DEPARTMENT OF THE ARMY
ST. LOUIS DISTRICT CORPS OF ENGINEERS
1222 SPRUCE STREET
ST. LOUIS, MISSOURI 63103-2833

REPLY TO
ATTENTION OF:

16 September 2011

Regional Planning and Environmental Division North
Environmental Compliance Section

Dear Sir or Madam:

The St. Louis District, Corps of Engineers has prepared an Environmental Assessment (EA) with Draft Finding of No Significant Impact (FONSI) for a proposed plan to construct a water supply intake, pump station, water line, and electric line by Adena Resources, LLC on federal property at Rend Lake, Franklin County, Illinois. This document describes alternative solutions, presents a tentatively selected plan, and serves to notify the public of the proposed project and its environmental effects as required by law.

You are receiving this letter because you may be interested in the project. This document is available for your information and review. We request assistance in identifying the probable environmental impacts of the project alternatives. The 30-day public review period runs from 16 September to 17 October 2011. The EA with FONSI is available for public review. The electronic version of the EA is available online at http://www.mvs.usace.army.mil/pm/pm-reports.html or you may request a copy be mailed to you.

If, at the end of the comment period, no comments are received that alter the determination that no significant environmental impacts would result, the FONSI will be signed and kept on file at the St. Paul District Office in St. Louis. Comments may also be used to determine the need for a public hearing and to determine the overall public interest in the proposed activity.

We invite your comments related to the content of the EA. If you would like to submit comments, please address your comments or questions to Timothy George of the Environmental Compliance Section (CEMVP-PD-E), at telephone number (314) 331-8459, facsimile number (314) 331-8606, or e-mail at Timothy.K.George@usace.army.mil, by noon on 17 October 2011.

Sincerely,

Thomas Keevin

Thomas Keevin, Ph.D.
Chief, Planning and Environmental Branch

Environmental Assessment with Draft Finding of No Significant Impact

Pump Station and Water Line
South Marcum Recreation Area
Rend Lake
Franklin County, Illinois

September 2011

Proponent:
Adena Resources
208 Public Square, 4th Floor
Benton, IL 62812

Prepared By:
HDR Engineering
1339 Walnut Street
Murphysboro, IL 62966

Prepared For:
U.S. Army Corps of Engineers, St. Louis District
Regional Planning and Environmental Division, North (CEMVP-PD-C)
Environmental Compliance Branch
1222 Spruce Street
St. Louis, Missouri 63103-2833
Telephone Number: (314) 331-8459

TABLE OF CONTENTS

This Environmental Assessment (EA) was prepared for the U.S. Army Corps of Engineers (USACE), Mississippi Valley Division, St. Louis District, to document the environmental impacts associated with the proposed construction of a water supply intake, pump station, water line, and electric line by Adena Resources, LLC on federal property at Rend Lake, Franklin County, Illinois. It also addresses impacts of the proposed action's alternatives, and serves as a basis for determining whether to prepare an Environmental Impact Statement. The District Commander of the St. Louis District is responsible for making this determination. This EA addresses impacts on USACE-owned lands only and not on any private lands that might be affected by the project. This document has been prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 and the Council on Environmental Quality's Regulations (40 Code of Federal Regulations §1500-1508), as reflected in the USACE Engineering Regulation 200-2-2. In addition to requiring review under NEPA, the proposal from Adena also requires the granting of an easement from USACE.

I. PURPOSE AND NEED FOR ACTION

A. Purpose and Need for Action:

The purpose and need for the proposed project is to provide water from Rend Lake to two longwall coal mines about 10-15 miles to the southeast in Franklin, Williamson, and Hamilton counties, Illinois. Adena Resources, LLC proposes to construct a water supply intake, pump station, and pipeline on USACE land at South Marcum Recreation Area that would deliver approximately 6.5 million gallons of water per day to the Sugar Camp Mine in Franklin County and Pond Creek Mine in Williamson and Hamilton counties. In addition, a buried electrical line would also be required to supply power to the pump station.

B. Project Objective: The project objective is to build a pump station and water line to supply water to the Sugar Camp Mine and Pond Creek Mine in Franklin, Williamson and Hamilton counties with minimal environmental impacts (Figure 1 and Figure 2).

II. ALTERNATIVES

The following section describes the alternatives considered for the proposed water line and pump station on USACE land at South Marcum Recreation Area (Figure 3).

A. No Action Alternative: Under the No Action Alternative, the proposed project including the lake intake, pump station, water supply and electrical lines would not be constructed. Under the no action alternative, the Sugar Camp and Pond Creek Coal Mines would not function, as they could not obtain the required amount of water for production. Other alternative sources of water were looked at but none other than Rend Lake could supply the amount of water that is needed for the mines to run productively. Thus, the No Action Alternative was rejected.

B. Alternative 1 represents the most direct and shortest alignment (7,556 ft) of the water line. Alternative 1 would require extensive tree clearing and would cross the South Marcum

campground. This alignment would disrupt public recreation within the campground and recreation area. For these reasons, alternative 1 was rejected.

C. Alternative 2 (approximately 11,696 feet) takes advantage of existing road and power line rights-of-way to the greatest extent possible. Compared to Alternative 1, Alternative 2 has minimized tree clearing, stream crossings and palustrine forested wetland (PFO) crossings. Alternative 2 has also minimized disturbances to the South Marcum Recreation Area.

D. Alternative 3/Preferred Alternative (approximately 11,757 feet) is very similar to Alternative 2, but was updated slightly to further decrease tree clearing. Along the eastern property boundary, alternative 3 was moved approximately 60 feet to the west to avoid several large diameter oak trees. Like Alternative 2, Alternative 3 has minimized stream crossings, PFO wetland crossings, and impacts to the South Marcum Recreation Area. Alternative 3 further decreases tree clearing, and is therefore the preferred alternative.

Description of Preferred Alternative

The preferred alternative (Alternative 3) consists of the following main components.

Water Line Approximately 11,757 ft of nominal 20" water line would be placed on Corps property. The water line corridor would cross portions of Sections 35 and 36 of Township 5 South, Range 2 East, Sections 1 and 2 of Township 6 South, Range 2 East, and Section 6 of Township 6 South, Range 3 East (Figure 2 and Figure 3). The proposed waterline would be constructed using the "Standard Specifications for Water and Sewer Construction in Illinois" (July 2009 6th edition). The proposed water line would be 20" diameter and would be constructed of PVC or ductile iron pipe. Construction would require a temporary construction corridor of up to 50 feet in width. A permanent 20-50 foot wide corridor would be established along the entire length of water line. Installation would require a 3 ft wide trench and the water line would be installed approximately 3.5 ft below the existing ground level. Backfill would be placed in 12-inch lifts and each lift would be compacted to a density similar to the density of the soils in the trench walls (Figure 4). According to a stormwater pollution prevention plan, disturbed areas would be seeded, fertilized, and covered with erosion control blankets secured in place with soil staples.

Intake Structure and Pump Station A raw water pump station would be constructed on Corps property east of the existing auxiliary spillway at Rend Lake (Figure 2) and west of the South Marcum Boat Ramp (Figure 3). The proposed pump station would be located near the lake's edge (Figure 5 and Figure 6). Construction and placement of the water line extending from the pump station into the lake would require the excavation of about 16 cubic yards of lake sediments which would be removed; the area of excavation would be enclosed with a portable cofferdam. The portion of pipe extending furthest into the lake would be laid on the lake bottom and covered with a cement blanket. The end of the intake pipe in the lake would be covered with a screen. A "Model T-33HC intake screen" produced by the company Johnson Screens would be used that insures an intake velocity of less than 0.50 ft/s at the

maximum designed flow of 4500 gpm. The intake screen would have a slot opening of 0.069 inches. The pump station would be equipped with a water withdrawal meter. The intake area located in the lake would be marked or enclosed by a floating barrier.

Electric Line A proposed electric line would be installed adjacent to and along the access road leading to South Marcum Boat Ramp (Figure 7). An existing underground single phase primary line would be replaced with a new underground direct bury three phase primary line.

Access Roads One permanent access road and one temporary access road are proposed. The permanent access road would be 20 ft wide and is needed to provide access to the pump station for routine maintenance (Figure 8). The temporary access road would be 18 ft wide and would provide access from the pump station to the beach during construction of the intake structure. The permanent and temporary access roads would be surfaced with gravel or crushed stone.

Lay Down Area A lay down area would be established west of the parking lot in an open field (Figure 8). The area would be used for storing supplies and equipment during construction. The proposed lay down area is 0.70 acres. The area would be covered with geotextile fabric and gravel.

The project involves 7.167 acres of permanent easements and 5.574 acres of temporary construction easements on USACE owned lands (Figure 9 and Figure 10).

Construction would begin as soon as all necessary approvals are obtained. The construction of the pump station is expected to take 30 days and construction of the water line is expected to take 90 days. The lay down area would be needed for 45 days. The proposed easements for the pump station and water line would be perpetual.

III. AFFECTED ENVIRONMENT

The proposed water line corridor is located in central Franklin County, IL, extending from Rend Lake to the east, across US Army Corps of Engineer property (Figure 3). The proposed line begins at the southwest end of Rend Lake (Section 36, T5S, and R2E). The surrounding area is part of the South Marcum Recreation Area.

A. Physical Resources

1. Soils and Prime Farmland: The Franklin County, IL Soil Survey (USDA 2006) indicates Ava, Hickory, Bluford, and Orthents as the primary soil series within the proposed project area. These soils are found on a variety of land forms including ridge tops, side slopes, and uplands. The parent material of these soil series consist primarily of loess deposits over glacial drift and till (USDA-NRCS 2006, 2010). There is no farmland located in the vicinity of the project area.

2. Air Quality: The Clear Air Act of 1963 requires the U.S. Environmental Protection Agency (EPA) to designate National Ambient Air Quality Standards (NAAQS). They have identified standards for seven pollutants: lead, sulfur dioxide, carbon monoxide, nitrogen dioxide, ozone, particulate matter less than 10 microns in diameter, and particulate matter less than 2.5 microns. Franklin County, Illinois meets EPA air quality standards for each of these pollutants (USEPA 2009).

3. Water Quality: Rend Lake was assessed for the 2010 Illinois Integrated Water Quality Report and was listed on the Clean Water Act Section 303d list of "Category 5 Impaired Waters" (IEPA 2006). The impaired designated uses were "aesthetic quality" and "public water supply". The potential cause of impairment to aesthetic quality was total Suspended Solids (TSS) and Total Phosphorus. The potential cause of impairment to public water supply was manganese.

   The water quality in the streams and wetlands within the project area has not been assessed.

4. Noise: Ambient noise in the project area is generated by wildlife, human activities, and vehicular traffic.

B. Biological Resources

1. Vegetation: The vegetation within the proposed project area is dominated by forested areas, interspersed with herbaceous road and utility right-of-ways. The overstory of the forested areas is dominated by green ash (*Fraxinus pennsylvanica*), American elm (*Ulmus americana*), black cherry (*Prunus serotina*), and sassafras (*Sassafras albidum*). The understory is dominated by bush honeysuckle (*Lonicera spp.*), autumn olive (*Elaeagnus umbellata*), Japanese honeysuckle (*Lonicera japonica*), poison ivy (*Toxicodendron radicans*), and virginia creeper (*Parthenocissus quinquefolia*). The road and powerline right-of-ways are dominated by herbaceous vegetation including broomsedge (*Andropogon virginicus*), foxtail (*Setaria spp.*), and fescue (*Festuca pratensis*).

2. Fish and Wildlife: Rend Lake and its surrounding bottomland hardwood forests and upland agricultural fields support a variety of insects, crustaceans, mollusks, reptiles, amphibians, fish, birds, and mammals. Aquatic species that occur within Rend Lake include largemouth bass (*Micropterus salmoides*), bluegill (*Lepomis macrochirus*), sunfish (*Lepomis spp.*), channel catfish (*Ictalurus punctatus*), and crappie (*Pomoxis spp.*), and hybrid striped bass (*Morone saxatilis x Morone chrysops*).

3. Federal Threatened or Endangered Species: In compliance with Section 7(c) of the Endangered Species Act of 1973, as amended, the St. Louis District, Environmental Branch requested the US Fish and Wildlife Service provide a listing of federally threatened or endangered species that may occur in the vicinity of the proposed project.

Table 1 provides a list of the federal listed species identified within Franklin County, IL. Habitat requirements and impacts of the alternatives are discussed for each species below.

The Illinois Department of Natural Resources EcoCAT (Ecological Compliance Assessment Tool) was consulted for the proposed project area to comply with Illinois Endangered Species Protection Act [520 ILCS 10/11(b)] and Illinois Natural Areas Preservation Act [525 ILCS 30/17] as set forth in procedures under Title 17 Ill. Admin. Code Part 1075; Interagency Wetland Policy Act of 1989 [20 ILCS 830] as set forth in procedures under Title 17 Ill. Admin. Code Part 1090 when state agencies provide funding (including federal pass-through funding) or technical assistance. The Illinois Natural Heritage Database did not list any threatened or endangered species within the vicinity of the project area.

Table 1. List of federally threatened and endangered species and their habitat provided by USFWS on April 16, 2009.

Common Name (Scientific Name)	**Classification**	**Habitat**
Indiana Bat (*Myotis sodalis)*	Endangered	Caves, mines (hibernacula); small stream corridors with well developed riparian woods; upland forests (foraging)
Bald Eagle (*Haliaeetus leucocephalus*)	No longer listed but covered Under Other Federal Laws	Breeds and winters along major rivers and large lakes
Piping Plover (*Charadrius melodus*)	Endangered	Lake Michigan beaches but it migrates through Franklin County

Indiana Bat (*Myotis sodalis*) forages on flying insects typically along the shorelines of rivers and lakes, in the canopy of floodplain trees (Humphrey et al. 1977), and in upland forests (Brack and LaVal 1985). In summer, habitat consists of wooded or semi-wooded areas, mainly along streams. Females bear their offspring in hollow trees or under loose bark of living or dead trees. Trees standing in sunny openings are attractive because of warmer air spaces and crevices under the bark. Maternity sites have been reported in riparian areas, floodplain forests, and upland habitats. Limestone caves with pools are recommended for hibernacula during winter (Hall 1962).

Bald Eagle (*Haliaeetus leucocephalus)* are discussed under Section 8: Bald and Golden Eagle Protection Act.

Piping Plover (*Charadrius melodus*) inhabit wide, flat, open sandy beaches with little grass or vegetation. This migratory species spends its springs and summers in the northern US and Canada along the shorelines of the Great Lakes. In the fall, plovers

migrate south and over winter along the Gulf Coast. Declines in the species have been attributed to habitat alteration, as beaches have been lost to commercial, residential, and recreational developments. The species is sensitive to the presence of humans and predation. Disturbances have been known to cause these birds to abandon nests (USFWS 2008).

4. Wetlands/404 Permit Requirements: A routine, on-site wetland delineation was conducted along the Alternative 2/3 route. The National Wetlands Inventory, USGS topographic map, and aerial photographs were examined to access possible wetlands located in the vicinity of Alternative 1 (Figure 3). Figure 11, Figure 12, and Figure 13 include maps summarizing the findings of that wetland delineation.

C. Socioeconomic Description
   1. Economic: The project area is located on USACE owned land near Rend Lake and the South Marcum Branch South Public Use Area. The project would provide water from Rend Lake to the Sugar Camp Mine and various energy related projects in Franklin, Williamson, and Hamilton counties. These projects would provide temporary and long-term jobs and boost the local economies.

   2. Recreation: Popular recreational activities near Rend Lake include boating, camping, fishing, bird watching, nature study, and hiking. The area adjacent to the lake where the pump station is located and the water line begins is part of the South Marcum Recreation Area. There is a large campground, parking lot, and boat ramp at the South Marcum Recreation Area. Swimming and boating are currently allowed in the lake in the vicinity of the proposed intake structure.

   3. Cultural: The project area is contained on USACE owned property. The USACE has indicated potential locations where culturally significant areas have been identified. The proposed project area does not encroach on areas designated by the USACE as being potentially culturally significant (Figure 14).

IV. ENVIRONMENTAL IMPACTS OF PROPOSED ALTERNATIVES

A. No Action Alternative:
   1. Physical
      a. Soils and Prime Farmland: There would be no change under this alternative.
      b. Air Quality: There would be no change under this alternative.
      c. Water Quality: There would be no change under this alternative.
      d. Noise: There would be no change under this alternative.
   2. Biological
      a. Vegetation: There would be no change under this alternative.
      b. Fish and Wildlife: There would be no change under this alternative.
      c. Federal Threatened or Endangered Species: There would be no change under this alternative.

d. Wetlands/404 Permit Requirements: There would be no change under this alternative.

