize and mitigate for the anticipated taking (relocation) of a small number of slippershell mussels due to the modification of the Sherrill Road bridge over Valley Run Creek in Grundy County, Illinois. Further, it is our opinion that the take (relocation) authorized herein would not diminish the likelihood of the survival of the slippershell mussel 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.

Pursuant to Section 5.5 of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.40(b)], this authorization is issued subject to the following additional terms and conditions:

1. This authorization is effective upon signature of the Department and shall remain in effect for a period of five (5) years after the official "project completion date". "Completion" shall be defined as the date the Sherrill Road bridge over Valley Run Creek in Grundy County, Illinois, is officially open for public use. This authorization is effective unless terminated pursuant to Section 5.5. of the Illinois Endangered Species Protection Act [520 ILCS 10/5.5 - 17 IL. Adm. Code Part 1080.80].

2. Prior to construction of the Sherrill Road bridge over Valley Run Creek in Grundy County, Illinois, GCHD shall conduct/facilitate, or cause to be conducted, a thorough mussel survey of the reach of the affected portion of Valley Run Creek that will be directly affected by bridge construction activities and shall relocate any and all (listed and/or non-listed species) freshwater mussels found within the area that will be directly affected by the bridge construction to suitable habitat, preferably upstream, of the project site.

Handling of mussels shall be in compliance with any and all conditions and/or protocols included in the state and/or federal authorizations for this work. All mussels found will be identified to species and all shells shall be uniquely marked using a non-lethal method – this will allow for identification during post-construction/follow-up surveys. Relocated mussels shall be identified to species and enumerated. A report on the species and numbers of mussels relocated and the location(s) at which they were released shall be provided to the Department within 60 days of completion of the relocation.

*Reports shall be sent to the following parties:

Illinois Department of Natural Resources
Division of Natural Heritage
Attn: Joseph Kath
One Natural Resources Way
Springfield, Illinois 62702-1271

Illinois Endangered Species Protection Board
Attn: Anne Mankowski
One Natural Resources Way
Springfield, Illinois 62702-1271

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Natural Heritage Database
Attn: Tara Kieninger
One Natural Resources Way
Springfield, Illinois 62702-1271

3. GCHD shall conduct/facilitate, or cause to be conducted, a thorough survey of both the affected portion of Valley Run Creek that will be directly affected by bridge construction activities (i.e. construction right-of-way) and the mussel relocation site(s) in the second (2) and fourth (4) years following completion of the Sherrill Road bridge over Valley Run Creek. "Completion" shall be defined as the date the Sherrill Road bridge over Valley Run Creek in Grundy County, Illinois, is officially open for public use. Freshwater mussels located within the construction right-of-way and relocation site(s) shall be identified to species and enumerated and the length of each mussel shall be measured to the nearest millimeter. Handling of mussels shall be in compliance with any

and all conditions and/or protocols included in the state and/or federal authorizations for this work. A report on the species, numbers, and sizes of mussels found shall be provided to the Department, attn.: Joseph Kath, within 60 days of the completion of this survey.

*Additional copies of these monitoring reports shall also be sent by the applicant to the following:

Illinois Endangered Species Protection Board
Attn: Anne Mankowski
One Natural Resources Way
Springfield, Illinois 62702-1271

Illinois Department of Natural Resources
Natural Heritage Database – Attn: Tara Kieninger
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This report(s) shall also include a qualitative evaluation of the habitat for freshwater mussels being provided by the construction right-of-way area and the relocation site(s) and the manner in which that habitat has changed since the initial bridge repair/replacement project.

4. All mussels encountered within the State of Illinois during this project shall be subject to the general U.S. Fish and Wildlife Service handling protocol for determining presence/absence of species. The following electronic link also provides useful information:

<http://www.fws.gov/northeast/pafo/pdf/Mussel%20Survey%20Guidelines%20-%20Smith%20et%20al%202001.pdf>

5. According to the following scientific publication (2003):
Southwick, R.I., and A.J. Loftus, editors. 2003. Investigation and monetary values of fish and freshwater mussel kills. American Fisheries Society, Special Publication 30, Bethesda, Maryland.

