WILLETT HOFMANN
& ASSOCIATES INC
ENGINEERING ARCHITECTURE LAND SURVEYING

625 32nd Avenue SW, Cedar Rapids, IA 52404
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JPRIMUS@WILLETTHOFMANN.COM

PREPARED FOR : Independence IOWA Celebrate our spirit!

STATEMENT OF QUALIFICATIONS

FOR
STORM DRAINAGE IMPROVEMENTS IN THE 812 3RD STREET NW AREA

COVER LETTER

February 14, 2024

City of Independence
Mr. Matthew Schmitz, City Manager
331 1st Street East
Independence, IA 50644

Re: Statement of Qualifications - Storm Drainage Improvements
812 3rd Street NW Area

Dear Mr. Schmitz:

Thank you for the opportunity to submit our Statement of Qualifications for your Storm Drainage Improvements Project. We are excited for the chance to work with you. A great design starts with an excellent team of professionals. This proposal highlights the accomplishments of those on the team we have assembled to provide a quality product for the City of Independence.

Our office in Cedar Rapids, IA will service your needs for this project. We have 4 licensed professional engineers in this office and 1 Engineering Intern.

I will be your primary contact for your project's needs. My contact information is:

Jordan K. Primus, PE
625 32nd Avenue SW
Cedar Rapids, IA 52404

Ph: 319-378-1401
Cell: 319-329-1188
Email: jprimus@willetthofmann.com

We will be pleased to meet with you at your convenience to discuss our firm's qualifications in greater detail, and we will be happy to provide you with additional information at your request.

Thank you for your consideration.

Sincerely,

BY Jordan Primus

Jordan K. Primus, PE
General Manager, Cedar Rapids Office

FIRM INTRODUCTION

With a history that dates back to 1935, Willett, Hofmann & Associates, Inc. (WHA) is a professional, award winning, multi-discipline organization, unique in both its capabilities and credibility, licensed to provide professional civil engineering, structural engineering, architectural design, and professional land surveying services. WHA has been providing professional design and land surveying services to municipalities, townships, counties, state agencies and private enterprises since our inception. We have a talented and diversified staff of more than 60 full-time employees who are experienced and qualified to provide and extensive range of professional services, including architectural design, structure engineering, transportation engineering, water & wastewater engineering civil site design, land surveying services, and construction staking, observation, and administration services.

Because WHA is owned solely by licensed professionals on staff, our clients frequently enjoy the benefits of working directly with an owner of the company. We are dedicated to serve our clients Ethically, Responsively and Professionally with highly trained and skilled staff - an organization philosophy that has fostered numerous long-standing clients, some of whom we have been serving since 1935.

PROFESSIONAL STAFF

31 Licensed Professional Engineers (AL, AR, AZ, CT, CA, CO, DC, DE, FL, GA, IA, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, NC, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WI, WV)
6 Licensed Structural Engineers (IL, CA)
6 Licensed Professional Land Surveyors (IA, IL, MO, WI)
3 Licensed Architects (AR, IA, IL, IN, KS, MO, MN, ND, OH, TN, WI)
2 Leadership in Energy and Environmental Design Accredited Professionals (LEED AP BD+C)
1 Licensed Class A Water Operations (IL)
1 Licensed Class I Wastewater Operator (IL)
4 Certified Bridge Program Managers (IA, IL, WI)
5 Certified Bridge Team Leaders (IA, IL, WI)

CITY OF ROCKFORD, IL - HARMON PARK DRAINAGE IMPROVEMENTS

Client: City of Rockford, IL
Contact: Tim Hinkens, PE, City Engineer
Email: tim.hinkens@rockfordil.gov
Construction Cost: $980,000

Scope of Work:
Topographic Survey, Storm Water Detention Analysis and Design, Roadway Design, Energy Dissipation Design, Mass Grading, Construction Observation

This project is the cornerstone phase of a 10-phase project that began in 2007 to reduce major flooding events in the Harmon Park area of Rockford. It involved the transformation of a park into a detention area / green space which is usable during dry weather but carries major storm water flows during wet weather.Inlet and outlet energy dissipation and safety were major influences on the final design, since part of the area is still a park. Just under 28,000 cubic yards of earth was removed from the site during the construction of the detention area. The project integrates modern-day detention practices into a residential area that was not developed with the thought of storm water detention in mind. This project was a 2017 ACEC Merit Award Winner.