3. Socioeconomic
    a. Economic: Under this alternative the jobs and revenue that would be created by the projects would not be created.
    b. Recreation: There would be no change under this alternative.
    c. Cultural: There would be no change under this alternative.

B. Alternative 1:
1. Physical
    a. Soils and Prime Farmland: Disturbances to soils would be temporary and would occur during construction. After construction is complete, the project area would be back filled, graded, and seeded to ensure no long-term erosion impacts. This alternative does not cross any farmland and would have no impacts to prime farmland. There would be no conversion of lands with agricultural potential to nonagricultural use because the conversion took place when the USACE first acquired the land to build the lake.

    b. Air Quality: With implementation of the proposed action, temporary increases in air pollution would occur due to particulate and combustible emissions from construction vehicles, mobile equipment, and their actions. Because emissions are from mobile sources, manufacturers are required to meet performance standards. The construction equipment would likely have catalytic converters and mufflers to reduce exhaust and emissions. Additionally, due to the short duration of construction, any increases or impacts on ambient air quality are expected to be short-term and minor. Therefore it is not necessary to quantify emissions given the lack of ambient emissions thresholds that could be used to make the determination of air quality impact. This alternative is not expected to cause or contribute to the violation of federal or state ambient air quality standards.

    c. Water Quality: All disturbed areas would be reseeded following construction to reduce the potential for erosion. In addition to seeding, such areas would be fertilized and covered with an erosion control blanket secured in place with soil staples. Construction activities could cause a short-term increase in suspended solids in waterways at the immediate construction site if flooding or heavy rains occurred during construction.

    d. Noise: Construction activities would cause an increase in local noise levels. The expected increase would be short-term and negligible relative to normal traffic, residential, and recreational activities. The U.S. Environmental Protection Agency has set a limit of 85 decibels on the A scale (the most widely used sound level filter) for eight hours of continuous exposure to protect against permanent hearing loss. Based upon similar construction activities, noise above this level would not be expected to occur for periods longer than eight hours.

2. Biological
    a. Vegetation: Under this alternative, the water line passes through the South Marcum Recreation Area and Campground. The area is primarily forested and this alternative would require extensive tree clearing. Alternative 1 would result in the most tree (wooded) clearing, involving about 6 acres (Table 2).

    b. Fish and Wildlife: Upland wildlife species may be temporarily displaced during construction of the water line when tree clearing occurs and equipment is utilized to install the water line. This project is expected to have minimal impacts to wildlife. With regard to aquatic species in Rend Lake, the proposed pump would have an intake screen with a slot opening of 0.069 inches. This type of intake screen ensures an intake velocity of less than 0.50 ft/s at the maximum designed flow of 4500 gpm. This would reduce or restrict fish entrainment and impingement issues and potential injury or mortality of resident fish. With the intake screen, impacts to aquatic species are expected to be minimal.

Table 2. Impacts to aquatic and terrestrial resources by alternative.

Type of Resource	Alternative 1	Alternative 2	Alternative 3*	Mitigation Required
Aquatic Resources				
Emergent wetlands (ac)	0.140	0.102	0.102	Yes (completed offsite at bank)
Forested wetlands (ac)	0.080	0.003	0.003	Yes (completed offsite at bank)
Ephemeral streams (linear ft)	100	72	72	Yes (completed offsite at bank)
Lake	0.148	0.0	0.0	-
Terrestrial Resources				
Grass (ac)	0.856	4.904	4.904	No
Wooded (ac)	5.961	3.890	3.522	Yes (proposed onsite, 2:1 ratio)
Mixed shrub/tree (ac)	0.0	2.551	2.551	Yes (proposed onsite, 1:1 ratio)

* = Preferred alternative

    c. Federal Threatened or Endangered Species:
    Indiana Bat (*Myotis sodalis*): To minimize potential impacts to the Indiana bat, Adena Resources would refrain from any tree clearing within the project area between the dates of April 1 and November 15 in order to avoid impacts to potential roost trees for Indiana bat and/or other bat species.

Piping Plover (*Charadrius melodus*): The footprint of the proposed project would occur within a narrow corridor. Given that the species is only known to migrate (not nest or breed) within Franklin County, no impacts to the piping plover are anticipated as a result of the proposed project. This alternative is not likely to adversely affect the piping plover.

d. Wetlands/404 Permit Requirements: This alternative would result in temporary impacts to 0.14 acres of emergent wetlands, 0.08 acres of forested wetland, and approximately 100 linear feet of ephemeral stream (Figure 11). It is likely that additional wetland and stream resources would be impacted under this alternative if a field delineation was done to confirm all wetlands and streams along this potential route.

3. Socioeconomic
   a. Economic: The local economy would benefit from the proposed project, as it would allow a coal mine to operate, provide for the local tax base and employ workers. The proposed project would not require residential displacement and could provide short-term employment for local contractors and laborers.

   b. Recreation: Alternative 1 would result in the most impacts to the South Marcum Recreation Area and Campground. Alternative 1 passes under the boat ramp parking lot, the campground road, and through the South Marcum Recreation Area and Campground. Temporary disruption of campground roads and facilities would occur with construction of the water line, however to avoid disturbance to the road and path the installation process would consist of boring and jacking of the pipe with a steel sleeve. With regard public safety, the proposed floating barrier to be placed in the lake would delimit the intake area and exclude recreational boats, and would deter swimmers from getting too close to the intake structure. The intake velocity is low enough that the potential for human impingement is negligible.

   c. Cultural: Under this alternative, it is very unlikely that any cultural resources would be impacted. As a result, earthmoving and ground disturbance activities associated with the alternative are not anticipated to have any effect upon significant archaeological remains. However, in the unlikely event that potentially significant archeological and/or historic remains are discovered during construction activities, all earthmoving actions in the immediate vicinity of the remains would be held in abeyance until the potential significance of the remains is determined. The precise nature of such investigations would be developed by the USACE in concert with the State Historic Preservation Officer's representatives in the Illinois Historic Preservation Agency.

C. Alternative 2:
   1. Physical

a. Soils and Prime Farmland: Disturbances to soils would be temporary and would occur during construction. After construction is complete, the project area would be back filled, graded, and seeded to ensure no long-term erosion impacts. This alternative does not cross any farmland, would have no impacts to prime farmland, and would not result in any conversions to nonagricultural use.

b. Air Quality: With implementation of this alternative, temporary increases in air pollution would occur due to particulate and combustible emissions from construction vehicles, mobile equipment, and their actions. Because emissions are from mobile sources, manufacturers are required to meet performance standards. The construction equipment would likely have catalytic converters and mufflers to reduce exhaust and emissions. Additionally, due to the short duration of construction, any increases or impacts on ambient air quality are expected to be short-term and minor. Therefore it is not necessary to quantify emissions given the lack of ambient emissions thresholds that could be used to make the determination of air quality impact. This project is not expected to cause or contribute to the violation of federal or state ambient air quality standards.

c. Water Quality: All disturbed areas would be reseeded following construction to reduce the potential for erosion. In addition to seeding, such areas would be fertilized and covered with an erosion control blanket secured in place with soil staples. Construction activities could cause a short-term increase in suspended solids in waterways at the immediate construction site if flooding or heavy rains occurred during construction.

d. Noise: Construction activities would cause an increase in local noise levels. The expected increase would be short-term and negligible relative to normal traffic, residential, and recreational activities. The U.S. Environmental Protection Agency has set a limit of 85 decibels on the A scale (the most widely used sound level filter) for eight hours of continuous exposure to protect against permanent hearing loss. Based upon similar construction activities, noise above this level would not be expected to occur for periods longer than eight hours.

2. Biological
    a. Vegetation: Under this alternative, the majority of the vegetation disturbances would be taking place within a utility right of way. These right of ways are dominated by a variety of grasses such as foxtail and fescue, these areas are also maintained on a regular basis to keep the trees from growing into the utility lines above. Alternative 2 would result in nearly 4 acres of tree (wooded) clearing (Table 2). The trees that make up the extent of the waterline within the USACE property consist of many different species. The five most dominant species within the 12 acres of the waterline are Green Ash, American Elm, Black Cherry, Sassafras, and Red Oak, and tree clearing within a 6.3 acre area would be needed.

b. Fish and Wildlife: This alignment minimizes tree clearing by utilizing existing power line and road right-of-ways. Upland wildlife species may be temporarily displaced during construction of the water line when tree clearing occurs and equipment is utilized to install the water line. This project is expected to have minimal impacts to wildlife. With regard to aquatic species in Rend Lake, the proposed pump would have an intake screen with a slot opening of 0.069 inches. This type of intake screen ensures an intake velocity of less than 0.50 ft/s at the maximum designed flow of 4500 gpm. This would reduce or restrict the potential for fish entrainment and impingement and injury or mortality of resident fish. With the intake screen, impacts to aquatic species are expected to be minimal.

c. Federal Threatened or Endangered Species:
Indiana Bat (*Myotis sodalis*): To minimize potential impacts to the Indiana bat, Adena Resources would refrain from any tree clearing within the project area between the dates of April 1 and November 15 in order to avoid impacts to potential roost trees for Indiana bat and/or other bat species.

Piping Plover (*Charadrius melodus*): The footprint of the proposed project would occur within a narrow corridor. Given that the species is only known to migrate (not nest or breed) within Franklin County, no impacts to the piping plover are anticipated as a result of the proposed project. This alternative is not likely to adversely affect the piping plover.

d. Wetlands/404 Permit Requirements: A detailed wetland delineation report and proposed impact report has been completed for Alternative 2. This alternative would result in temporary impacts to 0.102 acres of emergent wetlands, 0.003 acres of forested wetland, and 71.7 linear feet of ephemeral stream (Figure 12, Table 2). The impacts to these aquatic resources would be temporary. The location and acreage of each wetland and stream would be restored after construction.

3. Socioeconomic
   a. Economic: The local economy would benefit from the proposed project, as it would allow a coal mine to operate, provide for the local tax base and employ workers. This alternative would not require residential displacement and could provide short-term employment for local contractors and laborers.

   b. Recreation: This alternative avoids the South Marcum Recreation Area and Campground. Under this alternative, the water line only passes under the campground road one time. A temporary disruption to this portion of the campground road could occur with construction of the water line, however the disturbance would be temporary and would be restored after construction is complete. To avoid disturbance to the road and path the installation process would consist of boring and jacking of the pipe with a steel sleeve. With regard

public safety, the proposed floating barrier to be placed in the lake would delimit the intake area and exclude recreational boats, and would deter swimmers from getting too close to the intake structure. The intake velocity is low enough that the potential for human impingement is negligible.

c. Cultural: Under this alternative, it is very unlikely that any cultural resources would be impacted. As a result, earthmoving and ground disturbance activities associated with the proposed repair are not anticipated to have any effect upon significant archaeological remains. However, in the unlikely event that potentially significant archeological and/or historic remains are discovered during construction activities, all earthmoving actions in the immediate vicinity of the remains would be held in abeyance until the potential significance of the remains is determined. The precise nature of such investigations would be developed by the USACE in concert with the State Historic Preservation Officer's representatives in the Illinois Historic Preservation Agency.

D. Alternative 3/Preferred Alternative:
   1. Physical
      a. Soils and Prime Farmland: Disturbances to soils would be temporary and would occur during construction. After construction is complete, the project area would be back filled, graded, and seeded to ensure no long-term erosion impacts. This alternative does not cross any farmland and would have no impacts to prime farmland.

      b. Air Quality: With implementation of this alternative, temporary increases in air pollution would occur due to particulate and combustible emissions from construction vehicles, mobile equipment, and their actions. Because emissions are from mobile sources, manufacturers are required to meet performance standards. The construction equipment would likely have catalytic converters and mufflers to reduce exhaust and emissions. Additionally, due to the short duration of construction, any increases or impacts on ambient air quality are expected to be short-term and minor. Therefore it is not necessary to quantify emissions given the lack of ambient emissions thresholds that could be used to make the determination of air quality impact. This alternative is not expected to cause or contribute to the violation of federal or state ambient air quality standards.

      c. Water Quality: All disturbed areas would be reseeded following construction to reduce the potential for erosion. In addition to seeding, such areas would be fertilized and covered with an erosion control blanket secured in place with soil staples. Construction activities could cause a short-term increase in suspended solids in waterways at the immediate construction site if flooding or heavy rains occurred during construction.

d. Noise: Construction activities would cause an increase in local noise levels. The expected increase would be short-term and negligible relative to normal traffic, residential, and recreational activities. The U.S. Environmental Protection Agency has set a limit of 85 decibels on the A scale (the most widely used sound level filter) for eight hours of continuous exposure to protect against permanent hearing loss. Based upon similar construction activities, noise above this level would not be expected to occur for periods longer than eight hours.

2. Biological

e. Vegetation: Under this alternative, the majority of vegetation disturbances would take place in grassed areas that are mowed and maintained as part of existing utility right-of-ways. These right-of-ways are dominated by grasses such as fescue and foxtail. The amount of impacts to grass for this alternative are the same as in the previous alternative but this alternative, Alternative 3, has the least amount of tree clearing (Table 2). Tree clearing would affect about 3.5 acres of terrestrial wooded areas, and about 2.5 acres of terrestrial mixed shrub/tree areas (Table 2). Mitigation for the loss of these terrestrial trees is proposed (Table 2), and a proposed mitigation plan is included at the end of this document. With the inclusion of this mitigation, effects to terrestrial forest would be minor.

f. Fish and Wildlife: This alignment minimizes tree clearing by utilizing existing power line and road right-of-ways. Upland wildlife species may be temporarily displaced during construction of the water line when tree clearing occurs and equipment is utilized to install the water line. This project is expected to have minimal impacts to wildlife. With regard to aquatic species in Rend Lake, the proposed pump would have an intake screen with a slot opening of 0.069 inches. This type of intake screen ensures an intake velocity of less than 0.50 ft/s at the maximum designed flow of 4500 gpm. This would reduce or restrict the potential for fish entrainment and impingement and injury or mortality of resident fish. With the intake screen, impacts to aquatic species are expected to be minimal.

g. Federal Threatened or Endangered Species:
Indiana Bat (*Myotis sodalis*): To minimize potential impacts to the Indiana bat, Adena Resources would refrain from any tree clearing within the project area between the dates of April 1 and November 15 in order to avoid impacts to potential roost trees for Indiana bat and/or other bat species. With this restriction, the proposed project is unlikely to affect the Indiana bat.

Piping Plover (*Charadrius melodus*): The footprint of this alternative would occur within a narrow corridor. Given that the species is only known to migrate (not nest or breed) within Franklin County, no impacts to the piping plover are anticipated as a result of the proposed project. The alternative is not likely to adversely affect the piping plover.

h. Wetlands/404 Permit Requirements: A detailed wetland delineation report and proposed impact report has been completed for Alternative 2. This alternative would result in temporary impacts to 0.102 acres of emergent wetlands, 0.003 acres of forested wetland, and 71.7 linear feet of ephemeral stream (Table 2). The impacts to these aquatic resources would be temporary (Figure 13). The location and acreage of each wetland and stream would be restored after construction. A Section 404 permit has been obtained from the St. Louis Regulatory Branch of the USACE for these temporary impacts and mitigation credits have been purchased using a mitigation bank for these impacts. With the inclusion of this mitigation, effects to wetlands would be minor.

3. Socioeconomic

i. Economic: The local economy would benefit from the proposed project, as it would allow a coal mine to operate, provide for the local tax base and employ workers. The alternative would not require residential displacement and could provide short-term employment for local contractors and laborers.

d. Recreation: This alternative avoids the South Marcum Recreation Area and Campground. Under this alternative, the water line only passes under the campground road one time. A temporary disruption to this portion of the campground road could occur with construction of the water line, however the disturbance would be temporary and would be restored after construction is complete. To avoid disturbance to the road and path the installation process would consist of boring and jacking of the pipe with a steel sleeve. With regard to public safety, the proposed floating barrier to be placed in the lake would delimit the intake area and exclude recreational boats, and would deter swimmers from getting too close to the intake structure. The intake velocity is low enough that the potential for human impingement is negligible.

j. Cultural: Under this alternative, it is very unlikely that any cultural resources would be impacted. As a result, earthmoving and ground disturbance activities associated with the alternative are not anticipated to have any effect upon significant archaeological remains. However, in the unlikely event that potentially significant archeological and/or historic remains are discovered during construction activities, all earthmoving actions in the immediate vicinity of the remains would be held in abeyance until the potential significance of the remains is determined. The precise nature of such investigations would be developed by the USACE in concert with the State Historic Preservation Officer's representatives in the Illinois Historic Preservation Agency.

