

Appendix E

Field Studies Report

CHICAGO TO ST. LOUIS HIGH SPEED RAIL PROJECT

TIER 3 - LINCOLN TO AUBURN, ILLINOIS

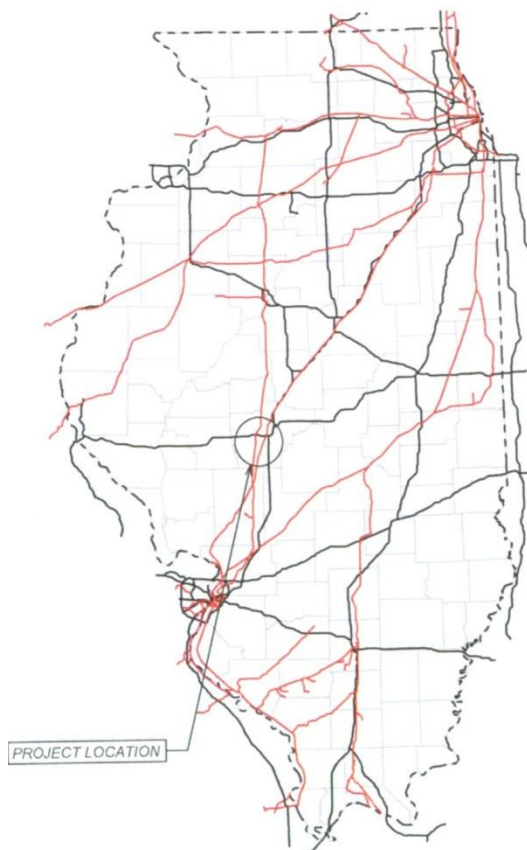
REPORT OF FALL FIELD STUDIES

UNION PACIFIC MILE POSTS 147.00 TO 203.00

LOGAN AND SANGAMON COUNTIES

JUNE 2013

SITE LOCATION



LOGAN AND SANGAMON COUNTIES

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1.0 PROJECT DESCRIPTION

Field surveys to identify potential natural resources were conducted in October and November of 2012 for a segment of the Chicago to St. Louis High Speed Rail (HSR) Project. The HSR segment is located between Lincoln and Auburn, Illinois and is identified by the Union Pacific Railroad (UPRR) as the Tier 3 Improvement between UPRR Mile Posts 147.00 and 203.00. The project passes through Logan and Sangamon Counties. The field surveys were conducted for the entire Lincoln to Auburn route but focused on locations within new right-of-way or easement areas not previously surveyed or cleared through coordination with resource and regulatory agencies or addressed in the Chicago to St. Louis High Speed Rail Environmental Impact Statements and the 2004 Finding of No Significant Impact (FONSI) document. There are 32 areas where right-of-way or access easements are proposed to be acquired. The Tier 3 HSR segment is 56 miles in length.

Specific natural resources for which field surveys were conducted included identification of cover types, potential habitats for listed threatened and endangered species, wetlands, and water quality at stream crossings.

The City of Springfield (mile post 188-183.5) was not reviewed and is a gap in the study area. The City of Springfield is being considered in a separate study and therefore was not included in this assessment of natural resources or cover typing.

2.0 METHODS

Prior to conducting the natural resource field studies, numerous sources and references were consulted (see Appendix A for complete list of references). In order to maximize field work efficiency, previous HSR natural resource reports, dated 1999, and the 2003-2004 High Speed Rail FONSI/EIS were reviewed for potential resources. The reports were compared against the 30% and 90% plans prepared by the UPRR between Lincoln and Auburn and an environmental survey boundary established through consultation with the Illinois Department of Transportation Bureau of Railroads. The 30% and 90% plans indicated areas where new rights-of-way or access permits will be acquired. The environmental survey limit (ESR) established a survey boundary, approximately 50 feet from centerline of existing UPRR mainline track. The ESR limits and the UPRR plans containing new rights-of-way, access permit areas, and aerial photography were provided to personnel performing the field surveys and used as a basis to record resources.

The UPRR 30% and 90% plans, in conjunction with aerial imagery, were used to identify the various cover types that might be impacted by the project and identify potential habitats for sensitive natural resources through aerial photo interpretation. This work was done prior to visiting the field in order to prioritize field survey locations. The cover types were ground truthed during the field surveys. The field surveys spanned October 2nd - 4th, 2012 and were completed on November 14th, 2012. The following is a discussion of those field survey results.

3.0 COVER TYPE

Cover types within the study area (UPRR mile posts 147.00 to 203.00) consist of upland and wetland habitat. The United States Fish and Wildlife Service's (USFWS) Ecological Services Manual cover type definitions were used to assess cover types along the Lincoln to Auburn (Tier 3) section of the high speed rail corridor. Cover types identified include; forest, shrubland, hedgerow, grassland, agricultural land, and developed land (Appendix B, Cover Type Map). The only Illinois upland cover type not identified was forbland. Wetland habitat was identified at five locations during the course of field reviews. These areas will be discussed further in the Wetlands Section of the document. Cover type was determined by aerial photography interpretation and verified using vegetation observed during field reviews conducted in October and November 2012 (Table 1- Field Survey).

In general, the dominant cover types along the corridor are hedgerow, developed land, grassland and shrubland. Developed land is dominant within nine urban areas; Lawndale, Lincoln, Broadwell, Elkhart, Williamsville, Sherman, the Springfield metropolitan area, Chatham, and Auburn. Hedgerow is dominant in two segments of the corridor, between mile posts 147.0 - 161.0 and mile posts 175.0 - 191.0. Grassland and shrubland are both found in greatest concentration between mile posts 161.0 to 175.0. The remaining grassland, shrubland, developed land, and hedgerow along with forest, agricultural, and wetlands are intermittent throughout the length of the corridor.

3.1 Forest Cover Type

Forest accounts for 6.72% (46.0 acres) of the project cover type. Forest cover type consists of trees taller than 5m (16.5 ft.) and has a tree canopy cover of at least 25%. Within the 56 miles of the project, forest cover type is found in nine primary locations; Panther Creek, Lake Springfield bridge, Woodside Road, Interurban Avenue, Sangamon River uplands, Meredith Drive, Sherman, North of Sherman at I-55, south of Williamsville, and at the junctions of Old Route 66/Business 55/County Road 1000E.

3.1.1 Forest at Panther Creek (Mile Post 197.57-198.06)

The forest located at Panther Creek is located immediately south of Ostermeier Road in Sangamon County. The forest is located on the west side of the UPRR right-of-way and sampling of tree and understory species was conducted in one area of the 2500 foot length of the larger tract of woods. Both the USFWS definition of forest cover type and the IDOT Tree Policy were used in the assessment of the forest areas. Per the IDOT Tree Policy, a tree has a diameter breast height (DBH) of 6 inches or greater. If smaller than 6 inches, the plant is considered a shrub.

The forested area is bisected by Panther Creek, creating a southern portion consisting of 66 percent of the forested area and a northern portion consisting of the other 33 percent. There is no right-of-way acquisition planned for this area, however, 0.25 acres of land is required for a temporary construction easement. The easement extends 1,300 feet north from Cherry Grove School Lane and extends 8.5 feet from edge of UPRR right-of-way to the west. Estimated canopy coverage is 40% for the area, with the exception of 0% canopy cover where a road was constructed approximately 150 feet from the UPRR right-of-way, extending from the Irwin Park Pavilion to Panther Creek.

Dominant tree species include hackberry (*Celtis occidentalis*) and wild black cherry (*Prunus serotina*) (Table 1- Field Survey). Occasional tree species include honey locust (*Gleditsia triacanthos*), black walnut (*Juglans nigra*), and shingle oak (*Quercus imbricaria*). One wild black cherry snag was located with the sample area.

Dominant shrub species within Panther Creek forested area included Amur honeysuckle (*Lonicera maackii*) at 75% coverage. Occasional species included young trees consisting of box elder (*Acer negundo*), sandbar willow (*Salix interior*), black willow (*Salix nigra*), and white mulberry (*Morus alba*). Both willow species were located in the vicinity of the clearing for the road.

Dominant herbaceous vegetation within the sample tract included garlic mustard (*Alliaria petiolata*), Amur honeysuckle (*Lonicera maackii*), and white snakeroot (*Ageratina altissima*). Occasional species included pokeweed (*Phytolacca americana* L.), giant ragweed (*Ambrosia trifida*), giant foxtail (*Setaria faberi*), purpletop (*Tridens flavus cupreus*), prairie sunflower (*Helianthus pauciflorus*), crabgrass (*Digitaria sanguinalis*), and awnless barnyard grass (*Echinochloa muricata wiegandii*).

Based upon data gathered for the sampling transect, this is a young forested area consisting of five dominant species. Tree composition of dominant species included hackberry and wild black cherry, totaling 54.55% of the total tree species for the

Panther Creek forested area. A total of 11 trees were documented, resulting in an average diameter breast height of 17.09 inches. Canopy enclosure is approximately 40%, allowing for establishment of young trees and herbs typical of grassland environments to become established. Overall canopy height is estimated to be 20 feet from ground level.

3.1.2 Forest at Lake Springfield Bridge (Mile Post 191.73 – 192.76)

The forest area located north and south of the UPRR Lake Springfield crossing is located between Woodside Road south of Springfield, Illinois and north of Chatham, Illinois in Sangamon County. The forest is located on the east and west sides of UPRR right-of-way, between mile post 191.73 and 192.76. The forested area was identified within the Environmental Survey Request limits provided by the IDOT and verified during field observations. No right-of-way acquisitions or temporary/permanent easements are required at this location. Along the tracks, in the northeast portion of the forested area, two sample transects were established due to accessibility issues to the forested area in other locations. One transect measured 200'x50' and the other was 100'x 100', both located at the northern limit of the project along the east side of the tracks.

The 200'x 50' transect contained green ash (*Fraxinus pennsylvanica*) and wild black cherry as the dominant tree species. Occasional tree species included black walnut, white oak (*Quercus alba*) and shingle oak. Two snags were present within the sample transect but were not identifiable to species. Dominant shrubs included young trees consisting of black oak (*Quercus velutina*), white oak, bur oak (*Quercus macrocarpa*), shingle oak, poison ivy (*Toxicodendron radicans*), slippery elm (*Ulmus rubra*), multiflora rose (*Rosa multiflora*), sassafras (*Sassafras albidum*), red bud (*Cercis canadensis*) and shellbark hickory (*Carya laciniosa*). Herbaceous strata included poison ivy, white snakeroot, lesser periwinkle (*Vinca minor*) and showy goldenrod (*Solidago speciosa*).

The 100' x 100' transect contained wild black cherry and slippery elm as the dominant tree species. Occasional tree species included sugar maple (*Acer saccharum*) and shingle oak. The shrub strata included Amur honeysuckle, young slippery elm, young hackberry and multiflora rose. Herb strata contained white snakeroot as the dominant species.

Based upon data gathered for the two sampling transects, this is a young forested area consisting of two dominant species. Tree composition of dominant species included green ash and wild black cherry, totaling 56.25% of the total tree species for the Lake

Springfield Bridge Crossing forested area. A total of 32 trees were documented, resulting in an average diameter breast height of 13.10 inches. Canopy enclosure is approximately 50%, allowing for establishment of young trees along with shrub/vine growth forms of poison ivy. Overall canopy height is estimated to be 25 feet from ground level.

3.1.3 Forest at Woodside Road (Mile Post 190.72 – 191.06)

The forest area is located immediately north of Woodside Road in Sangamon County. The forest is located on the east side of the UPRR right-of-way and sampling of tree and understory species was conducted in one area of the 1,600 foot length of the larger tract of woods.