VILLAGE OF CEDARVILLE - DRAINAGE IMPOVEMENTS

Client: Village of Cedarville, IL
Contact: Jeremy Monigold, Village President
Email: jeremy.monigold@highland.edu
Construction Cost: $220,000

Scope of Work:
Topographic Survey; Hydrologic Calculations;
Design of Inlets, Storm Sewer and Erosion Control Measures;
Construction Plans and Specifications

Willett Hofmann & Associates, Inc. provided design and construction engineering services for drainage improvements and erosion control for problem areas on Oak Ridge Drive, Cedar Street, Mill Street and Washington Street in the Village of Cedarville, IL.

The Oak Ridge Drive Improvements included removal and replacement of a portion of the existing cul-de-sac, construction of new curb and gutter, inlets, and storm sewer to reduce overland sheet flow on private property to the natural drainage swale. The swale was graded to repair erosion damage and better accommodate the volume of flow and permanent turf reinforcement was placed to protect it from future erosion.

The Cedar, Mill and Washington Street improvements included removal and replacement of entrance and roadway culverts, regrading existing overland flow areas and installation of new storm sewer. The new storm sewer was installed to intercept overland flow that was creating short term flooding issues on residential property due to plugged culverts and undefined overland flow routes. The improvements also addressed erosion issues through a park and at the inlet of a box culvert under Washington Street.

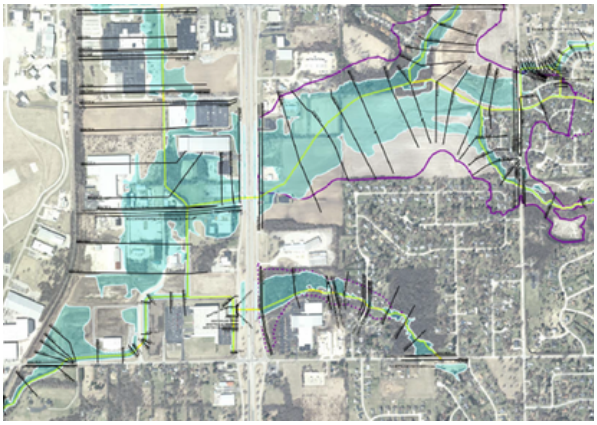
CITY OF POLO - COLDEN STREET DRAINAGE BASIN IMRPOVEMENTS

Client: City of Polo, IL
Contact: Doug Knapp, Mayor
Email: dougknapp52dek@gmail.com
Construction Cost: $3,000,000

Scope of Work:
Topographic Survey, Drainage/Storm Sewer Design, Roadway Design, Water Main Design, Sanitary Sewer Design

The project consisted of the design of a storm sewer system capable of conveying the 50-year design storm to alleviate significant flooding issues in the Colden Street Drainage Basin. The significant increase in storm sewer sizing also required the design of sanitary sewer and water main relocations to avoid underground conflicts. Finally, the project required the design of roadway elements (pavement, sidewalk, curb and gutter, etc.) as required for restoration. During the feasibility study of this project, it was necessary to determine what the impacts would be for the storm system outlet area to determine the environmental impacts and any mitigation necessary to facilitate the project. It also involved determining what storm elements should be improved to create the biggest impact on the flooding problem. Improvements with the largest impact were carried forward.

CITY OF ROCKFORD - AIRPORT EAST DRAINAGE STUDY



Client: City of Rockford, IL
Contact: Brad Holcomb, Stormwater Program Manager
Email: brad.holcomb@rockfordil.gov

Willett, Hofmann & Associates was hired by the City of Rockford to review and verify the previous study results, and develop an updated study and map of the Airport East Ditch drainage basin flooding.

