

# NORTH WALNUT TOWNSHIP STORM WATER CONVEYANCE STUDY

February 25, 2022

## EXHIBIT A- SCOPE OF WORK & FEE SCHEDULE

The scope of services for the North Walnut Township Storm Water Conveyance Study includes the following. **Figure 1** attached shows the study area of the project.

### Task 1 Data Collection

ms consultants team will request/obtain the following data to conduct the study.

- a) As-built plans for ODOT SR 360 and other pertinent drainage plans.
- b) Required hydrologic GIS data sets including but not limited to land use, impervious areas and National Hydrography layers.
- c) County GIS data including parcel layers, right of way layers and 2-foot contours
- d) Latest available Ohio Statewide Imagery Program LiDAR and Ortho photos.
- e) CCTV videos of storm infrastructure conducted by others

### Task 2 Survey and Field Investigations

ms consultant's team will perform necessary survey work to develop a topographic map of the study area. The topographic survey/basemap of the area shall include 1-foot contours, parcel lines from the County GIS and aerial imagery. The topographic map of the area shall be sufficient to determine the hydrology in the study area and be developed per the ODOT survey and mapping standards section 504, mapping surveys. Survey will include the following

- Aerial Survey of the project area capable of producing a digital elevation model that can help generate 1 foot contours.
- 120 feet on each side of the roadways along SR 360 and thorough fares for collecting surveying utilities not identified by the aerial survey, in the attached **Figure 1**.
- 50 feet on each side along side streets for surveying utilities not identified by the aerial survey, in the attached **Figure 1**.
- All storm infrastructure including existing storm infrastructure, tiles, storm outlets and other utilities in the Right of Way noting the routing and discharges as well as their size, material type and structure types.
- Channel cross-sections every 50 feet along Lateral A and Seller's Point Spillway Outlet Channel to their confluences with the South Fork of the Licking River, in the attached **Figure 2**.
- All structure crossings with dimensions of low chord, stream bottom, culvert type and size along Lateral A, Seller's Point Spillway Outlet Channel, and No- Name Creek, in the attached **Figure 2**.
- Survey along proposed option corridors in the attached **Figure 3**.
- Channel cross-sections every 100 feet along No-Name Creek to its confluence with the South Fork of the Licking River, in the attached **Figure 4**.
- Subsurface Utility Engineering Level B for utilities in the Right of Way. DHDC will be conducting the SUE work for the project.
  - DHDC will be responsible for the creation of a Utility Coordination Log, reconnaissance and planning of field services and utilities clearance.
  - SUE for QL-B (Horizontal Markings – Paint, Flags, and Sketches ONLY), along with a report of findings, basemap showing locations and all horizontal measurements recorded from the locating of the utilities.

- As-needed CCTV for understanding routing of storm discharges and blockages, will be provided by EMH&T.
  - These services could include condition assessment, size, location of sewers and other site conditions up to maximum fee not exceeding \$10,000
- Before private property survey, ms team will submit field survey/investigation notifications 2 weeks prior to the survey at the property.

### **Task 3 Base mapping**

ms consultant's team will complete basemap for the project and existing surfaces in 2020 Autodesk Civil 3D and existing surface models and alignments (if applicable) will be provided as a deliverable in Land XML format.

### **Task 4 Hydrologic and Hydraulic Analyses**

Given the topography, mixed land use and existing infrastructure, the design team will utilize a watershed based approach to developing the model for the existing and proposed conditions. This model will be developed based on the parameters below.