V. CUMULATIVE IMPACTS

No adverse cumulative impacts from the water and electrical line projects are expected.

There has been concern since the project's inception that water withdrawals from Rend Lake, individually or cumulatively, have the potential to adversely affect various natural resources or public uses at the lake. Water withdrawals are for municipal or industrial uses in the area surrounding Rend Lake.

Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. Cumulative effects are defined as, "…the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR Section 1508.7).

In addition to water supply, other authorized purposes of the Rend Lake project include flood control on the Big Muddy and Mississippi rivers, water quality control, fish and wildlife conservation, recreation, and area redevelopment. Operation and management of Rend Lake project lands and waters by the St. Louis District Corps of Engineers follows a comprehensive, balanced approach to provide the greatest benefit for all project purposes. Day to day management is guided principally by the lake's master plan (USACE, 2009) and water control plan, which are periodically updated and developed with public input.

The allocation for water supply at Rend Lake is 68.125% of the useable joint use water storage space and is estimated to contain 109,000 acre-feet. This equates to an average yield of 50 million gallons per day (mgd) withdrawal; peak usage is set at 70 mgd. The State of Illinois has entered into a water storage contract with the Corps of Engineers for the use of the water in this storage space. Under this contract, the State receives requests and issues water contracts to entities who wish to withdraw water from the lake. According to the contract, the Corps of Engineers is required to permit structures necessary for the purpose of water withdrawal. The Corps of Engineers considers recreational and environmental impacts of such construction in the approval process. Additional information about Rend Lake water regulation and water supply is available in the lake's master plan (USACE, 2009).

The Rend Lake Conservancy District is currently withdrawing water from Rend Lake at an average rate of 17.5 mgd to supply about 300,000 people in 60 communities. Adena Resources, LLC the proponent of the proposed construction addressed in this document, has received approval from the State of Illinois to withdraw an additional 6.5 mgd. The State of Illinois has also issued preliminary permits to other entities for the withdrawal of an additional 40 mgd. Other than Adena Resources, LLC no entity to date has approached the St. Louis District Corps of Engineers requesting approval to build intake structures at Rend Lake.

The St. Louis District Corps of Engineers has recently modeled the effect of withdrawing 100% of the 109,000 acre-feet of useable joint use water storage on recorded lake levels for the period of record (1945-2011), with a focus on effects to historic high and low lake levels. The results of this analysis were presented by the District at a series of public meetings held in August-September 2011 at several locations in the lake area. Based on this analysis, the

withdrawal of 6.5 mgd by Adena Resources is expected to have minimal impact on the average lake level, and therefore little to no impact on the other authorized uses of the lake.

With regard to the effect of the withdrawal of 100% of the allotted water from the lake, the original design of the lake and the associated NEPA document considered the withdrawal of the full allocation of water for water supply. When the final environmental impact statement (EIS) for operating and maintaining Rend Lake was completed over 30 years ago (USACE, 1976), it described several primary operational impacts which were considered both unavoidable and undesirable. One of these primary concerns was lake management effects, including the fluctuation of water levels, lake sedimentation, and downstream scour in and along the Big Muddy River. However, since the approval of the Rend Lake EIS, some conditions have changed that may have a long-term effect on the current water supply plan which should be examined. Among these changes include long-wall mining and associated subsidence under the lake and changes in the relative importance of the other uses of the lake. There is a need to investigate future water demands and future impacts to recreation, water supply, and economic development. This investigation will require action on the part of all parties involved in the development of the lake. Additional studies on potential impacts will be required and future NEPA public review and coordination is anticipated.

VI. COORDINATION WITH OTHER STATE AND FEDERAL AGENCIES

This EA will be provided to the following state and federal agencies for their review, comments, and concurrence during the 30 day public comment period. To assure compliance with the National Environmental Policy Act, Endangered Species Act, and other applicable environmental laws and regulations, coordination with these agencies will continue as required throughout the planning and construction phases of the proposed project.

U.S. Fish and Wildlife Service
U.S. Environmental Protection Agency
Federal Emergency Management Agency
Illinois Department of Natural Resources
Illinois Historic Preservation Agency
Illinois Emergency Management Agency

Permits and approvals already obtained from state and federal agencies by the proponent for this proposed project include but are not limited to the following:

On September 19, 2007, Adena Resources, LLC entered into a water supply agreement with the State of Illinois represented by the Illinois Department of Natural Resources to withdraw 6.5 million gallons per day of water directly from Rend Lake for the purpose of supplying water for the Pond Creek No. 1 and Sugar Camp coal mines. Sugar Camp Energy, LLC authorized Adena to serve as business agent in entering the water supply agreement for the Sugar Camp coal mine, and Williamson Energy, LLC authorized Adena to serve as business agent in entering the water supply agreement for the Pond Creek No. 1 coal mine.

On August 19, 2008, Sugar Camp Energy, LLC was granted by the State of Illinois, represented by the Department of Natural Resources, Office of Mines and Minerals, surface coal

mining and reclamation operations Permit No. 382 for the Sugar Camp No. 1 coal mine, located in Franklin County, Illinois.

On December 15, 2009, Mr. James Plumley of Sugar Camp Energy, LLC was issued by the St. Louis District, Corps of Engineers, Regulatory Branch, individual Section 404 Permit No. P-2674 under the Clean Water Act for impacts to waters of the United States including 2,390 linear feet of Sugar Camp Creek and its tributaries and 10.24 acres of adjacent wetlands associated with the construction of an underground coal mine including surface development for mining facilities, excavation of an inclined slope to reach the coal seam, and the construction of underground mine shafts at the Sugar Camp No. 1 coal mine in Franklin County, Illinois.

On July 2, 2010, Williamson Energy, LCC was granted by the State of Illinois, represented by the Department of Natural Resources, Office of Mines and Minerals, Renewal No. 1 to surface coal mining and reclamation operations Permit No. 375 for the Pond Creek Mine, located in Williamson County, Illinois.

On September 3, 2010, Mr. Joe Farinella of Akin Water District received authorization from the St. Louis District, Corps of Engineers, Regulatory Branch, under Section 404 of the Clean Water Act by existing Department of the Army nationwide permit 12 for utility line activities for the construction of a 20-inch diameter water line pipe from Rend Lake extending 8.4 miles to the east in Franklin County, Illinois.

On December 7, 2010, the Illinois State Historic Preservation Officer expressed concurrence with the recommendation made by the St. Louis District, Corps of Engineers, on December 3, 2010 that Adena's proposed water supply intake, pump station, water supply line, and electric line on federal property at Rend Lake for supplying water to the Sugar Camp No. 1 and Pond Creek No. 1 coal mines would have no significant impact on historic properties.

On May 17, 2011, the Tennessee Valley Authority (TVA) issued a final environmental assessment and finding of no significant impact for its approval of a mine plan for Sugar Camp Energy LLC's Mine No. 1; the plan includes the mining of TVA-owned coal in Hamilton County, Illinois.

VII. RELATIONSHIP OF RECOMMENDED PLAN TO ENVIRONMENTAL REQUIREMENTS

Federal Policies	Compliance
Bald Eagle Protection Act, 42 USC 4151-4157	FC
Clean Air Act, 42 USC 7401-7542	FC
Clean Water Act, 33 USC 1251-1375	FC
Comprehensive Environmental Response, Compensation, and Liability Act, 42 USC 9601-9675	FC
Endangered Species Act, 16 USC 1531-1543	FC

Farmland Protection Policy Act, 7 USC 4201-4208	NA
Fish and Wildlife Coordination Act, 16 USC 661-666c	FC
Food Security Act of 1985, 7 USC varies	FC
Land and Water Conservation Fund Act, 16 USC 460d-4601	FC
National Environmental Policy Act, 42 USC 4321- 4347	PC[1]
National Historic Preservation Act, 16 USC 470 *et seq.*	FC
Noise Pollution and Abatement Act, 42 USC 7691-7642	FC
Resource, Conservation, and Rehabilitation Act, 42 USC 6901-6987	FC
Rivers and Harbors Appropriation Act, 33 USC 401-413	FC
Water Resources Development Acts of 1986 and 1990	FC
Floodplain Management (EO 11988 as amended by EO 12148)	FC
Prevention, Control, and Abatement of Air and Water Pollution at Federal Facilities (EO 11282 as amended by EO's 11288 and 11507)	FC
Protection and Enhancement of Environmental Quality (EO 11991)	FC
Protection and Enhancement of the Cultural Environment (EO 11593)	FC
Protection of Wetlands (EO 11990 as amended by EO 12608)	FC

FC = Full Compliance, PC = Partial Compliance, NA = Not applicable

[1]Full compliance would be achieved with the District Engineer's signing of the Finding of No Significant Impact (FONSI)

VIII. LIST OF PREPARERS

HDR Engineering
- Role: Project Manager: Gary Raines
- Role: Regulatory Permits: Amanda Pankau
- Role: Environmental Assessment: Amanda Pankau and Derick Jones

St. Louis District, U.S. Army Corps of Engineers
- Role: Archeological Compliance: Lara Anderson
- Role: Environmental Assessment and Environmental Compliance: Timothy George and Lena Bennett

IX. REFERENCES

Brack, V., Jr., and R.K. LaVal. 1985. Food habits of the Indiana Bat in Missouri. Journal of Mammalogy 66: 308-315.

Hall, J.S. 1962. A life history and taxonomic study of the Indiana Bat, *Myotis sodalis*. Reading Public Museum and Art Gallery Science Publication 12: 3-68.

Humphrey, S.R., A.R. Richter and J.B. Cope. 1977. Summer habitat and ecology of the endangered Indiana Bat, *Myotis sodalis*. Journal of Mammalogy, Vol. 58, No. 3. August. pp.: 334-346.

USACE (U.S. Army Corps of Engineers). 1976. Final environmental statement, Rend Lake, Illinois (operation & maintenance). Prepared by U.S. Army Engineer District, St. Louis, Missouri, December 1976.

USACE (U.S. Army Corps of Engineers). 2009. The master plan, Rend Lake, Illinois. Design Memorandum No. 6B (prepared 1965, revised 1976, updated 1983, 1993, and 2009). Prepared by U.S. Army Engineer District, St. Louis. http://www.mvs.usace.army.mil/pm/pm-masters.html. (Accessed September 10, 2011).

U.S. Census Bureau. 2009. State and County Quick Facts: Franklin County, IL. Available at: http://quickfacts.census.gov/qfd/states/17/17055.html. (Accessed: April 17, 2009).

USDA (United States Department of Agriculture). 2006. Natural Resource Conservation Service. Soil Survey of Franklin County, Illinois.

USDA (United States Department of Agriculture). 2009. Natural Resource Conservation Service. Online Web Soil Survey. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (Accessed on April 17, 2009).

US EPA (U.S. Environmental Protection Agency). 2009. The Green Book Non-Attainment Areas for Criteria Pollutants. Available at http://www.epa.gov/oar/oaqps/greenbk/index.html (Accessed on April 16, 2009).

USFWS (U.S. Fish and Wildlife Service). 2006 Species Profile: Bald Eagle (*Haliaeetus leucocephalus*). Available at http://ecos.fws.gov/speciesProfile/SpeciesReport.do?spcode=B008 (Accessed December 14, 2006).

USFWS (U.S. Fish and Wildlife Service). 2007. Protection of Eagles; Definition of ‘‘Disturb’’. Federal Register 72(107): 31132- 31139.

USFWS (U.S. Fish and Wildlife Service). 2008. Endangered Species Facts: Piping Plover. Available at http://www.fws.gov/Midwest/Endangered/pipingplover/pipingpl.html (access on April 17, 2009).

USFWS (U.S. Fish and Wildlife Service). 2009. Federally-Listed Threatened, Endangered, Proposed, and Candidate Species County Distribution. U.S. Fish and Wildlife Service. Available at http://www.fws.gov/Midwest/Endangered/Lists/illinois-spp.html (Accessed on April 16, 2009).

5.0 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS TO WHOM COPIES OF THE PLAN HAVE BEEN SENT

ELECTED OFFICIALS
Federal

Honorable Richard J. Durbin
United States Senator
525 South 8th St.
Springfield, IL 62703

Honorable Mark Kirk
United States Senator
607 East Adams, Suite 1520
Springfield, IL 62701

Honorable Jerry Costello
Representative in Congress
201 E. Nolen St.
West Frankfort, IL 62896

State

Senator Gary Forby
417 Capitol Building
Springfield, IL 62706

Representative John E. Bradley
269-S Stratton Office Building
Springfield, IL 62706

GOVERNMENT OFFICES
Federal

Ken Westlake
US EPA, REGION 5
77 West Jackson Blvd.
Chicago, IL 60604-3507

Joyce Collins
US Fish & Wildlife Service
Marion Illinois Sub-Office (ES)
8588 Rte 148
Marion, IL 62959

Richard Nelson
US Fish & Wildlife Service
Rock Island Ecological Services Field Office
1511 47th Avenue
Moline, IL 61265

Amanda Ratliff
Federal Emergency Management Agency
536 South Clark St., 6th Floor
Chicago, IL 60605

State

Marc Miller, Director
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702

Karen Miller
Impact Assessment Section
Realty and Planning Division
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271

Pat Malone
Impact Assessment Section
Realty and Planning Division
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271

Lisa Bonnett, Interim Director
Illinois Environmental Protection Agency
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

Bruce Yurdin
Illinois Environmental Protection Agency
Bureau of Water
Watershed Management Section
1021 N. Grand Avenue East

P.O. Box 19276
Springfield, Illinois 62794-9276

Anne E. Haaker
Deputy State Historic Preservation Officer
Preservation Services Division
Illinois Historic Preservation Agency
1 Old State Capitol Plaza
Springfield, Illinois 62701-1507

Terry Savko
Illinois Department of Agriculture
Bureau of Land and Water Resources
P.O. Box 19281
State Fairgrounds
Springfield, IL 62794-9281

Bryan Brackemyer
Illinois Emergency Management Agency
State Regional Office Building
2309 West Main St., Suite 110
Marion, IL 62959-1196

ORGANIZATIONS

The Nature Conservancy
2800 S. Brentwood Blvd.
St. Louis, MO 63144
Robert D. Shepherd
Izaak Walton League of America
16 Juliet Ave
Romeoville, IL 60446

Christine Favilla
Sierra Club
Piasa Palisades Group
223 Market
Alton, IL 62002

Ted Horn
Sierra Club
Belleville Group
30 S. 87th St.
Belleville, IL 62223

Kathy Andria
American Bottoms Conservancy
527 Washington Place
East St. Louis, IL 62205

U.S. Army Corps of Engineers
Rend Lake Project Office
12220 Rend City Rd.
Benton, IL 62812

State Park Superintendent
Wayne Fitzgerrell State Park
11094 Ranger Road
Whittington, IL 62897-1003

INTERESTED PARTIES

Adena Resources
208 Public Square, 4th Floor
Benton, IL 62812

HDR Engineering
1339 Walnut Street
Murphysboro, IL 62966

DRAFT FINDING OF NO SIGNIFICANT IMPACT

Pump Station and Water Line
South Marcum Recreation Area
Rend Lake
Franklin County, Illinois

I. I have reviewed and evaluated the documents concerning the plan by Adena Resources, LLC to construct a water supply intake, pump station, water supply line, and electric line on Corps of Engineers property at Rend Lake. The purpose of this project is to deliver about 6.5 million gallons of water per day from Rend Lake to two longwall coal mines (Sugar Camp Mine and Pond Creek Mine) located about 10-15 miles to the southeast.

2. Three alignment alternatives crossing the South Marcum Recreation Area were considered by the proponent for the water supply line. After consideration of logistical, environmental, and operational factors, the proposed action (Alternative 3) is the least environmentally harmful in terms of clearing of native tree species. The "No Action" alternative would do nothing and also prevent the withdrawal of water from Rend Lake for coal production at the two mines, which the proponent is entitled to through an existing water supply agreement with the State of Illinois.

3. The environmental consequences of the proposed alternative (Alternative 3) on the physical, biological, and socio-economic resources and engineering feasibility have been evaluated. Several factors were influential in my review:

A. Public safety of recreational users on the lake will be ensured by the erection of a floating barrier around the water pipe intake area. Minor temporary disruptions to use of South Marcum Recreation Area lands are expected.