The study began with hydrologic analysis and analysis of overland flow characteristics of the project area. The HEC-HMS hydrologic model utilized information generated by WHA subbasin delineation, storage area identification, review of land use and local soil hydrologic properties, and incorporation of Bulletin 70 rainfall depths and Huff rainfall distributions. Hydrologic modeling utilizing HEC-HMS creates runoff hydrographs, representing hydraulic flow data, for use with hydraulic modeling software HEC-RAS.

Initial modeling of the study area was anticipated to be steady flow. However, after review of hydrologic modeling results it was determined that an unsteady hydraulic model was required. Unsteady hydraulic modeling incorporates a time component to hydraulic flows, thereby accurately modeling areas of hydraulic storage. While not always necessary to produce adequate results, when encountering study areas with large amounts of hydraulic storage, such as the Airport East Ditch drainage basin, it becomes important to include the unsteady hydraulic storage effects for the best representation of the study area.

Hydraulic modeling of the drainage basin included 13 reaches, 355 cross sections, 1 bridge, 55 culverts, 2 inline structures, and 8 lateral structures. One hydraulic structure required analysis outside of HEC-RAS and was modeled in HydroCAD. Results of the HydroCAD model for this structure were then incorporated within the project HEC-RAS model. The model was run mixed flow reflecting areas of both subcritical and supercritical flow within the study limits. The critical storm was then determined based on worst case affects throughout the drainage basin. Final flood elevation data was then processed to produce a fully comprehensive flood map of the Airport East Ditch drainage basin.

WHA created additional flood mapping reflecting multiple proposed flood improvement projects.

VILLAGE OF DAVIS JUNCTION - HARVEST GLENN RECONSTRUCTION & DRAINAGE IMPROVEMENTS

Client: Village of Davis Junction, IL
Contact: Brad Holcomb, Stormwater Program Manager
Email: brad.holcomb@rockfordil.gov
Construction Cost: $705,000

Scope of Work:
Topographic Survey, Roadway Design, Sidewalk & ADA Compliance Design, Storm Water and Storm Sewer Design, Lighting Design, Project Bidding & Award, Pre-Construction Meeting, Shop Drawing Review, Construction Staking, Inspection, Documentation & Administration

Willett, Hofmann & Associates, Inc. provided topographic surveying, boundary and right-of-way surveying, hydraulic design, roadway design, easement preparation, construction staking and construction engineering services for the Harvest Glenn Plat 10 Phase 1 Street Reconstruction and Drainage Improvements. This project included the reconstruction of 2,300 feet of municipal streets for the Village of Davis Junction. The design included the removal of bituminous street surface, reconstructing the aggregate base course, and reconstruction of the hot-mix asphalt with concrete shoulders. Our services also included the design of several concrete ditches and pipe culvert replacements as part of the drainage improvements.

EASTLAND COMMUNITY SCHOOL - DISTRICT DRAINAGE STUDY & BASEBALL DIAMOND IMPROVEMENTS

Client: Eatland Community School District
Contact: Kyle Todd, Director of Operations
Email: ktodd@eastland308.com
Construction Cost: $158,000

Scope of Work:
Topographic Survey, Drainage Analysis, Study and Report; Civil/Site Design, Architectural Design, Construction Plans and Specifications, Construction Observation

The Eastland Community School District in Lanark, IL contacted Willett, Hofmann, and Associates, Inc. (WHA) to perform a drainage study to examine the runoff generated from both on and off-site sources that had caused and had the potential to cause significant damage to the existing Junior/Senior High School. WHA performed the study and developed several alternatives that would alleviate potential off-site runoff from an overflowing onsite detention pond and entering the first floor of the school building and alleviated runoff from the baseball diamond flooding the doorways into the school locker rooms. The School District then decided to move forward with an alternative that resulted in the construction of a new concourse around the baseball diamond that would incorporate the recommended drainage improvements, including the construction of new dugouts that would match the existing school's exterior, and providing ADA accessibility to an area of the school site that was previously inaccessible.

KEY STAFF

Jordan Primus, PE
Project Manager

Mike Dryden, PE
Blake Wieser, PE
Jon Tienda, EI
Civil Engineering

Chad Macke, PLS
Ben Ernst, PLS
Land Survey

JORDAN K. PRIMUS

PE

POSITION

Engineering Manger

General Manager, Cedar Rapids Office

EDUCATION

Bachelor of Science Civil Engineering

University of Iowa - 2016

EMPLOYMENT HISTORY

Willett, Hofmann & Associates, Inc.

