EOR
water
ecology
community

April 24, 2015

City of Windsor Heights
Sheena Danzer
Director of Planning, Development and Marketing
1145 66th St., Suite 1
Windsor Heights, IA 50324

Re: Proposal for Clive Elementary Stormwater and Stream Enhancements

Dear Ms. Danzer,

Thank you for the opportunity to propose on this project, as the requirements of this project aligns completely with the unique blend of EOR's expertise. It would be our privilege to continue our relationship with the City and advance the Stormwater Management Plan groundwork we assisted the City with in 2011.

We have chosen our finest team for this effort and have enlisted the local services of Shoemaker-Haaland to support us on this project. As Shoemaker-Haaland has over four decades of engineering excellence throughout Iowa, they have become a frequent EOR partner on Iowa projects. I will personally serve as project manager and will capitalize on my unique expertise in stream geomorphology, park design, stormwater management and consensus building to achieve the highest return for the City's investment.

We consider the following critical project attributes to be our core strengths:

Stream Geomorphology – EOR arguably has more stream experience than any firm in the Midwest. Our team includes 5 dedicated stream professional with advanced degrees and certifications in the field and our projects range from wilderness restorations for the likes of Trout Unlimited to the rehabilitation of urban streams in highly altered and disturbed watersheds.

Stakeholder Facilitation – our graphic communication proficiency and experience engaging and garnering buy-in from stakeholder groups is perhaps our most essential attribute.

Integrated Stormwater Facilities – As authors of the Country's leading stormwater manuals and designers of hundreds of features, EOR possesses the necessary academic and applied experience to create and integrate functional and affordable amenities.

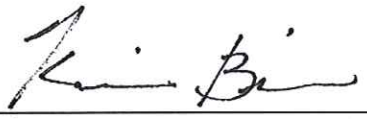
Science + Art – collaboration is not just a saying at EOR, in addition to the dedicated design professionals our team is comprised a biologist, ecologist, water quality scientist and graphic artist.

As it relates to perceptions and/or concerns you may have regarding this project please take note of the following:

- We are dedicated to Windsor Heights and consider the Des Moines communities to be in our "back yard"
- No travel time for EOR professionals is included in this proposal
- In addition to the Shoemaker-Haaland professionals, Derek Lash and Kevin Biehn are registered Iowa professionals and collectively are working on numerous related IA projects

- EOR has retrofitted and enhanced numerous campus and schools – we are currently constructing a 800k sustainable retrofit of Minnesota's oldest public school (Central High School in St. Paul)
- Regarding engineering cost – we have included a detailed and transparent accounting of time. Our fee may not be the lowest, but we can assure you that our experience and adequate coverage of the project requirements will translate into the highest return for the City. Furthermore, note that we do not operate by bidding low and recouping fees via change orders - our fee covers all foreseeable tasks.

We are excited about this opportunity and dedicated to Windsor Heights,



Kevin Biehn, ASLA, CPESC, LEED AP BD+C
Senior Partner

Encl:

- PROJECT UNDERSTANDING, SCOPE AND FEE
- FIRM PROFILES
  - EOR
  - SHOEMAKER-HAALAND
- RELATED EOR PROJECT EXPERIENCE
  - EOR
  - SHOEMAKER-HAALAND
- KEY STAFF RESUMES
  - KEVIN BIEHN, PLA, CPESC, LEED AP BD+C
  - DEREK LASH, CPESC, P.E.
  - ADRIAN HOLMES, P.E.

PROJECT UNDERSTANDING

The primary objective of this project is to raise awareness of nature resource & stormwater issues and the benefits of conservation and stormwater management. This will be accomplished by integrating stormwater retrofits into Clive Elementary and rehabilitating the North Walnut Creek as it traverses the school. EOR recognized the potential opportunities at this site while developing the City's stormwater management plan and has advocated for implementing a project over the past half year, including assisting City staff in developing grant applications.

The intended scale of the improvements will return meaningful nutrient & volume control management. The facilities will be incorporated into the landscape and developed with landscaping and simple amenities to both beautify the campus and engage the students and the public. We will utilize our knowledge of the local stormwater system to assess the potential of treating a larger drainage area.

The planning, design & implementation process will be open to all and choreographed as an educational opportunity for the student body, School District, City and greater community. Associated environmental education will be developed as part of this project. Graphics, storylines and sound bites will be utilized in social media, interpretive signage and press.

Success will be measured in terms of stakeholder involvement and the sharing of stormwater management and resource protection knowledge along with the water quality and quantity returns of the improvements.

SCOPE

1. *Data Collection, Reduction & Analysis*

   In order to provide the greatest return to the City a site survey will be necessary to determine key information such as utility conflicts, grade and stormsewer (size, location and inverts). We also intend to interview property manager(s) to garner an understanding of use, traffic/bus circulation and management/maintenance issues (e.g. snow removal). Since one of the project objectives is to provide volume control we intend to complete a soils analysis to determine infiltration rates, which is essential to selecting and sizing stormwater practices.

   Tasks/Deliverables

   a. Site Survey – confirm grades, utilities, infrastructure and vegetation
   b. Soil Borings – complete hand-borings (max depth of 5.5') and soils analysis to determine infiltration potential, a critical evaluation in selecting and sizing BMP practices
   c. Assemble base drawing of existing conditions

   Assumptions

   - Property survey not included
   - If warranted, additional soils investigation considered an additional service

2. *Schematic Design & Design Development*

   Our approach to providing stakeholders with unique alternatives for consideration is to develop options along a metaphorical theme, which unities and guides space making and stormwater management. Options will be vetted and refined via stakeholder input. The intent is to use the entire process, from early design through construction, as a learning opportunity for the student body, the School District and the greater community. Stakeholders will be engaged in the process and informed of not only the intended outcome of their decisions, but the reasoning behind the outcome.

Tasks/Deliverables

a. Identification and development of two distinct design alternatives with the following necessary components to foster project interest and garner necessary buy-in
    a. Landscape illustrations/renderings of improvements
    b. Hydraulic review
    c. Construction cost estimates
    d. Stormwater performance (water quality & quantity returns)
    e. Development of associated environmental education opportunities
    f. Quantification of other benefits (e.g. habitat, recreation, branding, etc.)
b. Meetings
    a. A total of three meetings with City Staff, School District personnel and stakeholders is likely necessary to discuss goals/constraints/opportunities and to garner necessary buy-in
    b. One presentation and engagement activity with students and teachers to educate and enlist their interest and enthusiasm
    c. One meeting to present/discuss project with City Council is assumed
c. Assist City staff in the pursuit of grant funding, as the project is "shovel ready" at this point
d. Assist City staff in a press release

Assumptions

- City Council meeting and student/teacher engagement paired with Stakeholder meeting
- Additional meetings to be billed hourly

3. *Construction Documents*

Construction documents will be developed per Windsor Heights and Iowa standard plates and specifications. This opportunity will be utilized to illustrate the installation and maintenance requirements of green infrastructure to stakeholders.

Tasks/Deliverables

a. Refinement of design based on stakeholder consensus and update associated deliverables:
    a. Landscape illustrations/renderings
    b. Hydraulic review
    c. Construction cost estimate
    d. Stormwater performance (water quality & quantity returns)
    e. Refinement of associated environmental education opportunities
    f. Quantification of other benefits (e.g. habitat, recreation, branding, etc.)
b. Development of a maintenance plan and vetting of responsibilities for storm and stream improvements
c. Meetings
    a. One additional meeting with City Staff, School District personnel and stakeholders
    b. One additional presentation to City Council

Assumptions

- City Council meeting to be paired with Stakeholder meeting
- Additional meetings to be billed hourly

4. *Permitting*
   Execute permits on behalf of the City and relay design/modeling elements, which will likely be new to permitting staff

   Tasks/Deliverables
   a. Execute all necessary permits
   Assumptions
   - Permit fees not included

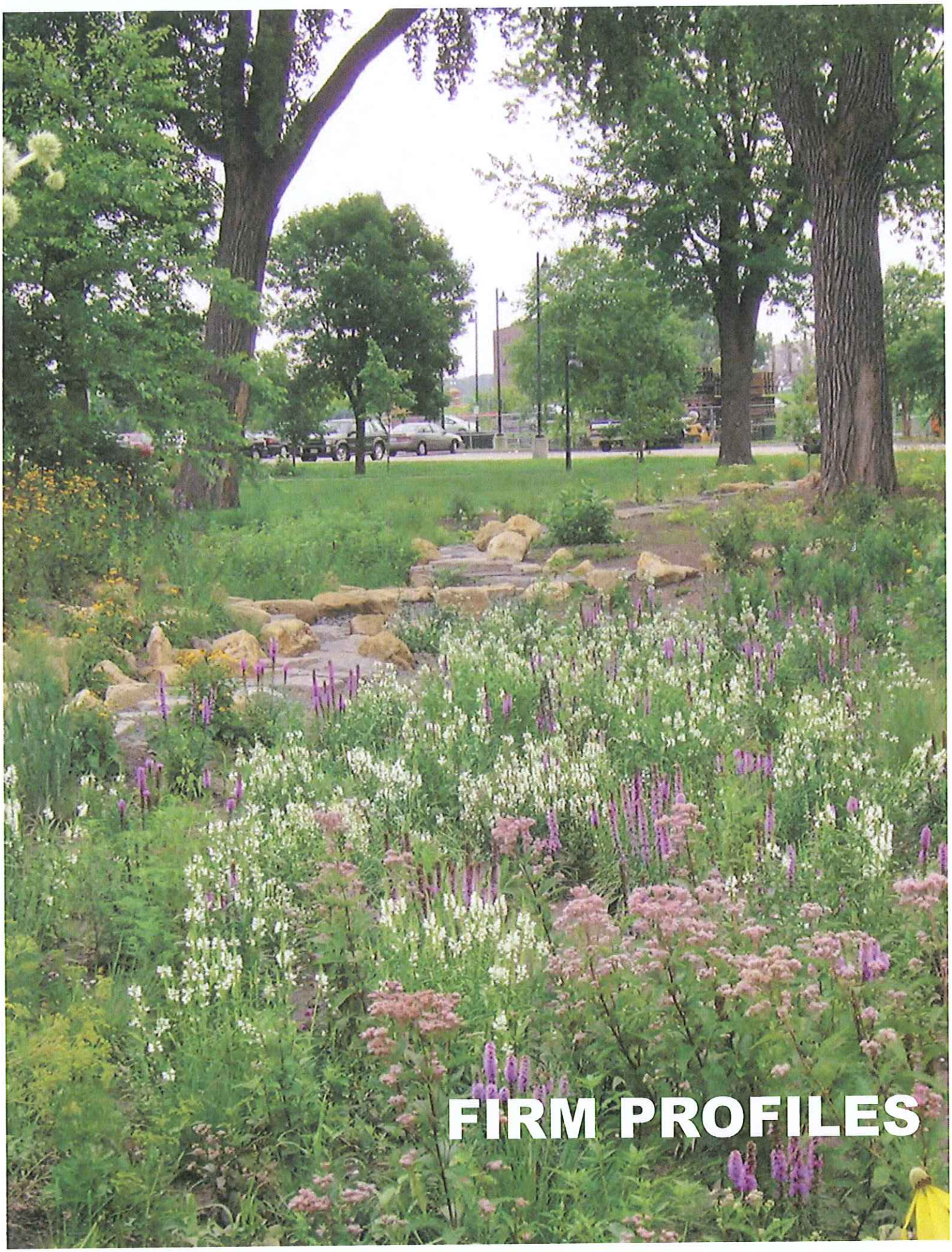
5. *Bidding*
   Provide bidding assistance to the City on this project, which will likely be relatively unique to the City and the construction community.

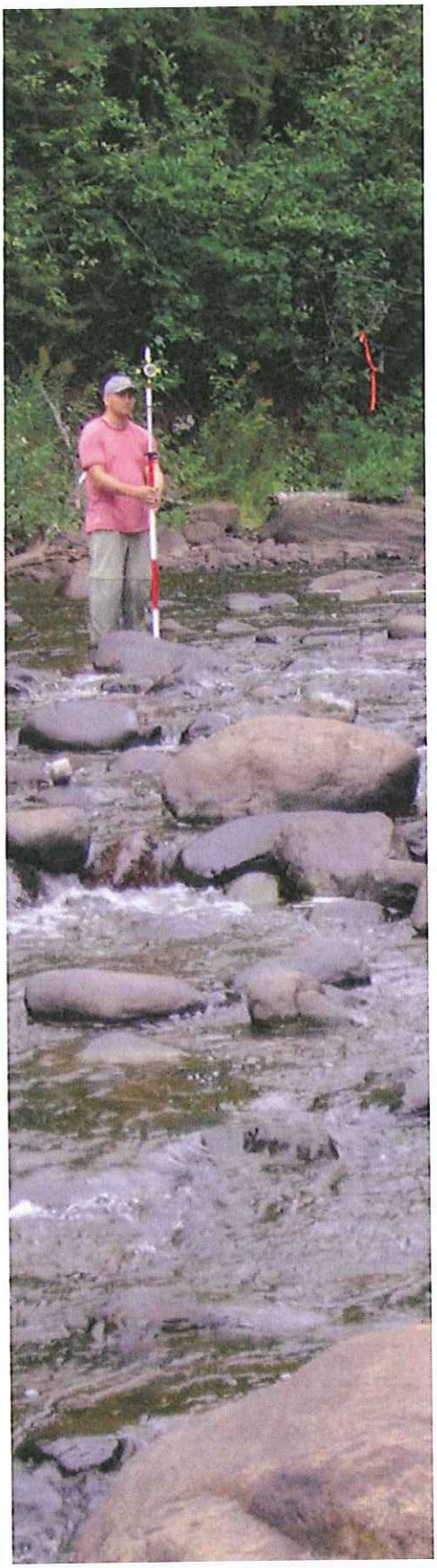
   Tasks/Deliverables
   a. Respond to bidder questions
   b. Review bids and bidders and recommend award
   c. Meetings - facilitate one pre-bid meeting on behalf of the City
   Assumptions
   - Bid posting & advertisement administered by the City

6. *Construction Administration – per the outline of the RFP this service to be considered at a later date*

FEE SCHEDULE
Professional services on an hourly, not-to-exceed basis as follows:

TASK 1 Data Collection, Reduction & Analysis	TASK 2 Schematic Design & Design Development	TASKS 3-5 Construction Documents, Permitting & Bidding	TASK 6 Construction Administration	TOTAL
$3,675	$18,420	$19,741	TBD	$41,836


FIRM PROFILES



Firm Profile

Emmons & Olivier Resources, Inc. (EOR)

A collaborative group of environmental and design professionals passionate about protecting our waters, restoring healthy ecosystems, and enhancing our community's unique sense of place.