B. No federally listed endangered and threatened species are likely to be adversely affected, including the Indiana bat and piping plover. To avoid impacts to potential roost trees for the Indiana bat, tree clearing within the project area between the dates of April 1 and November 15 will be avoided. With this restriction, the proposed project is unlikely to affect the Indiana bat.

C. No significant impacts are expected on Corps lands to the aesthetic value, historic resources, and water quality. Impacts to fish and wildlife will be minor. About 0.1 acre of wetland impacts have been mitigated at a bank. The clearing of about 6 acres of upland trees will be mitigated on-site by the establishment of 10.4 acres of native tree seedling plantings in an area currently vegetated by nonnative shrubs. The potential for entrainment and impingement of lake fish at the intake will be mitigated by the use of an intake screen designed for this purpose. Erosion control methods will be employed and ground disturbed during construction will be reseeded.

III. Based on the disclosure of the proposed alternative's impacts contained within the Environmental Assessment of September 2011, no significant impacts to the environment are anticipated. The proposed project has been coordinated with the appropriate resource agencies, and there are no significant unresolved issues. Therefore, an Environmental Impact Statement

will not be prepared prior to proceeding with the proposed project.

_____	(unsigned)
Date	Christopher G. Hall
	Colonel, U.S. Army
	District Commander

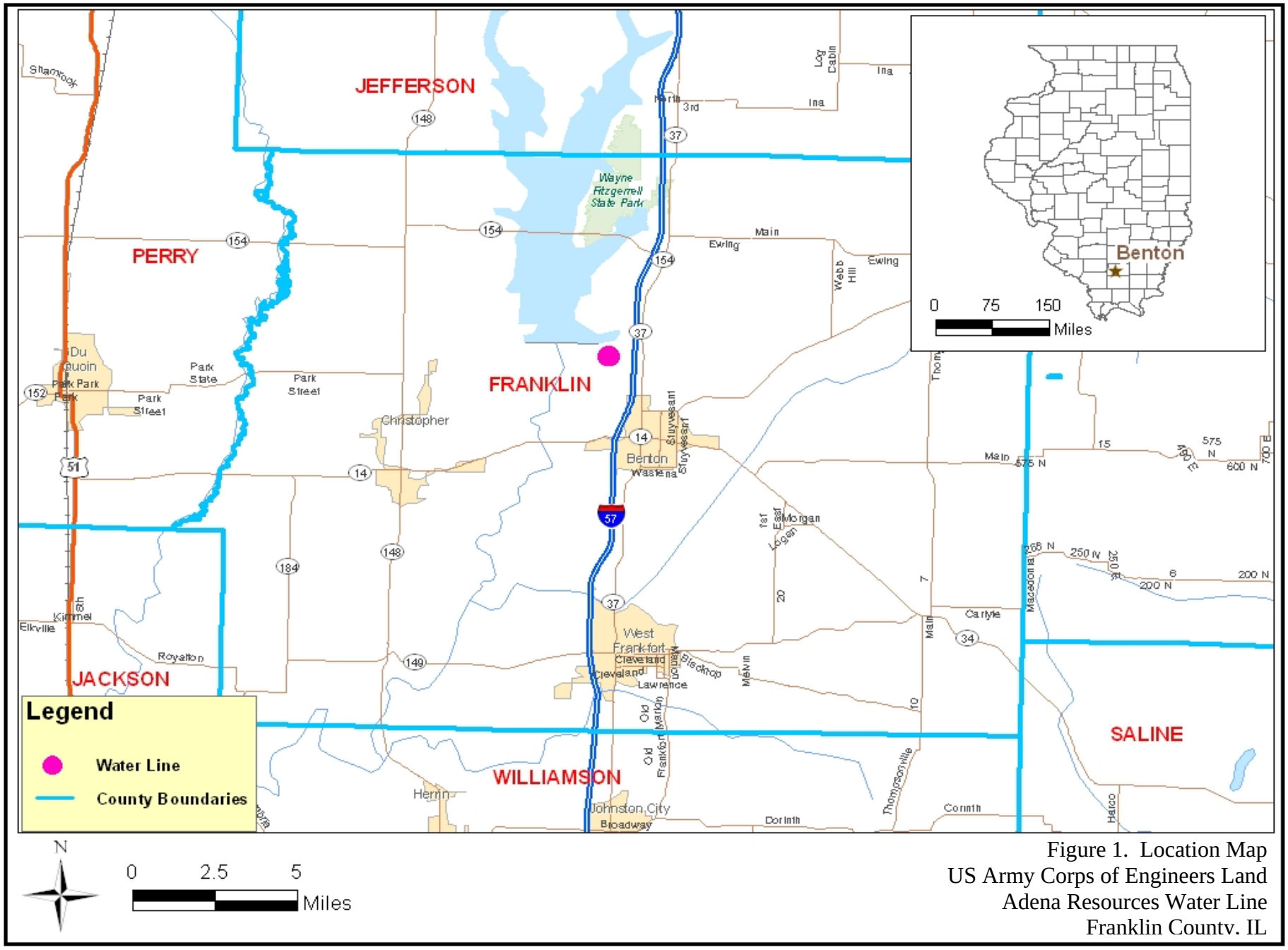

Figure 1. Location Map
US Army Corps of Engineers Land
Adena Resources Water Line
Franklin County, IL

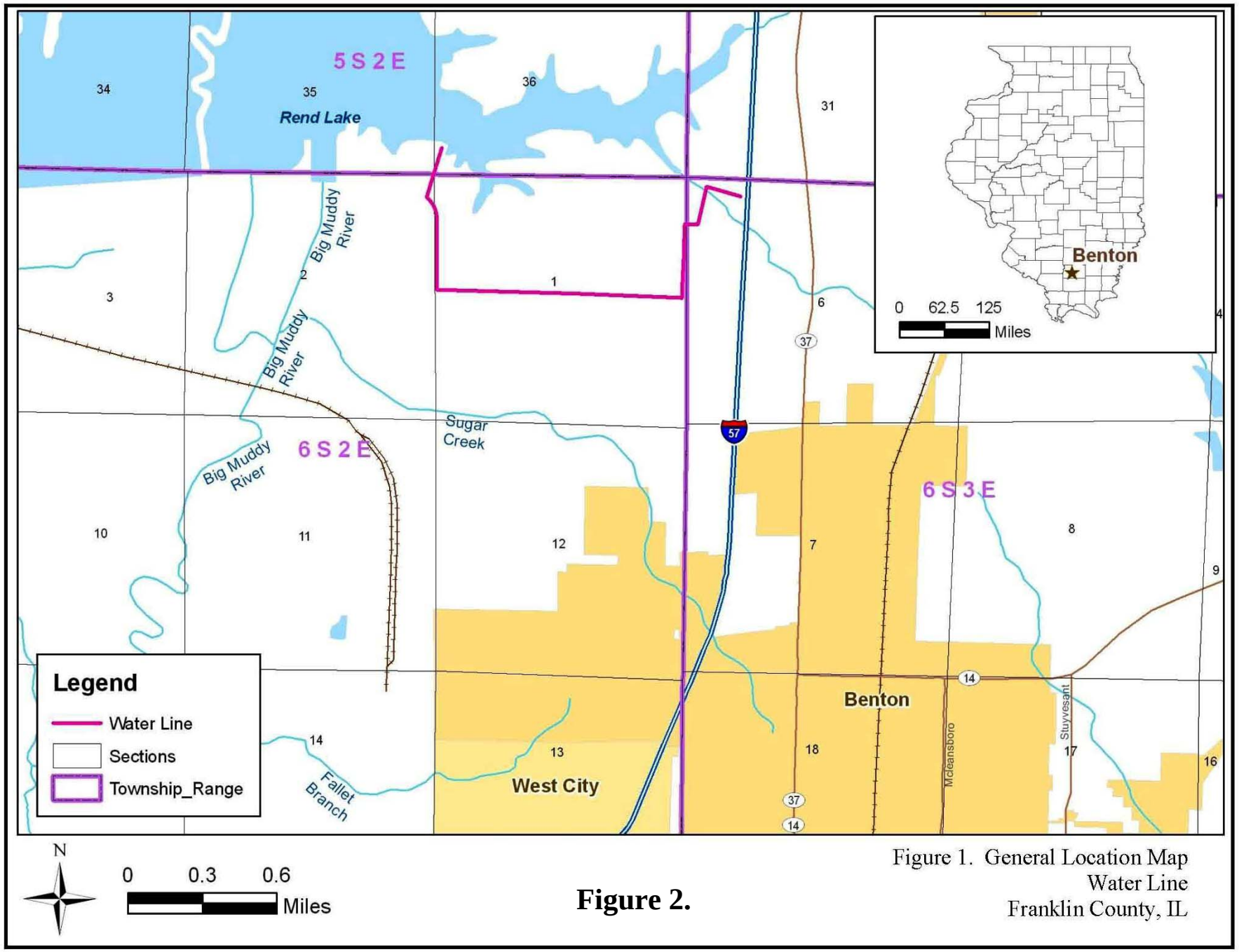

Figure 1. General Location Map
Water Line
Franklin County, IL

Figure 2.

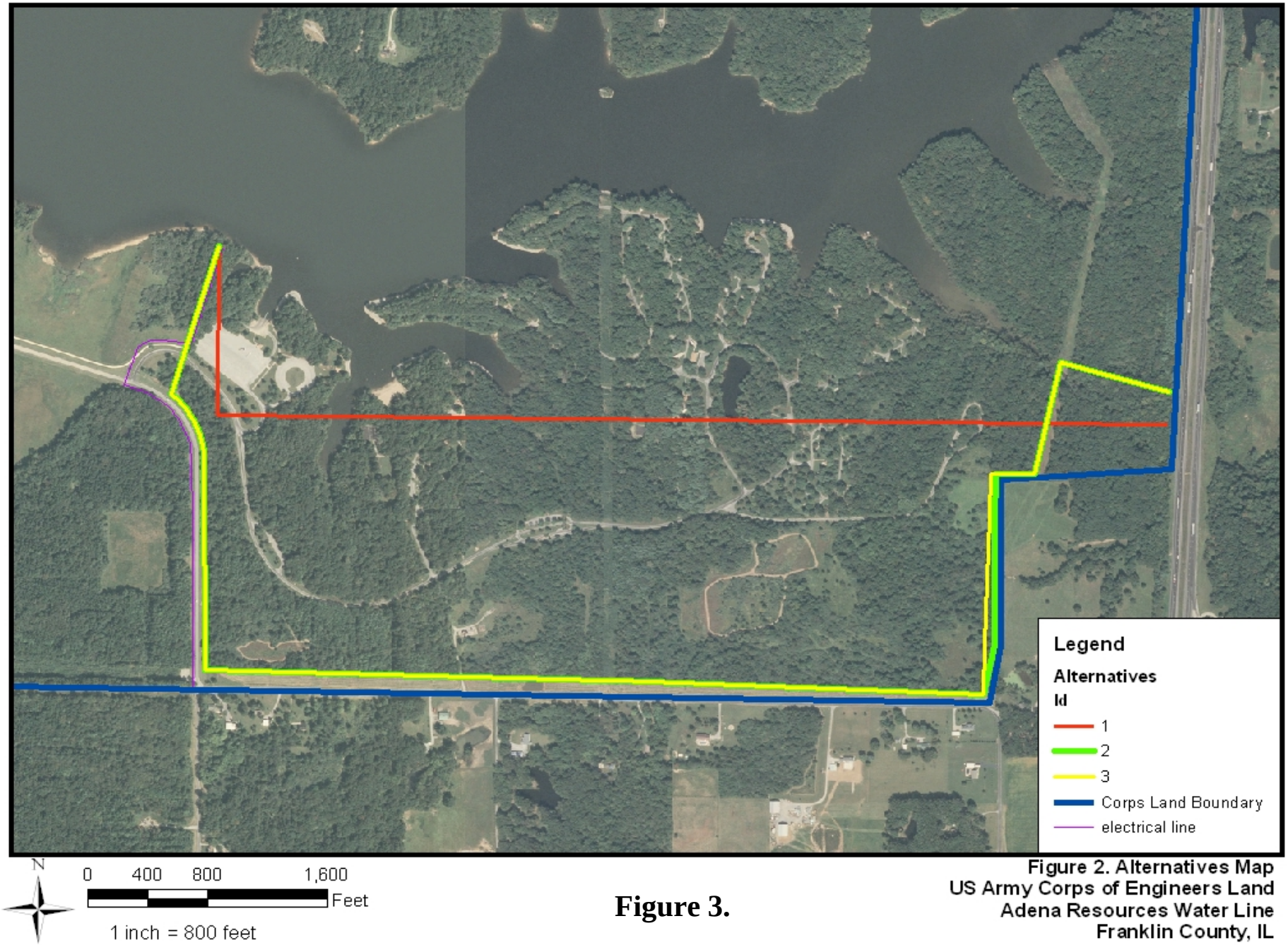

Figure 2. Alternatives Map
US Army Corps of Engineers Land
Adena Resources Water Line
Franklin County, IL

Figure 3.

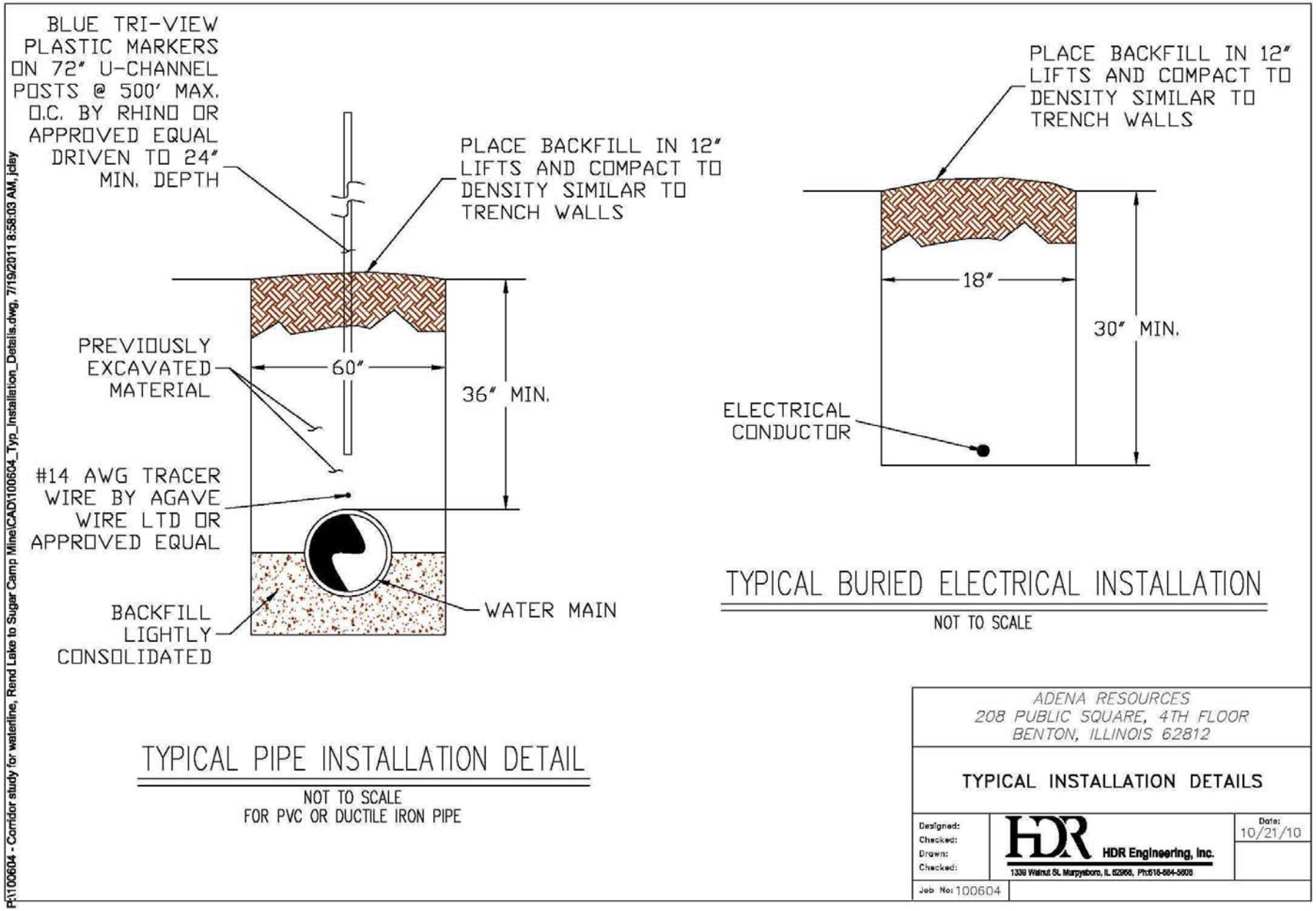
P:\100604 - Corridor study for waterline, Rend Lake to Sugar Camp Mine\CAD\100604_Typ_Installation_Details.dwg, 7/19/2011 8:58:03 AM, jclay
BLUE TRI-VIEW PLASTIC MARKERS ON 72" U-CHANNEL POSTS @ 500' MAX. O.C. BY RHINO OR APPROVED EQUAL DRIVEN TO 24" MIN. DEPTH
PLACE BACKFILL IN 12" LIFTS AND COMPACT TO DENSITY SIMILAR TO TRENCH WALLS
PREVIOUSLY EXCAVATED MATERIAL
60"
36" MIN.
#14 AWG TRACER WIRE BY AGAVE WIRE LTD OR APPROVED EQUAL
BACKFILL LIGHTLY CONSOLIDATED
WATER MAIN
TYPICAL PIPE INSTALLATION DETAIL
NOT TO SCALE
FOR PVC OR DUCTILE IRON PIPE
PLACE BACKFILL IN 12" LIFTS AND COMPACT TO DENSITY SIMILAR TO TRENCH WALLS
18"
30" MIN.
ELECTRICAL CONDUCTOR
TYPICAL BURIED ELECTRICAL INSTALLATION
NOT TO SCALE
ADENA RESOURCES
208 PUBLIC SQUARE, 4TH FLOOR
BENTON, ILLINOIS 62812
TYPICAL INSTALLATION DETAILS
Designed:
Checked:
Drawn:
Checked:
HDR Engineering, Inc.
1339 Walnut St. Murpysboro, IL 62966, Ph:618-684-5808
Date: 10/21/10
Job No: 100604

Figure 4.