2016 - Present

7 Years Total Experience

REGISTRATION

PE/IL/2021	062-072793
PE/IA/2021	26587
PE/MO/2022	2022016290

PROFILE

Jordan is the General Manager of the Cedar Rapids office with experience in the evaluation, planning, and design of bridges and structural systems. He has also been involved with the geometric layout and roadway design elements for several bridge approaches.

As a design engineer, Jordan has performed hydraulic and structural analysis of bridges and culverts, temporary works analysis including shoring and formwork, and has been involved with contract documentation on several bridge projects.

EXPERIENCE

Kendall County Highway Department - Grove Road over West Aux Sable Creek

Jordan was responsible for the design of a double barrel (2 @ 13′-0″ x 8′-0″) reinforced concrete box culvert. Both ends of this culvert were skewed 15° and the culvert was skewed to the roadway about 7°. This created trapezoidal shaped top and bottom slabs and required extra reinforcement detailing on each end of the culvert.

Ogle County Highway Department - Pleasant Grove Road over Spring Creek

Jordan was responsible for the hydraulic calculations and structural design of a triple barrel (2 @ 13′-6″ x 8′-0″) reinforced concrete box culvert skewed 10° to the roadway.

Mercer County Highway Department - TR 228 over North Pope Creek

Jordan was responsible for the hydraulic calculations and structural design of a double barrel (2 @ 13′-0″ x 8′-0″) reinforced concrete box culvert with no skew. The roadway across this culvert was in a vertical and horizontal curve which added complexity to the hydraulic modeling and layout of the culvert.

Bureau County Highway Department - Various Culvert Replacement

Jordan was responsible for the hydraulic calculations and sizing of five corrugated structural plate arches and three precast concrete box culverts. A few of these structures also included cast-in-place concrete headwalls and wingwalls so that the culvert length could fit within the right of way.

MICHAEL G. DRYDEN

PE

POSITION
Civil Engineer IV

EDUCATION
Bachelor of Science Civil Engineering
Iowa State University

EMPLOYMENT HISTORY
Ament Design, 1984 - 2020
Willett, Hofmann & Associates, Inc.
2020 - Present
39 Years Total Experience

REGISTRATION

PE/IA/1989	11440
PE/IL/2006	062-058992

PROFILE

Mr. Dryden serves as a Project Manager in the civil engineering department. During his 39 years of experience, Mr. Dryden's municipal projects have included numerous roadway reconstructions, streetscape projects, storm sewer improvements projects, water main projects, water towers, RCB culverts, sanitary sewer collection projects, and lift station projects, with many of these projects involving construction administration and observation. In addition to municipal projects, his experience includes site design projects consisting of major subdivisions and commercial and industrial sites for private clients.

EXPERIENCE

Cedar Rapids, IA - Stream Bank Restoration

Willett, Hofmann provided the design for the repair of multiple storm sewer structures, eroded stream banks, and eroded levee banks damaged during wet weather events. Repairs consisted of the installation of new storm sewer structures, scour protection for future flooding events, bank replacement and re-grading, bank stabilization with geotextile products (turf reinforcement mats, slope protection mats), tree protection to limit disturbance to established trees and root structures, and sustainable slope stabilization with willow rootlets / joint planting.

Amana, IA - Hotel Millwright

Developed the site of the former woolen mill in Amana, Iowa for a conversion to a boutique hotel. The project included bioretention basins, bioswales and pervious pavers for water quality improvement. The design also included electrical vehicle charging stations. Design elements include grading, drainage, utilities, and parking lot layout for approximately 80 vehicles.

Cedar Rapids, IA - Noelridge Park Pond

Willett, Hofmann developed a three-phase approach in the design of the Noelridge Park Pond project including conducting a feasibility study and developed options, designing the pond and the inlet and outlet structures, and providing construction documents. Also included were several solutions to address the runoff problem with bypass pipes or channels, each with various design advantages and disadvantages.