Point of Contact:

Kevin Biehn, ASLA, CPESC, LEED AP BD+C
Partner, Landscape Architect, & Marketing Director
kbiehn@eorinc.com / 651.203.6022

Core Competencies:

water - watersheds + water resources
ecology - ecosystems + natural resources
community - civil engineering, landscape architecture, + planning

Recent Awards:

- 2015 ACEC National Grand Award
- 2015 MN-ACEC Grand Water Resources Award
- 2013 MN-ACEC Research Award
- 2012 MN-ASLA Communication Award
- 2011 MN-ASLA Landscape Architect Award
- 2010 MN-ACEC Consulting Award
- 2010 WI -ASLA Landscape Architect Award
- 2010 Environmental Initiative Award
- 2010 MN-ACEC Water Resources Award & National Finalist
- 2008 & 2004 MAWD Watershed Project of the Year

Company History:

Formed in 1997, Brett Emmons & Cecilio Olivier recognized the critical need for sustainable, alternative approaches to natural resources management that would provide long-term, holistic solutions.

Mission + Values:

we care for the earth and its inhabitants

- we collaborate with environmentally conscious customers
- we attract passionate, creative professionals
- we work in an aspiring and healthy environment
- we foster a culture of ownership
- we support the communities we serve
- we believe now is the time to act

Firm Demographics:

engineers (12±)
water resources, civil, agricultural, bio-systems, geological, mining, & environmental

natural resource scientists (8±)
ecologists, limnologists, biologists, & fluvial geomorphologists

design professionals (3±)
landscape architect, architect, & planner

Cedar Rapids
Company Contact
Robert Tobin, P.E., Project Manager
Phone: 319-286-8888

Shoemaker & Haaland Professional Engineers

"We are engineers, surveyors, and designers who use science, skill, and creative application of practical knowledge to design and build structures with full confidence in their intended function, economics of operation, and safety to life and property."

History

Shoemaker & Haaland has been in business providing quality design services since 1975. Glenn D. Shoemaker, P.E. founded Shoemaker Consulting Engineers in Coralville, Iowa in 1975. In 1976 the Cedar Rapids office of Verne H. Haaland, P.E./L.S. joined the firm and the name was changed to the present Shoemaker & Haaland Professional Engineers. In 1986 the Krebill Engineering Company of Keokuk, Iowa, was purchased by the Company upon the retirement of Roland F. Krebill, P.E./L.S.

Team

Since 1975 Shoemaker & Haaland has provided design leadership in innovative structural and site design. Our staff includes nearly 40 professionals practicing in 20 states and 2 Canadian provinces with expertise in structural engineering, civil engineering, and surveying. Our success is derived from an intrinsic talent to integrate diverse professional disciplines into a cohesive design team to successfully meet the unique challenges of each project in imaginative, artistic, and sustainable ways.

Disciplines

Shoemaker & Haaland has a staff of 41 employees with 18 licensed professionals serving the following disciplines:

- Civil Engineering
- Highway Engineering
- Structural Engineering
- Hydraulic Engineering
- Topographic, Construction & Legal Surveys
- Environmental Engineering
- Site Development
- Bridge Engineering
- Transportation Engineering
- Water Resources Engineering
- Construction Management and Observation

Shoemaker Haaland

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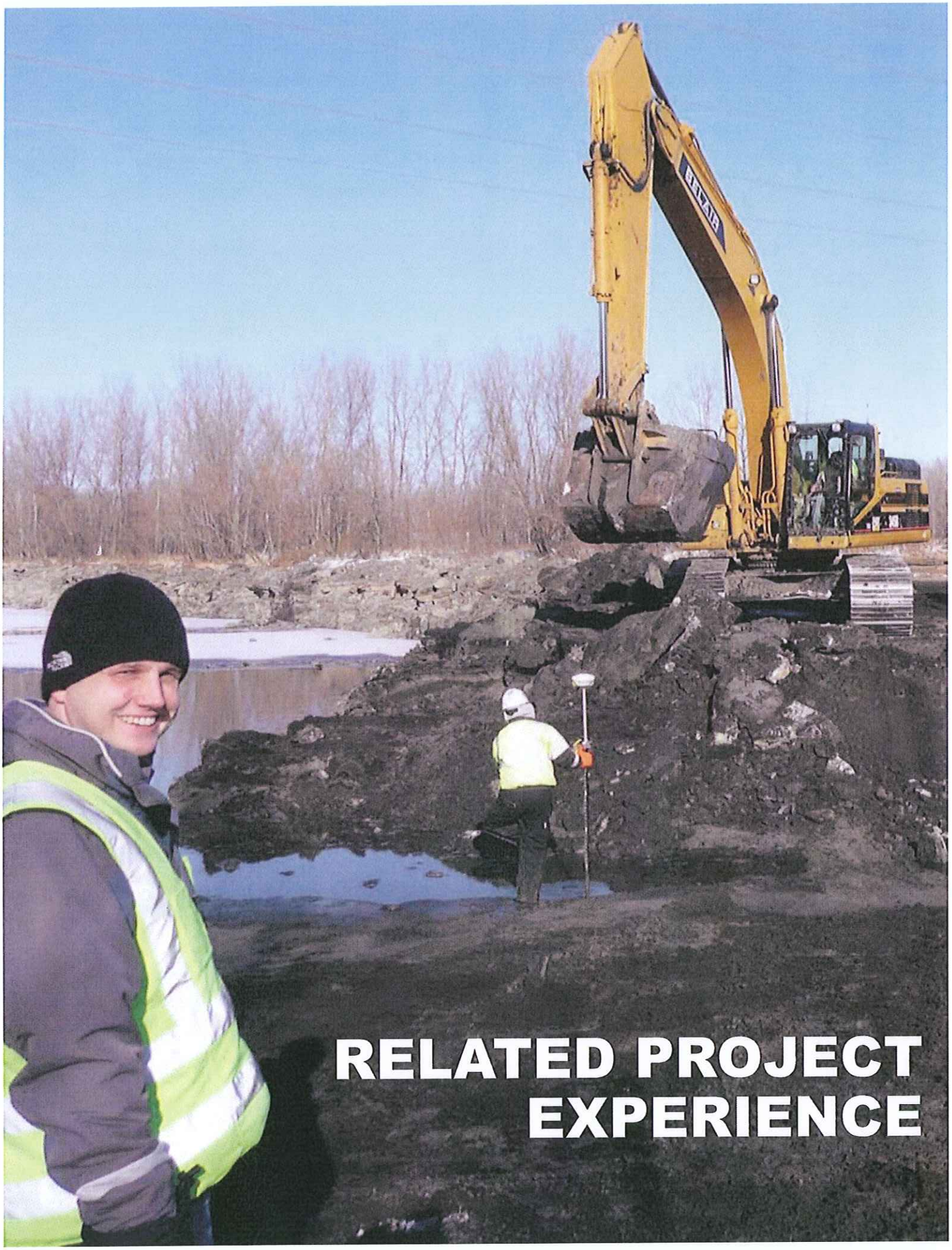
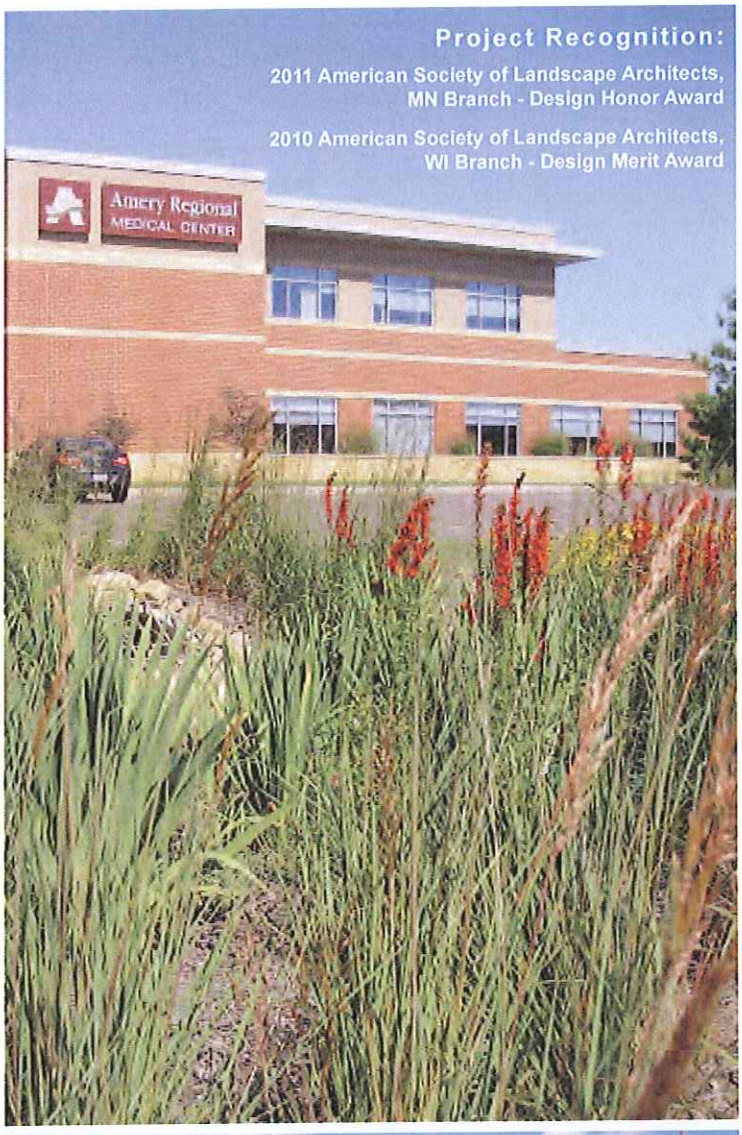

RELATED PROJECT
EXPERIENCE



Amery Regional Medical Center

Date: 2006
Location: Amery, WI
Client(s): Amery Regional Medical Center

Summary

EOR created a landscape for the Medical Center that promotes human health and wellness through an ecologically-enhancing environment. The plan has created a synergy between the hospital, the adjacent Apple River, and the greater Amery community. The project serves as a regional precedent for its many sustainable features that include:

- environmental education signage
- porous fire access lane
- green roof (½ acre)
- raptor nesting platform
- prairie restoration
- community trail system
- restful overlook of the Apple River
- filtration & infiltration bioretention

Client Benefits

- High profile project serves as a regional precedent for LID and implementing green technologies.
- Water quality and quantity management surpasses both county and state requirements.
- 95% reduction in total suspended solids estimated for post-development conditions.
- Peak discharge rates and total runoff volumes are below pre-development quantities for the 2-yr & 100-yr storm events.

EOR water ecology community

Arlington-Pascal Stormwater Improvements

Date: 2004-2007
Location: St. Paul, MN
Client(s): Capitol Region Watershed District

Summary

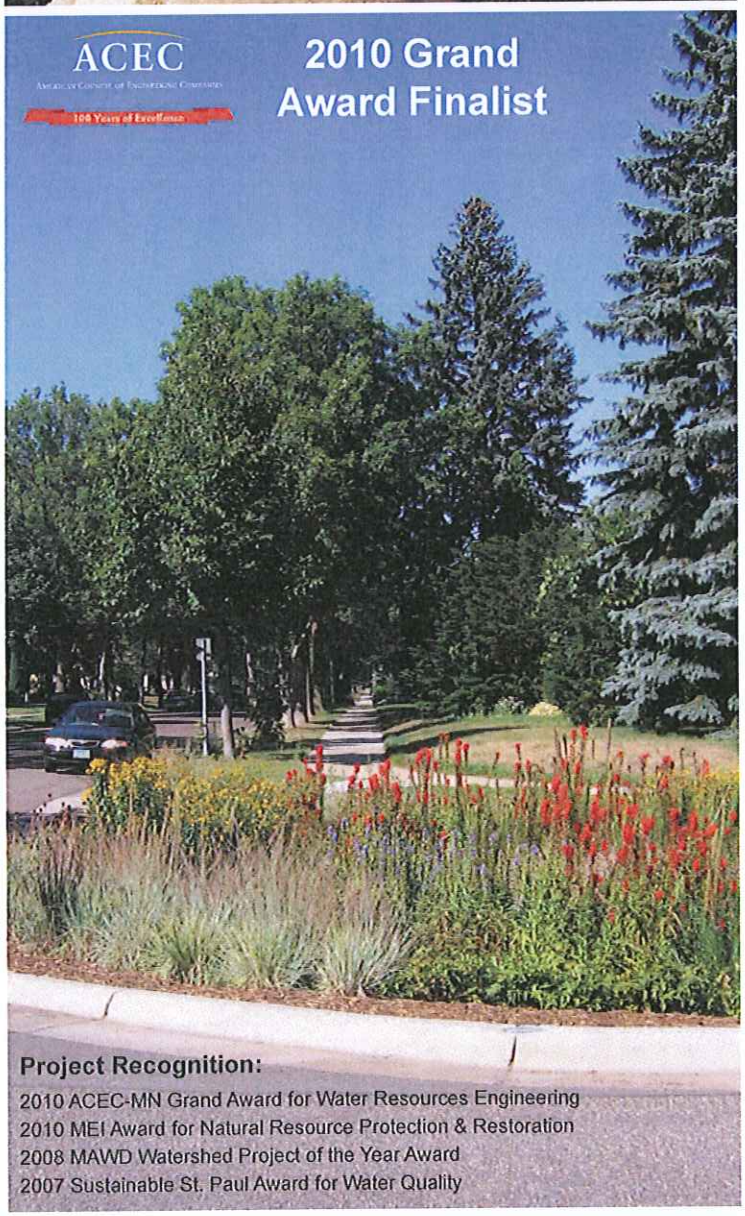
The project was to meet the Como Lake Strategic Management Plan's objective of improving water quality by reducing phosphorus inputs, while eliminating residential flooding.