- Watershed Modeling
  - The ms consultants team will develop a two-dimensional model to encapsulate the existing conditions model for stormwater drainage infrastructure, ditches, and natural channel conveyance means such as Lateral A, the Sellers Point Spillway Outlet and No Name Creek.
  - The two-dimensional model will be developed using the PCSWMM modeling software to incorporate the ability to model conduits, open channels, storage areas, as well as routing throughout the watershed. The two-dimensional mesh will be incorporated to determine the areas of flooding, for flow routing and for mapping any proposed improvements.
  - The South Fork of the Licking River is known to be a cause of backwater in the study area, therefore a Coincidental Peak Analysis will be completed to determine the various exceedance scenarios within the study area. HEC-SSP will be used for a gage analysis to determine the hydrographs for all necessary recurrence intervals on the South Fork of the Licking River.
  - All modeling calculations for the existing and proposed conditions for the watershed will be developed to meet the desired 25-year level of service for any improvements. Other recurrence intervals will be incorporated as necessary.
  - Once the existing conditions model has been developed a level of service will be developed to determine the current system capacity. Alternatives Modeling will be based on the Task 5 Alternatives Analysis and will include updating the modeling to include the alternatives and generate mapping and output for the Public Meetings and Stormwater Master Plan.

### **Task 5 Alternatives Analysis**

There are many stormwater management options that could be utilized as part of an Alternatives Analysis, including but not limited to detention structures, open channels, pump stations, cooperative stormwater management systems, and green infrastructure systems.

- Development of Alternatives will include
  - Drainage alternatives for the Lakeside Area, SR 360, and future developments such as Hollywood by the Lake, will be developed.
  - Preliminary design of storm infrastructure to collect and convey the design storm events, and may contain items to reduce flooding such as backflow preventers to mitigate backwater flooding, detention structures with or without pump systems to manage runoff while the receiving waters are flooded.
  - In the Lakeside area, green infrastructure options will be investigated with collection and storage of runoff, along with potentially lowering the roadway and the installation of curb and gutter to improve the drainage patterns.
  - New storm sewer or rehabilitation of existing storm sewers from SR 360 to the South Fork of the Licking River (SFLR) or No Name Creek have been suggested in various locations. We will look at more efficient ways to collect roadway runoff and convey the flow to these outlets.
- Preferred Alternative/s Selection will be completed by the ms team, to provide the most cost effective alternative.
- Opinion of Probable Construction Cost Estimates will be generated for each Alternative to use as a basis of comparison.

#### **Task 6 Preferred Alternative Phasing Plan**

- A phasing plan will be developed working with the local stakeholders for implementation based on the Preferred Alternative.
- Preferred Alternative Conceptual Drawings will be developed to show the improvements and potential impacts to the surrounding areas.

#### **Task 7 Public Meetings**

ms consultant's team will participate in two public meetings led by the township to present the details of the plan. ms team will prepare exhibits and material for the meetings and respond to any public comments.

#### **Task 8- Stormwater Master Plan**

ms consultant's team will develop a storm water master plan report which will document the methodology and results from data collection, survey and field investigations, Hydrologic and Hydraulic Analyses, Alternatives Analysis and preferred alternative. Included will be, major infrastructure elements/component size, area, depth/volume including but not limited to conveyance pipes, ditches, waterways, and detention ponds with inverts and elevations notes. A phasing plan for the preferred alternative projects will be developed and funding opportunities will be identified.

#### **Task 9 Project Management and Meetings**

ms consultants team has established a set of project management procedures that drive and deliver our work on every project. This process relies greatly on cooperation, communication, and close coordination in all efforts.

- Upon receipt of the Notice to Proceed, the ms team will conduct a kickoff meeting to discuss priority tasks and provide a project schedule detailing the task completion dates.
- Monthly project status meetings are anticipated. ms team will discuss the status of the project and share task results to date.
- ms team will conduct necessary stakeholder coordination to obtain information from ODOT, Fairfield County Soil and Water, Licking County Sewerage department etc.
- Monthly invoices will be submitted to the township. A progress report will be submitted with each invoice.

### **Project Deliverables**

Project deliverables are to include:

- Stormwater Master Plan Report and Appendices.
- Exhibits for Preliminary layout of storm infrastructure .
- Basemap files to include a 2020 Autodesk Civil 3D surface for existing conditions in Land XML format.