Cedar Rapids, IA - Cedar Rapids Public Library

Provided the civil engineering site design for the new Cedar Rapids Public Library across from Greene Square Park in downtown Cedar Rapids. This project symbolizes the City's recovery from the flood of 2008. This 95,000sf facility includes an auditorium, a café, conference center, and a green roof with skywalk connection to an adjacent parking structure.

BLAKE A. WIESER

PE

POSITION
Civil Engineer III

EDUCATION
Bachelor of Science Civil Engineering
University of Iowa - 2017

EMPLOYMENT HISTORY
Ament Design, 2017 - 2020
Willett, Hofmann & Associates, Inc.
2020 - Present
6 Years Total Experience

REGISTRATION
PE/IA/2022 27385

PROFILE
Mr. Wieser works in our Cedar Rapids office and has 6 years of experience in the transportation field.

EXPERIENCE

Cedar Rapids, IA - 5th Avenue SE Rehabilitation
The Project involves the rehabilitation and overlay of 5th Avenue SE from 5th Street to 19th Street. The total length of the project is approximately 5,750 linear feet.5th Avenue SE is a local street. The project includes new curb and gutter plus an HMA overlay of the existing pavement. Also included is storm sewer plus replacement of the existing water main. The Project is estimated to cost approximately $3,400,000 and is scheduled for construction in 2023.

Cedar Rapids, IA - 6th Street SE Reconstruction
The Project involved the reconstruction of approximately 799 linear feet of 6th Street SE from 4th Avenue to 6th Avenue. 6th Street SE is a local street. The project included the total reconstruction of the existing two-lane road plus parking, storm sewer, sanitary sewer, and replacement of the existing water main. The Project was estimated to cost approximately $940,000 and was constructed in 2021.

Cedar Rapids, IA - 32nd Street NE Reconstruction
The Project involved the reconstruction of approximately 1,260 linear feet of 32nd Street NE from just east of Center Point Road through the Oakland Road intersection. 32nd Street NE is a minor arterial. The project included the total reconstruction of the existing four-lane road, improvement of the intersection of 32nd Street/Oakland Road (which has been converted from one-way operation) and replacement of the existing water main. The Project is estimated to cost approximately $2,200,000 and is scheduled for construction in 2023.

Cedar Rapids, IA - Oakland Road NE Reconstruction
The Project involved the reconstruction of approximately 4,800 linear feet of Oakland Road from 32nd Street NE to 42nd Street NE. Oakland Road is a minor arterial. The project also included the reconstruction of approximately 500 linear feet of Hollywood Boulevard NE, 150 linear feet of Golf Street NE, Miami Court NE, and the addition of a storm sewer on Houston Street NE to extend storm sewer to Oakland Road NE. The Project includes the total reconstruction of Oakland Road with the addition of bike lanes. The Project is estimated to cost approximately $4,000,000 and is scheduled for construction in 2021.

JONATHAN M. TIENDA

EI

POSITION
Civil Engineering Intern II

EDUCATION
Bachelor of Science Civil Engineering
University of Iowa - 2018

EMPLOYMENT HISTORY
Ament Design, 2019 - 2020
Willett, Hofmann & Associates, Inc.
2020 - Present
4 Years Total Experience

REGISTRATION
EI/IA/2018 00304

PROFILE
Jonathan has had the opportunity to work on various site development projects, such as the Marion Lofts on 5th Avenue in Marion and Annex on the Square in downtown Cedar Rapids. Jonathan also has experience working on other projects involving the design and drafting of parking lots, pedestrian trails, and road rehabilitation. Through these projects Jonathan has gained experience in design of ADA compliant sidewalks and ramps.

EXPERIENCE

City of Elk Run Heights, IA - Lafayette Road/Gilbertville Road Reconstruction
This DOT project consisted of the reconstruction of 0.65 miles of Lafayette Road and Gilbertville Road from a two-lane sealcoat road to a 26' wide P.C.C. concrete street and associated improvements, including storm sewer and water main. Estimated cost is $1.8 million with construction scheduled in 2024.

Marion, IA - Marion Lofts First Addition
Jonathan assisted in the design of the parking lot, utilities, and sidewalk on site while drafting the plan set for construction.