EOR completed a detailed study of the sub-watersheds through a series of sophisticated engineering models that included both an extensive hydrologic/hydraulic evaluation and the modeling of existing & proposed conditions using XP-SWMM, while P8 was used to model water quality.

Main project components included:
- 8 community raingardens
- 8 under road, infiltration trenches
- largest underground storage facility in Minnesota at time of installment
- regional stormwater pond / infiltration basin
- municipal stormdrain improvements

Client Benefits

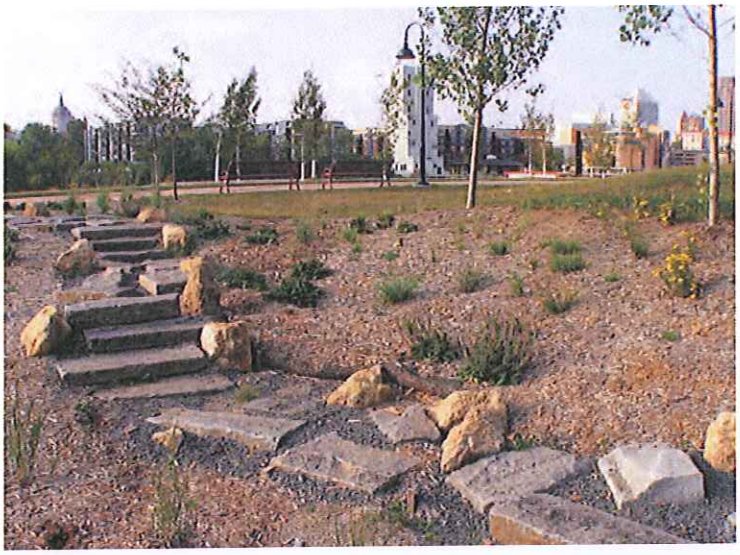
- Project recognition and awareness with multiple awards on the municipal, state, & national level.
- Met phosphorus reduction targets.
- Improved runoff water quality & reduced runoff discharge volume.
- Significant cost savings and elimination of community flooding.
- Cost-sharing plan developed between overlapping cities based on percentage benefit/use.



Project Recognition:

2010 ACEC-MN Grand Award for Water Resources Engineering
2010 MEI Award for Natural Resource Protection & Restoration
2008 MAWD Watershed Project of the Year Award
2007 Sustainable St. Paul Award for Water Quality

EOR water ecology community



Harriet Island Park Improvements

Date: 2009
Location: St. Paul, MN
Client(s): City of St. Paul, Division of Parks and Recreation

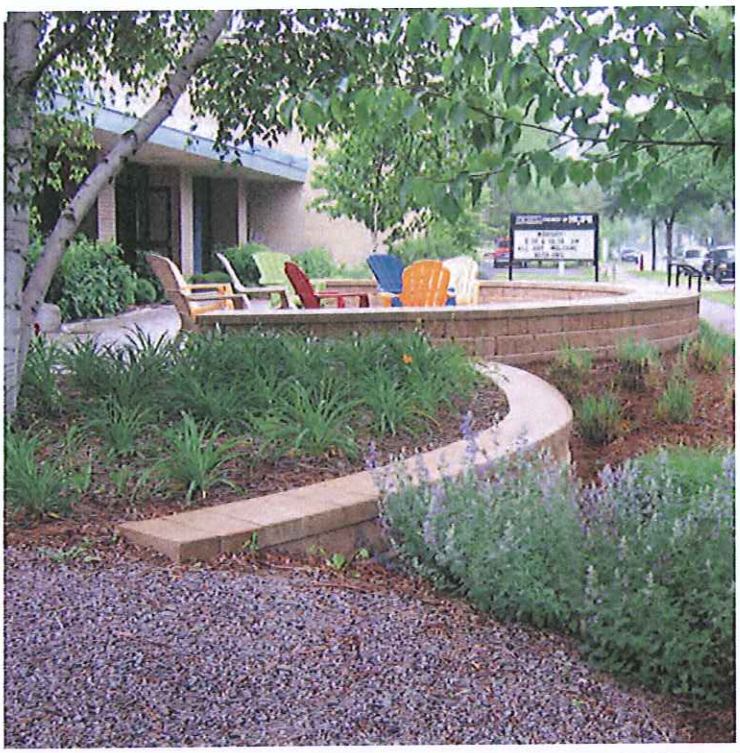
Summary

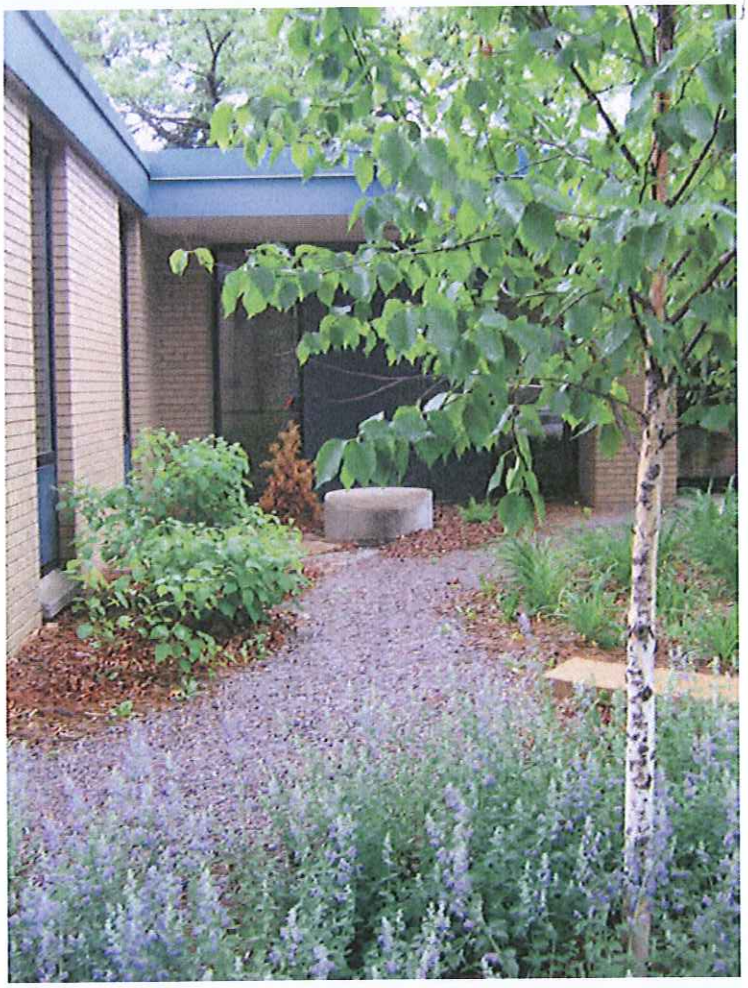
EOR worked with the St. Paul Parks and Recreation Department to design and construct over $1.7 million in improvements including a TEA-21 funded regional trail, local park trails, numerous picnic facilities and amenities, innovative stormwater enhancements, and a bioengineeered shoreline restoration.

This project concluded final improvements at Harriet Island and integrated several features that connect the park and public to the Mississippi River. The connections were physical and visual including trails, plazas, and seating areas providing unmatched views of the urban river. A bioengineered shoreline, connected bioswale, and access to a beach provide environmental and recreation connections to the river.

Client Benefits

- Construction observation for all picnic facilities, lighting, trails and plazas, stormwater management, and environmental education integrated into the fabric of the park.
- Bioretention garden integrated with stone trail is hydraulically connected to the river and allows access to park users.
- Engineering of popular riverfront promenade with overlook plazas and seating.





University Lutheran Church of Hope

Date: 2010
Location: Minneapolis, MN
Client(s): University Lutheran Church of Hope

Summary

Based on a planning grant from the Mississippi Watershed Management Organization (MWMO), EOR created a stormwater master plan that would significantly reduce the client's stormwater utility payments.

The first implementation project of this plan included: an outdoor gathering / classroom space with integrated splash pads, porous paving, and integrated raingardens.

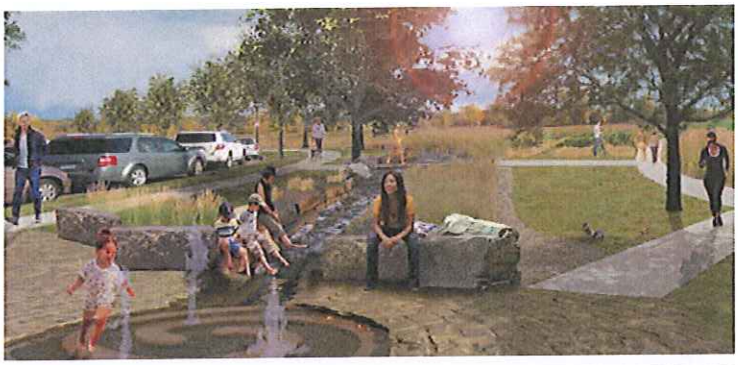
The project addresses drainage concerns and provides an extension of the church's gathering spaces to the larger surrounding community.

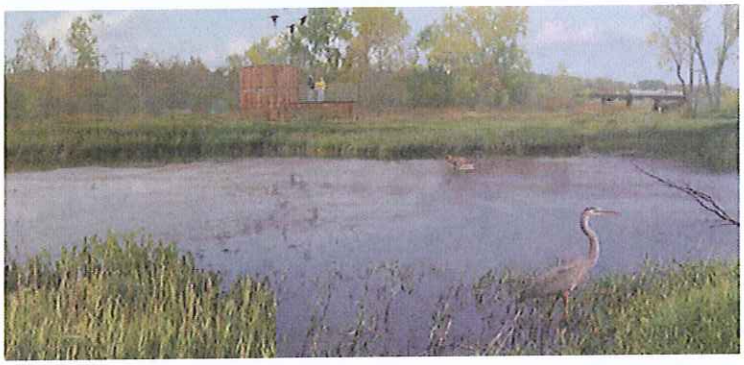
The designed area is used as an additional gathering space following church services, as an exterior classroom for the Pease Academy, and as an informal outdoor space for church and school employees.

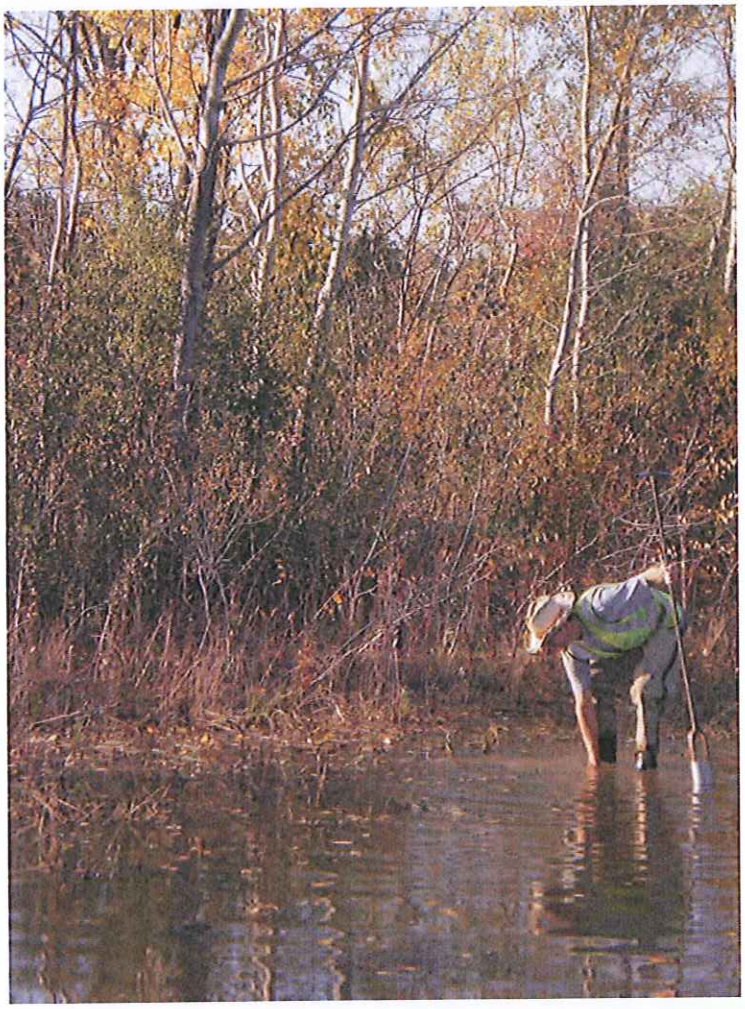
Client Benefits

- EOR's assistance in gaining MWMO grant.
- Reduced stormwater utility fees.
- Improved stormwater management and drainage.
- Developed master plan provides for future site and stormwater improvements as funding is made available.
- Improved aesthetics for the highly visible entrance. Outdoor space engages the streetscape and reaches out to neighborhood.

EOR water ecology community







Victoria Park Innovative Water Strategy Concepts

Date: In Progress
Location: St. Paul, MN
Client(s): Capitol Region Watershed District

Summary

EOR and the Capitol Region Watershed District collaborated on a multi-functional park design located on a former brownfield site. Adjacent to a new school, residential neighborhoods, and the Mississippi River, the design focuses on interactive water elements, seasonal recreation, innovative water treatment strategies and migratory bird habitat.

A Moist Soil Management strategy is employed to create a series of habitat magnets across the site. Individual eco-cells develop unique ecological conditions with trails throughout the site to explore a set of diverse ecologies and passive-use spaces .

Year-round visitor experience is layered into the design through a bio-cleansing wading/skating plaza, interactive mist/ice fountains, open lawn, and distinctive planting scheme.

Client Benefits

- Celebrates and interprets the ever-changing hydrology of wetlands, providing engaging and educational visitor experiences.
- Supports a variety of both passive and active recreational programs throughout all of Minnesota's seasons.
- Enriches ecological health of on-site wetland and creates habitat opportunities along the Mississippi Flyway.

