



Phase III - Engineering Feasibility Study

Lower Croxton Ditch Watershed

Pleasant Township, Steuben County, Indiana

October 2014

Prepared for:
Lake James Association
335 Lane 200E Lake James
Angola, Indiana 46703
260-833-1232

Prepared by:
Davey Resource Group
A Division of The Davey Tree Expert Company
1000 Airport Office Park North, Suite A
Fort Wayne, Indiana 46825
260-969-5990



Acknowledgments

This study was made possible by funding from the Indiana Department of Natural Resources (IDNR) Lake and River Enhancement (LARE) program and the Lake James Association (LJA). Davey Resource Group project team members conducted fieldwork, data collection, report writing and mapping, and public outreach services, and provided project oversight. The Davey Resource Group project team consisted of Caleb Asbury, Alicia Douglass, Ken Christensen, and Shawn Bruzda.

Thanks are due to Larry Gilbert, Steuben County surveyor, for collaboration on the project and providing assistance with landowner coordination.

Special thanks are also due to William Hartsuff and Frank Baade for their pursuit of the project and commitment to improving Lake James water quality.

Introduction

Project Purpose and Sponsor

LJA applied for and was awarded a LARE grant to conduct an Engineering Feasibility Study (EFS) for the lower portion of Croxton Ditch watershed in 2013. The purpose of the EFS was to identify, evaluate, and determine the feasibility of potential projects in the lower Croxton Ditch watershed that could improve water quality. Generally, a project is deemed feasible if it is physically possible to construct, the total cost to implement the project does not exceed predicted benefits, landowner(s) and affected stakeholders are agreeable to the project, and regulatory requirements do not restrict the project.

This project was sponsored by LJA whose members are predominantly landowners who own property contiguous to Lake James. The non-profit organization hosts social events and conducts outreach activities each year to promote an enjoyable lake life and good lake stewardship.

Contact information for LJA is provided below:

Lake James Association
335 Lane 200E Lake James
Angola, Indiana 46703
Phone: 260-665-8253
E-mail: lja.lakejames@gmail.com

A special committee of LJA called the Water Quality Committee sets goals and leads efforts to improve the lake water quality and aquatic habitat. To achieve goals ratified by LJA, the special committee partners with government agencies, businesses, and academia to conduct studies and complete projects to manage lake weeds and invasive species, reduce lake sedimentation, and sustain safe watercraft navigability on Lake James.

The Water Quality Committee was responsible for administering the Phase III–Engineering Feasibility Study. The primary contact for the committee is:

William Hartsuff
Lake James Association
714 South Wayne Street
Angola, Indiana 46703
Phone: 260-833-1232

Project Location and Physical Setting

Croxton Ditch watershed is located on the southeast side of Lake James in Pleasant Township, Steuben County, Indiana (Figure 1). Croxton Ditch watershed is a significant watershed of Lake James that encompasses 1,024 acres (414 hectares) and has one named tributary, Sowle Lateral, and a few unnamed tributaries. The watershed boundary was determined using StreamStats (HUC: 040500010803). The study area encompasses the lowermost portion of the watershed consisting of 96 acres (39 hectares) (Figure 2).

Croxton Ditch flows to a navigable boat channel connected to the lower basin of Lake James. The navigable channel serves as lake access for homes in the Lagoona Park and Venice Estates housing additions.