The forested area was identified within the Environmental Survey Request limits provided by the IDOT and verified during field reviews. No right-of-way acquisitions or temporary/permanent easements are required at this location. The 100' x 100' sampling transect was located in the central portion of the forested area.

This area is unique compared to other forested areas within Tier 3 due to the tree composition and size. Within a 100' x 100' sampling transect, there were 90 cherry trees in the 3 - 4 inch DBH range, with an occasional 6 inch DBH specimen. Silver maple (*Acer saccharinum*) was an occasional tree species (18 specimens) but all were 5" - 6" DBH. No other tree species were observed. The shrub layer was honeysuckle with no other shrubs present. An herbaceous stratum was not present at the location, likely due to limited light penetrating the canopies of the tree and shrub stratum.

The abundance of small wild black cherry and silver maple trees indicated this area was recently disturbed and allowed to revegetate. Even though the majority of the trees in this area do not meet the IDOT definition of a tree (greater than 6 inch DBH), the area is included within forest cover type due to stem count of young cherry trees and the canopy cover of 80%.

3.1.4 Forest at Interurban Avenue (Mile Post 181.59 – 181.96)

The forest area is located in the vicinity of the southern terminus of Interurban Avenue located in the north end of the Springfield metropolitan area within Sangamon County. Forest is located on both the east and west sides of the track. Two 100' x 100' sampling transects were used to assess the forest, one on each side of the rail. 1.16 acres of land is proposed for additional right-of-way acquisition within the Ridgley siding on the west side of the tracks in this location.

The forested area is bisected by the UPRR right-of-way, creating western and eastern portions of forested land, with the bulk of the forest cover type located on the west side of the track. Estimated canopy coverage is 60% for the area on both sides of the tracks.

Dominant tree species include black cherry, slippery elm and green ash (Table 1, Field Observations). Occasional tree species include black walnut, shingle oak, hackberry, shellbark hickory, black oak, bur oak, chinquapin oak (*Quercus muehlenbergii*), slippery elm, tree of heaven (*Alianthus altissima*), and box elder. No snags were located within the sample areas.

Dominant shrub species included young trees consisting of box elder, hackberry, young oaks of various species, shellbark hickory, black cherry, and Amur honeysuckle.

Dominant herbaceous vegetation included garlic mustard, Virginia creeper (*Parthenocissus quinquefolia*), white snakeroot, common blue violet (*Viola sororia sororia*), and bristly greenbrier (*Smilax hispida*) on both the east and west side of the tracks. Poison ivy and riverbank grape (*Vitis riparia*) were two additional species found on the west side of the tracks.

Based upon data gathered for the sampling transects, this is a young forested area consisting of three dominant species. Tree composition of dominant species included wild black cherry, slippery elm and green ash, totaling 69.23% of the total tree species for the forested area north of Springfield. A total of 39 trees were documented, resulting in an average diameter breast height of 11.79 inches. Canopy enclosure is approximately 60%, allowing for establishment of young trees and vining vegetation such as Virginia creeper and poison ivy to become established. Overall canopy height is estimated to be 28 feet from ground level.

3.1.5 Forest in Sangamon River Uplands (179.64 – 180.83)

The forest area is located between Dirksen Parkway (north end of Springfield, IL) and Meredith Drive (south end of Sherman, IL) within Sangamon County. Forest is located on both the east and west sides of the track. Two 100' x 100' sampling transects, both located on the west side of the tracks, were used to assess the forest. The forested area was identified within the Environmental Survey Request limits provided by the IDOT and verified during field reviews. No right-of-way acquisitions or temporary/permanent easements are required at this location. This overall length of forest is intermixed with limited hedgerow and developed land.

Dominant tree species include hackberry and wild black cherry (Table 1, Field Observations). Occasional tree species include black oak, white mulberry and box elder. No snags were located within the sample areas.

Dominant shrub species included dense Amur honeysuckle with 70% coverage. Herbaceous layer consisted of white snakeroot.

Based upon data gathered for the sampling transects, this is a young forested area consisting of two dominant species. Tree composition of dominant species included hackberry and wild black cherry, totaling 76.47% of the total tree species for the forested area north of Springfield. A total of 17 trees were documented, resulting in an average diameter breast height of 10.74 inches. Canopy enclosure is approximately 50%. Overall canopy height is estimated to be 28 feet from ground level.

3.1.6 Forest in Sherman, IL (Mile Post 177.68 – 177.79)

This forested area in Sherman, IL, Sangamon County, north of Andrew Road is a small, 600 foot span of timber. The forested area was identified within the Environmental Survey Request limits provided by the IDOT and verified during field reviews. No right-of-way acquisitions or temporary/permanent easements are required at this location.

One 100' x 100' sample transect was used to assess the vegetation for the area. Dominant trees included pin oak (*Quercus palustris*), shingle oak, green ash and Osage orange (*Maclura pomifera*), with an average DBH of 21.75 inches. Shrub strata included Amur honeysuckle, white mulberry, green ash, and blackberry (*Rubus allegheniensis*). Herbaceous strata included poison ivy, white snakeroot, and Canadian goldenrod (*Solidago canadensis*).

Based on average DBH of the trees and the shrub and herbaceous stratum, this area is a relatively young forested area that was previously disturbed.

3.1.7 Forest North of Sherman, IL (Mile Post 176.17 – 176.45)

The forested area is located north of Wolf Creek Road and south of the Business 55/Interstate 55 junction, north of Sherman, IL, Sangamon County. The forest area spans 1,350 feet along the UPRR right-of-way on the east side of the tracks. The forested area was identified within the Environmental Survey Request limits provided by the IDOT and verified during field reviews. No right-of-way acquisitions or temporary/permanent easements are required at this location.

Dominant tree species include box elder, silver maple, slippery elm, green ash, and black walnut. Shrub strata was composed of Amur honeysuckle and smooth sumac (*Rhus glabra*). Herbaceous strata included prickly gooseberry (*Ribes cynosbati*), poison ivy and fescue (*Festuca spp.*) at the forest edge.

3.1.8 Forest South of Williamsville (Mile Post 175.12 – 175.33)

The forested area is located south of the Village of Williamsville in an area that was previously associated with coal mining. As such, this is a highly disturbed area with coal mining by-product and structure foundation remnants scattered throughout the area. Within the piles of material and foundation rubble, volunteer trees have become established to create a small forested area along the east side of the UPRR right-of-way. The forested area was identified within the Environmental Survey Request limits provided by the IDOT and verified during field reviews. No right-of-way acquisitions or temporary/permanent easements are required at this location.

Cottonwood, wild black cherry, and green ash are the dominant species with occasional hackberry. The average tree DBH for the area is 16.55 inches. Amur honeysuckle was the dominant shrub. Herbaceous layer was composed of giant ragweed (*Ambrosia trifida*), poison ivy, white snakeroot, and Canadian goldenrod.

The dominant tree, shrub, and herbaceous species are typical for vegetation found in disturbed habitats. The trees are fairly young, likely growing in the location since mining operations ceased.

3.1.9 Forest at Old Route 66/Business 55/County Road 1000E Junction (Mile Post 159.90 – 159.95)

The forested area is an isolated patch of timber, 250 feet in length, along the east side of the tracks south of Lincoln, Illinois in Logan County. The forested area was identified within the Environmental Survey Request limits provided by the IDOT and verified during field reviews. No right-of-way acquisitions or temporary/permanent easements are required at this location.

Vegetation is composed of the same species observed in the adjacent hedgerow cover types. Trees include green ash, black walnut, wild black cherry and hackberry. Average DBH for the forested area is 13.69 inches. The shrub layer is dominated by honeysuckle with occasional young trees consisting of wild black cherry, hackberry, black walnut, and green ash. Herbaceous layer consists of Canadian goldenrod, creeping Charlie (*Glechoma hederacea*), frost aster (*Aster pilosus*), poison hemlock (*Conium*

maculatum), common teasel (*Dipsacus folliculatus*), English plantain (*Plantago lanceolata*), garlic mustard, and occasional fescue.

3.2 Shrubland Cover Type

Shrubland accounts for 13.87% (95.0 acres) of the project cover type, with approximately 83.62% located north of Springfield, IL and 16.37% located south of Springfield, IL. Shrubland cover type consists of shrubs and trees shorter than 5m (16.5 ft.) and has a shrub canopy cover of at least 25%. Within the 56 miles of the project, shrubland cover type is found throughout the project limits but is more common north of Springfield. Approximately 16 miles of the corridor (both sides of the right-of-way) was shrubland. The shrubland is located on UPRR right-of-way from edge of ballast to the backslope of the roadside ditch on IDOT right-of-way or to the railside ditches where agricultural cover type begins.

Typical shrubland species found within the limits of Tier 3 for Chicago to St. Louis High Speed Rail included limited numbers of trees including American elm, slippery elm, cottonwood (*Populus deltoides*), and hackberry. The shrub vegetation included young slippery elm, autumn olive (*Elaeagnus umbellata*), young cottonwood, young hackberry, young white mulberry, and Amur honeysuckle. Herbaceous vegetation included Canadian goldenrod, common milkweed (*Asclepias syriaca*), giant ragweed, blackberry, and poison ivy. Some shrubland included limited prairie dock (*Silphium terebinthinaceum*).

3.3 Hedgerow Cover Type

Hedgerow cover type consists of a linear growth of shrubs and sparse tree species, typically separating two or more cover types. A hedgerow consists of landscape, volunteer, or a combination of landscape and volunteer species. Hedgerow is common along transportation rights-of-way, accounting for 42.92% (294.0 acres) of the project cover type.

Hedgerow, one of the four dominant cover types, is found throughout the 56 miles of the Lincoln to Auburn section of the high speed rail corridor, except for areas where it is replaced by other cover types such as grassland, wetland, shrubland, and forest. Throughout the project limits, hedgerow cover type is fairly common. Of the total 39.75 miles of hedgerow for the entire Tier 3 span (both sides of right-of-way), 10.42 miles (26.2%) is located south of Springfield. The remaining 29.33 miles (73.8%) are located north of Springfield.

Dominant tree species include hackberry (16.08"DBH), wild black cherry (10.21"DBH), black walnut (11.75" DBH), silver maple (18.4"DBH), black locust (9.5"DBH) and green ash (9.33"DBH). The most common ornamental tree species include Bradford pear (*Pyrus calleryana*) and apple (*Malus pumila*) fruit trees. Occasional tree species common throughout the project limits include box elder, Osage orange, American elm, white mulberry, black willow, sycamore (*Platanus occidentalis*), shingle oak, tree of heaven, slippery elm, black oak, bur oak, pin oak, and cottonwood.

The most common shrub layer vegetation included honeysuckle, smooth sumac, blackberry, young white mulberry, young green ash, multiflora rose, and young hackberry. Occasional shrub layer species include black locust (*Robinia pseudoacacia*), cottonwood, gray dogwood (*Cornus racemosa*), black walnut, American elm (*Ulmus americana*), wild black cherry, tree of heaven, box elder, poison ivy, sassafras, shingle oak, and autumn olive.