Rice Creek Meander Restoration

Date: 2004 - 2006
Location: Shoreview, MN
Client(s): Rice Creek Watershed District (RCWD)

Summary

EOR completed one of the largest stream restoration projects in the Midwest to date. Over 3/4 of a mile of Rice Creek, presumably straightened in the early 1900's for agricultural drainage, was reconnected to its natural meandering flow path. EOR crafted a $500,000 plan to create a stable channel for present watershed hydrology & documented that the investment would return water quality, habitat, and recreational benefits well beyond cost.

Now over 5 years mature, the design successfully stabilized the stream channel and reconnected the channel to its 200 acre floodplain. Historic abandon water courses were identified and modified (via excavation & soil bioengineering) to recreate a stable stream profile, cross-section, and alignment.

Habitat enhancement has been documented via an improvement in fish and invertebrate scores (IBI) over preconstruction surveys. The successful project spurred interest in establishing a dedicated canoe route and has become a restoration precedent.

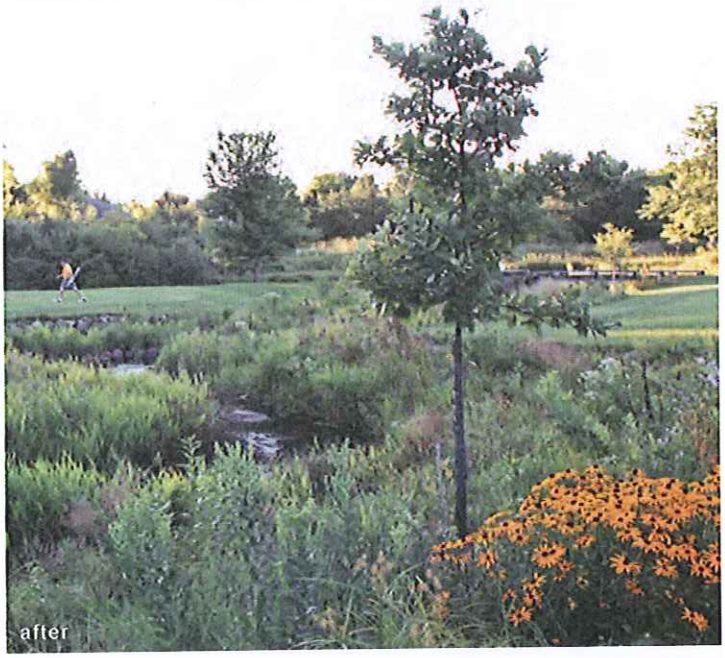
Client Benefits

- Improved water quality.
- Improved IBI scores.
- Education of park users about the science and geometry of streams.

EOR water ecology community


before


in construction


after

Cold Water Stream Improvements for a Golf Course

Date: 2012
Location: Stillwater, MN
Client(s): Brown's Creek Watershed District

Summary

Restoration addressed a highly manicured reach of Brown's Creek located within a public golf course that had become excessively wide & shallow. Monitoring had indicated that anthropogenic changes resulted in a substantial warming of this cold-water fishery.

The completed project enhanced wildlife habitat, reduced instream warming, and improved course aesthetics while still meeting the strict playability standards of the golf course. The project involved several EOR staff who contributed to various aspects of the project, including:

graphic designers for interpretive signage and educational campaigns;

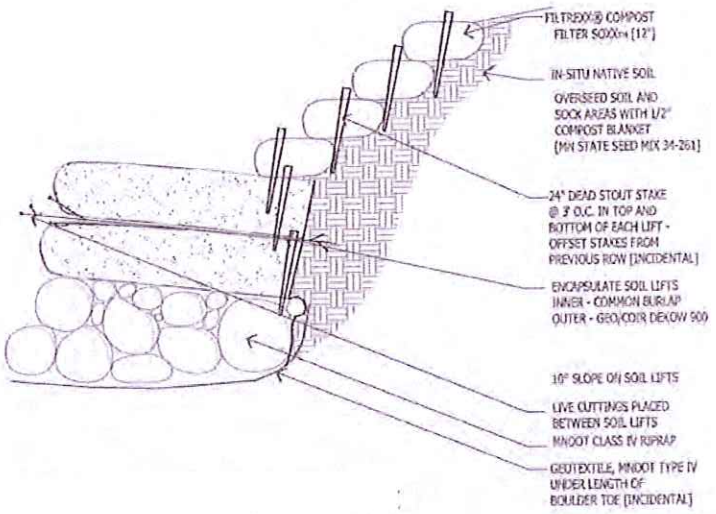
hydrologists performed temperature modeling (SSTEMP) calculations;

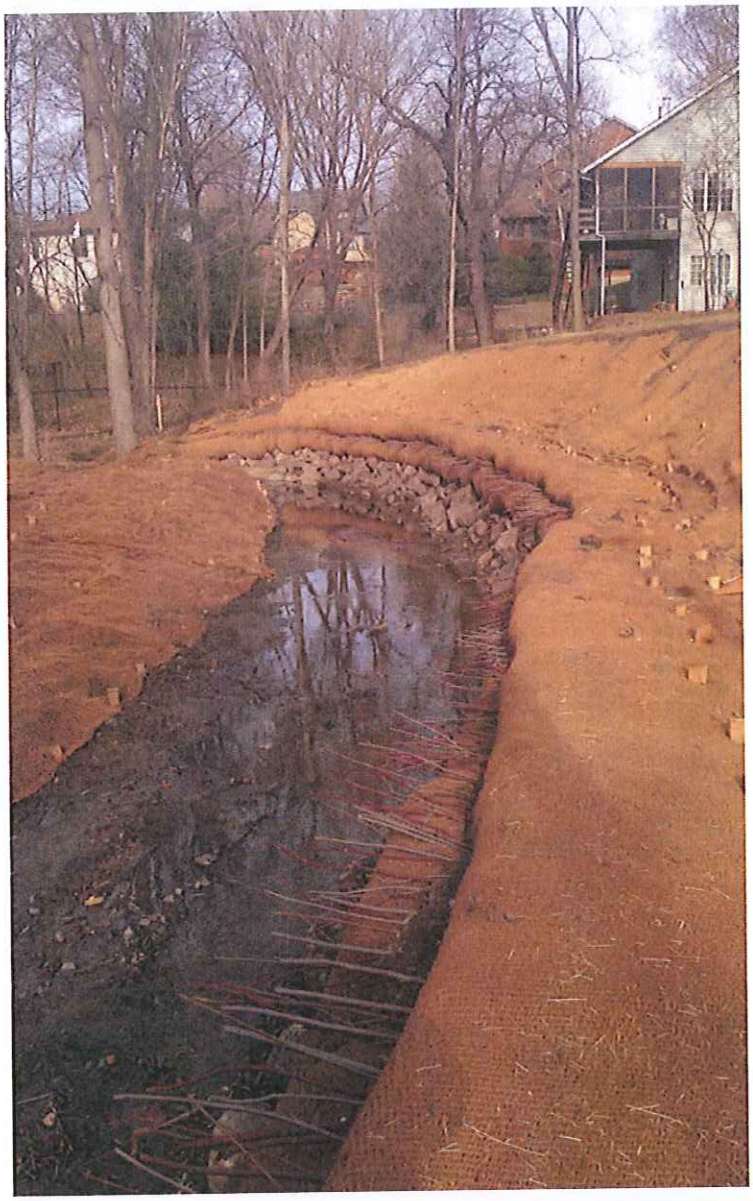
landscape architects and fluvial geomorphologists worked collaboratively with golf course staff to achieve stream goals while enhancing the play of the course.

Client Benefits

- Completed one of the first field applications of temperature modeling.
- Assisted in the acquisition of over 250k in grant dollars.
- Garnered essential buy-in from course owner, management and superintendent.
- Project estimated to reduce mean temperature by 0.5° F and the maximum temperature by 6° F.

EOR water ecology community





Regal Creek Bluff & Stream Stabilization

Date: On-going
Location: St. Michael, MN
Client(s): Ducks Unlimited, City of St. Michaels, and MNDNR

Summary

As a proposed outlet for the larger *Shallow Lake's Restoration Initiative*, the stabilization of Regal Creek will serve as a critical first step for the *Initiative*. EOR identified the current and future instability concerns and is currently preparing construction documents for stabilization.

Many of these sites have very different failures that required unique site-specific solutions, these included:

- Grade control, in the form of a series of rock riffles to restore original, ditched profile
- Bluff stabilization with blown compost to address challenging and inaccessible areas
- A small floodplain bench of vegetated soil lifts in combination with compost Filter SoxxTM to address floodplain and stream encroachments.
- Erosion control blankets, coir-logs, and native plantings to reinforce two sites experiencing natural erosion occurrences.

Client Benefits

- Site-specific solutions are more targeted and will allow for the successful stabilization of Regal Creek, allowing then the Pelican Lake Enhancements to begin.
- EOR provided additional facilitation among effected landowners and stakeholders in gaining project buy-in.

EOR water ecology community

NW & NE Quadrant, 2008 Flood Area, Sanitary Sewer Restoration, Phase 1, Cedar Rapids

Project Description:

The City of Cedar Rapids sanitary sewer system was greatly damaged during the 2008 floods. The City of Cedar Rapids completed a study to evaluate the condition of the sanitary sewer system after the floods to determine what damage resulted. FEMA provided the City with funding to repair the flood damaged sewers. Based on the study, Shoemaker & Haaland verified recommended improvements and completed construction documents for the necessary repairs outlined for the first phase of the Northwest Quadrant including point repairs, complete main replacements, manhole repairs and replacements.

Services & Design Elements:

Resident survey•
Topographic survey•
Confirmation of original study report and recommendations •
Manhole evaluation•
Traffic control/phasing plans•
Construction plans•
Legal survey easement preparation•

Flood Protection Improvements, Coralville, Iowa

Project Description:

During the flood of 2008 floodwaters inundated Coralville's central business district. After floodwaters receded, Coralville asked Shoemaker & Haaland to design and manage a new flood control construction project. The project protects the city from flooding from the Iowa River and Clear Creek basins.

This phase of the flood protection works for Coralville enables the **city to isolate the Iowa River from the business district and "Old Town" redevelopment areas in the event of extraordinary flooding** such as occurred in 2008.

In the process it was necessary to construct new storm water facilities to control interior drainage along the protected side of the flood wall. These facilities capture surface drainage from along First Avenue and Hwy 6 corridors. In addition subsurface and flood wall foundation drain systems will help control interior subsurface river basin flows, alleviating hydraulic pressures on the new flood walls and embankments.

The total project was completed in the fall of 2014.

American Council of Engineering Companies of Iowa

Grand Place Award

2015

"Special Projects"

ACEC

American Council of Engineering Companies

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Grand Place Award

2015

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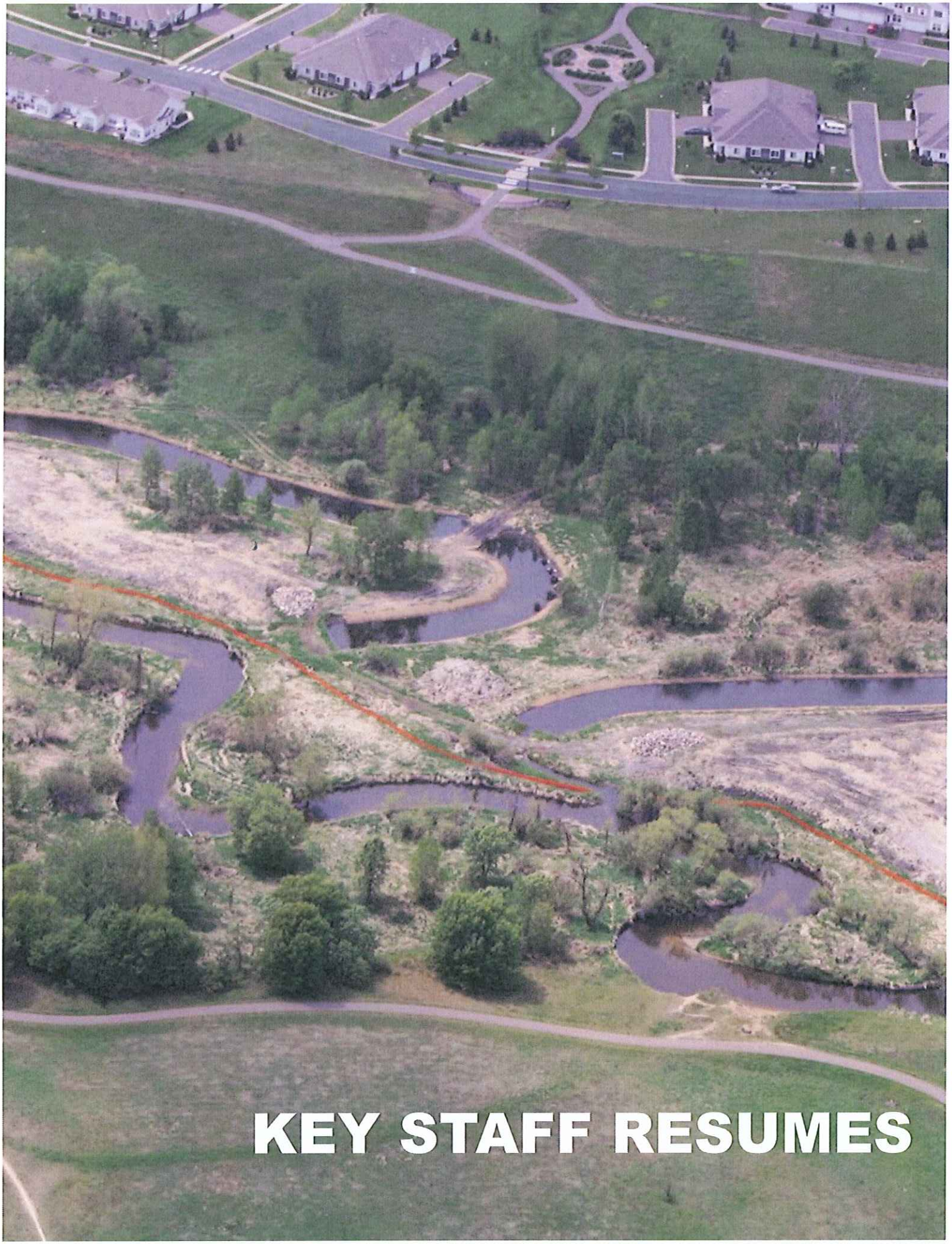
NW & NE Quadrant, 2008 Flood Area, Sanitary Sewer Restoration, Phase 1, Cedar Rapids

Project Description:

The City of Cedar Rapids sanitary sewer system was greatly damaged during the 2008 floods. The City of Cedar Rapids completed a study to evaluate the condition of the sanitary sewer system after the floods to determine what damage resulted. FEMA provided the City with funding to repair the flood damaged sewers. Based on the study, Shoemaker & Haaland verified recommended improvements and completed construction documents for the necessary repairs outlined for the first phase of the Northwest Quadrant including point repairs, complete main replacements, manhole repairs and replacements.