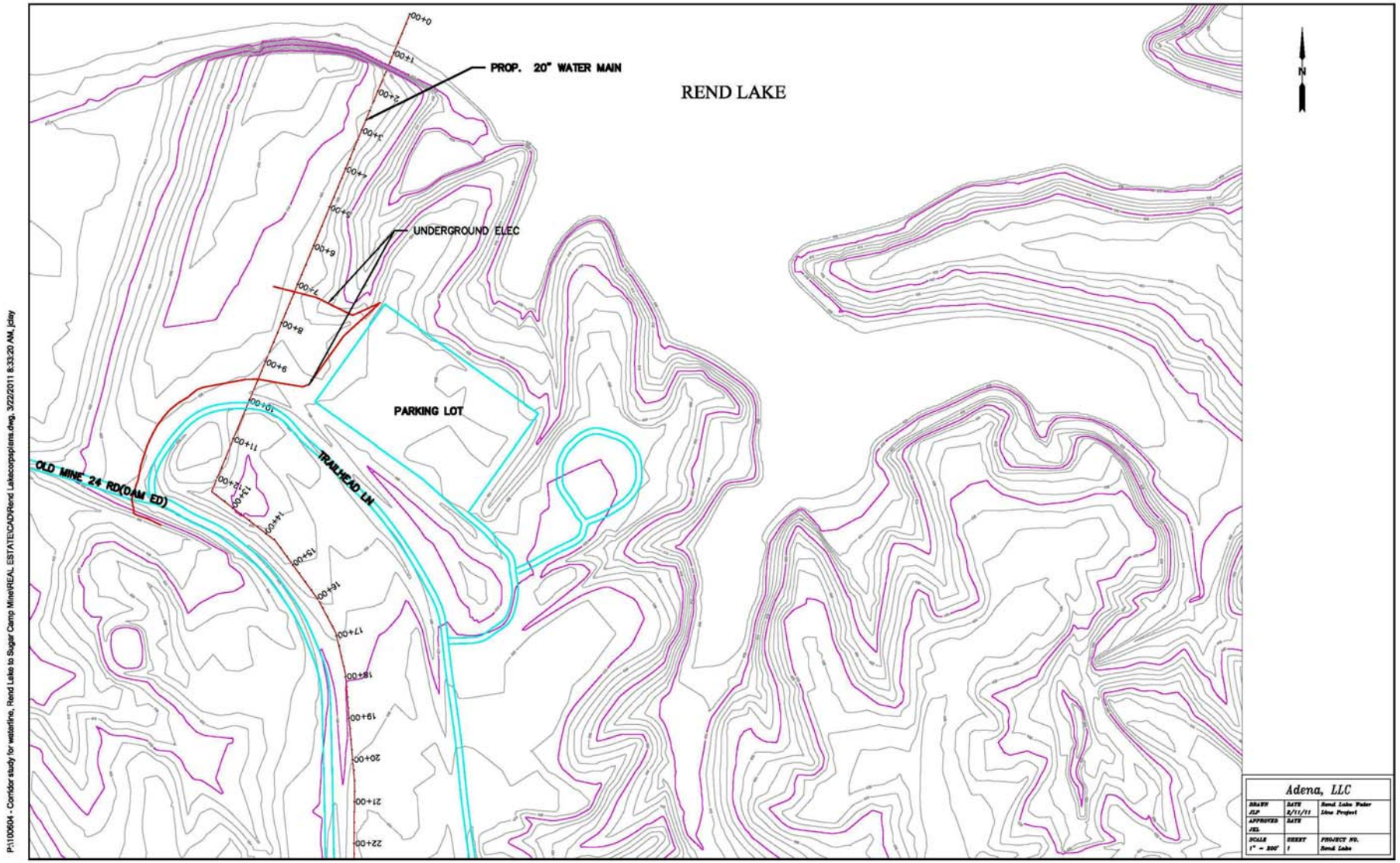
PROP. 20" WATER MAIN
REND LAKE
UNDERGROUND ELEC
PARKING LOT
TRAILHEAD LN
OLD MINE 24 RD(DAM ED)
N
Adena, LLC

Figure 5.

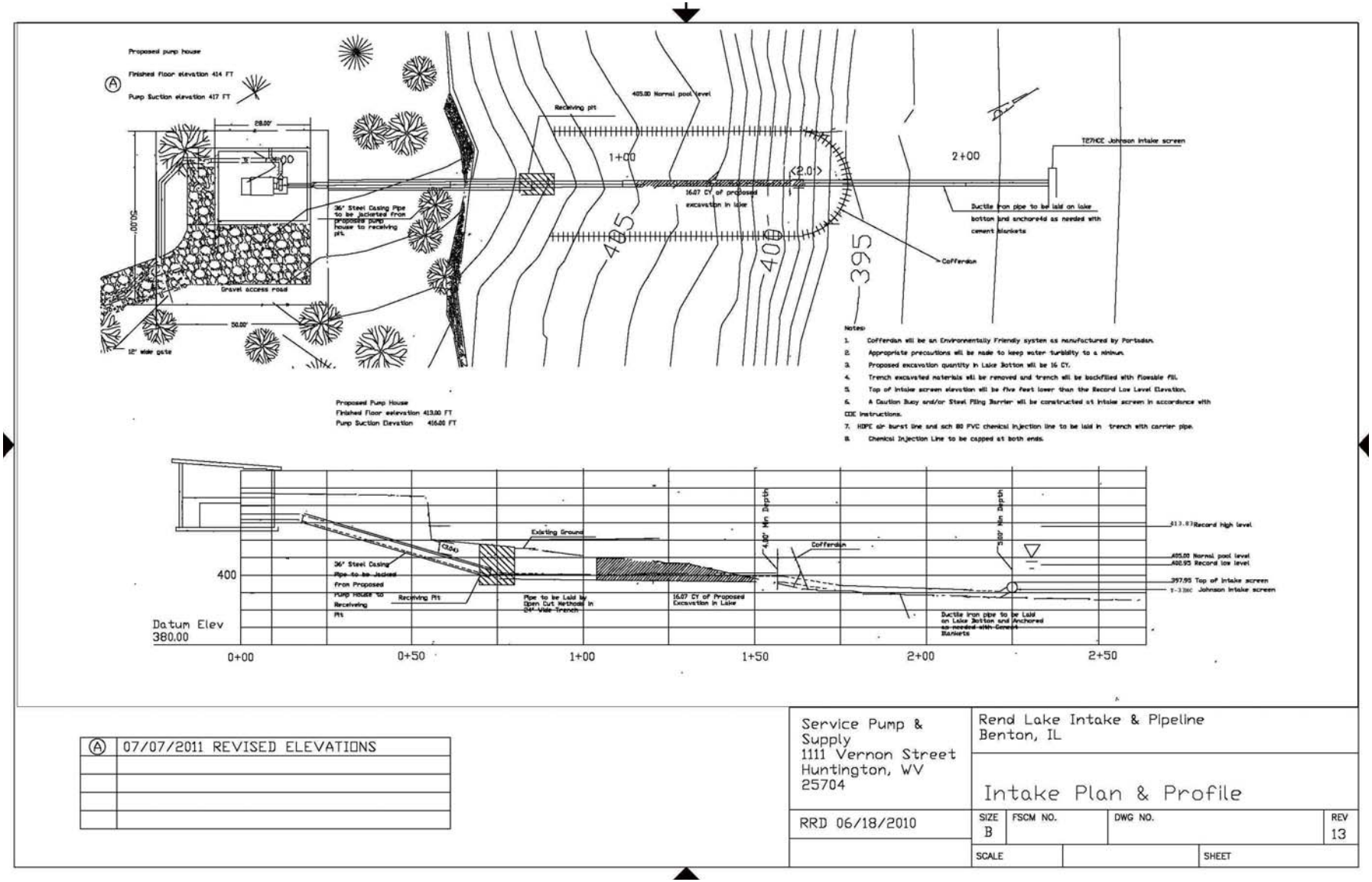
Proposed pump house
Finished floor elevation 414 FT
Pump Suction elevation 417 FT
Receiving pit
405.00 Normal pool level
1+00
2+00
16.07 CY of proposed excavation in lake
36" Steel Casing Pipe to be Jacketed from proposed pump house to receiving pit
Gravel access road
12' wide gate
Ductile iron pipe to be laid on lake bottom and anchored as needed with cement blankets
Cofferdam
Notes:
1. Cofferdam will be an Environmentally Friendly system as manufactured by Portadam.
2. Appropriate precautions will be made to keep water turbidity to a minimum.
3. Proposed excavation quantity in Lake Bottom will be 16 CY.
4. Trench excavated materials will be removed and trench will be backfilled with flowable fill.
5. Top of intake screen elevation will be five feet lower than the Record Low Level Elevation.
6. A Caution Buoy and/or Steel Piling Barrier will be constructed at intake screen in accordance with COE instructions.
7. HDPE air burst line and sch 80 PVC chemical injection line to be laid in trench with carrier pipe.
8. Chemical injection Line to be capped at both ends.
Proposed Pump House
Finished Floor elevation 413.00 FT
Pump Suction Elevation 416.00 FT
Existing Ground
Receiving Pit
Pipe to be Laid by Open Cut Methods in 24" Wide Trench
Datum Elev 380.00
400
0+00
0+50
1+00
1+50
2+00
2+50
Record high level
Record low level
Top of intake screen
Johnson intake screen
07/07/2011 REVISED ELEVATIONS
Service Pump & Supply
1111 Vernon Street
Huntington, WV
25704
Rend Lake Intake & Pipeline
Benton, IL
Intake Plan & Profile
RRD 06/18/2010
SIZE B
FSCM NO.
DWG NO.
REV 13
SCALE
SHEET

Figure 6.

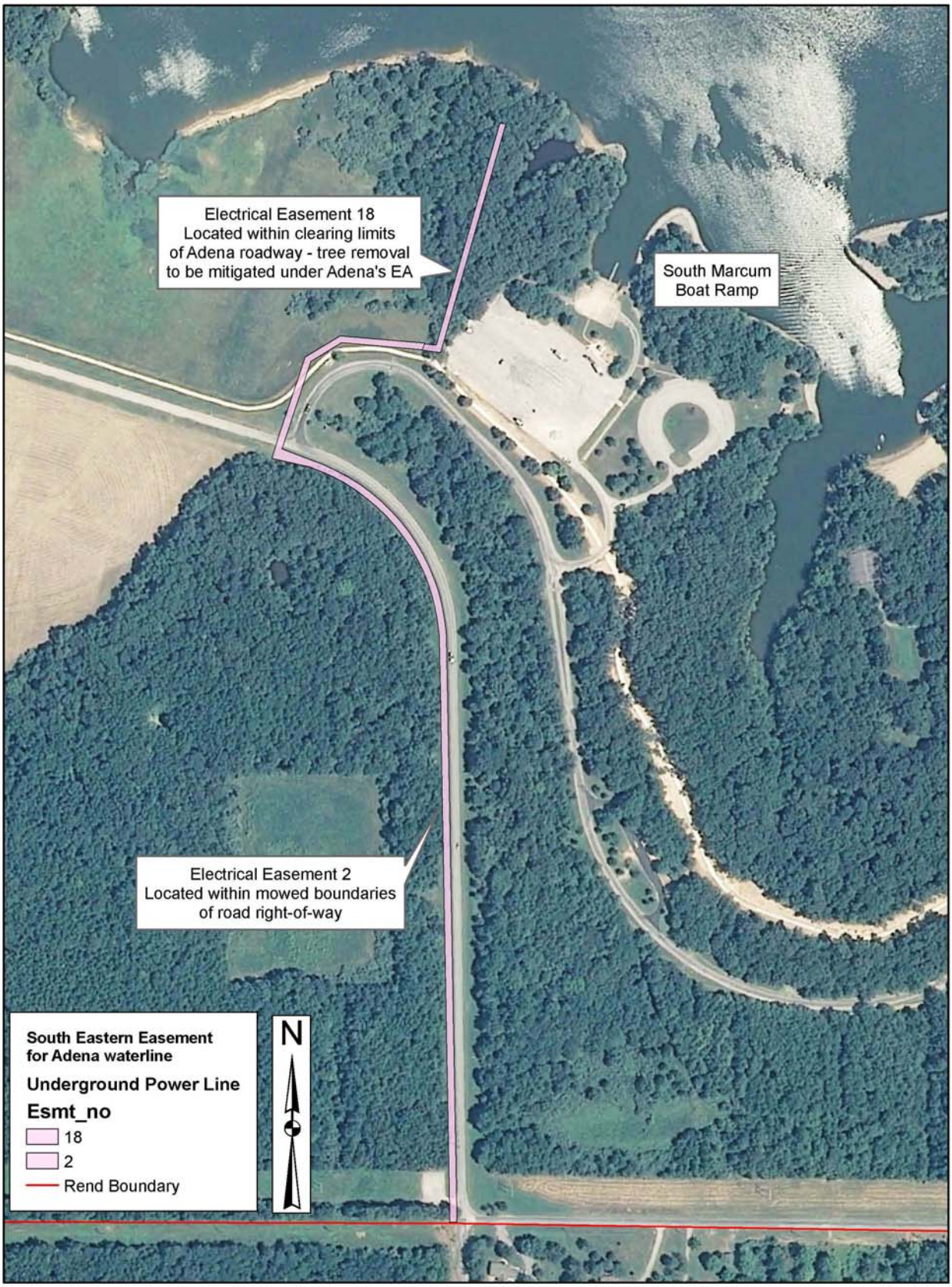
Electrical Easement 18
Located within clearing limits
of Adena roadway - tree removal
to be mitigated under Adena's EA
South Marcum
Boat Ramp
Electrical Easement 2
Located within mowed boundaries
of road right-of-way
South Eastern Easement
for Adena waterline
Underground Power Line
Esmt_no
18
2
Rend Boundary
N

Figure 7.