## FEE SCHEDULE

North Walnut Township Storm Water Conveyance Study					
Task	HOURS	LABOR FEE	OTHER DIRECT COSTS	SUBCONSULTANT COSTS	TOTAL FEE
TASK 1 - DATA COLLECTION	52	\$ 6,825.00	\$ -	\$ -	\$ 6,825.00
TASK 2 - SURVEY AND FIELD MAPPING	360	\$ 36,173.00	\$ 2,650.00	\$ 27,306.00	\$ 66,129.00
TASK 2 - AERIAL SURVEY (MAN MAPPING)		\$ -	\$ 28,750.00	\$ -	\$ 28,750.00
TASK 2 - CCTV (EMH&T)	2	\$ 489.00	\$ -	\$ 10,000.00	\$ 10,489.00
TASK 2 - SUBSURFACE UTILITY INVESTIGATION (DHDC)	2	\$ 489.00	\$ -	\$ 15,000.00	\$ 15,489.00
TASK 3 - BASE MAPPING	124	\$ 18,519.00	\$ -	\$ -	\$ 18,519.00
TASK 4 - HYDROLOGIC AND HYDRAULIC ANALYSES	334	\$ 48,632.00	\$ -	\$ -	\$ 48,632.00
TASK 5 - ALTERNATIVES ANALYSIS (MS & EMH&T)	274	\$ 38,000.00	\$ -	\$ 29,050.00	\$ 67,050.00
TASK 6 - PREFERRED ALTERNATIVE PHASING PLAN (MS & EMH&T)	194	\$ 34,800.00	\$ -	\$ 15,000.00	\$ 49,800.00
TASK 7 - PUBLIC MEETINGS	180	\$ 18,172.00	\$ -	\$ -	\$ 18,172.00
TASK 8 - STORMWATER MASTER PLAN	260	\$ 45,409.00	\$ -	\$ 15,000.00	\$ 60,409.00
TASK 9 - PROJECT MANAGEMENT AND MEETINGS	144	\$ 38,159.00	\$ -	\$ -	\$ 38,159.00
TOTAL HOURS/FEE	1926	\$ 285,667.00	\$ 31,400.00	\$ 111,356.00	\$ 428,423.00

TASK	MONTH									
	3	4	5	6	7	8	9	10	11	12
TASK 1 - DATA COLLECTION	█									
TASK 2 - SURVEY AND FIELD MAPPING	█	█								
TASK 2 - AERIAL MAPPING (MANN MAPPING)	█									
TASK 2 - CCTV (EMH&T)		█				█				
TASK 2 - SUBSURFACE UTILITY INVESTIGATION (DHDC)		█								
TASK 3 - BASE MAPPING		█	█							
TASK 4 - HYDROLOGIC AND HYDRAULIC ANALYSES		█	█	█	█					
TASK 5 - ALTERNATIVES ANALYSIS (MS & EMH&T)					█	█	█			
TASK 6 - PREFERRED ALTERNATIVE PHASING PLAN (MS & EMH&T)							█	█		
TASK 7 - PUBLIC MEETINGS						█			█	
TASK 8 - STORMWATER MASTER PLAN							█	█	█	█
TASK 9 - PROJECT MANAGEMENT AND MEETINGS	█	█	█	█	█	█	█	█	█	█



\*The goal of the study is to complete Phasing and Alternatives Analysis for the Lakeside neighborhood area of the project by September, with the rest of the project area being completed by end of the year.