Services & Design Elements:

- Resident survey
- Topographic survey
- Confirmation of original study report and recommendations
- Manhole evaluation
- Traffic control/phasing plans
- Construction plans
- Legal survey easement preparation



KEY STAFF RESUMES

Select Project Experience

Sustainable Site Design & Research Projects

Award-winning designer of sustainable residential developments and corporate campuses. Author of nationally recognized technical manuals on the subjects of green infrastructure design, construction, and maintenance. A summary of his recent work includes the following:

Amery Regional Medical Center
Amery, WI. Landscape Architect & Construction Manager.
Oversaw the design and implementation of 20-acre sustainable health care campus.

Organic Valley Cashton Campus
Organic Valley. Project Manager
Managing the site design of a 400-person office complex as well as a campus master & sustainability plan for the greater 100-acre campus. Overseeing all associated engineering, landscaping, environmental permitting, stormwater modeling, and LEED accreditation.

The Minnesota Stormwater Manual
MPCA. Technical Writer.
Primary and contributing author of multiple chapters of this nationally-recognized manual.

Pat's Tap Gastro Pub
Private. Project Manager.
Oversaw the design and construction of this restaurant project in pursuit of LEED Platinum.

Minnesota Low Impact Development Comparison Study
Multiple Funding Entities. Project Manager.
Principal investigator of the award-winning development case study, used to advance sustainable development locally and throughout the country.

Little Falls Northeast Business Park
City of Little Falls, MN. Landscape Architect.
Planned road and parcel layout and designed associated stormwater management facilities for commercial development. Development matches presettlement hydrology on a parcel initially considered undevelopable because of high water tables.

CaptionMAX
Private. Project Manager.
Oversaw the sustainable site and water elements of the LEED pursuing commercial building renovation.

Wetter Farm Conservation Development
Private. Design Lead.
Led site/natural resource assessments and residential community design/platting.

River Valley Club Green Roof
River Valley Athletic Club. Project Manager & Agent
Managed design, bidding, contracting, and construction admin. of this extensive green roof.

Phillips Eco-Center Green Roof*
Private. Landscape Architect.
Design of intensive green roof system. The first such commercial application in Minnesota and award winner.

* work completed with previous employer

Kevin Biehn
ASLA, CPESC
LEED AP BD+C

Partner, Landscape Architect

Kevin has 19 years of experience as a landscape architect and stream specialist. He specializes in sustainable design solutions and stream rehabilitation.

Kevin has managed a diversity of challenging projects including the 1.6 million dollar Harriet Island Park Rehabilitation, the Rice Creek Meander Restoration, one of the largest stream restoration projects in MN, and the Amery Regional Medical Center, a sustainable medical campus precedent.

Education

1998 Bachelor of Environmental Design, University of Minnesota

2000 Master of Landscape Architecture Minor: Water Resources Science, University of Minnesota

Additional Training

2001- continuous: numerous Rosgen & various stream restoration courses

2004 Kinship Conservation Institute Fellowship, Montana

2005 Systematic Development of Informed Consent

2008 Natural Step

2010 Certified Water Harvesting Practitioner , Watershed Management Group

Professional Registrations

#42529 MN Reg. Landscape Architect

#623-014 WI Reg. Landscape Architect

#00634 IA Reg. Landscape Architect

Certified Professional in Erosion & Sediment Control

Areas of Expertise

Sustainable Site Design/Research

Parks & Natural Resources Restoration

Stream Assessment & Restoration

Ravine, Bluff, & Lakeshore Stabilization/ Restoration

Select Project Experience

Stormwater Management, Modeling, and Design

Perform H/H modeling, calcs, and analysis. Provide stormwater mgmt., design, & review for projects including: public site improvements, public stormwater facilities, and state agency control structures.

Burandt Lake Reuse (current)
Carver Cnty. WMO (current). Project Manager & Civil Engineer.
Responsible for the design and instal of a holding tank to capture stormwater runoff (*containing sediment, hydrocarbons, phosphorous & other pollutants*) from a 8.8 acre subwatershed to be reused for irrigating an high school athletic field.

Cleary Lk. Regional Park Stormwater Improvements (current)
Scott County. Project Manager and Engineer
Responsibilities include managing all engineering work including the design & sizing of all infrastructure, cost estimating, H/H modeling and water quality analysis, and coordinating EOR's construction assistance activities. Project entails BMP retrofit integration with the park's other existing infrastructure.

Enhanced Iron Sand Filter (current)
Stillwater, Mn. Design Engineer
Provide engineering and design review for the retrofit of a pump station and iron enhanced sand filter within an existing residential neighborhood stormwater pond. Responsible for construction documents and coordinating with PM/engineer, and local utilities.

Neurer Treatment Basin (construction to begin)
Cumberland, Wi. Project Engineer
Provide engineering and design review for multiple stormwater BMP retrofits (storm sewer disconnect, underground pre-treatment units, biofiltration, and native plantings) during street reconstruction project. Responsible for construction documents, bidding assistance, and contract administration. Coordinate with project manager, city, client, Wi/DNR, and contractor.

Target Plaza at Target Field*
Minneapolis. Engineering Consultant.
Responsible for designing a multi-functional system that would provide stormwater storage, filtration and reuse via a passive, sub-surface irrigation technology. Provided the means necessary to fulfill the requirements for the National Pollutant Discharge Elimination System (NPDES) permit. Also helped to obtain the LEED® credits in the Sustainable Sites, Water Efficiency, and Innovation & Design Process categories, which contributed to the stadium achieving LEED® Silver certification.

University of Minnesota TCF Bank Stadium*
Minneapolis, Mn. Sustainable Engineering Consultant
Provided stormwater BMP engineering and design for the stadium's multi-use green space area and incorporated 'Next Generation' stormwater mgmt. and sustainable irrigation techniques that also allowed for media vehicle access during events. BMPs included reinforced turf, sand filters, underground filtration chambers, and rainwater harvesting. Responsible for construction documents, coordination with project engineer and City, and project close-out.

Urban Area Stormwater Analysis*
Minneapolis, MN. Project Engineer
Prepared drainage studies for 70 acres of existing industrial warehouse properties. Analyzed stormwater mgmt. infrastructure for three properties. Reviewed historical data including soil boring reports, record drawings, property surveys & other information in compiling drainage characteristics. Prepared H/H models including calculations & cost estimates to determine the feasibility of pursuing a City stormwater utility fee credit.

Derek Lash
PE, CPESC

Civil Engineer

Derek Lash is a Civil Engineer and Erosion Control Specialist with 18 years experience in the design, documentation, and management of civil engineering projects including transportation, low impact development design, stormwater management, and wetland restoration.

Derek's strong background in geotechnical engineering, erosion control, and wetland ecology provide a depth of knowledge to EOR's multiple engineering, site design, water quality, and ecorestoration projects.

As a project manager, Derek has served as a representative for several projects ranging in scale from local neighborhood-based efforts to watershed-wide initiatives, including federally funded and regulated projects as well.

Education

2000 Bachelor of Science
Civil Engineering
Michigan Tech. University

Professional Registration

45156 MN Prof. Engineer: civil
40938-6 WI Prof. Engineer: civil
21838 IA Prof. Engineer: civil

Professional Affiliations + Additional Certification

MECA MN Erosion Control Association
ACEC American Council of Engineering Companies
Certified SWPPP's Designer

Areas of Expertise

LID + BMP Integration
Road + Site Grading Design
Construction Management
Storm Water Management
Erosion + Sediment Control

ADRIAN HOLMES, P.E., C.F.M.

14 Years Experience

Education

- University of Iowa B.S.E. Civil Engineering 2001 – Water Resources Focus
- Research Assistant, Iowa Institute for Hydraulic Research 1999-2001

Professional Registration

- Professional Civil Engineer – Water Resources; Iowa, Illinois, Missouri
- Certified Floodplain Manager (CFM)
- Master River Steward

Professional Affiliations

- Iowa Floodplain and Stormwater Management Association, *Chairman*
- Association of State Floodplain Managers
- Iowa Flood Risk Management Workgroup
- Iowa Silver Jackets – National Flood Risk Management Program

Selected Training

- University of Wisconsin - Storm Water Detention Basin Design
- University of Wisconsin - Using HEC-RAS to Model Bridges, Culverts, and Floodplains
- Iowa Water Conference 2013, 2014, Planning Committee 2015
- Society of American Military Engineers 2012 Conference

During Adrian's 14 years of practice at Shoemaker & Haaland, he has focused his professional development on water resources engineering. Beginning with his experience as a research assistant with the University of Iowa's Institute for Hydraulic Research and continuing with select professional training at the University of Wisconsin, he has used his education to design numerous storm water quantity and quality control facilities. His work has included watershed modeling, and design of flood control works, constructed wetlands, stream stabilization, stormwater pump stations, outfall structures, stormwater energy dissipaters, and structural stormwater best management practices (BMP's).

Accomplishments

Adrian was the project manager for the recently completed flood protection system along the Iowa River for the City of Coralville which has been awarded the 2014 ASCE Iowa Section Outstanding Civil Engineering Project Achievement Award and the 2015 American Council of Engineering Companies Grand Place Award. Adrian is a Certified Floodplain Manager (CFM) and is currently the Chairman of the Iowa Floodplain and Stormwater Management Association (IFSMA). Under Adrian's leadership, IFSMA has published four floodplain management reference documents. The first two documents, the Guide to the FEMA Community Rating System and the Flood Response Toolkit, won the 2014 Tom Lee Award for Excellence at the national Association of State Floodplain Managers conference. The second two modules, published in June of 2014 include the Floodplain Manager's Desk Reference, a 400+ page document which is considered *the* manual for floodplain management in Iowa. Adrian was a chief editor for this manual.

Storm Water Experience

River Products Company Wetland Mitigation Bank	Hills, Iowa
Constructed Wetlands Along Clear Creek (3 Areas)	Coralville, Iowa
Iowa River Flood Protection System	Coralville, Iowa
Mississippi River Flood Protection System	Keokuk, Iowa
Biomedical Research Storm Water Energy Dissipation	University of Iowa
Ferro-Sil Industrial Landfill Runoff Water Quality Basin	Keokuk, Iowa
Ferro-Sil Landfill Storm Water Energy Dissipators	Keokuk, Iowa
Archer Daniels Midland 5 Storm Water Retention Basins	Cedar Rapids, Iowa
Muddy Creek Stream Stabilization	Coralville, Iowa
Clear Creek Stream Biorestoration	Johnson County, Iowa
Amana Millrace Repairs	Amana, Iowa
Meadow Street Regional Stormwater Detention Basin	Iowa City, Iowa
Indian Creek at East Post Road Channel Stabilization	Cedar Rapids, Iowa
Youth Sports Complex Storm Water Detention	Coralville, Iowa
James Street Drainage Channel	Coralville, Iowa
Ralston Creek Channel Stabilization at Rochester Bridge	Iowa City, Iowa
Iowa River Power Low Head Dam and Spillway Repairs	Iowa City, Iowa
Hawthorne Elementary School Detention Basin	Keokuk, Iowa
Iowa Army Ammunition Plant (9 Detention Structures)	Middletown, Iowa
Colorado Street Culvert and Stream Channel Improvements	Muscatine, Iowa
Rochester Bridge over Ralston Creek "No-Rise" Certification	Iowa City, Iowa
East Post Road Bridge over Indian Creek "No-Rise" Cert.	Cedar Rapids, Iowa
Clear Creek Trail Trailhead "No-Rise" Certification	Coralville, Iowa
5th Street Bridge over Mad Creek "No-Rise" Certification	Muscatine, Iowa
Cargill Emergency Levee and "No-Rise" Certification	Cedar Rapids, Iowa
Iowa River Trail Bridge over Clear Creek	Coralville, Iowa
CRANDIC Railroad Bridge over Clear Creek	Coralville, Iowa
Iowa City Whitewater Course on the Iowa River	Iowa City, Iowa
Donnelly Park Pedestrian Bridge "No-Rise" Certification	Marion, Iowa

Kirkham Michael Firm Profile

Management

Michael S. Olson, P.E.
President
402-255-3842
molson@kirkham.com

Roger M. Helgoth, P.E.
President Emeritus
402-255-3813
rhelgoth@kirkham.com

Kevin D. Larsen
Senior Vice President and CFO
402-255-3823
kdl@kirkham.com

Richard D. Herrick, P.E.
Senior Vice President
Iowa Operations Manager
515-270-0848
rherrick@kirkham.com

Jon B. Halbgewachs, P.E.
Senior Vice President
Kansas Operations Manager
785-472-3163
jhalbgewachs@kirkham.com

Background

Kirkham Michael was founded in 1946 in Omaha, Nebraska, and has evolved into a professional practice providing civil engineering, environmental, land surveying, and construction engineering services to public and private clients. Kirkham Michael has offices in Omaha, Lincoln, and York, Nebraska; Des Moines, Iowa; and Ellsworth, Kansas.

Size

Kirkham Michael employs over 70 results-oriented professionals who are committed to providing quality, responsive, and professional services. Kirkham Michael is focused on our clients' success and strives to exceed expectations with innovative and practical solutions.