Dominant herbaceous plants include poison ivy, fescues, Canadian goldenrod, frost aster, white snakeroot, riverbank grape, giant ragweed, and garlic mustard. Occasional herbaceous species include Virginia creeper, wild iris (*Iris virginica*), prickly gooseberry, giant foxtail, reed canary grass (*Phalaris arundinacea*), common hops (*Humulus lupulus*), Amur honeysuckle, field goldenrod (*Solidago nemoralis*), poison hemlock, Kentucky bluegrass (*Poa pratensis*), trumpet vine (*Campsis radicans*), common ragweed (*Ambrosia artemisiifolia*), prairie dock, pokeweed, mullein (*Verbascum thapsus*), wild yam (*Dioscorea villosa*), catnip (*Nepeta cataria*), black mustard (*Brassica nigra*), smooth brome (*Bromis inermis*), hairy woodland brome (*Bromus pubescens*), creeping smartweed (*Persicaria cespitosa*), chicory (*Cichorium intybus*), crown vetch (*Coronilla varia*), smooth sumac, common teasel, bull thistle (*Cirsium vulgare*), horseweed (*Conyza canadensis*), English plantain, giant goldenrod (*Solidago gigantea*), scouring rush (*Equisetum hyemale affine*), evening campion (*Silene pratensis*), meadow fescue (*Festuca pratensis*), bristly greenbrier, and creeping Charlie.

The hedgerow is composed of younger trees (average 12.55" DBH) which grew voluntarily along UPRR right-of-way beyond the edge of ballast where regular vegetation control is implemented by the railroad. Also, hedgerow is common along drainage ditches running parallel to UPRR right-of-way and roads running parallel to the tracks where regular mowing is not possible.

3.4 Grassland Cover Type

Grassland accounts for 16.20% (111.0 acres) of the project cover type, found throughout the 56 mile long project limits. South of Springfield, 4.5 miles (25.78%) of grassland cover type is found on both sides of UPRR right-of-way. North of Springfield contains 12.95 miles (74.22%) of grassland cover type on both sides of the UPRR right-of-way. Grassland cover type consists of a canopy cover of all vegetation of at least 25% and is dominated by non-woody plants, dominated by grass, both native and introduced species, including tall grass prairie and limited forbs. Two prairie areas were identified north of Springfield, IL during the course of field reviews (Table 2 Prairie Remnants).

Dominant grassland species include cone flower, common milkweed, New England aster (*Aster novae-angliae*), prairie sunflower, fescue species, Canadian goldenrod, crown vetch, frost aster, Queen Anne's lace (*Daucus carota*), prairie dock, giant ragweed, big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*), and common teasel. Occasional species include ironweed (*Vernonia gigantea*), purpletop, riverbank grape, chicory, poison hemlock, garlic mustard, wild parsnips (*Pastinaca sativa*), white snakeroot, sawtooth sunflower (*Helianthus grosseserratus*), aromatic aster (*Aster oblongifolius*), common ragweed, red clover (*Trifolium pretense*), heath aster (*Aster ericoides*), Missouri goldenrod (*Solidago missouriensis*), stiff goldenrod (*Oligoneuron rigidum*), common hops, and poison ivy.

Occasional tree species observed included hackberry, white mulberry, and American elm. Occasional shrub species included smooth sumac, young American elm, young hackberry, red-osier dogwood (*Cornus sericea*), young wild black cherry, honey locust, blackberry, young black walnut, autumn olive, Amur honeysuckle, multiflora rose, and Missouri gooseberry (*Ribes missouriense*).

3.4.1 Prairie Remnant 1

Prairie 1 is located one mile north of Broadwell, between US Route 66 and the UPRR tracks between MP 162.09 and 162.02. This prairie remnant was identified in field surveys and is near the northern limit of a prairie remnant identified in the 2003 Illinois Natural History Survey (INHS) report titled *Inventory of Roadside Prairies, Illinois Department of Transportation, District 6* prepared by William Handel. The 700 foot long prairie remnant contained native species such as New England aster, heath aster, Missouri goldenrod, purple coneflower (*Echinacea purpurea*) and prairie dock. Invasive species including fescue grass and common teasel were also common in the prairie remnant. It is a highly degraded prairie, estimated to be a "D" grade.

3.4.2 Prairie Remnant 2

Prairie 2 is located between Williamsville and Sherman from MP 174.95 to 174.85. The prairie remnant is east of the UPRR tracks and north of an abandoned mine head shaft and an area used to stockpile coal production by-products. This prairie remnant was identified in field surveys and is within the limit of a prairie remnant identified in the 2003 Illinois Natural History Survey (INHS) report prepared by William Handel, titled *Inventory of Roadside Prairies, Illinois Department of Transportation, District 6*. The 500 foot long prairie remnant contained native species including Indian grass, purple coneflower, common milkweed, big bluestem, ironweed, purple top, New England aster and prairie sunflower. Invasive species including fescue grasses, brome grasses, Queen Anne's lace and common teasel were also common in the prairie remnant. It is a highly degraded prairie, estimated to be a "D" grade.

3.5 Forbland Cover Type

Forbland cover type consists of a canopy cover of all vegetation of at least 25% and is dominated by nonwoody plants, dominated by herbaceous species other than grasses. This cover type may include weedy fields, old fields, and other areas in early successional stages, accounting for 0% of the project. For purposes of this report, the highest numbers of forbes are located in prairie remnants and grass-dominated cover types. When a significant number of a forb species were identified, they were included with grassland cover type since they were not the dominant type of plant species.

3.6 Agricultural Land Cover Type

Agricultural land accounts for 1.46% (10.0 acres) of the cover type area, the smallest cover type for the project. Agricultural land consists of lands that are periodically plowed and planted, mowed for hay at least once per year, or support buildings or other man-made structures directly supporting agricultural activities. Orchards, vineyards, cropland, and pasture and hayland are possible land use types considered agriculture.

Agricultural land is only found south of Springfield, IL. The primary agricultural practice along the intermittent 2.76 miles (both sides of UPRR right-of-way) consists of row crop (corn and soybean) cultivation.

3.7 Developed Land Cover Type

Developed land accounts for 18.83% (129.0 acres) of the project cover type, with approximately 66% of the acreage located predominately in and around the nine urban areas of Lawndale, Lincoln, Broadwell, Elkhart, Williamsville, Sherman, the Springfield metropolitan area, Chatham, and Auburn.. Outside of the nine urban areas along the route, developed land is intermittent and accounts for approximately 33% of Developed Land. Developed Land cover type consists of mining areas, urban, and built-up land. Mining areas are classified as lands used for mineral extraction or recently abandoned, previously serving mining purposes. Urban and built-up land is “comprised of areas of intensive use with much of the land covered by structures”. The only types of developed land present along the Lincoln to Auburn high speed rail corridor are urban and built-up land.

4.0 ENDANGERED AND THREATENED SPECIES

The USFWS Illinois County Distribution list for Federally Endangered and Threatened Species was consulted to obtain a listing of species occurring in Logan and Sangamon counties. An Ecological Compliance Assessment Tool (EcoCat) was submitted to the Illinois Department of Natural Resources (IDNR) Natural Heritage Database on September 28, 2012, to identify potential State listed Endangered and Threatened Species as well as Illinois Natural Areas and Illinois Nature Preserves within the study area. Through this consultation with the USFWS and the IDNR, a list of federal and state species potentially occurring within the study limits was developed (Table 3- Threatened and Endangered Species). Habitat requirements were researched and potential habitats identified in the field. Three plant and animal species are federally listed and one plant is a State listed species.

4.1 FEDERALLY THREATENED PLANT SPECIES

Only one USFW listed threatened plant species is found within Logan and Sangamon counties. It has the potential to occur within the limits of the high speed rail project due to adequate habitat within the limits of the study area.

4.1.1 EASTERN PRAIRIE FRINGED ORCHID (*Platanthera leucophaea*)

The USFWS lists the Eastern Prairie Fringed Orchid as threatened in Logan and Sangamon counties. The orchid can occur in a wide variety of habitats, from mesic prairie to wetlands, such as sedge meadows and the edges of marshes. The plant requires full sun for optimum growth along with a grass habitat with little woody

encroachment. *Platanthera* flowers from June to early July. The proposed right-of-way and easement areas were surveyed in September 2012, past the orchids flowering time. The 2003 Illinois Natural History Survey (INHS) report titled *Inventory of Roadside Prairies, Illinois Department of Transportation, District 6* prepared by William Handel did not identify *Platanthera* in any of the wetlands or prairie remnants along the project limits in Logan and Sangamon counties. The prairie remnants identified during field surveys contain dry soils and do not contain the mesic to wet soils the species requires to survive. The plant is unlikely to occur within the project study limits.

4.2 FEDERALLY ENDANGERED ANIMAL SPECIES

Two USFW listed endangered animal species are found within Logan and Sangamon counties. These species have the potential to occur within the limits of the high speed rail project due to adequate habitat within the limits of the study area.

4.2.1 INDIANA BAT (*Myotis sodalis*)

The USFWS lists the Indiana bat as endangered in Logan and Sangamon. The Indiana bat spends summer months in hardwood forests. The bats hibernate in specific hibernacula during winter months. Studies indicate the bats arrive at hibernacula from summer roosting sites in late August or September. The Indiana bats hibernation period can vary from October to April or September to May, depending on location within their range. Females emerge from hibernation and arrive at summer locations beginning in mid-April. The females form nursery colonies with other females during the summer months. The bats utilize a variety of tree species for roosting and rearing young in forests. Primary roosts consist of snags within the forest gaps, forest edge and /or trees with exfoliating bark such as shagbark hickory or eastern cottonwood; although bats can use many other tree species such as ashes, maples and oak species. Indiana bats forage for insects in the forested areas, forested edges near old fields, or along primary or secondary streams with 50% - 70% canopy closure. Indiana bats have been documented to forage under or around the tree canopy at heights ranging from 7 to 30 feet.

Proposed right-of-way areas containing sections of forest cover type were examined to determine if the woods contained potential Indiana bat habitat for foraging or roosting. Three forested tracts within the project corridor are potential Indiana bat habitats. The following is a discussion of the wooded locations; the forested area north of Cherry Grove School Lane and Irwin Park Pavilion, west of the tracks at MP 198.00 to 197.71 in Sangamon County, Illinois, the forested area east of Riverside Park in Springfield, IL,

west side of UPRR tracks from MP 180.13 to MP180.11 and the forested area northeast of Edgar Madigan State Park in Logan County, southeast side of UPRR tracks from MP 158.29 to 158.27.

The sample wooded area from MP 198.00 to 197.71 is part of a larger tract of timber. Dominant species include hackberry, black cherry and shagbark hickory (*Carya ovate*). Hollows were common on many of the trees. The canopy consists of 40 percent coverage at a height of 20 - 30 feet. An open stream, Panther Creek, is located 200 feet west of the wooded area and the understory is predominantly open. This area of woods appears to have the potential to accommodate Indiana bats due to the size of the trees, tree species composition, open understory, canopy cover and the areas proximity to a secondary stream.

The sample wooded area from MP 180.13 to 180.11 is a part of a larger tract of timber. Dominant tree species in this wooded area consist of silver maples, cottonwood, black oak, hackberry and white mulberry. The Sangamon River flows under the tracks adjacent to this location. The canopy consists of 60% - 70% coverage at a height of between 25 - 30 feet above the forest floors. The understory is predominantly open. This area of woods appears to have the potential to accommodate Indiana bats due to the size of the trees, tree species composition, open understory, canopy cover and the areas proximity to a primary stream.

The sample wooded area from MP 158.29 to MP 158.27 is part of a larger tract of timber. Dominant tree species in this wooded area consists of silver maples, slippery elms, box-elder, black walnut, cottonwood and various unidentified snags. The Salt Creek flows under the tracks adjacent to this location. The canopy consists of 50% - 60% coverage at a height of 20 to 30 feet. The understory is predominantly open. This area of woods appears to have the potential to accommodate Indiana bats due to the size of the trees, tree species composition, open understory, canopy cover and the areas proximity to a secondary stream

4.2.2 SHEEPNOSE MUSSEL (*Plethobasus cyphus*)

The USFW list the sheepnose mussel as endangered in Sangamon County. The sheepnose mussel is a freshwater mussel found across the Midwest and Southwest. It is a medium size mussel growing to 5 inches in length, with a thick, oval or oblong shell. Sheepnose mussels require medium to large rivers with a gravel or mixed sand and gravel substrate.