City of Elk Run Heights, IA - Mayor's Park Trail
Jonathan designed a shared use path within, including a bridge over Elk Run Creek in Mayor's Park. Included was the design of approximately 5,700 linear feet of trail throughout the park. The Project was funded by an Iowa Department of Transportation TAP grant.

Waterloo, IA - Lincoln Savings Bank TechWorks
Jonathan assisted in the design of the parking lot, utilities, and sidewalk on site while drafting the plan set for construction.

Waterloo, IA - Ansborough Ave. Improvements form Black Hawk Road to Downing Ave.
This DOT project consisted of adding a turn lane at the intersection of Ansborough Ave. and Downing Ave., and work on the traffic signalization for this intersection. Jonathan served as construction inspector for this project. Duties included tracking pay items, observing construction, resolving issues on site, issuing pay estimates, and assembling documentation for project close out.

CHAD O. MACKE

PLS

POSITION
Professional Land Surveyor IV

EDUCATION
Associates Degree - Construction Technology
Morrison Institute of Technology - 1999

EMPLOYMENT HISTORY
Ament Design, 1999 - 2020
Willett, Hofmann & Associates, Inc.
2020 - Present
24 Years Total Experience

REGISTRATION
PLS/IA/2022 27347

PROFILE
Chad has 24 years of experience with a variety of land surveying projects including 3D Laser Scanning. High-definition 3D laser scans have included a variety of structures for both architectural, civil and transportation projects.
Chad's project experience includes numerous route topographic surveys, record document research section corner ties, right-of-way surveys, plats and descriptions for state and local governmental agencies. He also has experience in private property surveys.

EXPERIENCE
City of Cedar Rapids, IA - Oakland Road-Old Marion Road
Project for reconstruction and rehabilitation of 2 miles of urban corridor with 13 side street intersections.Ament Design provided horizontal and vertical control surveys. Horizontal control determined using City of Cedar Rapids GPS control monuments and the Iowa RTN. Vertical control used existing City of Cedar Rapids vertical datum and was run to Second Order Class 1 NGS vertical control standards. Topographic surveys were completed using robotic total stations and results were mapped into Microstation/Geopak.Property ties were made, and existing right of way lines calculated through the corridor for preparation of 44 permanent acquisition and temporary easement plats and descriptions within the corridor.

City of Clinton, IA - Various Surveying Projects
Projects working directly with the City Engineer and staff including multiple city blocks of topographic base mapping for future design projects that are completed by the City of Clinton. Research, fieldwork, calculations and platting for vacation of existing right of way. Construction observation for projects during the summer construction season. Platting and base mapping are completed utilizing Auto Cad Civil 3D.

Illinois Department of Transportation - IL 84 & Cleveland Road
The BNSF and IAIS Railroads both have separate crossings on Cleveland Road within 400 feet of the IL Route 84 intersection. We provided additional horizontal and vertical control, located approximately 2 miles of each railroad for alignment calculations, provided topographic survey for approximate 4000 feet of IAIS Railroad, and approximately 6,500 feet of topographic survey of the rail areas through Colona and along Cleveland Road. Calculations were performed to establish railroad centerlines, and a DTM was prepared for the area.

BENJAMEN R. ERNST

PLS

POSITION
Professional Land Surveyor III

EDUCATION
Bachelor of Science Technical Resource Management
Southern Illinois University - 2010

EMPLOYMENT HISTORY
Ament Design, 2010 - 2020
Willett, Hofmann & Associates, Inc.
2020 - Present
13 Years Total Experience

REGISTRATION
PLS/IL/2017 035-003983

PROFILE
Ben has 13 years of experience performing field work on land section, corner, and route survey topographic projects.

EXPERIENCE

Oakland Road - Old Marion Road NE - Reconstruction
Project for reconstruction and rehabilitation of 2 miles of urban corridor with 13 side street intersections.Ament Design provided horizontal and vertical control surveys. Horizontal control determined using City of Cedar Rapids GPS control monuments and the Iowa RTN. Vertical control used existing City of Cedar Rapids vertical datum and was run to Second Order Class 1 NGS vertical control standards. Topographic surveys were completed using robotic total stations and results were mapped into Microstation/Geopak.Property ties were made, and existing right of way lines calculated through the corridor for preparation of 44 permanent acquisition and temporary easement plats and descriptions within the corridor.