Employee-Ownership

Kirkham Michael professionals are also employee-owners. Their leadership and Kirkham Michael's entrepreneurial corporate culture fuels success for both our clients and individual employees. Kirkham Michael also continually invests in our people and their skills to maximize the value delivered to our clients. Our engineering expertise, clear communication, and commitment to our clients' success have been proven time and again on successful projects across the Midwest.

Services Provided

Kirkham Michael provides integrated engineering and construction services to a wide variety of public and private clients. We are a dynamic firm focused on our clients' success. We fulfill project and program needs from initial concept through implementation, with innovative, yet practical solutions.

- Airport Planning and Design
- Bridge Engineering
- Bridge Inspection and Rating
- Construction Engineering and Administration
- Environmental Planning
- Field Surveying
- Geographic Information System (GIS) Services
- Land Development
- Municipal Engineering
- Public Funding Assistance
- Roadway Engineering
- Traffic Engineering and Signal Services
- Transportation Planning
- Water Resources Engineering

Goals

Our goal is to be our clients' firm of choice. We are driven to help them succeed and will do everything we can to see that they are successful - successful in their careers, successful with their projects, and successful in their professional environments.

Corporate Office

12700 West Dodge Road | Omaha, NE 68154
Phone: 402-393-5630 | Fax: 402-255-3850 | www.kirkham.com

KIRKHAM MICHAEL

Bank Stabilization and Erosion Repair

Appanoose County, Iowa

Kirkham Michael was selected to assist Appanoose County with erosion repair as part of the 2010 Emergency Repair funding. The project contains repair at four separate sites in the County. One site involved repair of a soil slide of approximately 300 feet of roadway back slope. The slide completely filled the road ditch and threatened existing utilities. Any additional movement would have threatened the roadway. The repair included the removal of the soil in the failed area and a drainage system of rock. Tile was installed, followed by the reconstruction and compaction of the slope (below left photo).

Site two involved bank repair approximately 300 feet along the Chariton River immediately adjacent to a gravel county road. The erosion along the outside of a bend in the river was threatening erosion of a county road. The repair included construction of sheet pile, gabion wall, and reconstruction of the bank (see photo above).

The third and fourth site involved scour and stream bank repair at the outlet of the reinforced concrete box culverts. The repair included filling of the scour hole to protect the culverts from undermining and the installation of a grouted riprap channel to re-connect the culvert to the degraded stream bed (below right photo).

Project Details

Services:
Topographic Survey
Preliminary Design
Slope Stabilization
Scour Repair
Stream Bank Stabilization

Client Contact:
Appanoose County, Iowa
Mr. Gary Bishop, P.E.
641.856.6193

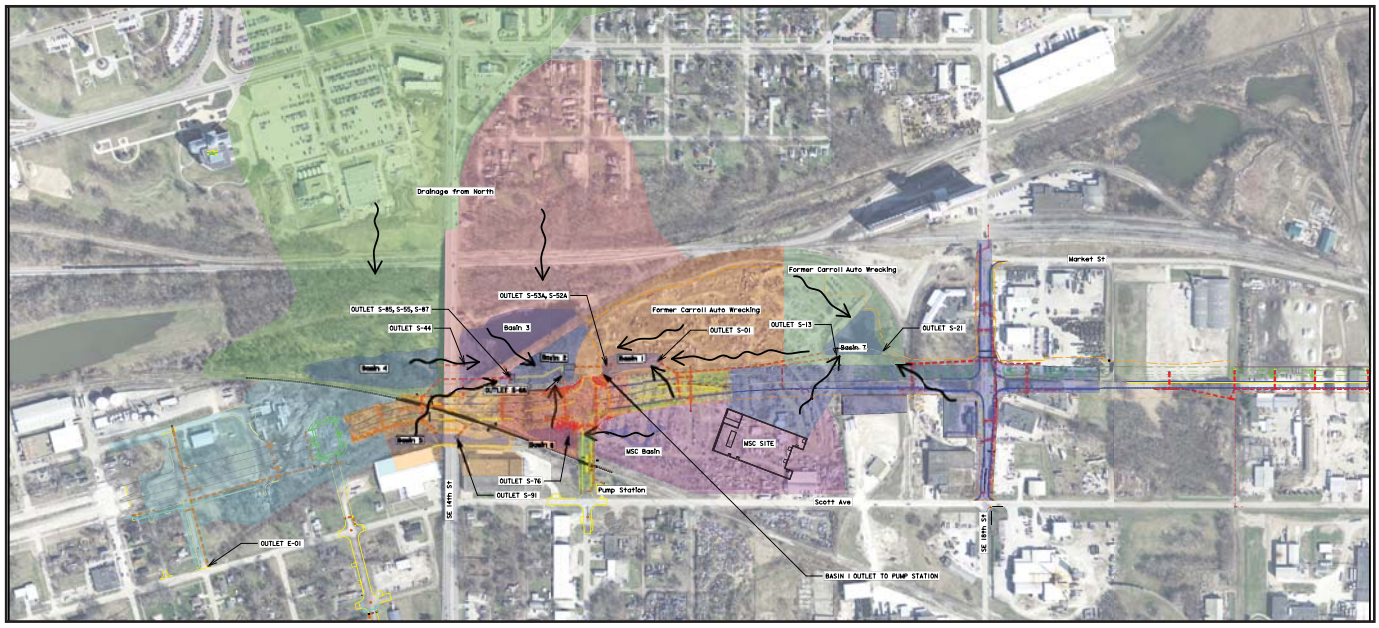
Completion Date:
2011

Cost:
$660,000

KIRKHAM MICHAEL

M.L.K. Jr. Parkway Extension Drainage Study and Design

City of Des Moines, Iowa



SW 1st to SE14th Street

As part of the pre-design analysis for the first mile of this project, Kirkham Michael evaluated the existing storm and sanitary sewer system adequacy for over 100 square blocks of existing neighborhoods (roughly 0.6 square miles). The analysis identified capacity issues for existing conditions, as well as for forecasted redevelopment of portions of the new corridor. The storm drainage analysis was conducted using multiple methods including PCSWMM, the Rational Method, and the SCS method.

The analysis reviewed of existing records for pipe size, material, location, slopes, and connectivity. The models were used to provide an initial assessment of existing data, followed by field reviews to confirm or update the city's records. The storm drainage and sewer system models indicated pipe segments that were undersized for both existing or future conditions. The analysis also included calibration with existing pump station records and anecdotal observations of capacity with city staff.

Kirkham Michael's solution was to upsize critical portions of the storm sewer network to efficiently move storm water to the existing outlets. The existing 24-inch outlet at Southeast 4th Street was also replaced with a new 48-inch outlet and gatewell to help drain the basins.

SE 15th to SE 30th Street

The Martin Luther King Jr. Parkway Extension from SE 9th street to SE 30th street is a part of a principal arterial for the City of Des Moines with the goal of linking downtown to the southeast side of the City and the Highway 65 Bypass corridor.

The storm sewer design outlets for a large portion of the corridor through an existing pump station of limited capacity near SE 15th street. Pre-and post- development conditions were analyzed to ensure the pump station did not receive water at a rate greater than the capacity. Over 150 acres comprised mainly of heavily developed urban area needed to be outlet into the existing Pump Station at a rate of less than 20cfs.

Kirkham Michael's solution consisted of a total of seven detention basins, four of which were new construction and three which utilized existing low areas and new outlets. The final design delivers approximately 18 cfs at peak flow to the existing pump station and 1.6 million cubic feet of peak storage and ensures the new Southeast Connector Roadway corridor will remain above the 100-year flood.

Project Details

Services:
Drainage analysis
Drainage Report
Hydraulic Analysis

Client Contact:
Pamela Cooksey, P.E.
Deputy City Engineer
City of Des Moines
515-238-4747

Completion Date:
2016

Cost:
$185 million (entire project)

KIRKHAM MICHAEL

Saylorville Lake Spillway Improvements

Polk County, Iowa

Kirkham Michael was retained by the US Army Corps of Engineers, Rock Island District, to produce preliminary and final construction plans and specifications for emergency repairs at Saylorville Lake in Polk County, Iowa. These improvements were necessary due to the heavy rain events of Spring and Summer 2008. The project included the replacement of a section of county road 78th Avenue, and reinforcement and strengthening of the channel protection through the project's emergency spillway.

In addition to this most recent event, 78th Avenue had seen its earth embanKirkham Michaelent obliterated with each high flow event over the emergency spillway. The proposed reinforced pavement section will be constructed atop a roller-compacted concrete prism, that will in turn, be anchored to sub-surface limestone and mudstone strata.

The 2008 event also damaged and further degraded channel protection placed after the last major flow event in 1993. The steep hydraulic gradient that exists through the channel reach is responsible for scouring increasing portions of the channel with each event, and concern was growing that the weir structure would eventually be threatened by this process.

In order to limit this channel degradation, a 40 foot high vertical cutoff wall was designed to work with an existing channel protection structure. The top of the proposed wall was tied to keep this existing structure, and the base of the wall was anchored into a 7-8 foot deep layer of competent mudstone.

Upstream from this structure, a thinner layer of limestone caprock was experiencing scour from these high flow events. In order to address this problem, a mat of reinforced concrete was designed to protect the remaining sections of this caprock from further undermining and scour.

In addition to reinforced concrete design, substantial engineering effort was directed at hydraulic modeling of the emergency spillway channel. Historic, as well as theoretical maximum probable flood, flows were modeled to evaluate water surface profiles, velocities, scour, uplift, and critical transitions. Lidar data was utilized to create the digital terrain model of the highly irregular scoured channel, and numerous roadway embanKirkham Michaelent configurations were reviewed for weir effects on channel flow.

Design fees for this project were approximately $140k, and the project has an estimated construction cost of $4 million.

Project Details

Services:
Topographic Survey
Hydrologic Study
Hydraulic Study
Fast-Track Design
Digital Terrain Modeling
Channel Protection
Roadway Design

Client Contact:
United States Army Corp of Engineers
Mr. Adam Ziegler
309.794.5168

Completion Date:
2009

Cost:
$4 million

Glen Eagles Park Trail

Urbandale, Iowa

Kirkham Michael was retained by the City of Urbandale to complete preliminary and final design of the Glen Eagles Park Trail development. Glen Eagles Park is a meandering green space situated along the banks of North Walnut Creek and a branch tributary in the north central portion of the City.

The park area is roughly bound by the stream, Plum Drive, Meredith Drive, and 100th Street. The project consisted of the preparation of bid documents to construct two prefabricated steel truss bridges on reinforced concrete abutments, along with approximately 1400 feet of eight-foot wide multi-use trail.

The project involved two branches of trail alignment and two crossings of the North Walnut Creek tributary. The primary trail run began at an existing trail pavement dead ending just north of Meredith Drive on the east side of the Glen Eagles West Plat One residential subdivision. The primary trail runs north across a new 45-foot bridge span up to a north terminus at Plum Drive.

Just north of the primary trail connection to the existing trail pavement, the second portion of the project contained a new westward trail branch running along the majority of the north side of Glen Eagles West Plat One, before turning north and entering the Glen Eagles North Subdivision across a new 50-foot bridge span.

The bridge crossings required hydraulic modeling to determine impacts to storm flows in the North Walnut Creek tributary. A span alternatives study was also completed for the City that examined a number of culvert and bridge alternatives for cost-effectiveness.

Project Details

Services:
Surveys
Trail Design
Hydrology/Hydraulics
Permitting
COE Coordination
IaDNR Coordination
Bridge Type Alternatives

Client Contact:
City of Urbandale, Iowa
Mr. John Larson
515.278.3950

Completion Date:
2013

Cost:
$400,000

ATTACHMENT 2

SCOPE OF SERVICES

Walnut Creek Bank Stabilization
and Flood Plain Improvements

Windsor Heights, IA

INTRODUCTION

This document presents the consultant team's scope of services for analysis and design services of the requested sites to mitigate existing bank stabilization and downstream flooding issues experienced during periods of significant rain. The site covered by this scope of services includes the Clive Elementary School Property which is located in the Cities of Windsor Heights, Iowa. This work is requested to analyze and determine viable options for construction to stabilize the banks of Walnut Creek and to mitigate downstream flooding during periods of significant rain through flood plain restoration.

PROJECT DESCRIPTION

This section of Walnut Creek through the Clive Elementary property is experiencing bank erosion and channel scour. This action has resulted in undermining of the stream banks, creating vertical channel walls that have become a safety hazard to the public using the adjacent pedestrian trail and the school children that use this area.

Kirkham Michael will investigate a mitigation strategy, expected to include the reduction of the bank heights by removing earth between the hard surfaced area of the school and the creek. Lowering the bank will provide a safer condition for the public as well as restore the adjacent overbank areas to their natural floodplain elevations. Restoring the stream to the natural floodplain will essentially provide a larger area for detention during high rain events, which should have a positive effect on downstream flooding.

SCOPE OF WORK

TASK 1: Project Management

1.1 General Project Management

This task will be ongoing throughout the project period. The Consultant Project Manager will serve as primary point of contact, manage project schedule and budget, and be responsible for coordinating work of design team members. The Consultant Project Manager will provide continuous project administration, management and coordination of tasks and activities, preparation of monthly progress reports, issuing of invoices and billings, ensuring appropriate quality assurance/quality control and other project management related activities deemed necessary to ensure efficient and timely project completion.

1.2 Meetings

1.2.1 The Consultant will schedule and conduct progress meetings. The Consultant will prepare an agenda in advance of the meetings and make a record of the meetings. It is estimated that there will be 2 meetings with City staff.

1.2.2 Prepare for, attend, and document up to 1 additional coordination meetings that may be required to discuss the project with the City or other identified stakeholders.

1.3 Quality Control / Quality Assurance

The Consultant shall perform ongoing reviews of major design decisions and the plan preparation process and perform detailed reviews of plans prior to submittals for completeness and quality.

TASK 2: Data Collection

2.1 Topographical Survey

The Consultant shall locate and gather all required information to complete a topographical survey of the project areas and the needed information to create a design. This information will include locations and elevations of existing site features (i.e. pavements, ground surfaces, existing structures, flow lines, and utilities. We will utilize GIS information to delineate properties and ownerships.