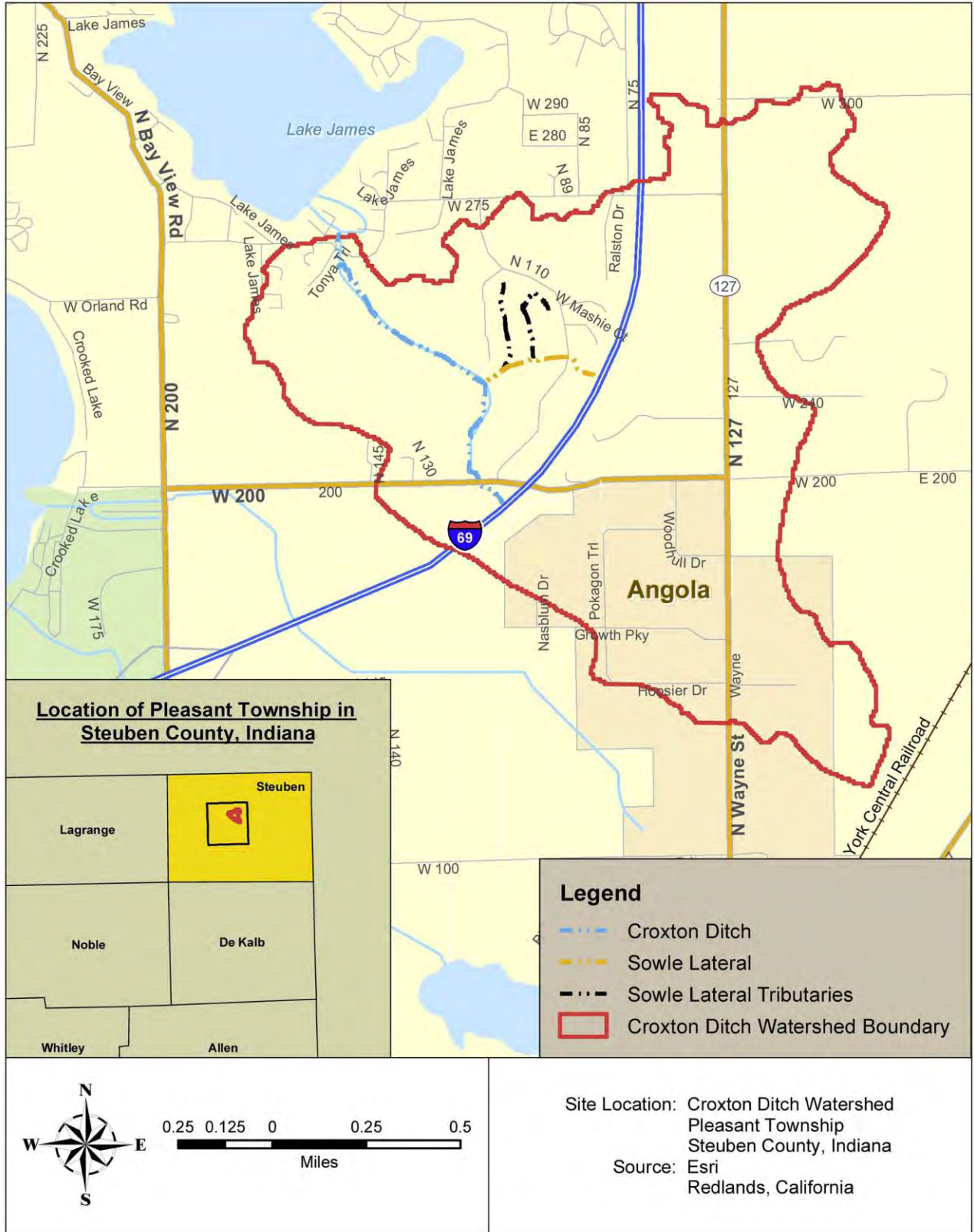


Figure 1. Croxton Ditch watershed location map.