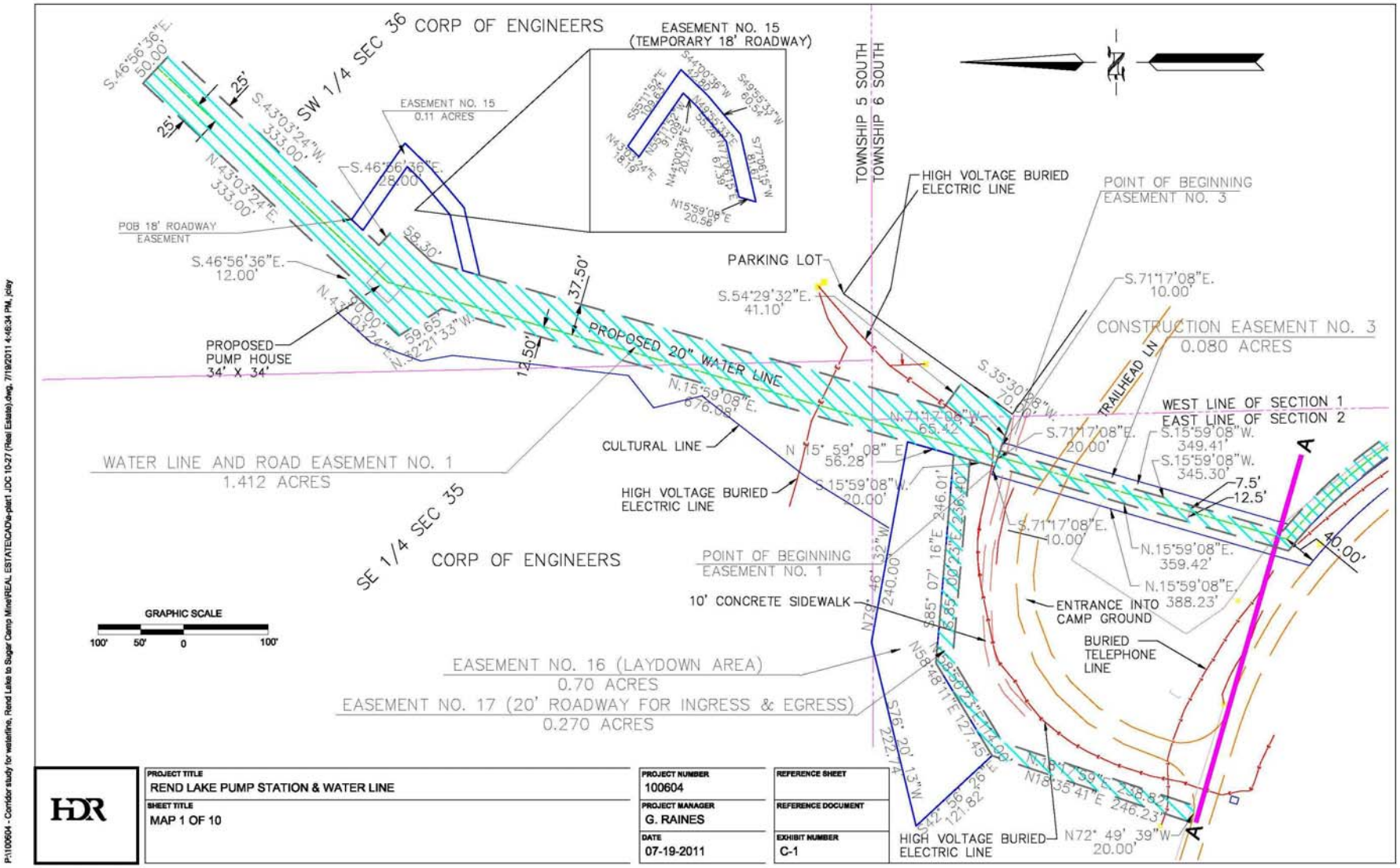
SW 1/4 SEC 36
CORP OF ENGINEERS
EASEMENT NO. 15
(TEMPORARY 18' ROADWAY)
EASEMENT NO. 15
0.11 ACRES
POB 18' ROADWAY
EASEMENT
PROPOSED
PUMP HOUSE
34' X 34'
PROPOSED 20" WATER LINE
WATER LINE AND ROAD EASEMENT NO. 1
1.412 ACRES
SE 1/4 SEC 35
CORP OF ENGINEERS
TOWNSHIP 5 SOUTH
TOWNSHIP 6 SOUTH
HIGH VOLTAGE BURIED
ELECTRIC LINE
PARKING LOT
CULTURAL LINE
POINT OF BEGINNING
EASEMENT NO. 3
CONSTRUCTION EASEMENT NO. 3
0.080 ACRES
TRAILHEAD LN
WEST LINE OF SECTION 1
EAST LINE OF SECTION 2
POINT OF BEGINNING
EASEMENT NO. 1
10' CONCRETE SIDEWALK
ENTRANCE INTO
CAMP GROUND
BURIED
TELEPHONE
LINE
EASEMENT NO. 16 (LAYDOWN AREA)
0.70 ACRES
EASEMENT NO. 17 (20' ROADWAY FOR INGRESS & EGRESS)
0.270 ACRES
GRAPHIC SCALE
100' 50' 0 100'
HDR
PROJECT TITLE
REND LAKE PUMP STATION & WATER LINE
SHEET TITLE
MAP 1 OF 10
PROJECT NUMBER
100604
PROJECT MANAGER
G. RAINES
DATE
07-19-2011
REFERENCE SHEET
REFERENCE DOCUMENT
EXHIBIT NUMBER
C-1

Figure 8.

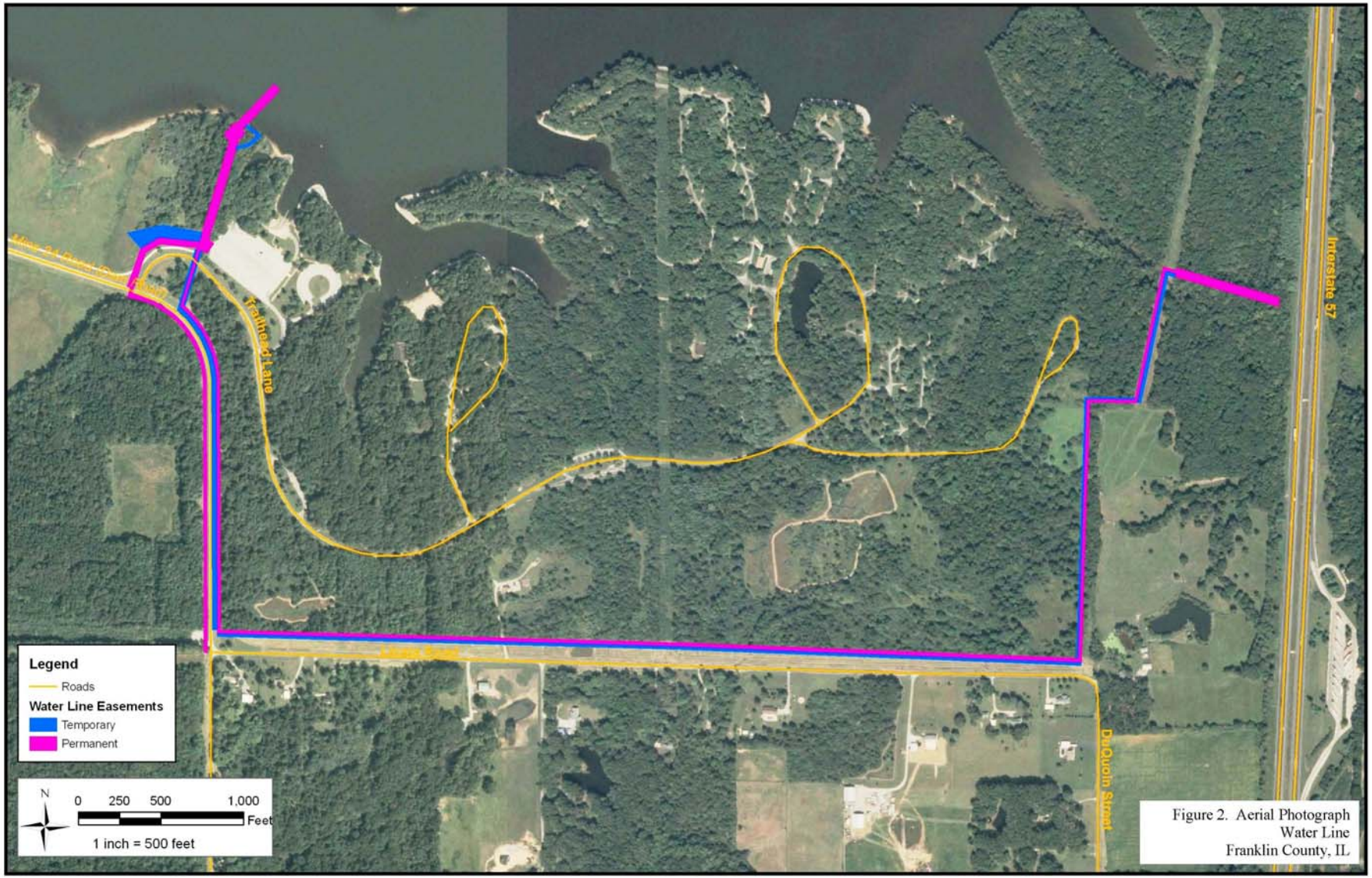
Legend
Roads
Water Line Easements
Temporary
Permanent
N
0 250 500 1,000
Feet
1 inch = 500 feet
Faithful Lane
Interstate 57
DeQuoin Street
Figure 2. Aerial Photograph
Water Line
Franklin County, IL

Figure 9.

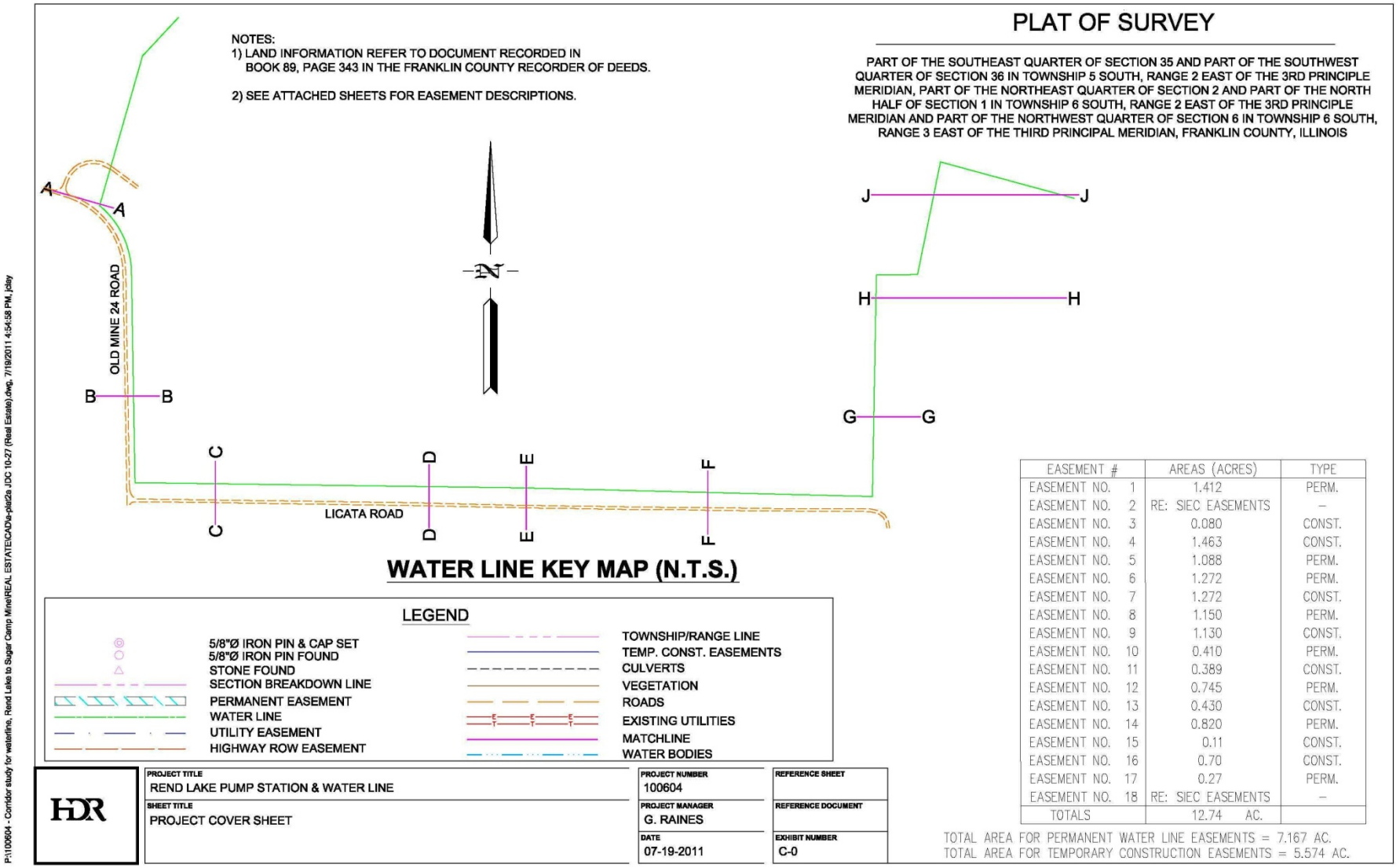
PLAT OF SURVEY
NOTES:
1) LAND INFORMATION REFER TO DOCUMENT RECORDED IN BOOK 89, PAGE 343 IN THE FRANKLIN COUNTY RECORDER OF DEEDS.
2) SEE ATTACHED SHEETS FOR EASEMENT DESCRIPTIONS.
PART OF THE SOUTHEAST QUARTER OF SECTION 35 AND PART OF THE SOUTHWEST QUARTER OF SECTION 36 IN TOWNSHIP 5 SOUTH, RANGE 2 EAST OF THE 3RD PRINCIPLE MERIDIAN, PART OF THE NORTHEAST QUARTER OF SECTION 2 AND PART OF THE NORTH HALF OF SECTION 1 IN TOWNSHIP 6 SOUTH, RANGE 2 EAST OF THE 3RD PRINCIPLE MERIDIAN AND PART OF THE NORTHWEST QUARTER OF SECTION 6 IN TOWNSHIP 6 SOUTH, RANGE 3 EAST OF THE THIRD PRINCIPAL MERIDIAN, FRANKLIN COUNTY, ILLINOIS
OLD MINE 24 ROAD
LICATA ROAD
A
B
C
D
E
F
G
H
J
WATER LINE KEY MAP (N.T.S.)
LEGEND
5/8"Ø IRON PIN & CAP SET
5/8"Ø IRON PIN FOUND
STONE FOUND
SECTION BREAKDOWN LINE
PERMANENT EASEMENT
WATER LINE
UTILITY EASEMENT
HIGHWAY ROW EASEMENT
TOWNSHIP/RANGE LINE
TEMP. CONST. EASEMENTS
CULVERTS
VEGETATION
ROADS
EXISTING UTILITIES
MATCHLINE
WATER BODIES
EASEMENT # | AREAS (ACRES) | TYPE
EASEMENT NO. 1 | 1.412 | PERM.
EASEMENT NO. 2 | RE: SIEC EASEMENTS | –
EASEMENT NO. 3 | 0.080 | CONST.
EASEMENT NO. 4 | 1.463 | CONST.
EASEMENT NO. 5 | 1.088 | PERM.
EASEMENT NO. 6 | 1.272 | PERM.
EASEMENT NO. 7 | 1.272 | CONST.
EASEMENT NO. 8 | 1.150 | PERM.
EASEMENT NO. 9 | 1.130 | CONST.
EASEMENT NO. 10 | 0.410 | PERM.
EASEMENT NO. 11 | 0.389 | CONST.
EASEMENT NO. 12 | 0.745 | PERM.
EASEMENT NO. 13 | 0.430 | CONST.
EASEMENT NO. 14 | 0.820 | PERM.
EASEMENT NO. 15 | 0.11 | CONST.
EASEMENT NO. 16 | 0.70 | CONST.
EASEMENT NO. 17 | 0.27 | PERM.
EASEMENT NO. 18 | RE: SIEC EASEMENTS | –
TOTALS | 12.74 AC.
TOTAL AREA FOR PERMANENT WATER LINE EASEMENTS = 7.167 AC.
TOTAL AREA FOR TEMPORARY CONSTRUCTION EASEMENTS = 5.574 AC.
HDR
PROJECT TITLE
REND LAKE PUMP STATION & WATER LINE
SHEET TITLE
PROJECT COVER SHEET
PROJECT NUMBER
100604
PROJECT MANAGER
G. RAINES
DATE
07-19-2011
REFERENCE SHEET
REFERENCE DOCUMENT
EXHIBIT NUMBER
C-0
P:\100604 - Corridor study for waterline, Rend Lake to Sugar Camp Mine\REAL ESTATE\CAD\ls-plat2a JDC 10-27 (Real Estate).dwg, 7/19/2011 4:54:58 PM, jdey

Figure 10.