TASK 3: Concept Design Review

3.1 Hydraulic Review:

The consultant shall analyze the existing HEC-RAS regulatory stream model (provided by the City of Windsor Heights), and determine the impacts of the proposed floodplain modifications. This will include augmenting the existing model with additional cross sections to produce a corrected effective model, and placement of the proposed improvements to produce a proposed conditions model.

3.2 Review Agency Coordination:

North Walnut Creek is a regulated stream in the area of the proposed work; and as such, any project affecting the floodplain of the stream is subject to review by the Iowa DNR and US Army Corps of Engineers. Kirkham Michael will coordinate with these agencies in the Concept Phase to identify any fatal flaws that could present themselves during the final stages of approval and address them.

3.3 Concept Design:

The consultant shall provide design a concept level design of the proposed site improvements that will include cross sections and elevations to ensure the control and flow of storm water in these areas. The concept plan will be complete enough to address the impacts to the West Des Moines School District property, and a display will be prepared to present to them.

3.4 Concept Review Meeting:

Kirkham Michael will prepare for and conduct a meeting with the City of Windsor Heights and the West Des Moines Community School district to present the concept level plan and address any comments or concerns.

TASK 4: Final Design & Plan Production

4.1 Final Design

With the approval of a proposed concept plan Kirkham Michael will proceed with the final design of the bank stabilization and flood plain improvements based on the approved plan. This design will include revising the model to include the proposed improvements.

4.1 Permit Preparation & Submittal

Kirkham Michael will prepare and submit in coordination with the City of Windsor Heights all necessary permits to cover the construction of the final design improvements to North Walnut Creek.

4.1 Plan Production

Kirkham Michael will prepare public improvement construction documents and specifications in accordance with the Final Design of the project. These construction

TASK 5: Project Letting

5.1 Project Letting

Kirkham Michael will prepare and distribute bidding packets to local contractors and plan rooms. It is assumed that the City of Windsor Heights will advertise the letting of the project through the City's established methods. Kirkham Michael will address contract questions prior to bid opening, and conduct the bid opening. Tabulation of Bids and Award Recommendation will be provided to the City of Windsor Heights.

ASSUMPTIONS

No Platting or Easement costs are included in this scope of services and cost estimate, but can be added if found to be needed.

Completion of a Letter of Map Revision (LOMR) is not included in this scope of services and cost estimate, but can be added if determined to be necessary.

BUDGET

Hourly NOT to Exceed Cost of $41,830 (See Attachment 1 for Estimate of Cost)

SCHEDULE

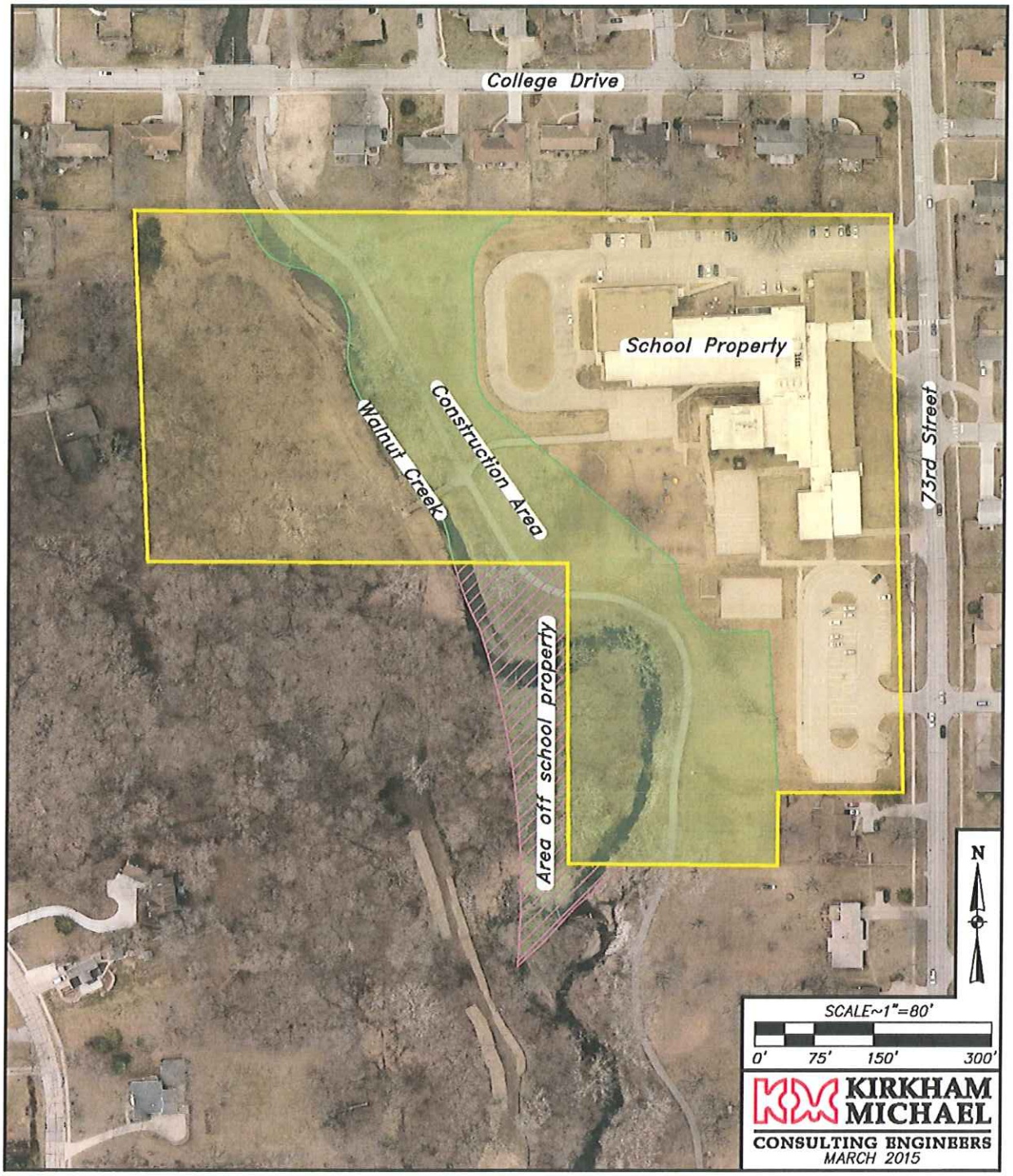
Kirkham Michael will complete the Survey within 15 days of notice to proceed.

Kirkham Michael will complete the Concept Plan work within 45 days of notice to proceed.

Kirkham Michael will complete the Final Design and Plan production within 45 days of receiving approval to move forward with the approved concept.

Project Review time by Iowa DNR and USACOE is estimated to be 150 days.

Location Map



Project Staff Hour Estimate and Engineering Budget - KIRKHAM MICHAEL

ATTACHMENT 1

Walnut Creek Bank Stabilization and Flood Plain Improvements

City of Windsor Heights, Iowa

Fee Proposal

KM Project Number

Date 24-Mar-15

Task	Description	Principal Engineer	Senior Transp. Engineer	Project Engineer 1	4th Year EI	Civil Tech 4	Civil Tech 3	Party Chief	Survey Party (2-man crew)	Civil Tech 1	Registered Land Surveyor	Admin / Clerical	Subtotals KM Labor	KM Direct Expenses	Sub 1	Sub 2
		$215.00	$155.00	$115.00	$100.00	$116.00	$110.00	$85.00	$155.00	$70.00	$172.00	$75.00		$1.00		
	Hours/Dollars	**$1,290**	**$12,090**	**$9,890**	**$0**	**$0**	**$12,320**	**$1,530**	**$1,240**	**$2,100**	**$0**	**$1,350**	**$41,810**	**$20**	**$0**	**$0**
1.1	General Project Mgmt.	2	8	16								8	$4,110.00	0	0	0
1.2	Client Meetings (3 total)		4	4									$1,080.00	0	0	0
1.3	Quality Control / Quality Assurance	4	8										$2,100.00	0	0	0
2.1	Topographical Survey		4				8	18	8			2	$4,420.00	20	0	0
3.1	Hydraulic Review		40										$6,200.00	0	0	0
3.2	Review Agency Coordination		8	4									$1,700.00	0	0	0
3.3	Concept Design			20			40			10			$7,400.00	0	0	0
3.4	Concept Review Meeting		2	2									$540.00	0	0	0
4.1	Final Design			20			40			20			$8,100.00	0	0	0
4.2	Permit Preperaton & Submittal		4	4									$1,080.00	0	0	0
4.3	Plan Production						24						$2,640.00	0	0	0
5.1	Project Letting			16								8	$2,440.00	0	0	0
	TOTAL HOURS	**6**	**78**	**86**	**-**	**-**	**112**	**18**	**8**	**30**	**-**	**18**	**41,810**			
	TOTAL LABOR	**$1,290**	**$12,090**	**$9,890**	**$0**	**$0**	**$12,320**	**$1,530**	**$1,240**	**$2,100**	**$0**	**$1,350**	**$41,810**	**$20**		
											check sum		$41,810			

Note: Any Platting and/or easement work that is found to be required is not included in this estimate, but can be added as a supplement if found to be needed.

KM Direct Expenses	**$20**
Subconsultants	**$0**
Total Fee	**$41,830**

EXHIBIT A

SCOPE OF SERVICES

NORTH WALNUT CREEK STREAMBANK STABILIZATION IMPROVEMENTS

GENERAL

I. PROJECT DESCRIPTION

The **PROFESSIONAL** shall provide the necessary engineering services required for the limited topographic survey, hydraulic analysis, permitting, preliminary and final design, plans, contract documents, and bid letting assistance services associated with the requirements for completing the North Walnut Creek Streambank Stabilization Improvements.

The project is contained within the boundaries further described as:

Streambank protection for the reach of North Walnut Creek within the Clive Elementary park area. Refer to Exhibit B of this Scope of Services for a defined delineation of the project reaches.

The documents, methods, and procedures used throughout the process shall be in conformance with and approved by the **CLIENT**.

II. PROJECT MANAGEMENT

For the duration of the project, the **PROFESSIONAL** will confer with the **CLIENT's** Primary Contact for the purpose of accomplishing the following:

A. Necessary project coordination efforts by the **PROFESSIONAL** to assure proper integration of participation levels from the **PROFESSIONAL'S** staff, the **CLIENT**, Landowners, and necessary agencies.

B. To review the timing sequence and level of effort for each of the groups involved with the project.

C. To obtain from the **CLIENT**, as necessary, policy decisions regarding the project.

D. Monthly invoices will be prepared to itemize fees and expenses for each project site location.

III. DESIGN MEETINGS

A. An initial project meeting will be held with the representatives of the **CLIENT's** staff to establish lines of communication regarding elements of the scope, obtaining available background information, and schedule and set design parameters for the project.

B. Additional meetings may be held if mutually determined necessary with maximum of two meetings for the purpose of design and site concept considerations.

C. An initial walkthrough site visit of the project reaches will conducted with the project stakeholders to review existing conditions, set design parameters and design methodologies.

IV. SURVEY

A. To facilitate the design of the proposed improvements for the location noted in Section I, limited topographic survey of the immediate area of the improvements will be obtained. This will include cross sections near grade control structures, channel flowline near grade control structures, top and toe of bank features along linear stream improvements, existing structure and storm sewer flowlines, and other information determined necessary for the hydraulic calculations and final design of the improvements. The limited topographic survey will be supplemented with Statewide LiDAR data.

1. Trees within the project areas will not be individually surveyed. Removal quantities will be based on canopy areas determined from 2014 or newer aerial photography. Tree species will not be noted except for those noted in the bat habit survey.

B. All survey information will be utilized from the topographic survey coordinate system provided by the **CLIENT**. All base files will be delivered in Bentley MicroStation version 8 CADD format.

C. The **PROFESSIONAL** will collect data from multiple sources to be utilized in design including existing utilities and plan utilities in the PROJECT area from public and private utilities.

V. ENVIRONMENTAL SERVICES

A. WETLAND AND STREAM DELINEATION

PROFESSIONAL will provide Wetland and Stream Delineation for the project. The Wetland Delineations will be performed to determine the upper boundaries of wetland areas at the project site. **PROFESSIONAL** will review United States Geological Survey topographic maps, National Wetland Inventory maps, Soil Survey, and aerial photographs as part of a preliminary data search. On-site visits

will be performed to gather data pertaining to wetland vegetation, wetland hydrology, and hydric soils. The boundary of each wetland and stream located within the project limits will be surveyed. Field work will be conducted in accordance with procedures outlined in the 1987 US Army Corps of Engineers Wetland Delineation Manual and Midwest Supplement. **PROFESSIONAL** will provide copies of the Wetland and Stream Delineation Report summarizing the findings of the data searches and the on-site wetland delineation. The **PROFESSIONAL** will coordinate with the landowners prior to the site visit to ensure access to properties required for field investigation.

B. A permit application will be submitted to the Iowa Department of Natural Resources and Rock Island District Corps of Engineers. **PROFESSIONAL** will act as the Authorized Agent throughout the permitting process. During this process, **PROFESSIONAL'S** staff will respond to inquiries from the Iowa Department of Natural Resources and Rock Island District Corps of Engineers. **PROFESSIONAL** assumes the streambank stabilization projects will be covered under a Nationwide Permit (NP) without mitigation. Should an individual permit be required, the following additional services could be required by the U.S. Army Corps of Engineers:

1. Alternatives analysis
2. Phase 1 cultural resources investigation
3. Mist net and/or acoustical survey for bats
4. Wetland and stream permitting and mitigation design
5. Mitigation construction oversight
6. Mitigation site as-built surveys
7. Wetland and stream monitoring
8. Bat habitat survey

VI. CONCEPT PLAN/EDUCATION PLAN

Prior to survey, a concept plan will be prepared showing recommended improvements, and an Order of Magnitude Opinion of Probable Cost, and construction prioritization. A meeting with project stakeholders will be held to review concepts and determine actual project limits based on funding availability. Graphical renderings of concepts will be prepared to assist with the discussions.