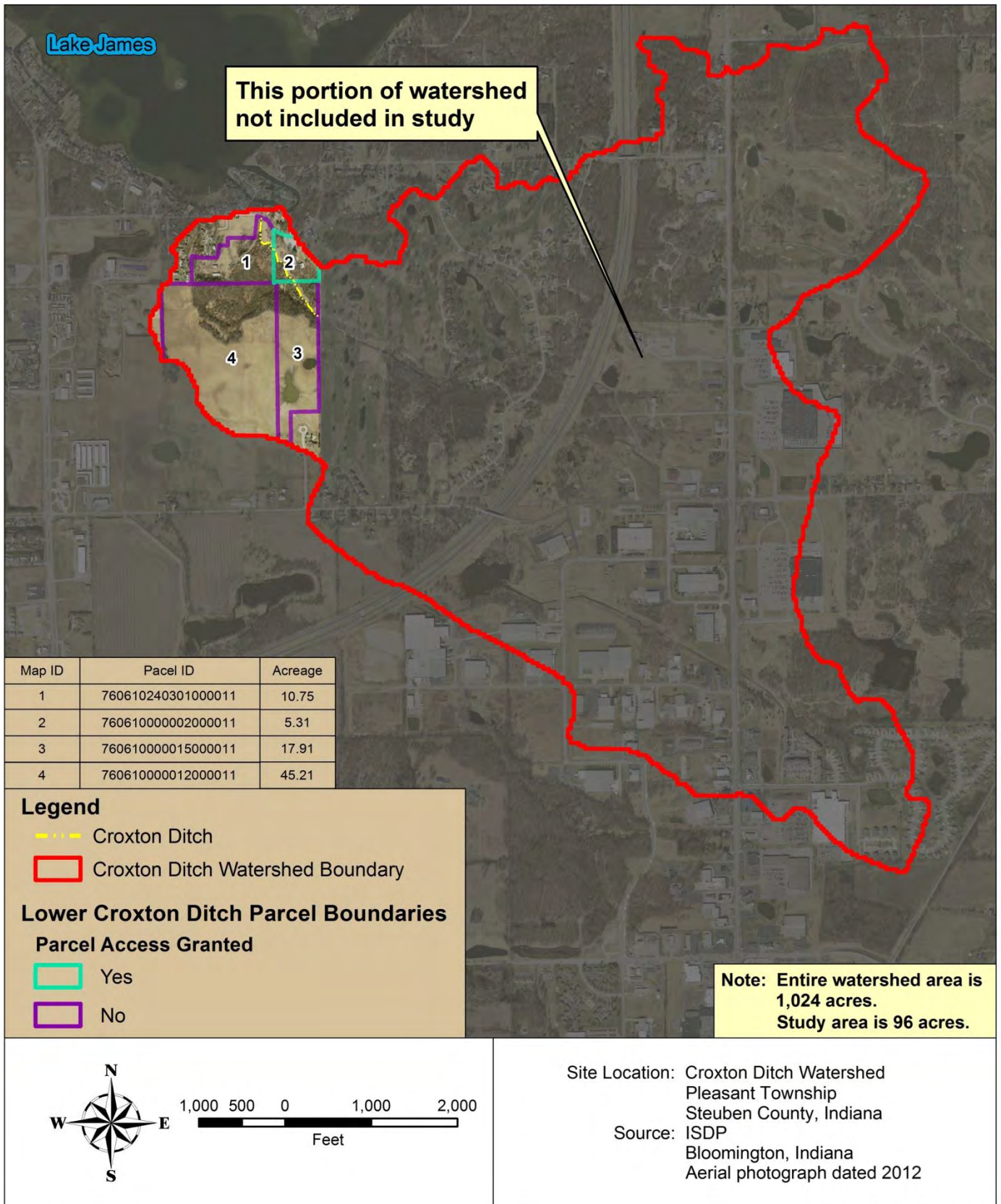


Figure 2. Croxton Ditch watershed project boundary

Historical Studies and Other Background Information

A feasibility study was performed on the Croxton Ditch watershed by William W. Hill and Associates in 1991. The study identified major issues affecting the watershed resulting from human activity.

In 2006, the *Lake James, Snow Lake, Big Otter and Little Otter Lakes Diagnostic Study* was completed by Aquatic Enhancement & Survey, Inc. Recommendations in this study included evaluating opportunities for wetland and streambank restoration south of County Road 275 North in the Croxton Ditch Phase III sub-watershed.