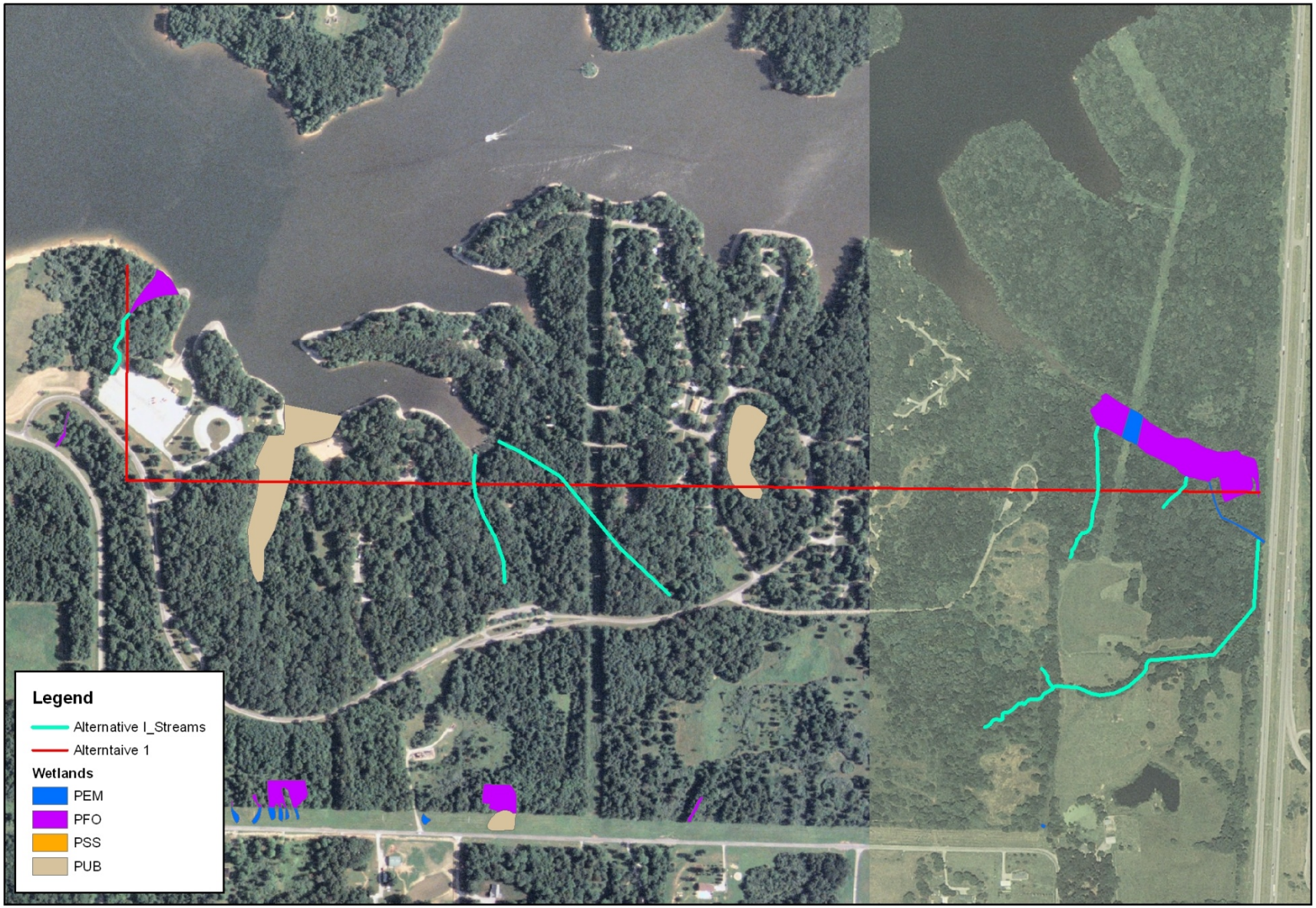

Figure 11.

Figure 3. Alternative 1, Wetland Map
Adena Resources Water Line
Franklin Countv. IL

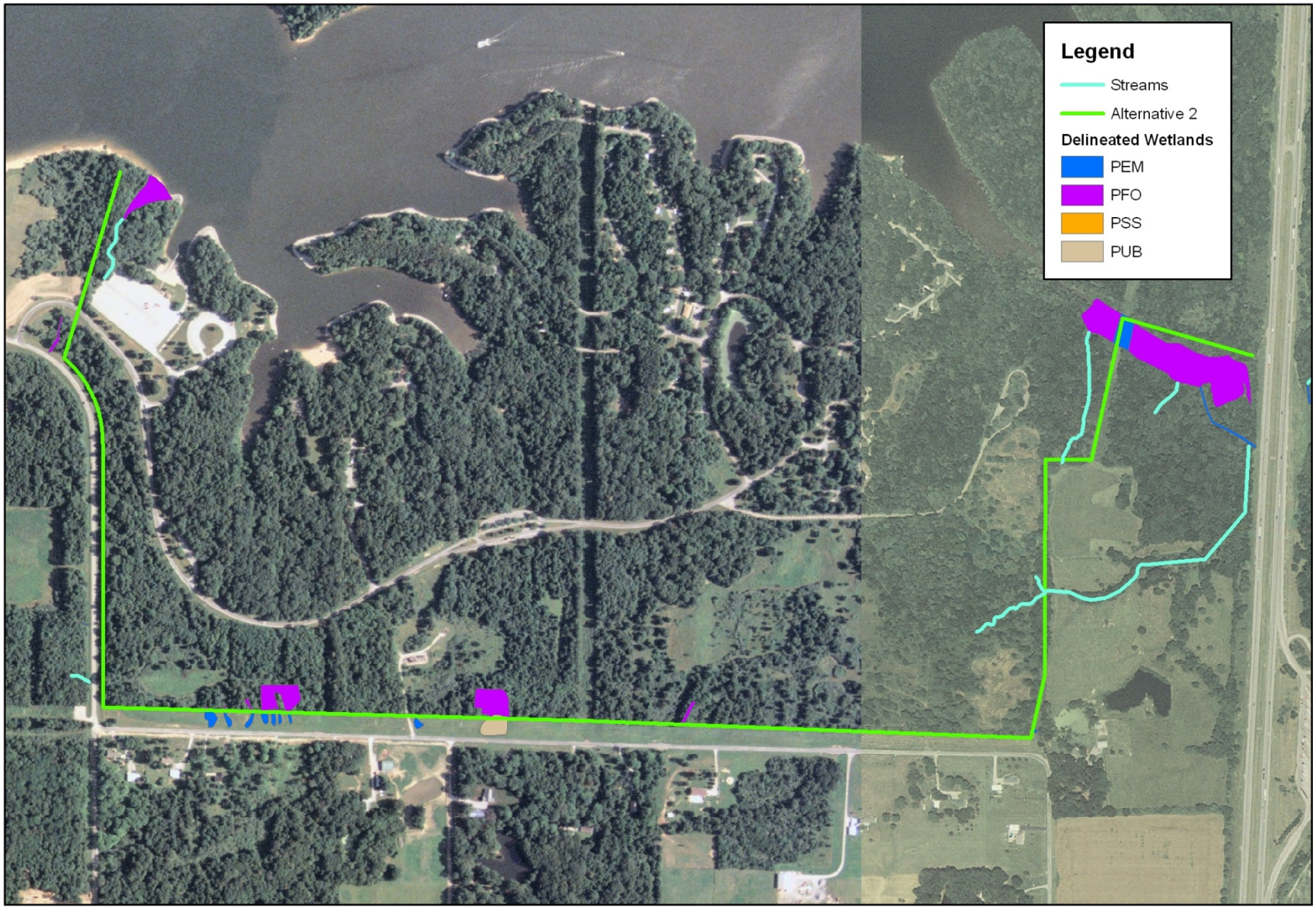

Figure 4 and 5. Alternative 2, Wetland Map
Adena Resources Water Line
Franklin County, IL

Figure 12.

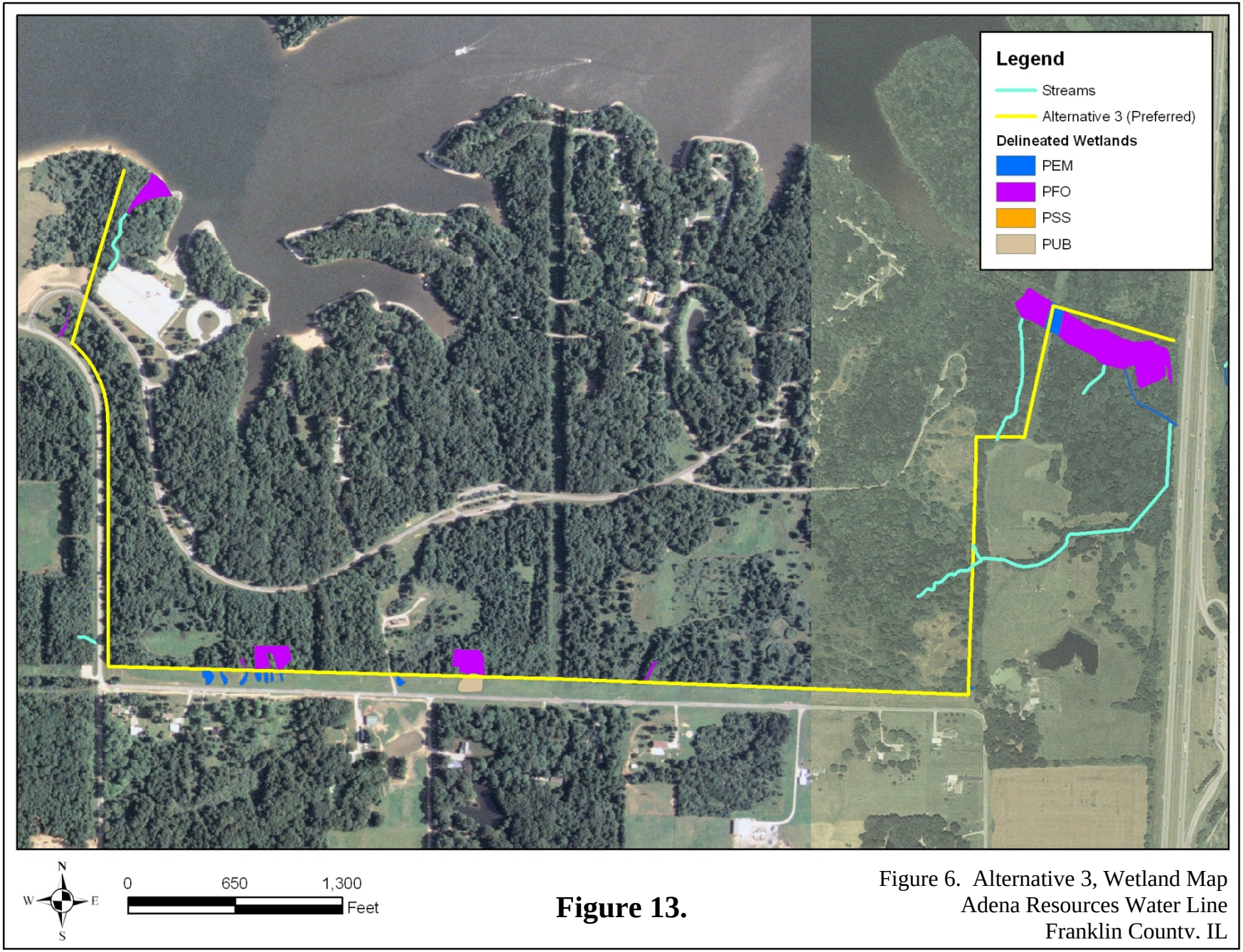

Figure 13.

Figure 6. Alternative 3, Wetland Map
Adena Resources Water Line
Franklin Countv. IL

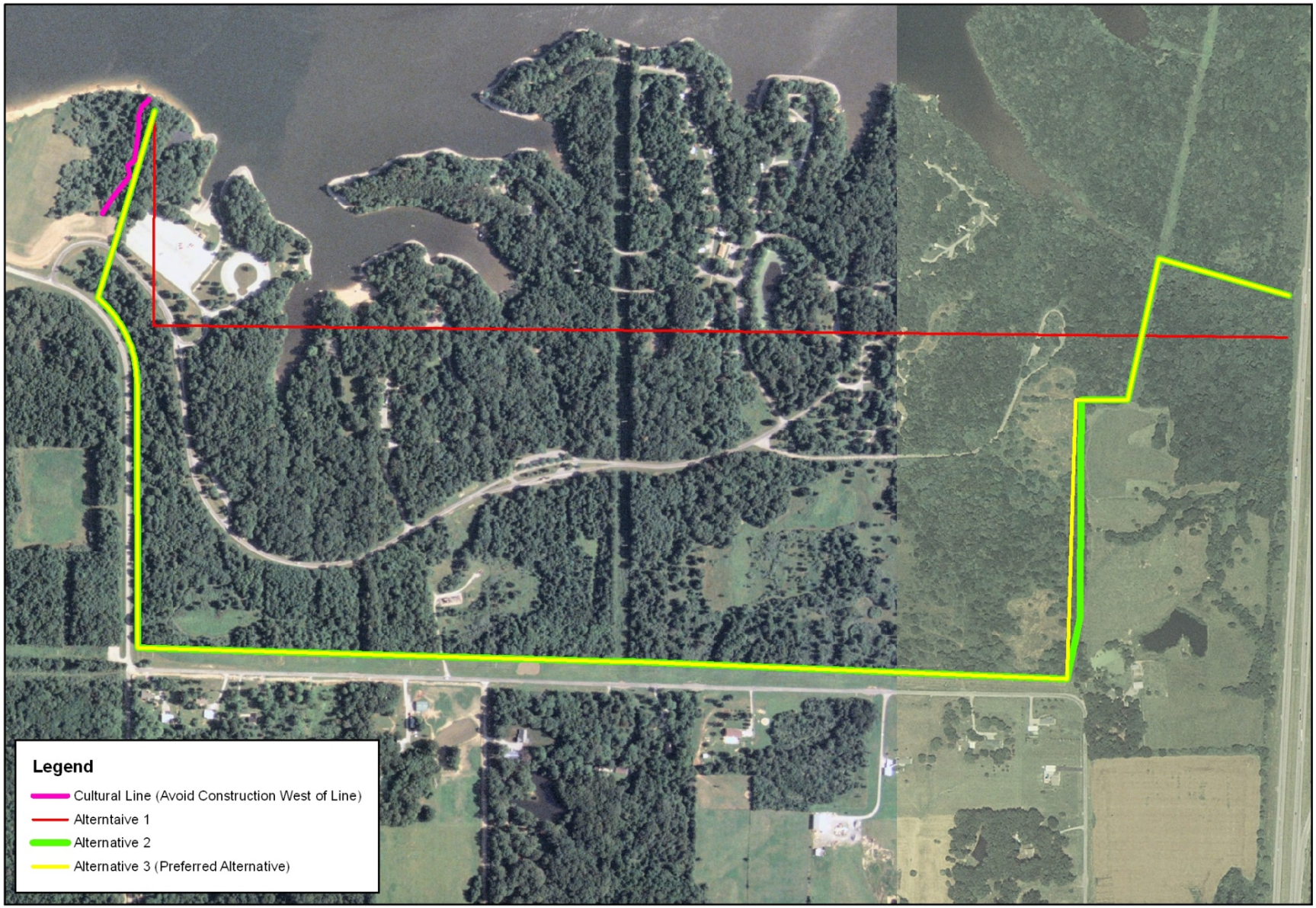

Figure 14.

Figure 7. Avoided Cultural Area
Adena Resources Water Line
Franklin County, IL

Appendix A - Tree Mitigation Plan
Rend Lake Water Line

TABLE OF CONTENTS

1) Objectives

1) Replace the forest and shrub habitat impacted by a proposed water line

2) Use a minimum 1:1 acre ratio for replacement.

3) Plant native tree species.

4) Remove invasive species.

2) Site selection

The proposed impacts are located within a linear corridor that stretches across U.S. Army Corps of Engineers' (USACE) property adjacent to Rend Lake (Figure 3, Environmental Assessment). The proposed site for mitigation is located adjacent to the proposed impacts and is also located on USACE property (Figure 15 and Figure 16). The proposed site is currently dominated by autumn olive and provides an ideal opportunity for invasive species removal and reforestation of native trees.

3) Site protection instrument

The proposed mitigation land is owned by the Corps of Engineers. The Rend Lake Master Plan will be supplemented and the lands used for this mitigation will be reclassified as Environmentally Sensitive - mitigation land, thereby making it unavailable for future development.