The UPRR tracks cross the Sangamon River at MP 180.07. It is a medium size river with moderate flow. This section of the Sangamon River contained exposed sandbars and was located downstream from limestone rock outcrops. These features indicate that the river may have a sand or sand and gravel substrate. No sheepsnose mussels were positively identified in this section of the river, although there was evidence of other mussel species due to shell fragments along the river edge. This area of the Sangamon River appears to have the potential to accommodate sheepsnose mussels due to the size of the river and the likelihood of a sand or sand and gravel substrate.

4.3 STATE LISTED SPECIES

A request for information about State listed species and Illinois Natural Area Inventory (INAI)/Illinois Nature Preserve (INP) locations within the project study limits in Logan and Sangamon counties was submitted to the Illinois Department of Natural Resources Natural Heritage Database on September 28, 2012. The request was submitted through the IDNR EcoCat process. The EcoCat response identified no State listed plant or animal species that might occur in the vicinity of the project.

However, the IDNR Natural Resource Assessment – High Speed Rail Corridor – Map 37 identified the auriculate false-foxglove (*Tomanthera auriculata*) as being within the project corridor.

4.3.1 AURICULATE FALSE-FOXGLOVE (*Tomanthera auriculata*)

The IDNR lists the auriculate false-fox-glove as a threatened species in Logan County, Illinois. Auriculate false-foxglove prefers full or partial sun and mesic conditions in rich, loamy soil. The root system consists of a central taproot and secondary roots, which are often parasitic on the roots of other plants, particularly *Aster spp.* Blooming period begins in late summer and last about three weeks.

The IDNR database has a single species occurrence record for auriculate false-foxglove from August 8, 1957 in Logan County, Illinois. This species was not recorded in the railroad right-of-way or easement areas during this survey.

5.0 WATER QUALITY

Water conditions were visually assessed at stream crossings encountered by the UPRR right-of-way extending from north of Lincoln to Auburn, Illinois. Analytical testing for pollutants and microscopic analysis of water samples for algae identification was not conducted.

5.1 METHODS

Streams and water bodies were assessed visually for water quality, stream vegetation, and animal species. Sources of information utilized for the water quality field studies included the UPRR 30% plans, the ENVA list of culverts and bridges where culverts are proposed to be reconstructed, 7.5 minute United State Geological Survey (USGS) Quadrangle maps to identify named streams and their tributaries, the Final Environmental Impact Statement (FEIS), and Record of Decision (ROD). In all, a total of 34 drainages or streams were site reviewed by the study team. Stream width measurements were taken from top of bank to top of bank. Water depth was measured where possible and estimated in inaccessible locations. Visual inspection of water quality included a visual assessment of the color of water for nutrient enrichment and oil sheens.

5.2 DISCUSSION

Most of the drainages crossed by the UP HSR alignment within the limits of the 56 mile (MP 203.00-MP 147.00) study area are narrow and shallow. Very few named streams are crossed by the alignment. The field studies were conducted in October and November of 2012.

5.3 STREAMS

The streams crossed by the UPRR alignment are Kickapoo Creek, Brainards Brook, Salt Creek, Wolf Creek, Fancy Creek, Sangamon River, Panther Creek and seven unnamed tributaries. The following is a discussion of each of these water resources.

5.3.1 Kickapoo Creek (MP 149.48)

Kickapoo Creek crosses the alignment at MP 149.48 and was reviewed in the field. Kickapoo Creek is part of the Sangamon River watershed in Logan County, Illinois. The stream is entrenched 4 - 5 feet, with steep side slopes. Stream width was 45 feet. Water was present with a depth of 2 - 3 feet deep. Visual inspection of the water indicated a moderate sediment load. The stream bottom was composed of deposited sediment with some sand and rip-rap near the bridge abutments. No fish species were observed in the water.

Vegetation was present along the banks in this section of the creek. Tree species in this section of the creek was dominated by silver maple. Other tree species present included green ash, cottonwood, white mulberry, black willow, honey locust, and hackberry. A

sparse shrub layer was present consisting of white mulberry and silver maple saplings. Herbaceous vegetation consisted of reed canary grass, garlic mustard, common blue violet, white snakeroot, lady's thumb smartweed, crowned beggarstick (*Bidens coronata*) and stinging nettle (*Urtica dioica*). No sensitive plant species were identified.

5.3.2 Brainards Brook (MP 152.70)

Brainards Brook was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. Brainards Brook is part of the Sangamon River watershed in Logan County, Illinois. The brook is entrenched 2 feet and is 4 feet wide. Water was present at a depth of 6 inches. The water was clear, with a sediment bottom.

Vegetation was present at this section of the brook. Tree species present consisted of hackberry and eastern red cedar (*Juniperus virginiana*). The shrub layer consisted of sandbar willow. The herbaceous layer was dominated by smooth brome and common teasel. No sensitive plant species were identified.

5.3.3 Salt Creek (MP 158.10)

Salt Creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. Salt Creek is part of the Sangamon River watershed in Logan County, Illinois. The creek is entrenched 2 - 3 feet and is 80 feet wide. Average depth of water is 10 inches, with occasional pools of 3 - 4 feet deep. Some nutrient enrichment was observed in green water near the shore, but the water was generally clear. Clear water was entering Salt Creek from a small tributary east of the UPRR tracks. The substrate consists of sand and gravel. Unidentified mussel shells were observed along the shoreline.

Vegetation was sparse along the creek edge. Vegetation south of the stream edge was sampled. Silver maple was the dominate tree species, with an occasional slippery elm, black walnut, cottonwood, and unidentified snags. The shrub layer consisted of Amur honeysuckle and green ash and box elder saplings. The herbaceous layer consisted of garlic mustard, white snake root, creeping smartweed, poison ivy, bristly greenbrier, silky wild rye (*Elymus villosus*), Gray's sedge (*Carex grayi*) and Kentucky bluegrass. No sensitive species were observed.

5.3.4 Unnamed Tributary of Salt Creek (MP 159.49)

This unnamed tributary of Salt creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. This tributary is part of the

Sangamon River watershed in Logan County, Illinois. The creek is entrenched 2 feet and is 4-5 feet wide. Water was clear, stagnant and averaged 6 inches in depth with a sediment bottom.

Vegetation was present along the creek edge. Tree species included black willow and black cherry. The shrub layer was dominated by Amur honeysuckle. The tree and shrub layer combined to form a dense canopy, shading out understory plants. No sensitive species were observed.

5.3.5 Wolf Creek (MP 171.08)

The Wolf Creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. This tributary is part of the Sangamon River watershed in Logan County, Illinois. The creek is entrenched 1 foot and is 2 feet wide. Water within the creek was clear and flowing and averaged 4 - 6 inches in depth. The stream bottom is composed of with a sediment and a section of rip-rap near the track crossing.

Vegetation was present along the creek edge. Tree species included silver maple, green ash and white mulberry. The herbaceous layer was dominated by reed canary grass and smooth brome. Poison hemlock and common burdock (*Arctium minus*) were also common at this location. No sensitive species were observed.

5.3.6 Fancy Creek (MP 176.43)

The Wolf Creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. This tributary is part of the Sangamon River watershed in Sangamon County, Illinois. The creek is entrenched 20 - 25 feet and is 20 feet wide. Water was 2 - 3 feet deep with no evident nutrient enrichment and had a moderate sediment load, with 6 - 7 inch visibility.

Vegetation was present along the creek edge. Tree species included box elder, silver maple, slippery elm, green ash and black walnut. The shrub layer was dominated by Amur honeysuckle and smooth sumac. Herbaceous layer consisted of poison ivy, prickly gooseberry and smooth brome. No sensitive species were observed.

5.3.7 Unnamed Tributary of Fancy Creek (MP 177.45)

This unnamed tributary of Salt creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. This tributary is part of the Sangamon River watershed in Sangamon County, Illinois. The tributary is entrenched

1 foot and is 3 feet wide. The water was clear, 2 inches deep and showed no signs of nutrient enrichment. The bottom consisted of mixture of sediment and rip-rap.

Vegetation was present along the creek edge. Tree species included hackberry, white mulberry, green ash and black walnut. The shrub layer was dominated by Amur honeysuckle. The tree and shrub layer combined to form a dense canopy, shading out understory plants. No sensitive species were observed.

5.3.8 Unnamed Tributary of Fancy Creek (MP 177.81)

This unnamed tributary of Salt creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. This tributary is part of the Sangamon River watershed in Sangamon County, Illinois. The tributary is entrenched 12 feet and is 20 feet wide. Water was clear, 6 inches deep and flowed through a narrow channel 2 feet wide over a sediment bottom.

Vegetation was present along the creek edge. Shrub layer consists of Amur honeysuckle and black willow. The herbaceous layer was dominated by common reed (*Phragmites australis*) and smooth brome, Canadian goldenrod was an occasional species. No sensitive species were observed.

5.3.9 Unnamed Tributary of Fancy Creek (MP 179.12)

This unnamed tributary of Salt creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. This tributary is part of the Sangamon River watershed in Sangamon County, Illinois. The tributary is entrenched 3 feet and is 8 feet wide. Water in the creek is clear, 1 foot deep and flows over a sediment bottom.

Vegetation was present along the creek edge. Tree species included hackberry, green ash and honey locust. The herbaceous stratum was dominated by reed canary grass and smooth brome. Canadian goldenrod was an occasional species. No sensitive species were observed.

5.3.10 Sangamon River (MP 180.08)

The Sangamon River was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. The Sangamon River is the primary drainage for the Sangamon River watershed, which is part of the larger Illinois River watershed. This section of the Sangamon River is entrenched 10 - 20 feet and is 130 feet wide. Average river depth is 3 - 5 feet deep with deeper pools. Water was dark,

indicating a heavy sediment load. The occurrence of sandbars within the river and limestone outcropping along the river edge indicate a sand and gravel bottom in this section of the Sangamon River. No signs of nutrient enrichment were observed.

Vegetation was present along the creek edge. Tree species were dominated by silver maple, with cottonwood, hackberry, green ash, box elder and sycamore being occasional species. The shrub stratum consisted of white mulberry, poison ivy and multiflora rose. The herbaceous stratum consisted of pokeweed, garlic mustard and poison ivy. No sensitive species were observed.

5.3.11 Unnamed Tributary of Sangamon River (MP 180.64)

This unnamed tributary of the Sangamon River was field reviewed for water quality, stream attributes and vegetation from a bridge on Sandhill Road. This tributary is part of the Sangamon River watershed in Sangamon County, Illinois. The location where the tributary crosses the UPRR track could not be accessed due to property access restrictions. The tributary at Sandhill road is entrenched 6 feet and is 12 feet wide. Water was clear and 1 foot deep, showed no signs of nutrient enrichment and flowed over a mixed sand, gravel and sediment bottom.

Vegetation was present along the creek edge. Tree species included sycamore, hackberry and shingle oak. The shrub layer was dominated by Amur honey suckle and multiflora rose. No sensitive species were observed.

5.3.12 Unnamed Tributary of Sangamon River (MP 181.91)

This unnamed tributary of Salt Creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. This tributary is part of the Sangamon River watershed in Sangamon County, Illinois. The tributary is entrenched 2 feet and is 6 feet wide. Water has a moderate sediment load with green water observed, indicating some nutrient enrichment. Water is an average depth of 1 foot over a sediment bottom.