Illinois Department of Transportation - US Route 150 ROW Plats
This project involved boundary surveys, right-of-way platting, permanent easement, temporary easement plat preparation and staking of proposed right-of-way and permanent easements. Preparation of 13 right-of-way plats, 13 temporary easement plats, 41 premise plats, 13 right-of-way staking plans and 70 parcel descriptions were prepared using Microstation/Geopak.

Rock Island County Highway Dept. - CH 6
Establish field centerline, provide benchmark loop, establish right of way lines, and provide field topography for approximately 3500 linear feet of County Highway 6 from 12th Street to 52nd Avenue North in Hampton, Illinois. Data was processed in a 3d DTM prepared in Microstation/Geopak. Deliverables to the client included, field located centerline with geometric data, cross sections at 50 intervals and breakpoints, ditch profiles left and right.

Design Surveys::

WHA shall perform field and office tasks required to collect topographic information deemed necessary to complete the project. The City shall provide aerial photographic and other available mapping, including utilities, of the Project area. The area to be surveyed is bounded by 10th Avenue NW on the west, 5th Street NW on the north, 8th Avenue NW on the east and 3rd Street NW on the south. It is believed that stormwater previously carried by a ditch along the west side of an old railroad right-of-way, can no longer be conveyed through the ditch. This lack of conveyance appears to be at least a partial cause of ponding in the backyard of 414 10th Ave. NW and properties along the south side of 5th St. NW (addresses 817, 815, and 809). The specific survey tasks to be performed include the following:

A. Control Surveys: WHA will establish horizontal and vertical control for the Project area in accordance with the SUDAS Design Manual – Chapter 1 – Design Survey Standards. WHA shall provide sufficient control for construction. If it is determined by the City that control is insufficient, WHA shall add control points.

B. Topographic Survey: WHA will perform topographic surveys required for the development of the project. Topographic surveys are anticipated to require detailed elevation information for proper construction installation, including, but not limited to:

- Full width of the Public right-of-way;
- Private properties as determined by WHA;
- Storm sewer intakes with invert elevations, storm sewer pipes, drainage swales, and other storm water conveyance infrastructure;
- Driveway elevations where rehabilitation presents elevation concerns;
- Gutter and/or roadway profiles, as necessary, for drainage concerns or ultimate roadway profile condition needs;
- Sidewalk ramps and landings within the public right-of-way;
- Fences, signs, buildings, retaining walls, etc;
- Vegetation 4” diameter and larger;
- Utility appurtenances likely to be impacted by the Project;
- Sanitary above ground structures and invert elevations, water utilities;

C. Utility Surveys: This task consists of field survey indicating the location of utilities within the existing right-of-way for the project. WHA shall field locate visible valves and utility access within the project limits to accurately account for adjustment and/or replacement. Utility surveys also includes field locating curb stops and/or master boxes for individual residential and commercial water service lines. Where required, expose fixtures to obtain accurate location relative to the right-of-way line. Underground utilities will be incorporated into the project through map requests to the utility companies and drawn into the design file. This work will be considered survey quality level "B", per CI/ASCE 38-02. Utilities include phone, gas, fiber optic, water main, overhead/underground electrical, sanitary sewer, storm sewer, and in-pavement traffic control equipment (including power poles, pedestals, valves and manholes).

D. Subsurface Utility Investigation: Subsurface utilities will be located from available maps and field locates at locations where underground facilities (e.g., storm intakes, traffic signal poles, etc.) will be constructed. Approximate subsurface utility elevations shall be based on readily visible information, available data, and general industry standards. In addition, WHA will initiate a design locate request and include utility marking in the field surveys. If design locates are not made, the WHA shall notify the City.

E. Right-of-Way Surveys: WHA will determine the location of existing Right-of-Way (ROW) and identify property owners adjacent to the project. This task consists of researching record documents at the City and County and locating existing monumentation (including, but not limited to, property pins, government corners, and other monuments) along the corridor.