**Legend**

 Project Area



Figure 01  
Project Area

**Legend**  
 Project Area  
 Road Survey Area

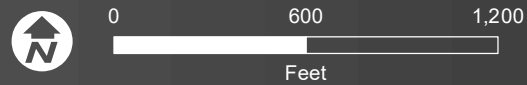


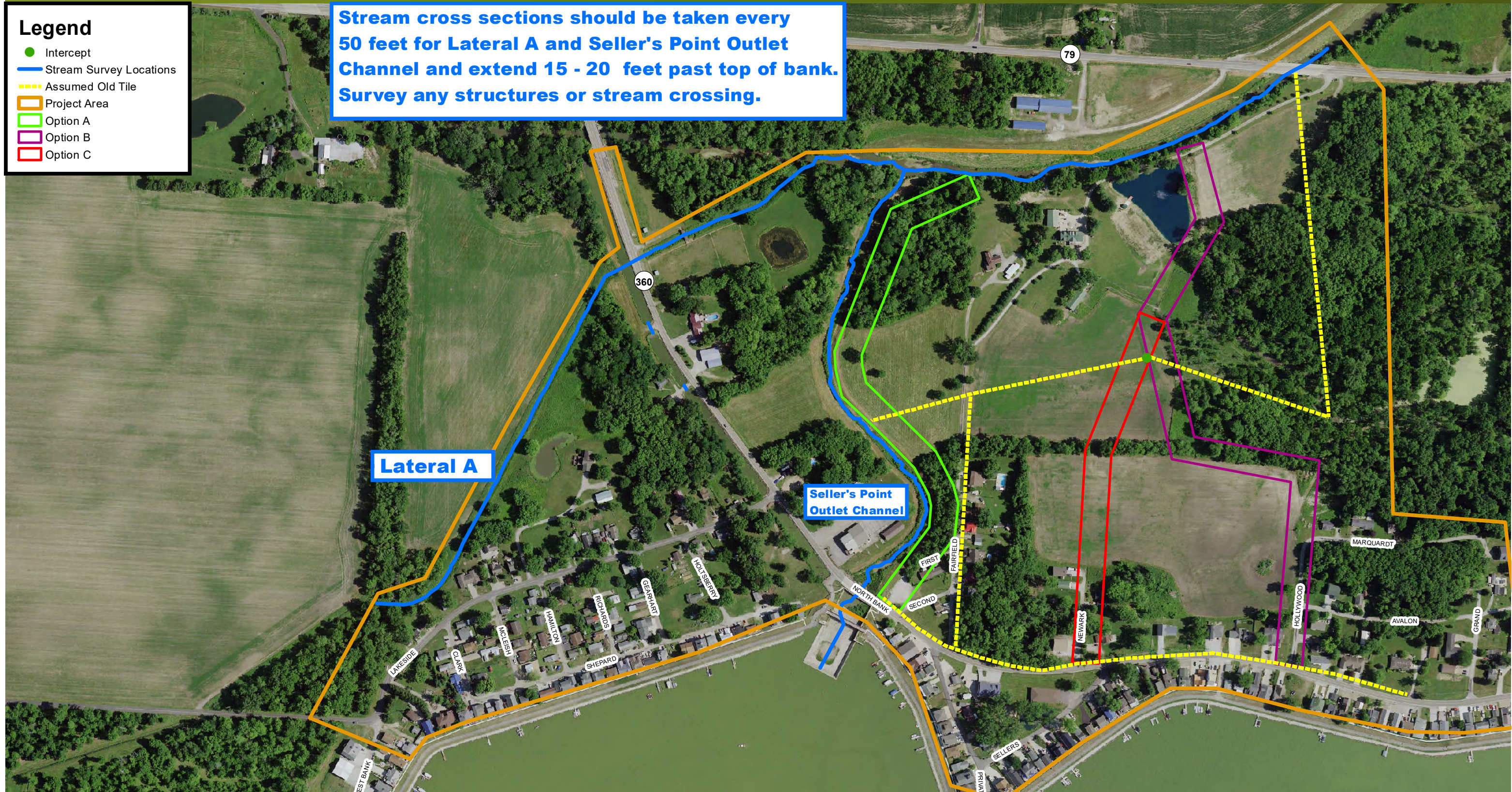
Figure 02  
Survey Areas: Streets



**Legend**

- Intercept
- Stream Survey Locations
- Assumed Old Tile
- Project Area
- Option A
- Option B
- Option C

**Stream cross sections should be taken every 50 feet for Lateral A and Seller's Point Outlet Channel and extend 15 - 20 feet past top of bank. Survey any structures or stream crossing.**