Vegetation was present along the creek edge. Tree species included black cherry and black willow. The shrub layer was dominated by Amur honeysuckle. The herbaceous layer consisted of giant ragweed and smooth brome. No sensitive species were observed.

5.3.13 Panther Creek (MP 197.43)

Panther Creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. This creek is part of the Sangamon River watershed in Sangamon County, Illinois. The creek is entrenched 4 feet and is 6 - 7 feet wide. Water quality is clear with a low sediment load, with 4 inch visibility, and no sign of nutrient enrichment. Average water depth is 2 - 3 feet over a sediment bottom.

Vegetation was present along the creek edge. Tree species included hackberry, black cherry, black walnut, shingle oak and honey locust. The shrub layer was dominated with Amur honeysuckle, with the occasional black willow, sandbar willow, box elder and white mulberry. The herbaceous layer consisted of giant ragweed, Amur honeysuckle, garlic mustard, white snakeroot, giant foxtail, prairie sunflower, crabgrass and awnless barnyard grass. No sensitive species were observed.

5.3.14 Unnamed Tributary of Sugar Creek (MP 200.15)

This unnamed tributary of Sugar Creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. This tributary is part of the Sangamon River watershed in Sangamon County, Illinois. The creek is entrenched 2 feet and is 4 feet wide. The water is clear, with no indication of nutrient enrichment. Water is 6 inches deep and flows over a mixed sediment and sand and gravel bottom.

Vegetation was present along the creek edge. Tree species included black willow, slippery elm and white mulberry. The shrub layer was dominated by Amur honeysuckle. The herbaceous layer was dominated by reed canary grass and poison hemlock. No sensitive species were observed.

5.3.15 Unnamed Tributary of Sugar Creek (MP 201.62)

This unnamed tributary of Sugar Creek was field reviewed for water quality, stream attributes and vegetation where it crossed the UPRR tracks. This tributary is part of the Sangamon River watershed in Sangamon County, Illinois. The creek is entrenched 2 - 3 feet and is 20 feet wide. The water is clear with a low sediment load and no indications of nutrient enrichment. Average water depth is 2 - 4 feet over a sediment and gravel bottom.

Vegetation was present along the creek edge. Tree species included hackberry and green ash. The shrub layer consists of hackberry, green ash, box elder and poison ivy. No sensitive species were observed.

5.3.16 OTHER STRUCTURES INDICATED ON U.P. 30% PLANS OR ENVA CHART (MP 203.00- MP 147.00)

Nineteen other drainages were evaluated for water quality that were not part of a named or identifiable stream. Locations indicated in the UPRR 30% plans and the ENVA Structures Chart for the Lincoln to Auburn Siding Track were used to identify the drainages. The drainage ways examined all flowed through cultivated land or were located in urban areas. Most discharged into the railroad or an adjacent roadside ditch system. Cultivated fields border many drainage ways. Little or no water was present. Most channels had herbaceous or woody shrub vegetation in the channel and side slopes. Many of the sites are being mowed. Tree species included silver maple, green ash, wild cherry, hackberry, slippery elm, black walnut, black willow, white mulberry, box elder and cottonwood. Shrub species recorded include black willow, Amur honeysuckle, white mulberry, silver maple, sandbar willow and hackberry. Typical herbaceous species recorded during the surveys included giant foxtail, fescues, Canadian goldenrod, giant ragweed, mullein, common teasel, poison hemlock, reed canary grass, cup plant (*Silphium perfoliatum*), smooth brome, common reed and garlic mustard. No aquatic animal species were observed in any of the drainage ways. The drainage way channel bottoms contained deposited sediment. No sand, gravel or exposed rock beds occurred within the areas visited. A number of the drainages appeared to have been channelized. Based upon the botanical species composition, and the disturbance to the drainages, it is unlikely any sensitive species occur within the easement or proposed right-of-way areas of these drainages.

6.0 WETLANDS

The study area for the field surveys include areas where new right-of-way or access easements were proposed between Lincoln and Auburn. Prior to initiating field work, the USFWS National Wetland Inventory (NWI) Maps, UPRR 30% plans, aerial photography, the Wetland Technical Report for the High Speed Rail Project, Chicago to St. Louis (1999) and the Natural Resource Conservation Service's (NRCS) county soil surveys for Logan and Sangamon counties were consulted. The wetland reviews were conducted on October 2-4, 2012.

A Wetland Delineation Report produced by Olsson Associates in September of 2012 was also consulted to identify wetlands. Olsson Associates delineated wetlands within the Athol siding, Elkhart siding and track construction, Auburn siding, signal/turnout pad construction locations and hydraulic structure replacements where waters of the U.S. were believed to be present. In all, 87 wetlands were identified in the Olsson

Wetland Report, for a total of 31.303 acres. The wetlands are defined using the classification system developed by Cowardin et al. (1979). Additionally, the Floristic Quality Index (FQI), an indication of native vegetative quality for a location, was provided for the 87 wetlands included in the report. Generally, an FQI from 1 to 19 indicates low vegetative quality. The impacted wetlands have low FQI's, with none having an FQI value over 12. (Appendix C, Olsson Associates Wetland Delineation Report)

Five wetlands were identified in the field and surveyed for plants species by QEI staff. Diameter at Breast Height (DBH) measurements were taken of all trees with a DBH greater than 6 inches within a sample plot.

6.1 WETLAND 1 (149.48 to 149.46)

Wetland 1 is a forested wetland located northwest corner of Kickapoo Creek and the tracks in Logan County, Illinois. NWI maps indicate palustrine emergent and palustrine forested wetlands northwest of the sample plot. Based on field reviews, the sample area is a section of a larger, continuous forested wetland bordering Kickapoo Creek. The survey area was a 100 x 100 plot. Silver maple was the dominant tree species, representing 63 percent of the tree within the sample plot, with an average DBH of 9.5 inches. Other trees in the sample plot included green ash, cottonwood, white mulberry, black willow, honey locust and hackberry. A sparse shrub layer, indicative of periodic flooding, included white mulberry and silver maple. The herbaceous layer consisted of reed canary grass, garlic mustard, white snakeroot and stinging nettle. The sample plot had an FQI of 7.56. No standing water was present in this wetland. Observed dark soils and staining on plants and trees indicate this area is wet for extended periods of times.

6.2 WETLAND 2 (MP 158.29 to 158.27)

Wetland 2 is a forested wetland located southwest of the UPRR right-of-way and west of the Salt Creek in Logan County, Illinois. NWI maps indicate this location to be a palustrine forested wetland. The sample area selected for field survey was a 100 x 100 plot, in which silver maple was the dominant tree species, with an average DBH of 14.4 inches. Silver maples represented 81 percent of the trees within the sample plot. Other trees within the sample plot included box elder, slippery elm, black walnut and cottonwood. The shrub layer consisted of Amur honeysuckle, green ash and box elder. The herbaceous layer consisted of garlic mustard, gray's sedge, white snakeroot, creeping smartweed, poison ivy, bristly greenbrier, silky wild rye and Kentucky blue grass. The sample plot had an FQI of 11.7. No standing water was present in this

wetland. Observed dark soils and staining on plants and trees indicate this area is wet for extended periods of times.

6.3 WETLAND 3 (MP 177.79)

Wetland 3 is located north of East Andrew Road and west of the UPRR tracks in Sherman, Illinois. NWI maps do not indicate wetlands in the vicinity of this location, but field surveys identified this area as a potential wetland. The wetland is a 180 foot long, 65 foot wide, depression that drains east under the UPRR tracks. Trees in the wetland included silver maple and black willow. The shrub layer consisted of sandbar willow, cottonwood, black willow, Amur honeysuckle and autumn olive. Herbaceous layer was dominated by common reed and narrowleaf cattail (*Typha angustifolia*). Other herbaceous plants identified included Canadian goldenrod, common teasel and riverbank grape. The sample plot had an FQI of 4.52. Dark, moist soils and the presence of standing water within the depression indicate wetland soils and hydrology.

6.4 WETLAND 4 (MP 180.13 to 180.11 and 180.30 to 180.28)

Wetland 4 is a forested wetland located on the southwest corner of the tracks at the Sangamon River crossing in Sangamon County, Illinois. NWI maps indicate this location to be a palustrine forested wetland. Two sample areas within the forested wetland were sampled. Both sample areas were 100 x 100 plots, the first being adjacent to the Sangamon River and along the west side of the tracks, the second being adjacent to the west side of the tracks and 800 feet south of the first sample plot.

The first sample plot was dominated by silver maple, representing 65 percent of the trees within the sample plot, with an average DBH of 18.2 inches. Other trees that were occasional species within the sample plot included green ash, sycamore, cottonwood, box elder and hackberry. A sparse shrub layer, indicative of periodic flooding, consisted of multiflora rose, white mulberry and poison ivy. The herbaceous layer consisted of pokeweed, mild water pepper (*Persicaria hydropiperoides*), garlic mustard, gray's sedge and poison ivy. No standing water was present in this wetland. Observed dark soils and staining on plants and trees indicate this area is wet for extended periods of times.

The second sample plot was also dominated by silver maple, representing 73 percent of the trees in the sample plot, with an average DBH of 10.0 inches. Other trees that were occasional species in the sample plot included cottonwood, hackberry, red mulberry (*Morus rubra*) and black oak. The shrub layer consisted of silver maple, Amur honeysuckle, green ash, multiflora rose and box elder. The shrub layer in this sample plot was denser, indicating shorter periods of flooding, allowing for the establishment of shrubby plants. The herbaceous layer consisted of poison ivy, gray's sedge and frost aster. The smaller average DBH of the silver maples (10.0 inches) in this plot compared to average DBH of the silver maples (18.2 inches) in the previous plot indicate that this is younger section of forested wetland. No standing water was present in this wetland. Observed dark soils and staining on plants and trees indicate this area is wet for extended periods of times.

According to the Olsson Wetland Report, the delineated wetland that included both sample plots, had an FQI of 6.36.

6.5 WETLAND 5 (MP 198.64)

Wetland 5 is located north of Hambuch Road and east of the UPRR right-of-way. NWI maps do not indicate wetlands in the vicinity of this location, but field surveys identified this as a potential wetland. The wetland was a linear depression 415 feet in length and 60 feet in width. Dominant species were black willow and reed canary grass with an occasional sycamore. According to the Olsson Wetland Report, this wetland had an FQI of 4.00. No standing water was present during the field survey but dark, moist soils, mud cracks and sparse vegetation indicate wetland soils and hydrology.