Drainage Study:

A. Hydrology/Hydraulics Research and Data Collection: This item is intended to include the collection of information related to the hydrology and hydraulics of the surface water within the project corridor. This includes information related to existing detention, hydraulics of significant structures, and other pertinent information related to the hydrology and hydraulics of the watershed.

B. Hydrology Calculations: This task includes the preparation of detailed hydrology calculations to be used in the design of the storm water management facilities proposed in the project. Information gathered during the research and data collection phase and additional information, if necessary, shall be utilized.

C. Hydraulic Calculations: This task includes the performance of calculations needed to properly size storm sewer and culverts, if any, proposed as part of the Project. This task includes the preparation of a drainage report that summarizes the findings of the hydrologic and hydraulic analyses.

Included in this task is identifying those sub-drainage areas upstream of and along the Project roadway corridors that flow to the roadways and that, ultimately, flow into the Wapsipinicon River. This task also includes the determination of the capacity of the existing storm sewer system along and across the Project roadways that outlet into the Wapsipinicon River. This will allow for a determination of the sections of the existing storm sewer system that may be under capacity and the development of a plan to provide additional capacity as a part of the Project design.

Included is determining the projected runoff from the sub-drainage areas mentioned above, based on the physical characteristics of these areas (their average slope, the amount of impervious surfaces that are present, the existence of detention/retention facilities, etc.), the determination of the time of concentrations for runoff for these sub-drainage areas, and the use of a design storm with an appropriate recurrence interval (typically 10 years). These flows will be used to determine the design and size of a storm sewer system with sufficient capacity to carry the design flows.

The study will determine the cause of the storm drainage issues in the project area, and to provide potential solutions and cost opinions. The Engineer's review will include an analysis of the project area, as well as an analysis of the adequacy of the downstream storm sewers and/or open ditches. The study will evaluate two (2) potential storm drainage connection points, one to the west along 10th Avenue NW, where an existing storm sewer is located near the intersection of 10th Avenue NW and 3rd Street NW, and one to the east at the end of 4th Street NW where the storm sewer is located adjacent to 812 3rd Street NW. Additionally, we will investigate other possible solutions that may be available.

D. Infiltration-based Storm Water Management Practices: This task includes the investigation and analysis of infiltration-based storm water management practices and elements (bio-retention basins, bio-retention swales, infiltration trenches, pervious pavement, etc.) to determine their feasibility, their required size, and their anticipated cost so as to improve storm water runoff quality and/or reduce storm water runoff quantity for the Project area. These elements will be sized in an effort to, as a minimum:

- Mitigate the additional runoff created by the additional impervious surface areas that may be added to the Project corridor in the future, and
- Mitigate the portion of the design flows that cannot currently be carried by the existing storm sewer system.

The goal of the storm water management design will be to mitigate the rainfall that falls upstream of the Project area and, ideally, to reduce the flows from the design storm by the use of infiltration-based practices.

Selection of the preferred infiltration-based storm water management practice alternatives will require input and direction from the City. These alternatives will be developed to a level of detail that will allow order-of-magnitude construction cost opinions to be developed. These alternatives and their order-of-magnitude costs will be included in the final report which will be submitted to the City for review and selection of a preferred alternative. Following selection by the City, the preferred alternative will be further developed.

Design of Storm Sewer and Subdrains:

This task includes the determination of the necessary type, size, and location of storm sewer intakes, manholes, and piping; and subdrain piping, cleanouts, and outlets and associated improvements. WHA will provide plans for the construction of the proposed storm water improvements. The plans shall be prepared in accordance with the Iowa Statewide Urban Design and Specifications (SUDAS) and any local City amendments. Included will be the preparation of necessary permits. At this time, the only permit that we have identified is an NPDES permit through the Iowa Department of Natural Resources.

PROPOSED FEE

Below is a proposed fee for the major tasks. All costs are encompassed in the fee including, but not limited to, printing and mileage. A more thorough fee can be established after award and an initial meeting with the City where the scope of work is finalized.

Total - $37,500 - $40,000