Standard formulas have been developed to determine the replacement costs of juvenile freshwater mussels. Cost categories for production of juvenile mussels (2 months old) and their relevant production costs are as follows: EASY = \$0.44/mussel; AVERAGE = \$0.73/mussel; and DIFFICULT = \$9.63/mussel. All variables associated with producing mussels were considered in assigning mussels to cost categories. The costs assigned to the three categories were calculated based on the actual average costs incurred by mussel propagation facilities to raise mussel species assigned to each category. In addition, based on the experience and data from expert panel members, combined with limited available data, a conservative survival rate of 9.5% is employed. This panel also determined that five (5) years is the typical age of sexual maturity. When performing a cost analysis, if ages cannot be determined, then we shall assume all are adult/mature mussels.

For this project, we will assume that natural reproduction will be the means for the resource to repair itself. Repopulation of lost mussels are achieved by natural reproduction of the mussels that remain after the project has been completed. In this case, the costs of the mussels, if they were to be produced and stocked, are used as a surrogate value to assign damages for the responsible party [i.e. the calculated costs are used to assess restitution/mitigation, even though no stocking occurs].

All mitigation costs are deposited into the Illinois Wildlife Preservation Fund and are used solely for the management and recovery of listed mussels within the State of Illinois.

Using the project specifics:

- a. The preferred alternative consists of the removal and replacement of the existing bridge, SN 032-3000. The channel of Valley Run Creek will be excavated with 2:1 side slopes. The channel will be excavated approximately 145 cubic yards. Approximately 285 square yards of stone riprap class A4 will be placed in the channel and on the embankment.
- b. During a survey in July, 2012 (Illinois Natural History Survey - INHS), one (1) deceased individual was found in the area of the bridge replacement. The state-listed slippershell mussel (*Alasmidonta viridis*) is known to inhabit creeks in the project area. The slippershell mussel tends to occur in permanent streams in heterogeneous substrate. They tend to prefer areas with some current velocity even during low discharge conditions and most often are found in shaded areas of streams. Slippershells are likely to occur in sandier substrate behind boulders.
- c. Using an average sampling adequacy of time-based hand searches for mussels in the Midwest of 47% (Cummings, 2011; Szafoni, 2013), the presence of one (1) slippershell mussel detected in the 2012 survey yields an estimated slippershell population in the Sherrill Road impact zone of 2.12 slippershell mussels.
- d. $2.12 \text{ mussels} / 0.095 \text{ survival rate} = 22 \text{ mussels needed for replacement}$
- e. Slippershell mussel = DIFFICULT cost category (\$9.63/mussel)
- f. $22 \text{ mussels} \times 9.63 = \underline{\$212.00}$

Accordingly, this yields a total mitigation amount of: \$212.00 due to the Department. Therefore, the applicant (GCHD) shall provide the Department with a check made out to the Illinois Wildlife Preservation Fund in the amount of: \$212.00. This check shall be received within 6 months after formal implementation of the ITA (after the document is signed by both the GCHD and the IDNR). These funds will be used solely for management and recovery actions of listed mussels within the State of Illinois.

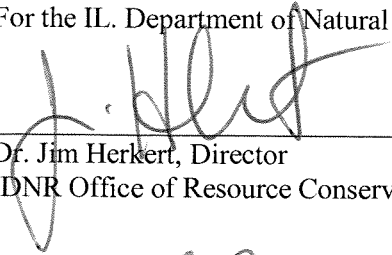
6. The effective period of this authorization may be altered by mutual agreement between GCHD and the Department.

7. This authorization may be revoked pursuant to Section 5.5 of the Act if the Department finds that GCHD has failed to comply with any of these terms and conditions or has been responsible for the take of any slippershell mussels beyond that which is incidental to the modification of the Sherrill Road bridge over Valley Run Creek in Grundy County, Illinois.

8. Please note that the conditions of this agreement do not apply to any lands protected under the Illinois Natural Areas Preservation Act (525 ILCS 30/) (INAPA). Any adverse impacts to said protected lands and the species therein is considered a violation of the INAPA and grounds for referral to the Office of the Attorney General or State's Attorney.

9. The GCHD official identified below is authorized to execute this agreement. Execution by GCHD indicates acceptance of all terms and conditions described in this document.

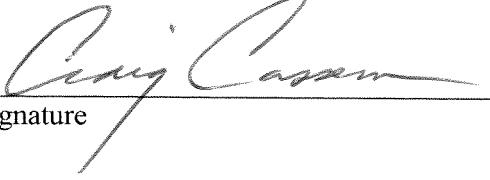
For the IL. Department of Natural Resources



Dr. Jim Herkert, Director
IDNR Office of Resource Conservation

8-9-13
Date Signed

For the Grundy County Highway Department



Signature

Craig Cassem County Engineer
Please print name and official title

7/10/13
Date Signed