TABLES

CHICAGO TO ST. LOUIS HIGH SPEED RAIL PROJECT

TIER 3 – LINCOLN TO AUBURN, ILLINOIS

REPORT FOR FALL FIELD STUDIES

TABLE 1
CHICAGO TO ST. LOUIS HIGH SPEED RAIL PROJECT
TIER 3 – LINCOLN TO AUBURN
FIELD SURVEY (OCTOBER 2-4, 2012)

Station	Mile Post	County	Description
10630+00	201.62	Sangamon	Tree strata: hackberry (<i>Celtis occidentalis</i>), box elder (<i>Acer negundo</i>), green ash (<i>Fraxinus pennsylvanica</i>)
			Shrub strata: Amur honeysuckle (<i>Lonicera maackii</i>), hackberry, green ash, multiflora rose (<i>Rosa multiflora</i>)
			Herbaceous strata: Virginia creeper (<i>Parthenocissus quinquefolia</i>), poison ivy (<i>Toxicodendron radicans</i>), wild iris (<i>Iris virginica</i>), prickly gooseberry (<i>Ribes cynosbati</i>)
10561+00 to 10533+00	200.27 to 200.13	Sangamon	Landscape trees consisting of pin oaks (<i>Quercus palustris</i>) 29.5, 27.5, 30.7, 35.5, 34.6, and 33.3 inch DBH
			Volunteer trees: Slippery elm (<i>Ulmus rubra</i>) and hackberry 10.5 average DBH
			Shrub strata: box elder (<i>Acer negundo</i>), Amur honeysuckle (<i>Lonicera maackii</i>), slippery elm
			Herbaceous strata: common ragweed (<i>Ambrosia artemisiifolia</i>), giant ragweed (<i>Ambrosia trifida</i>), wild parsnip (<i>Pastinaca sativa</i>), lambsquarter (<i>Chenopodium album</i>), burdock (<i>Arctium spp.</i>), Canadian goldenrod (<i>Solidago canadensis</i>), frost aster (<i>Aster pilosus</i>)
10470+00	198.64	Sangamon	Tree Strata: Osage orange (<i>Maclura pomifera</i>), hackberry, wild black cherry (<i>Prunus serotina</i>), American elm (<i>Ulmus americana</i>), white mulberry (<i>Morus alba</i>), black willow (<i>Salix nigra</i>), sycamore (<i>Platanus occidentalis</i>),
			Shrub strata: honeysuckle, black locust (<i>Robinia pseudoacacia</i>), cottonwood (<i>Populus deltoides</i>)
			Herbaceous strata: poison ivy, grape vine (<i>Vitis riparian</i>), giant ragweed, fescue (<i>Festuca spp.</i>), giant foxtail (<i>Setaria faberi</i>), reed canary grass (<i>Phalaris arundinacea</i>), garlic mustard (<i>Alliaria petiolata</i>)

			<i>Note: Area is a hedgerow habitat severed by a 200 ft. foxtail-dominated opening where a gas pipeline passes. The east side of the tracks exhibits characteristics of a wet habitat with black willow, sycamore, and reed canary grass being dominant species within a ditch line. Areas absent of vegetation exhibited secondary wetland characteristics consisting of mud cracks and dark moist soils..</i>
10440+00 to 10425+00	198 to 197.71	Sangamon	Tree Strata : hackberry: 29.5, 32.5, 34.1 wild black cherry: 10, 11.5, 8.8 wild black cherry snag: 10.5 black walnut (<i>Juglans nigra</i>): 11.2, 16.3 shingle oak (<i>Quercus imbricaria</i>): 12.0, 9.0 honey locust (<i>Gleditsia triacanthos</i>): 13.1 - 40% canopy cover
			Shrub strata: honeysuckle: 75% coverage, 20 plants in plot, box elder, sandbar willow (<i>Salix interior</i>), black willow, white mulberry
			Herbaceous: giant ragweed, garlic mustard, Amur honeysuckle, white snakeroot (<i>Ageratina altissima</i>), pokeweed (<i>Phytolacca americana</i>), giant foxtail, purpletop (<i>Tridens flavus</i>), prairie sunflower (<i>Helianthus pauciflorus</i>), crabgrass (<i>Digitaria sanguinalis</i>), awnless barnyard grass (<i>Echinochloa muricata</i>)
			<i>Note: Area recently cleared for road. Sample area 100 x 100 plot. Possible bat habitat near Irwin Park Pavilion south of sample area. Trees with hollow areas hackberry (31") and shagbark hickory (avg. 14")</i>
10418	197.55	Sangamon	<i>Stream: Same vegetation as sample plot. Water quality: not green, low sediment load (4" visibility), entrenched 4 feet, 6-7 feet across and 2-3 feet deep.</i>
			Tree Strata (10" avg. DBH): black walnut, wild black cherry
			Shrub: Amur honeysuckle
10399+00 to 10391+00	197.22 to 197.06	Sangamon	Herbaceous: giant foxtail
			Tree Strata: wild black cherry, shingle oak, hackberry, black walnut
			Shrub Strata: gray dogwood (<i>Cornus racemosa</i>), smooth sumac (<i>Rhus glabra</i>), black walnut, American elm (<i>Ulmus americana</i>), honey suckle (60%), wild black cherry (10%), multiflora rose, blackberry (<i>Rubus allegheniensis</i>)
			Herb Strata: riverbank grape, common hops (<i>Humulus lupulus</i>), honeysuckle, poison ivy, giant ragweed, Canadian goldenrod, white snakeroot, poison hemlock (<i>Conium maculatum</i>)
10245+00 to 10238+00	194.30 to 197.17	Sangamon	<i>Note: Shrubs (avg. 15') dominant along tracks, trees (avg. 30'-35') dominant west of utilities</i>
			Tree Strata: tree of heaven (<i>Ailanthus altissima</i>), hackberry, silver maple, slippery elm, box elder, black walnut
			Shrub Strata: Amur honeysuckle, hackberry, tree of heaven, box elder
			Herbaceous Strata: poison ivy, garlic mustard

			<i>Note: Two sycamores with a 20" avg. DBH south of sample area, in front of Chatham Depot. See bike trail along Walnut Street for species along Chatham.</i>
10115 to 10113	191.84 to 191.80	Sangamon	Tree Strata: green ash: 7.8, 6.0, 11.5, 24.3, 12.5, 6.0 26.0, 14.1, 4.5 wild black cherry: 6.0, 6.2, 7.3, 9.1 black walnut 6.3 MS(11.3, 10.1, 9.8) white oak: 43.1, 12.1, 36.0 shingle oak: 8.0 snag: 8.0, 13.5
			Shrub Strata: black oak, white oak, bur oak, shingle oak, poison ivy, slippery elm, multiflora rose, sassafras, red bud, shellbark hickory
			Herbaceous Strata: poison ivy, white snakeroot, lesser periwinkle (<i>Vinca minor</i>), showy goldenrod (<i>Solidago speciosa</i>)
			<i>Note: 200 x 30' plot across from residences north of Lake Springfield</i>
10110+00 to 10108+00	191.74 to 191.70	Sangamon	Tree Strata: black cherry: 8.5, 9.2, 13.1, 10.3, 10.1 sugar maple: 21.2, 7.0, 13.1 shingle oak: 6.1 slippery elm: 8.8, 21.0, 27.0, 9.0
			Shrubs Strata: honeysuckle, slippery elm, hackberry, multiflora rose
			Herb Strata: white snakeroot
			<i>Note: 100 x 100 plot, forest near development</i>
10094+00 to 10090+00	191.44 to 191.36	Sangamon	Tree Strata: silver maple 47.6, 43.5, 9.5, 13.7, 12.9, 26.3, 12.4, 13.3, 13.7, 12.9, 14.1, 12.7, 13.1, 11.9 black walnut: 16.2, 7.3 Bradford pear: 8.5 hackberry: 26.0, 23.0, 9.1, 11.4, 10.9 apple snags (11)
			Shrubs Strata: Not present
			Herbaceous Strata: Kentucky bluegrass, fescue
			<i>Note: Nowack Estate, east of tracks</i>
10091+00 to 10086+00	191.38 to 191.29	Sangamon	Tree Strata: green ash, hackberry (D), silver maple, black walnut, black cherry (D), Bradford pear (<i>Pyrus calleryana</i>) (6), Osage orange (D), box elder, black locust (D)
			Shrub Strata: Amur honeysuckle, poison ivy, smooth sumac, American elm, box elder, white mulberry,
			Herbaceous Strata: trumpet creeper (<i>Campsis radicans</i>), poison ivy, giant ragweed, white snakeroot, fescue, Virginia creeper (<i>Parthenocissus quinquefolia</i>)
			<i>Note: honeysuckle manicured along bike trail</i>
10073+00	191.06	Sangamon	Tree Strata: silver maple and hackberry
			<i>Note: Interurban Bike Trail north of Woodside Drive</i>
10062+00 to	190.84 to	Sangamon	Tree Strata: wild black cherry (90 - 3" to 4", occasional 6"), silver maple (5 - 6")

10061+00	190.82		Shrub Strata: Amur honeysuckle <i>Note: Dense honeysuckle, wood dominated by black cherry</i>
10005+00 to 9998+00	189.75 to 189.62	Sangamon	Tree Strata: hackberry, Osage orange, white mulberry, Shrub Strata: honeysuckle, blackberry, smooth sumac Herbaceous Strata: poison ivy, common ragweed, prairie dock (<i>Silphium terebinthinaceum</i>) (1), pokeweed, mullein (<i>Verbascum thapsus</i>), Canadian golden rod, common hops (<i>Humulus lupulus</i>), wild yam (<i>Discorea villosa</i>), catnip (<i>Nepeta cataria</i>) <i>Note: West of tracks along Interurban Bike Trail, south of I-72</i>
9648+80	183	Sangamon	Tree Strata: sugar maple (<i>Acer saccharum</i>), tree of heaven, green ash Shrub Strata: Amur honeysuckle Herbaceous Strata: river bank grape, Canadian golden rod, giant ragweed, New England Aster (<i>Aster novae-angliae</i>), fescue, dogbane (<i>Apocynum cannabinum</i>), frost aster
North Springfield	Residential	Sangamon	Tree Strata: silver maple, green ash, tree of heaven, cottonwood, blue spruce (<i>Picea pungens</i>), white pines (<i>Pinus strobus</i>)
9590+00 to 9589+00	181.89 to 181.87	Sangamon	Tree Strata: hackberry: 6.3 shellbark hickory (<i>Carya laciniosa</i>): 11.2 shingle oak: 15.0, 13.0, black oak (<i>Quercus velutina</i>) : 22.3 bur oak (<i>Quercus macrocarpa</i>): 24.5 chinquapin oak (<i>Quercus muehlenbergii</i>): 10.0, black cherry: 15.0, 11.7, 13.7, 9.2, 13.3, 8.8, 7.5, 8.9, 8.5, 6.1, 7.0, 8.8 green ash: 13.0, 10.4, 13.7 black walnut: 15.3, 6.3 slippery elm: 6.1 Shrub Strata: young oaks, shellbark hickory , black cherry, Amur honeysuckle, hackberry Herbaceous Strata: garlic mustard, Virginia creeper, white snakeroot, common blue violet (<i>Viola sororia</i>), prickly greenbrier (<i>Smilax hispida</i>) <i>Note: 100 x 100 plot</i>

9581+00 to 9580+00	181.72 to 181.70	Sangamon	Tree Strata: slippery elm: 8.7, 8.3, 8.6, 8.3, 7.8, 9.9, 9.4 wild black cherry: 14.0, 10.5, 8.1, 6.0, 7.3 tree of heaven 8.7 box elder MS (12" and 10" avg.)
			Shrub Strata: Amur honeysuckle, box elder, hackberry
			Herbaceous Strata: poison ivy, riverbank grape, white snakeroot, Virginia creeper
			<i>Note: 100 x 100 plot</i>
9550+00 to 9549+00	181.13 to 181.11	Sangamon	Tree Strata: black locust: 100 (9.5" avg. DBH), black oak: 3 (11" avg DBH) bur oak: 11.0 black cherry: 10.0, 10.0
			Shrub Strata: black cherry, sassafras (<i>Sassafras albidum</i>)(D), Amur honeysuckle (D), shingle oak, multiflora rose
			Herbaceous Strata: white snakeroot, black mustard (<i>Brassica nigra</i>), smooth brome (<i>Bromus inermis</i>), hairy woodland brome (<i>Bromus pubescens</i>), creeping smartweed (<i>Persicaria cespitosa</i>)
			<i>Note: Old rail bed</i>
9511+00 to 9512+00	180.43 to 180.45	Sangamon	Tree Strata: hackberry: 16.1, 7.4, 6.1, 6.5, 14.8, 10.2, 9.8, 7.7, 10.8 wild black cherry: 8.4, 9.2, 7.9, 8.7 black oak: 19.8, 17.5 box elder: 140.5, 11.2
			Shrub Strata: Amur honeysuckle
			Herbaceous Strata: white snakeroot
			<i>Note: Amur honeysuckle, 75% coverage</i>
9505+00 to 9504+00	180.30 to 180.28	Sangamon	Tree Strata: Cottonwood: 18.2, 12.1, 15.5 Silver maple: 11.0, 13.3, 6.1, 6.3, 11.9, 11.4, 11.2, 13.1, 7.9, 9.8, 12.1, 13.0, 6.3, 8.1, 6.0, 17.2, 13.2, MS (9.7, 10.8, 14.1, 8.6), 11.5 black oak: 19.0, hackberry: 6.8, 18.5 white mulberry: 6.0
			Shrub Strata: silver maple, honeysuckle, green ash, white mulberry, multiflora rose, box elder
			Herbaceous Strata: poison ivy, gray's sedge, frost aster
			<i>Note: Transitions to upland area, shrubs absent in lowland, begin at upland transition, limited herbaceous diversity</i>