**Lateral A**

**Seller's Point Outlet Channel**

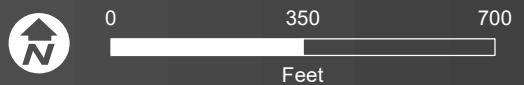


Figure 03  
Survey Areas: Stream and Sewer

**Legend**

- Proposed Cross Sections
- Stream Survey Locations
- Project Area

**Cross Sections should extend 15 - 20 feet past top of bank. Survey any structures or stream crossing.**

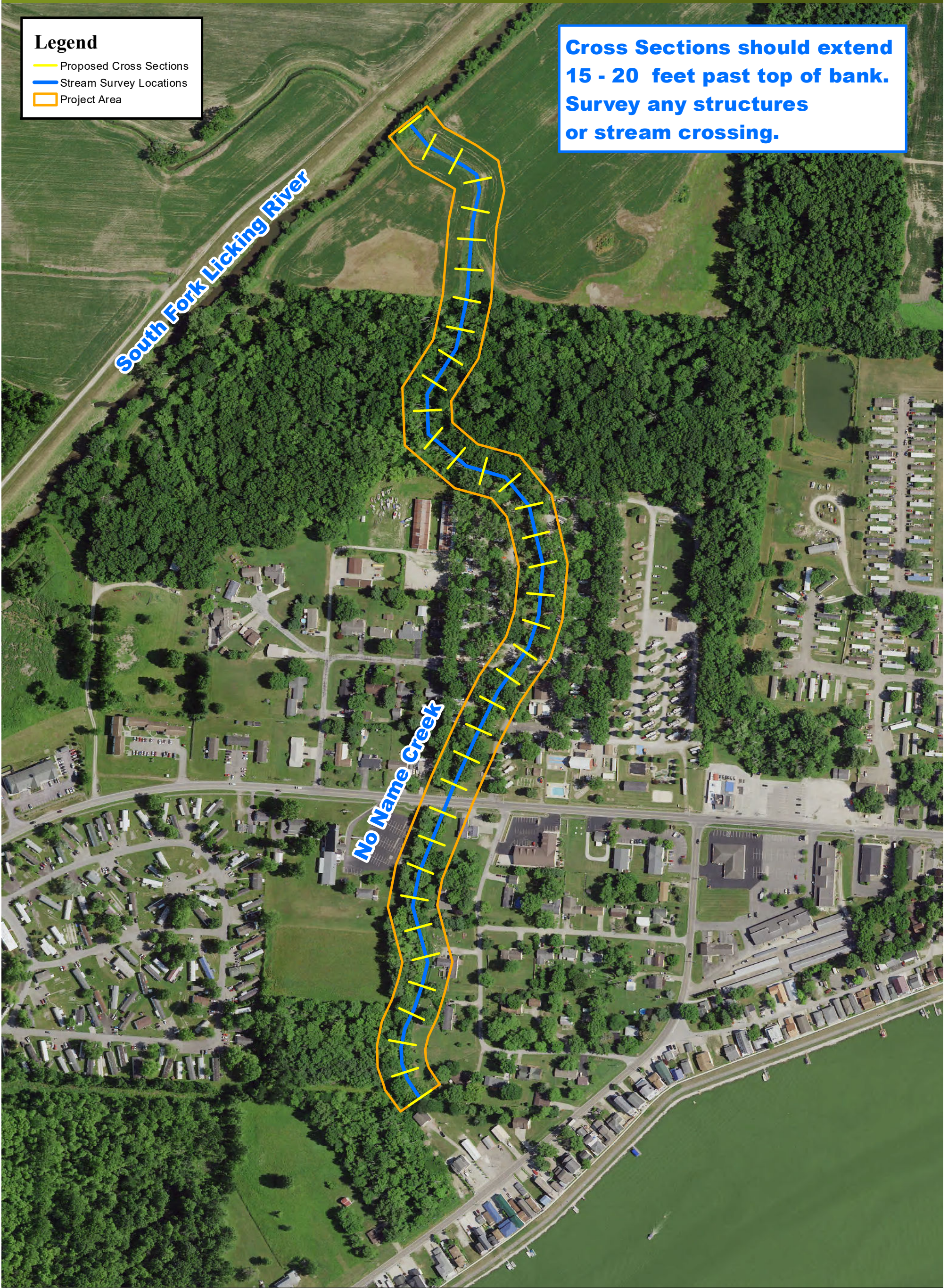


Figure 04  
Survey Area: No Name Creek