Inter-Fluve Inc. authored the *Croxton Ditch Improvement and Design Report* in 2011 providing a conceptual design project upstream of Interstate 69 just east of Pokagon Trail. This project design was updated by Gensic Engineering and implemented in summer 2013 using LARE program funding. Meanders, stream widening, and a wetland shelf were used to achieve the projects primary goals to decrease water velocity and sedimentation downstream.

Immediately downstream, a LARE program funded construction project is currently slated for 2014-2015 in the upper Croxton Ditch watershed through Gensic Engineering, Inc. on behalf of the Steuben County Surveyor. The project begins at State Road 127 (North Wayne Street) in Angola, Indiana, and runs upstream 800 feet (244 meters). Project goals include stream channel improvements and wetland reconstruction to provide decreased sedimentation and nutrient inflow to Lake James.

Davey Resource Group completed *Phase II – Engineering Feasibility Study and Engineering Design* for the middle Croxton Ditch watershed in 2013 which included an engineered design for stream restoration on the Lake James Golf Course to increase pollutant removal while decreasing on-site water velocity through installation of meanders, wetland pools, and vegetative shelves. The project was funded by the LARE program for construction by the Steuben County Surveyor in 2013.

Public Outreach

Public outreach efforts were conducted to manage the spread of information between LJA and the public. Davey Resource Group provided information to LJA through their annual pancake breakfast meeting on July 12, 2014.

Feasibility Assessment Results

The 95.88 acres (38.80 hectares) comprising the lower Croxton Ditch is owned by three landowners. Davey Resource Group was not granted permission to assess Steuben County parcel numbers 760610240301000011, 760110000012000011, and 760610000015000011 for the potential for development of water quality improvement projects (Figure 2). These parcels comprise 73.87 acres (29.89 hectares) out of 79.18 acres (32.04 hectares) within critical locations of the study area. Davey Resource group was granted permission to access Steuben County parcel number 760610000002000011 owned by Lake James Golf Course. The streambank within Lake James Golf Course property is forested in this area.

Significantly feasible water quality improvement projects could not be identified in the lower Croxton Ditch. Without cooperation from either landowner surrounding Lake James Golf Course, large projects such as wetland creation or enhancement could not be pursued.

Streambank stabilization along Croxton Ditch on Lake James Golf Course property could be accomplished; however, implementing such practices would not be justifiable given the small stream length and riparian qualities found on-site.

Larry Gilbert, Steuben County Surveyor, was contacted to inquire if he was aware of any potential projects that could be evaluated within the greater Lake James Watershed. Mr. Gilbert was not aware of any potential project locations.

Davey Resource Group, Doug Nusbaum (IDNR LARE), and the LJA Board Members (Frank Baade and William Hartsuff) discussed insufficient landowner interest in the project on July 28, 2014. A determination was made to conclude Phase III of the Croxton Ditch EFS and reserve leftover funds to supplement the LARE grant awarded to other LARE Program funded construction projects.

References

- IDNR, Division of Fish and Wildlife Lake and River Enhancement Program. Scope of Services, Engineering Design Project. <http://www.in.gov/dnr/fishwild/files/fw-Scope_Engineering_Design_Project_Oct_2013.pdf>. Accessed October 28, 2013
- InterFluve, Inc. 2011. Croxton Ditch Improvement Project, Angola, Indiana, Design Report.
- U.S. Geological Survey. Angola East and Angola West Quadrangles, Indiana [map]. Revised 1992 and 1993. 1:24,000. 7.5 Minute Series. United States Department of the Interior. Reston Virginia.
- U.S. Geological Survey: StreamStats. Available online at <<http://water.usgs.gov/osw/streamstats/>>. Accessed October 10, 2013.
- William W. Hill and Associates. 1991. *Lake James Croxton Ditch Watershed Engineering Feasibility Study*.
http://www.in.gov/dnr/fishwild/files/Lake_James_Croxton_Ditch_Feas_Study-LaGrange98.pdf