9495+00 to 9494+00	180.13 to 180.11	Sangamon	Tree Strata: green ash: 9.2, 21.2, 9.6 sycamore: 42.7 cottonwood: 40.0 hackberry: 6.9, 9.0, 9.4 box elder: 12.4 silver maple: 27.1, 9.3, 21.3, 18.2, 17.0, 8.2, 19.5, 20.6, 20.0, MS (12.5, 18.6, 12.2), MS (8.7, 31.4), 35.9, 12.0, 10.3, 21.3, 20.8, 13.9
			Shrub Strata: multiflora rose, poison ivy, white mulberry
			Herbaceous Strata: pokeweed, garlic mustard, gray's sedge, poison ivy, mild water pepper (<i>Persicaria hydropiperoides</i>)
			<i>Note: 60-70% Canopy cover. Open between large silver maples near Sangamon River potential Indiana bat habitat. Dark soils and water stained trees</i>
9437+37	179	Sangamon	Tree Strata: hackberry, black walnut, Amur honeysuckle, black locust, smooth sumac
			Herbaceous Strata: frost aster, chicory (<i>Cichorium intybus</i>), fescues, crown vetch (<i>Coronilla varia</i>), common teasel (<i>Dipasuc fullonum</i>), bull thistle (<i>Crisium vulgare</i>), Canadian goldenrod, common ragweed, horseweed (<i>Conyza canadensis</i>), mullein, narrow leaf plantain (<i>Plantago lanceolata</i>)
			<i>Note: Formal landscaping at toe of slope near road consisting of knockout roses and landscape</i>
Sherman	Residential	Sangamon	Tree Strata: silver maple, sycamore and green ash
9374+00	177.79	Sangamon	Tree Strata: silver maple, black willow
			Shrub Strata: sandbar willow, cottonwood, black willow, Amur honey suckle, autumn olive (<i>Elaeagnus umbellata</i>)
			Herbaceous Strata: common reed (<i>Phragmites australis</i>), narrowleaf cattail, Canadian goldenrod, common teasel, riverbank grape, honeysuckle
			<i>Note: Wet area, stanind water in depression, moist dark soils.</i>
9371+00 to 9370+00	177.73 to 177.71	Sangamon	Tree Strata: pin oak: 33.0, silver maple (D), shingle oak, green ash, Osage orange,
			Shrub Strata: Amur honeysuckle, white mulberry, green ash, blackberry,
			Herb Strata: poison ivy, white snake root, Canadian golden rod
9302+00	176.43	Sangamon	Tree Strata: box elder, silver maple, slippery elm, green ash, black walnut
			Shrub Strata: honeysuckle, smooth sumac
			Herbaceous Strata: prickly gooseberry, poison ivy, fescue
			<i>Stream: Entrenched 20' to 25', moderate sediment load, 2-3 ft. deep, 6"-7" visibility and not green</i>

9243+00 to 9242+00	175.30 to 175.28	Sangamon	Tree Strata: cottonwood: 51.7, 31.6, 27.8, 36.9 black cherry: 14.3, 12.3, 7.3, 16.9, 6.3, 7.1, 7.3 green ash: 6.1, 15.1, 10.1, 6.0 hackberry: 10.1, 14.5
			<i>Note: Area has stockpiles of coal production by-product and remnants of structures. Williamsville engineer stated this site is an old mine head shaft which DNR is getting ready to remediate and replace with fill. DNR trying to coordinate final evaluation with proposed bike trail.</i>
9225+00 to 9220+00	174.95 to 174.85	Sangamon	Herbaceous Strata: Indian grass, cone flower, common milkweed, big bluestem, ironweed, purple top, new England aster, prairie sunflower
			<i>Note: potential prairie area</i>
Williamsville	Residential	Sangamon	Tree Strata: black walnut, tree of heaven, silver maple, slippery elm, green ash
9023+00	171.14	Logan	Tree Strata: Hackberry, white mulberry, American elm
			Herbaceous Strata: fescues, multiflora rose, milkweed (<i>Asclepias syriaca</i>), Canadian golden rod, riverbank grape, chicory, crown vetch, Missouri gooseberry (<i>Ribes missouriense</i>), frost aster, Queen Anne's lace (<i>Daucus carota</i>)
			<i>Note: Area had been mowed</i>
9019+00	171.08	Logan	Tree Strata: American elm, silver maple, white mulberry, hackberry
			Shrub Strata: white mulberry, American elm
			Herbaceous Strata: reed canary grass, fescue, Canadian goldenrod, yarrow (<i>Achillea millefolium</i>), thin paspalum (<i>Paspalum setaceum</i>)
			<i>Stream: Intermittent stream (channel dry). Stagnant, standing water in culvert.</i>
8996+00 to 8989+00	170.62 to 170.49	Logan	Tree Strata: American elm, hackberry
			Shrub Strata: smooth sumac, American elm, hackberry
			Herbaceous Strata: prairie dock, Canadian goldenrod, giant ragweed, common milkweed, poison hemlock, garlic mustard, common teasel, wild parsnips
8985+00	170.42	Logan	Tree Strata: cottonwood, hackberry
			Herbaceous Strata: reed canary grass, fescue
			<i>Stream: Culvert, reed canary grass and fescue growing within channel</i>
8952+00 to 8949+00	169.79 to 169.73	Logan	Herbaceous Strata: chicory, sow thistle, common ragweed, Canadian goldenrod, big bluestem, fescue, lanceleaf plantain, frost aster, Queen Anne's lace, giant foxtail, giant ragweed, common milkweed, prairie sunflower,

8832+00 to 8831+00	167.51 to 167.49	Logan	Tree Strata: west of tracks - American elm, Slippery elm, cottonwood, eastern red cedar (<i>Thuja occidentalis</i>), white mulberry east of tracks - American elm, slippery elm
			Herbaceous Strata: west of tracks - common reed, poison ivy east of tracks - fescue, dandelion (<i>Taraxacum officinale</i>), creeping Charlie (<i>Glechoma hederacea</i>), giant ragweed, morning glory (<i>Ipomoea purpurea</i>)
			<i>Stream: Culvert marked "2003", intermittent, dry, stream bed</i>
8818+00 to 8815+00 Elkhart	167.24 to 167.16	Logan	Tree Strata: little leaf linden (<i>Tilia cordata</i>) (5), Amur maples (<i>Acer ginnala</i>) (3), black oak (3), ornamental crabapple (<i>Malus spp.</i>) (13), red oak (<i>Quercus rubra</i>), sugar maple (3)
			Shrub Strata: burning bush (<i>Euonymus alata</i>), Amur honeysuckle
			Herbaceous Strata: turf grass - fescues, Kentucky blue grass
			<i>Note: landscaped intersection</i>
8805+00 North Elkhart	167	Logan	Trees Strata: Slippery elm, black willow, green ash, black walnut
8757+00 to 8754+00	166.10 to 166.04	Logan	Tree Strata: white mulberry
			Shrub Strata: red-osier dogwood (<i>Cornus sericea</i>), wild black cherry, honey locust, hackberry
			Herbaceous Strata: blackberry, coneflower (<i>Echinacea purpurea</i>), white snakeroot, sawtooth sunflower (<i>Helianthus grosseserratus</i>), aromatic aster (<i>Aster oblongifolius</i>), Canadian goldenrod, giant ragweed, fescues, crown vetch, Queen Anne's lace, common ragweed, frost aster, red clover (<i>Trifolium pratense</i>), common teasel
8711+00	166.23	Logan	Trees Strata: box elder, slippery elm, hackberry
			Shrub Strata: cottonwood
			Herbaceous Strata: reed canary grass, white snakeroot, poison ivy, riverbank grape, slender nettle (<i>Urtica gracilis</i>), water smartweed (<i>Persicaria punctata</i>), poison hemlock, fescue, giant foxtail, chicory
			<i>Stream: Dry streambed, entrenched 15', 20' across</i>
8649+00	164.06	Logan	Tree Strata: white mulberry, hackberry
			Shrub Strata: hackberry
			Herbaceous Strata: giant ragweed, riverbank grape, poison hemlock, fescue, chicory, frost aster
			<i>Stream: Dry stream bed, entrenched 7', 10' across</i>

Broadwell	Residential	Logan	Tree Strata: silver maple, slippery elm, white mulberry, hackberry, crab apple, box elder
8575+00	162.66	Logan	Trees Strata: hackberry, white mulberry
			Shrub Strata: Amur honeysuckle, hackberry, white mulberry
			Herbaceous Strata: water smartweed, reed canary grass
			<i>Stream: Dry stream bed, entrenched 5', 10' across</i>
8545+00 to 8541+00	162.09 to 162.02	Logan	Herbaceous Strata: New England aster, heath aster (<i>Aster ericoides</i>), Missouri goldenrod (<i>Solidago missouriensis</i>), stiff goldenrod (<i>Oligoneuron rigidum</i>), prairie dock, common teasel, fescue, blackberry, cone flower
			<i>Note: Sparse hedgerow with prairie remnants</i>
8513+00 to 8510+00	161.49 to 161.43	Logan	Tree Strata: American elm, slippery elm, cottonwood, hackberry
			Shrub Strata: slippery elm, autumn olive, cottonwood, hackberry, white mulberry, Amur honeysuckle
			Herbaceous Strata: Canadian goldenrod, prairie dock, common milkweed, giant ragweed, blackberry, poison ivy
			<i>Note: Current land use utility ROW on east side of track, was old RR ROW</i>
8497+00 to 8494+00	161.19 to 161.13	Logan	Shrub Strata: hackberry, wild black cherry, Amur honeysuckle
			Herbaceous Strata: Canadian goldenrod, scouring rush (<i>Equisetum hyemale affine</i>), evening campion (<i>Silene pratensis</i>), meadow fescue, chicory, riverbank grape, frost aster
8418+00 to 8414+00	159.33 to 159.60	Logan	Tree Strata: hackberry
			Shrub Strata: black walnut, white mulberry, autumn olive, Amur honeysuckle
			Herbaceous Strata: frost aster, prairie sunflower, common hops, Canadian goldenrod, Queen Anne's lace, poison ivy, common milkweed
			<i>Note: Old RR ROW</i>
8374+00 to 8373+00	158.84 to 158.82	Logan	Tree Strata: wild black cherry: 23.9, 15.8, 6.0, 16.2, 16.0, 9.2, 23.3, 19.6 hackberry: 8.7, 7.5, 16.4, 22.9, 7.1, 16.3
			Shrub Strata: honeysuckle, green ash, blackberry, white mulberry
			Herbaceous Strata: bristly greenbrier, garlic mustard, Canadian goldenrod, frost aster, fescue
			<i>Note: 100 x 100 plot, hedgerow along UP ROW, grassland between Madigan State Park edge which is dominated by honeysuckle, wild black cherry and hackberry</i>