4) Baseline information

The proposed water line will impact forested, shrubland with interspersed trees, grass areas, and areas with specimen trees. Approximately 3.522 acres of forested habitat, 2.551 acres of shrub habitat, 4.904 acres of grass, and 2.551 acres of specimen trees will be impacted. The overstory of the forested areas is dominated by green ash (*Fraxinus pennsylvanica*), american elm (*Ulmus americana*), black cherry (*Prunus serotina*), and sassafras (*Sassafras albidum*). The understory is dominated by bush honeysuckle (*Lonicera tatrica),* Japanese honeysuckle (*Lonicera japonica*), poison ivy (*Toxicodendron radicans*), and virginia creeper (*Parthenocissus quinquefolia*). The shrubland with interspersed tree habitats are dominated by autumn olive (*Elaeagnus umbellata*) and bush honeysuckle (*Lonicera tatrica*). The grassland areas are actually road and power line right-of-ways that are dominated by fescue (*Festuca pratensis*).

The proposed mitigation area (10.43 acres) is dominated by 3 different habitat types, including shrubland, shrubland with interspersed trees, and grassland. The shrubland areas are dominated by autumn olive (*Elaeagnus umbellata*). The autumn olive is so dense in these areas that little herbaceous species are able to grow in the understory. The shrubland with interspersed

trees areas are also dominated by autumn olive with interspersed green ash (*Fraxinus pennsylvanica*), black cherry (*Prunus serotina*), persimmon (*Diospyros virginiana*), sweetgum (*Liquidambar styraciflua*), American elm (*Ulmus americana*), and a few oaks (*Quercus* sp.). The grassland areas are dominated by fescue (*Festuca pratensis*) with invasion of Canadian goldenrod (*Solidago canadensis*), sedges (*Carex* spp.), broomsedge (*Andropogon virginicus*), blackberry (*Rubus* sp.), milkweed (*Asclepias* sp.), and Japanese honeysuckle (*Lonicera japonica*).

5) Determination of credits

The USACE determined the mitigation ratios required for the project (Table 1). As described above, the impact area is dominated by 4 different habitat types, forest, shrub, grassland, and specimen trees. The forested areas will be mitigated at a ratio of 2:1. The shrub areas will be mitigated at a ratio of 1:1. The grassland areas will not be mitigated. The specimen trees will be replaced 1 for 1 in locations within the adjacent campground.

6) Mitigation work Plan

Approximately 10.43 acres will be cleared of the invasive autumn olive bush and re-forested with native tree species. The high quality trees within the area (persimmon, black cherry, oaks, etc.) should not be removed. Planting will be conducted with Root Production Method (RPM) trees. Methods for invasive species removal and planting are discussed below. Restoration should be overseen by an environmental professional.

Invasive species removal

The existing autumn olive within the site should be removed by bulldozing, including grubbing of stumps. The woody debris will be removed from the site to be burned or disposed of elsewhere.

Planting rates, dates, and methods

RPM trees should be planted at a rate of 109 trees/acre (20’ x 20’ spacing). Spacing distance may be increased in areas where existing trees are being maintained. Species should be interspersed and randomly planted to encourage maximum diversity. Plantings should be initiated in the fall or the early spring. Fall plantings should take place between September 1 until the ground freezes (NRCS 2002). Planting may begin again in the spring as soon as the ground can be worked and continue until May 15th (NRCS 2002).

Any planting stock not needed for immediate planting should be stored in a cool environment (below 50 degrees F) out of direct sunlight and wind (NRCS 2002).

Prior to planting, the trees should be kept in their containers in a shady location and soil moisture should be maintained with regular watering. The containers should be handled carefully and never dropped. Plants should be handled by moving the container, never by grasping the stem. The trees should be thoroughly water 2 days before planting to facilitate removal from containers (NRCS 2002).

RPM trees should be planted by hand or with an auger that is larger in diameter than the container. Plants should be placed at the same depth as in the nursery and soil should be firmly packed around the roots to eliminate air pockets.

Species selection

Trees will be obtained from the Forrest Keeling Nursery (Elsberry, MO). A list of proposed species is included below as Table 2. At least 5 different species from the proposed list should be planted, at least 2 of the selected species must be oak or hickory. The chosen species will depend on price and availability at the time of planting.

Natural regeneration within the project area is expected to, and will be allowed to occur. No efforts will be made to control the natural establishment of native species since these species are valuable components of a native forest and they enhance biodiversity and ecosystem function.

Table 2. Tree species list.

Common Name	Scientific Name
White Oak	*Quercus alba*
Red Oak	*Quercus rubra*
Shingle oak	*Quercus imbricaria*
Cherrybark Oak	*Quercus pagodifolia*
Shumard Oak	*Quercus shumardii*
Burr oak	*Quercus macrocarpa*
Chinquapin Oak	*Quercus muehlenbergii*
Post oak	*Quercus stellata*
Shagbark hickory	*Carya ovate*
Pignut hickory	*Carya glabra*
Persimmon	*Diospyros virginiana*
Flowering dogwood	*Cornus florida*
Black cherry	*Prunus serotina*

Deer protection

Deer browse is expected to be a significant problem within the mitigation area. As a result, the Corps has suggested that tree shelters be used to protect the planted trees against deer browse. Shelters will be constructed using 12 ½ gage galvanized welded wire fence fabric with 2"x4" mesh. Shelters will be 4' tall and 20" in diameter. Two metal fence posts will be used to hold the shelters in place.

Site Preparation

Areas with residue cover less than 50% may not require site preparation, while areas with residue cover greater than 50% will require site preparation (NRCS 2010). The soil should be exposed with light tillage. Tillage activities should be conducted less than 2 months prior to planting. If spring flooding is likely fall tillage is permissible. A temporary cover crop such as winter wheat or annual rye should be planted if fall tillage is used for spring planting.

Ground cover

Groundcover management is important in tree planting to reduce competition for water and nutrients, reduce soil erosion, and to minimize labor and equipment costs. The groundcover seed mix shall be a mixture of Red Top (*Agrostis alba*) (4 lbs/acre) and Kentucky Bluegrass (*Poa pratensis*) (4 lbs/acre), or, a solid planting of Red Top (6 lbs/acre). Seed shall be planted either, as a fall planting between August 10 and September 20, as a dormant winter seeding during January–February, or as a spring planting during April–May. The groundcover species will comprise the ground layer vegetation which, over time, will be supplemented by natural establishment of woodland flora.

7) Maintenance Plan

Invasive species (autumn olive and bush honeysuckle) that may compete with tree establishment will be removed on an annual basis. Removal should be done using a combination of mechanical and chemical means. The maintenance period will be 5 years. RPM trees are typically between 4 and 5 ft tall at the time of planting. Five years of growth is sufficient to ensure that the trees will outcompete any invading autumn olive.

8) Performance Standards

Two performance standards have been established in order to judge the success of the tree plantings.

1. There should be a minimum of 100 live stems per acre. At least 50% of the tree species should be from the planted stock. No one species may comprise more than 25% of the stems.
2. The surviving planted stock will have an average diameter at breast height (DBH) of 3 inches and will be an average height of 15ft at the end of the monitoring period.

9) Monitoring Requirements

A monitoring program will be initiated after final acceptance and installation of the planting material. Adena Resources is responsible for monitoring, maintenance, and implementation of any remedial measures. As discussed above, monitoring will continue until the surviving planted stock has an average DBH of 3 inches and will be an average height of 15ft.

Annual monitoring reports will be submitted no later than January 31 for the previous growing season. Reports will include the information identified below and will also include maps depicting the location of photographs and sampling plots.

The following information shall be collected during each monitoring event:

1. Conduct vegetation surveys to determine percent cover by species and the survival of planted species. A minimum of one observation plot per acre should be used.
    a. Herbaceous plant surveys will be conducted using 5-ft radius observation plots.
    b. Tree surveys will be conducted using 30-ft radius observation plots within the forested riparian buffers.
2. Take photographs at each observation plot (locations and view direction are to be marked in the field for consistency at repeat visits).
3. Describe any remedial measures such as replanting or invasive species removal that will be needed.

10) Long term management plan

The reforested area is designed to be self-sustaining. Once vegetation has been fully established and performance standards have been met, no long-term management is anticipated.

11) Adaptive management plan

Habitat restoration of any kind is challenging because of the uncertainties of nature. Potential challenges associated with the restoration of this mitigation area include invasive species establishment, erosion, herbivory, drought, and flooding. Remedial measures may be

necessary to remedy unforeseen problems or correct site deficiencies that arise during the required monitoring period. Failure to meet the proposed performance standards may result in some or all of the following remedial measures:

1) Supplemental plantings. Additional vegetation planting may be required to meet cover or plant survival standards.
2) Weed control. An integrated, environmentally safe approach that combines the appropriate control measures will be taken to eliminate any invasive, exotic, or volunteer species establishment.

These measures will be conducted annually, as needed during the monitoring period. In the event that these corrections are required they will be documented and reported in the annual monitoring reports will include follow up monitoring of those specific areas.

12) Financial assurances

The applicant is willing to provide the financial assurances necessary to complete restoration, monitoring, and maintenance.

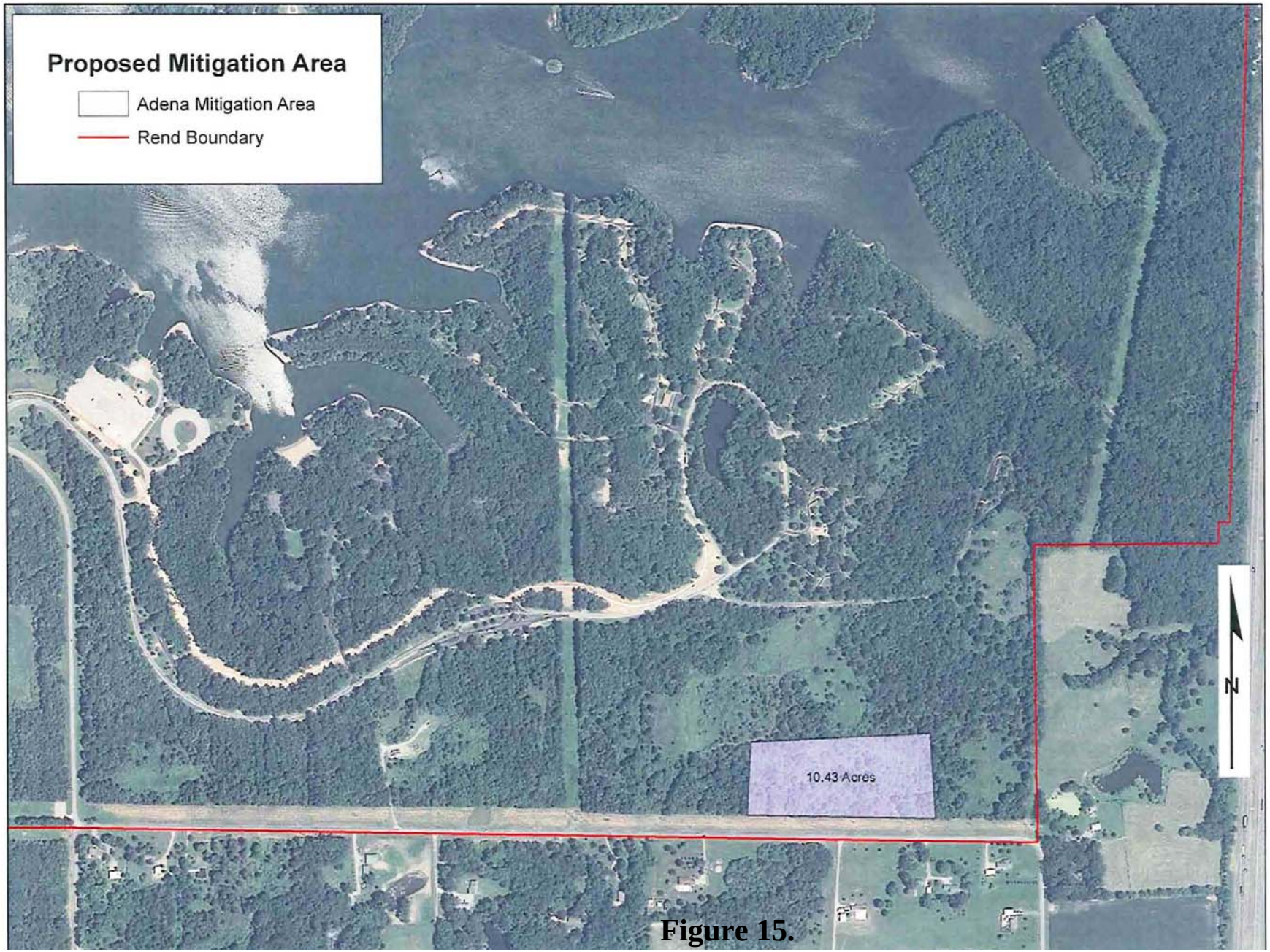
Proposed Mitigation Area
Adena Mitigation Area
Rend Boundary
10.43 Acres
N

Figure 15.

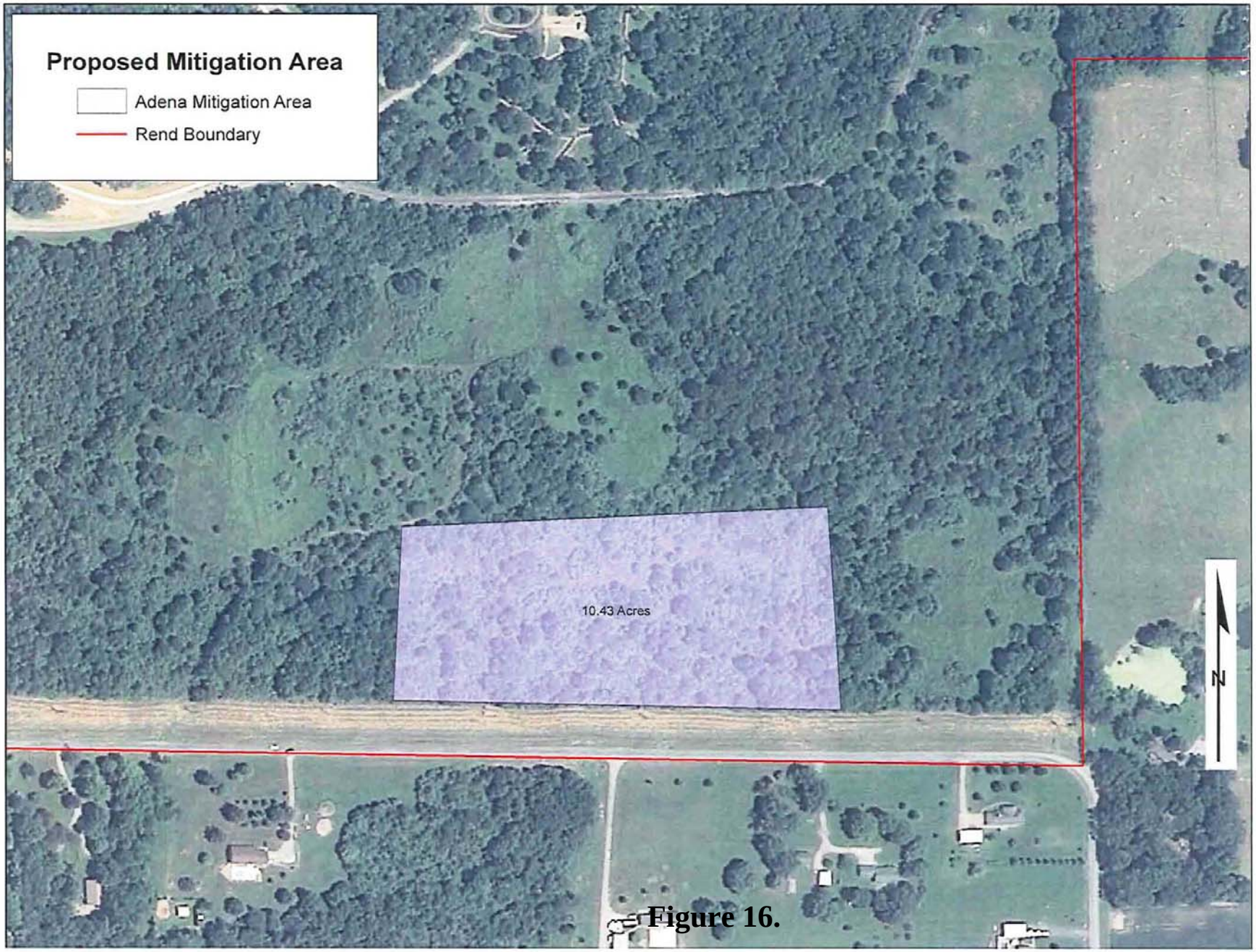
Proposed Mitigation Area
Adena Mitigation Area
Rend Boundary
10.43 Acres
N

Figure 16.