8360+00 to 8359+00	158.57 to 158.55	Logan	Tree Strata: green ash: 9.3, black walnut: 9.5, 8.3
			Shrub Strata: black walnut, honeysuckle (D), white mulberry, hackberry, smooth sumac, grey dogwood, green ash, autumn olive
			Herbaceous Strata: river bank grape, Canadian goldenrod, creeping Charlie, frost aster, poison hemlock, common teasel, lanceleaf plantain
			<i>Note: 100 x 100 plot, hedgerow along UP ROW, grassland between Madigan State Park edge which is dominated by honeysuckle, wild black cherry and hackberry</i>
8345+00 to 8344+00	158.29 to 158.27	Logan	Tree Strata: silver maple: 19.1, 18.0, 10.0, 27.1, 13.9, 19.7, 24.0, 6.0, 16.4, 16.4, MS (18.5, 11.0, 14.3, 14.9), 13.1, 12.0, 14.0, 11.8, 12.5, 14.1, 15.2, 11.0, 12.5, 16.7, MS (14.2, 17.7), 35.9 slippery elm: 6.5, 9.7 box elder: 5.5 black walnut: 6.9 cottonwood: 22.6 MS (18.2, 22.0) snags: 5.6, 6.1, 6.6(SM), 6.3(SM), 7.1(SM)
			Shrub Strata: honeysuckle, green ash, box elder
			Herbaceous Strata: garlic mustard, gray's sedge, white snake root, creeping smartweed, poison ivy, bristly greenbrier, silky wild rye (<i>Elymus villosus</i>), Kentucky bluegrass
			<i>Note: Large silver maples and cottonwoods and open areas near water meets requirements for potential Indiana bat habitat. Water staining and dark soils.</i>
8337+00	158.1	Logan	<i>Stream: Salt Creek, average 2.5' deep with pools 3-4' deep, sand, gravel bottom with some nutrient enrichment and mussel shells present. Clear water entering from tributary east of UPRR edge. Sparse vegetation on stream edge, for vegetation south of stream see vegetation from MP 158.29 to 158.27.</i>
7880+00	149.48	Logan	Tree Strata: silver maple: MS (17.2, 17.8), MS (10.1, 17.2, 14.0), 30.3, 8.0, 15.0, MS (14.6, 17.9), 23.0, 11.1, 8.4, MS (6.1, 10.6, 12.9, 8.6), 7.2, 23 green ash: 14.2, cottonwood 55.0, 26.5 white mulberry: 9.2, 8.1 black willow: 14.5, 14.0, 9.8 hackberry: 8.0, 6.1, 6.1
			Shrub strata: white mulberry, silver maple
			Herbaceous strata: reed canary grass, common blue violet, garlic mustard, white snakeroot, stinging nettle, crowned beggarstick (<i>Bidens coronata</i>)
			<i>Note: 100 x 100 plot, sparse shrub layers, adjacent to Kickapoo Creek</i>
			<i>Stream: Kickapoo Creek, 45' wide, 4-5 feet deep, medium sediment load, sediment bottom, Water staining and dark soils.</i>
7837+00	148.67	Logan	Shrub Strata: white mulberry, Amur honeysuckle
			Herbaceous Strata: Reed canary grass, giant ragweed, poison hemlock, garlic mustard, slender nettle, prairie sunflower.

*(D) indicates Dominant species, MS indicates Multi-Stemmed

TABLE 2

PRAIRIE REMNANTS

TABLE 2
CHICAGO TO ST. LOUIS HIGH SPEED RAIL PROJECT
TIER 3 - LINCOLN TO AUBURN
PRAIRIE REMNANTS

Prairie	Mile Posts	Geographic Location	Dimensions	Grade	Dominant Species	INHS Survey*
1	162.09 to 162.02	North of Broadwell between US Route 66 and UPRR tracks	Approximately 700' long and 60' wide between US Route 66 and UPRR tracks	D	New England Aster (<i>Aster novae-angliae</i>)	Yes
					Heath Aster (<i>Aster ericoides</i>)	
					Missouri Goldenrod (<i>Solidago missouriensis</i>)	
					Purple Coneflower (<i>Echinacea purpurea</i>)	
					Prairie Dock (<i>Silphium terebinthinaceum</i>)	
					Fescue Grass (<i>Festuca spp.</i>)	
					Common Teasel (<i>Dipsacus fullonum</i>)	
2	174.95 to 174.85	Between Williamsville and Sherman, east of the UPRR tracks, north of abandoned mine head shaft and coal by-product stockpile	Approximately 500' long, extending 50' from UPRR tracks	D	Purple Coneflower (<i>Echinacea purpurea</i>)	Yes
					New England Aster (<i>Aster novae-angliae</i>)	
					Common milkweed (<i>Echinacea purpurea</i>)	
					Indian Grass (<i>Sorghastrum nutans</i>)	
					Brome Grass (<i>Bromis spp.</i>)	
					Queen Anne's Lace (<i>Daucus carota</i>)	
					Fescue Grass (<i>Festuca spp.</i>)	
					Ironweed (<i>Vernonia fasciculata</i>)	
					Prairie Sunflower (<i>Helianthus pauciflorus</i>)	
					Big Bluestem (<i>Andropogon gerardii</i>)	
					Common Teasel (<i>Dipsacus fullonum</i>)	

* Inventory of Roadside Prairies, IDOT District 8. INHS Center for Biodiversity, Technical Report (2) 2004. William C. Handel, Technical Scientist. Prepared for IDOT.

TABLE 3
THREATENED AND ENDNAGERED SPECIES

TABLE 3
CHICAGO TO ST. LOUIS HIGH SPEED RAIL PROJECT
TIER 3 – LINCOLN TO AUBURN
THREATENED AND ENDANGERED SPECIES

STATE OR FEDERAL LIST	SPECIES		COUNTY	HABITAT	THREATENED OR ENDANGERED	PRESENT IN UPRR SURVEY AREA
	SCIENTIFIC NAME	COMMON NAME				
Federal	<i>Platanthera leucophaea</i>	Eastern Prairie Fringed Orchid	Sangamon	Moist, sandy floodplain soils and prairie wetlands. Moderately disturbed sites from flooding or agriculture	Threatened	Not found in surveyed areas
			Logan			
Federal	<i>Plethobasus cyphus</i>	Sheepnose Mussel	Sangamon	Medium to large rivers with gravel or mixed sand and gravel substrate	Endangered	Potential habitat located in Sangamon County in the Sangamon River (MP 180.07), not found in surveyed areas
Federal	<i>Myotis sodalis</i>	Indiana Bat	Sangamon	Caves, mines (hibernacula), small stream corridors with well- developed riparian woods, upland forest (foraging)	Endangered	Potential habitat located in Sangamon County at south of Irwin Park Pavillion (MP 198.00 to 197.71), the Sangamon River (MP 180.13 to 180.11) & in Logan County at Salt Creek (MP 158.29 to 158.27), not found in surveyed areas
			Logan			
State	<i>Tomanthera auriculata</i>	Auriculate False- Foxglove	Logan	Full or partial sun and mesic condition in rich, loamy soils	Threatened	Not found in surveyed areas

TABLE 4

WETLANDS

TABLE 4
CHICAGO TO ST. LOUIS HIGH SPEED RAIL PROJECT
TIER 3 - LINCOLN TO AUBURN
WETLANDS

Wetland	Mile Post	Geographic Location	Dimensions	Category	Dominant Species
1	149.48 to 149.46	Northwest corner of Kickapoo Creek and the UPRR ROW	Sample area 100 x 100 plot	Palustrine Forested	Silver Maple (<i>Acer saccharinum</i>)
					Reed canary grass (<i>Phalaris arundinacea</i>)
2	158.29 to 158.27	Southwest of UPRR ROW and west of Salt Creek, Logan County	Sample area 100 x 100 plot	Palustrine Forested	Silver Maple (<i>Acer saccharinum</i>)
					Amur honeysuckle (<i>Lonicera maackii</i>)
3	177.79	North of East Andrew Road and west of UPRR ROW, Sherman, Illinois	180' x 65'	Palustrine Emergent	Black willow (<i>Salix nigra</i>)
					Narrowleaf cattail (<i>Typha angustifolia</i>)
					Sandbar willow (<i>Salix interior</i>)
					Common reed (<i>Phragmites australis</i>)
4	180.13 to 180.11 and 180.30 to 180.28	Southwest corner of the Crossing of the Sangamon River and the UPRR ROW, Springfield, Illinois	Sample area 2 - 100x100 plots	Palustrine Forested	Silver Maple (<i>Acer saccharinum</i>)
					Amur honeysuckle (<i>Lonicera maackii</i>)
					Cottonwood (<i>Populus deltoides</i>)
					Mild water pepper (<i>Persicaria hydropiperoides</i>)
					Poison Ivy (<i>Toxicodendron radicans</i> L.)
5	198.64	North of Hambuch Road and east of UPRR ROW	415' x 60'	Palustrine Emergent	Black willow (<i>Salix nigra</i>)
					Reed canary grass (<i>Phalaris arundinacea</i>)

APPENDICES

CHICAGO TO ST. LOUIS HIGH SPEED RAIL PROJECT

TIER 3 – LINCOLN TO AUBURN, ILLINOIS

REPORT FOR FALL FIELD STUDIES

APPENDIX A

REFERENCES

REFERENCES

1. Athol Siding, IL. Springfield Subdivision; Mile Post 147.00 to Mile Post 161.00; High Speed Rail; 30 % Preliminary Plans.
2. Elkhart Siding, IL. Springfield Subdivision; Mile Post 161.00 to Mile Post 175.00; High Speed Rail; 30 % Preliminary Plans.
3. Ridgley Siding, IL. Springfield Subdivision; Mile Post 175.00 to Mile Post 191.00; High Speed Rail; 30 % Preliminary Plans.
4. Auburn Siding, IL. Springfield Subdivision; Mile Post 191.00 to Mile Post 203.00; High Speed Rail; 30 % Preliminary Plans
5. Final Environmental Impact Statement and Record of Decision, Chicago to St. Louis, High Speed Rail Project, 2004.
6. Native Vegetation Report, High Speed Rail, Chicago to St. Louis, 1999.
7. Threatened and Endangered Species Report, High Speed Rail Project, Chicago to St. Louis, 1999.
8. Wetlands Report, High Speed Rail Project, Chicago to St. Louis, 1999.
9. Illinois Department of Transportation, Roadside Railroad Prairie Studies Reports, District 6, 2003.
10. US Fish and Wildlife Service, Illinois County Distribution List of Federal Threatened and Endangered Species.
11. US Fish and Wildlife Service, National Wetland Inventory Maps.
12. Illinois Department of Natural Resources, Natural Heritage Database, ECOCAT.
13. United States Department of Agriculture, National Resources Conservation Service, Soil Survey of Sangamon County, Illinois.

14. United States Department of Agriculture, National Resources Conservation Service, Soil Survey of Logan County, Illinois.
15. Cowardin, et.al, 1979; Classification of Wetlands and Deep-water Habitats of the United States.
16. US Fish and Wildlife Service, National List of Plant Species that Occur in Wetlands, Illinois, 1988.

APPENDIX B
COVER TYPE MAP

SEE SEPARATE ATTACHMENT (LARGE FILE)

APPENDIX C

OLSSON ASSOCIATES WETLAND DELINEATION REPORT

SEE SEPARATE ATTACHMENT (LARGE FILE)