As part of the concept development, up to three meetings will be held with area stakeholders including representatives from West Des Moines Public Schools to review concepts. These meetings will include an educational component of the project. Ways will be discussed on how this project could be integrated into classroom related work. Copies of the concept plan will be provided to the school for use in classroom activities.

VII. PRELIMINARY DESIGN & PLANS

Based on the selection by the CLIENT of the priority project limits, the gathering of background information and survey, preliminary plans (60% complete) will be prepared by the **PROFESSIONAL**. This is anticipated to be approximately 1,000 feet of streambank length. Plan sheets will be prepared in accordance with the requirements to provide for 22" x 34" plans. Sheets will be plotted at half-size and must maintain legibility and utilize typical civil engineering drawing scales. Included in this task shall be the following:

A. HYDROLOGY AND HYDRAULICS

The **PROFESSIONAL** shall perform a hydraulic design of the project sites noted under Section I for the purpose of developing flows and velocities for use in the design of the proposed improvements.

1. A hydraulic analysis of North Walnut Creek for the project areas will be performed to evaluate impacts to the regulatory base flood profile. The 2014 Polk County leveraged study of North Walnut Creek will be used. The **PROFESSIONAL** will obtain necessary jurisdictional approvals prior to using the model. The peak discharges used in the leveraged study and North Walnut Creek Watershed Study hydraulic model will be utilized for the project design. The **PROFESSIONAL** will provide a "no-rise" certification in accordance with National Flood Insurance Program requirements, if applicable. If a "no-rise" certification cannot be achieved, required flood mapping revisions may be added by supplemental agreement. The hydraulic analysis will be submitted to the Iowa Department of Natural Resources for a flood plain permit. The **PROFESSIONAL** will prepare the respective Local flood plain development certificate of compliance forms.

B. PRELIMINARY CONSTRUCTION DOCUMENTS

The **PROFESSIONAL** shall complete preliminary construction documents with the following items included:

1. The preliminary plans and profiles will show the necessary terrain, elevations, utilities, stationing, homes and garages (map location), proposed stream stabilization improvements.

2. The limits of the existing permanent easements and road right of ways, temporary construction easements and new permanent easements, where required, will be shown on the plans including property ownership.

3. Conflicts and constraints affecting the proposed improvements and anticipated cost will be shown on the plans.

4. Typical details will be developed along with staged construction for each phase to be completed.

5. Preliminary erosion control plan.

6. The water quality benefits of the proposed improvements will be evaluated, if requested, through a supplemental agreement.

7. Opinion of Probable Construction Cost

C. UTILITY COORDINATION

The **PROFESSIONAL** will contact the appropriate utility companies to determine the existing utility locations within the project's construction area. This information will be used in the design of the project to determine the impact of the project on each utility.

VIII. FINAL DESIGN & PLANS

Upon approval of the preliminary design by review agencies, **PROFESSIONAL** will begin final design of the proposed improvements.

A. The **PROFESSIONAL** will submit approximately 95% complete plans along with the final opinion of probable construction costs, and special provisions for the **CLIENT** to review. The **PROFESSIONAL** shall meet with the **CLIENT** to review their comments.

B. FINAL PLAN PREPARATION

The **PROFESSIONAL** shall prepare final plans, which shall include the sheets listed below. The plan sheets will generally include the following as applicable for this project:

1. Quantity Estimate
2. General Notes
3. Standard Detail Sheets
4. Stream Plan and Profile Sheets
5. Erosion Control Plan
6. Survey Coordinates

PROFESSIONAL assumes the project will be constructed with one bid package.

C. OPINION OF PROBABLE CONSTRUCTION COST

The **PROFESSIONAL** shall prepare a construction cost opinion based on the final plans. Statements of probable construction costs prepared by the **PROFESSIONAL** represent the best judgment as a design professional familiar with the construction industry. It is recognized, however, that the

PROFESSIONAL has no control over the cost of labor, materials or equipment, over the Contractor's methods of determining bid prices or over competitive bidding or market conditions. Accordingly, the **PROFESSIONAL** does not guarantee any actual cost.

D. SPECIAL PROVISIONS

The **PROFESSIONAL** shall prepare the final special provisions to be included in the contract documents. The special provisions will include site general requirements, bid item measurement and payment descriptions, special construction requirements, and other supplemental technical specifications not included in SUDAS.

IX. RIGHT-OF-WAY SERVICES

PROFESSIONAL will provide State of Iowa licensed real estate agents who will negotiate and endeavor to acquire for the **CLIENT** all of the necessary easements and/or real property parcels needed for the Project. Mary Ann Carnock is an employee of **PROFESSIONAL**, and are state of Iowa licensed real estate sales persons with SNYDER & ASSOCIATES RIGHT-OF-WAY SERVICES, LLC, Ankeny, Iowa, a State of Iowa licensed real estate broker and a wholly owned subsidiary of **PROFESSIONAL**. Mary Ann Carnock will be designated as "Appointed Agent" and will represent the **CLIENT** in a "Buyer Exclusive Agency" capacity in all matters pertaining to the negotiation and acquisition of easements and/or real property for said public improvement project. **CLIENT** shall also be a Client of Appointed Agent.

CLIENT does hereby request Appointed Agent to select, prepare and complete form documents for use incident as to a residential real estate transaction of four units or less. Such documents shall be limited to: (1) purchase offers or purchase agreements, provided the parties are given written notice that these are binding legal documents and competent legal advice should be sought before signing; (2) groundwater hazard statements; and (3) declaration of value forms.

CLIENT and **PROFESSIONAL** acknowledge and agree that the Appointed Agents are required to adhere to Federal and State of Iowa statutes; the rules of the Supreme Court of Iowa as they may pertain to real estate agents; the rules and regulations promulgated by the Iowa Real Estate Commission; and, the Iowa Administrative Rules and regulations in regards to real estate agents' conduct, responsibilities, duties, and all SRF and sponsored project requirements. Said statutes, rules and regulations will supersede and be paramount to any provision contained herein, anything to the contrary notwithstanding.

A. ACQUISITIONS

PROFESSIONAL will perform the following:

1. Attend initial project meetings with the representatives of **CLIENT** to establish lines of communication regarding elements of the scope and schedule and to set property acquisition parameters for the Project;

2. The **PROFESSIONAL** will complete a parcel files for each property involved with the project. The parcels should be identified numerically and both parcel number and the names of all fee owners and/or contract purchasers should be placed on the Master and Concept plans within the limits of the property to be acquired.

   The parcel file may contain some or all of the following as may be determined by the client and/or the project requirements:

   a. Easements and Acquisition Plats.
   b. One copy of the Title Certificate, acceptable to the **CLIENT** for fee title acquisitions and permanent easements temporary easements as required by the **CLIENT**.
   c. Record of contacts, copies of correspondence, notes, etc., that pertain to the parcel.
   d. Conveyance Documents
   e. W-9

3. The **PROFESSIONAL** will create the necessary acquisition and conveyance documents to accompany the acquisition plats and legal descriptions. These documents will be prepared on forms provided by the **CLIENT**. The documents shall be reviewed and approved by the **CLIENT's** attorney upon completion and prior to closing. The **CLIENT** reserves the right to reject any agreement made between **PROFESSIONAL** and property owner/tenant.

4. Retain and coordinate the services of a licensed, certified appraiser (hereinafter referred to as "Appraiser") who, subject to the approval of the **CLIENT**, will be a subPROFESSIONAL to **PROFESSIONAL**. The Appraiser will prepare appraisals and/or Project Data Books, as needed. The Appraisers' work will be reviewed by a second party as approved by the **CLIENT** and as required by Local, State and /or Federal Right-of-Way acquisition procedures. The Appraiser will prepare, sign and furnish to the **PROFESSIONAL** and **CLIENT** appraisal documentation following accepted appraisal principles and techniques in accordance with the Iowa DOT "Appraisal Policy & Procedures Manual". The **CLIENT** will review and forward written approval of all findings by the Appraiser. An appraisal may not be required in accordance with state law and 49CFR 24, 102, if is determined by the **CLIENT** that the valuation process is uncomplicated and the anticipated value of the proposed acquisition is estimated at $10,000 or less based on a review of available data.

5. Use acquisition forms and documents provided by **CLIENT** or prepare acquisition documents as directed by the **CLIENT** attorney for review and approval of the **CLIENT's** legal counsel. Acquisition documents may include, but not be limited to: (1) Offer to Purchase, (2) 10 day-waiver, (3)

real estate purchase agreement, (4) Easements, (5) Warranty Deed, (6) title clearing documents as directed by Client's attorney, and (7) release of tenant interest and leasehold claims;

6. Make (through the Appointed Agent) personal and private contacts with each property owner and tenant (the Parties) or their representative to explain the effect of the acquisition, answer questions, present a written offer, and consider counter offers and to make approved offers for administrative settlements. Non-resident property owners will be contacted by certified or registered mail, telephone or by electronic mail if possible.

7. Make a good faith effort to acquire the necessary property within 90 days after a written offer has been submitted to the owner and tenant. Negotiations will be considered complete upon occurrence of one of the following: (1) the parties accept the offer, (2) the parties accept an administrative settlement, (3) the parties fail or refuse to accept the offer or administrative settlement, and/or (4) in the judgment of the **PROFESSIONAL**, negotiations have reached an impasse;

8. Condemnation services are not included with this scope.

9. **PROFESSIONAL** assumes three individual property owner acquisitions.

B. RIGHT-OF-WAY TASKS SUMMARY

Project: North Walnut Creek Streambank Stabilization Improvements

No.	Task	Professional	Client	Not Applicable
	ACQUISITION TASKS			
1	Provide Acquisition Forms		•	
2	Maintain Parcel Files	•		
3	Send Letter of Intent with PROFESSIONAL Introduction and Acquisition Brochure	•		
4	Procure All Title Certificate and Appraisal Services	•		
5	Prepare Compensation Estimate	•		
6	Compensation Estimate Review / Approval		•	
7	Prepare FMV Approval Letter to CLIENT (Uncomplicated Acquisitions less than $10,000)	•		
8	Administrative Settlement Approval		•	
9	Prepare and Review Acquisition Documents	•		
10	Mail Appraisal, Acquisition Docs and 10-Day Notice	•		
11	Negotiate/Obtain Proper Signatures	•		
12	Obtain Receipt of Documents From Owner/Tenant	•		
13	Obtain Signed W-9 Request for Tax Payer ID	•		
14	Maintain Acquisition Record of Contacts	•		
15	Prepare & Procure Maintain Vacancy Agreements	•		
16	Obtain Signed Title Clearing Documents	•		
17	Review Signed Documents	•		
18	Process Roll Calls, Requisitions and Financial Audit		•	
19	Mail (Certified) or Deliver Checks		•	
20	Prepare and Review Closing Statements		•	
21	Hazardous Materials Inspection Prior to Closing	•		
22	Update Abstract (Large Partials and Totals Only)	•		
23	Title Opinion (Large Partials and Totals Only)		•	
24	Record Documents		•	
25	Condemnation Proceedings			•
26	Acquisition Project Management	•	•	
27	Bi-Monthly Status Reports, or as required.	•		

C. ACQUISITION PLATS

Acquisition plats shall be prepared for each temporary easement and for each parcel. No permanent easements or acquisition in fee simple are anticipated for this project. The plats shall be prepared in accordance with the **CLIENT'S** standards and in compliance with the standards for land surveying of the Iowa Code. All structures and existing easements of record shall be shown on the plats for each parcel. Permanent survey markers shall be placed at the corners of all parcels requiring a fee title interest.

1. Estimated number of fee title plats = 0
2. Estimated number of easement plats = 0
3. Estimated number of temporary easement plats = 3

Additional plats and re-setting property pins after construction will be added by supplemental agreement.

D. STAKING

Right-of-way limits will be staked if requested by the **CLIENT**. The scope of this contract includes right-of-way staking for a maximum of three property owners.

X. BIDDING PHASE

The **PROFESSIONAL** shall perform the following services:

A. CONSTRUCTION CONTRACT DOCUMENTS

This project will be let by the **CLIENT** and the **PROFESSIONAL** shall supply the necessary documents for this process. The administrative documents conforming to **CLIENT** standards will be supplied by the **CLIENT**. The **PROFESSIONAL** shall provide the final special provisions to be included in the contract documents and project related information for the NPDES permit requirements.

B. ADVERTISING

The **PROFESSIONAL** shall answer questions from potential contractors, subcontractor and suppliers, and coordinate with **CLIENT** staff during this phase of services. Written documentation of discussions with plan holders shall be provided to the **CLIENT**. The **CLIENT** shall prepare and distribute all necessary addenda prior to receiving bids, with assistance from the **PROFESSIONAL**.

C. BID AWARD

The **PROFESSIONAL** shall attend the meeting at which bids are received, and make recommendations to **CLIENT** staff regarding the awarding of the construction contract to the lowest responsive and responsible bidder.

XI. CONSTRUCTION SERVICES

The **PROFESSIONAL** shall perform the following services:

A. CONSTRUCTION ADMINISTRATION PHASE

Upon award of the initial construction contracts, the **PROFESSIONAL** shall perform the following administrative services during construction of the project:

1. During the construction phases, the **PROFESSIONAL** shall specify the testing of materials and administrative procedures to be as directed by the **PROFESSIONAL.**

2. Preconstruction Conference - The **PROFESSIONAL** shall arrange and conduct a preconstruction conference with the Contractor and **CLIENT** to review the contract requirements, details of construction, utility conflicts and work schedule prior to construction.

3. The **PROFESSIONAL** shall answer design interpretation questions from Engineer, Contractor and review agencies.

4. Contractor Payment Requests - The **PROFESSIONAL** shall review and process progress payment applications submitted by the Contractor and based upon its review of construction progress by on-site observation, shall make a recommendation to the **CLIENT** for payment of the appropriate amount for work completed since the last payment application.

5. Shop Drawings - The **PROFESSIONAL** shall review shop drawings and other submissions of the Contractor for compliance with the construction documents.

6. Change Orders - The **PROFESSIONAL** shall negotiate and prepare change orders for approval by the **CLIENT** prior to Contractor's start of work under the change order.

7. Substantially Complete and Final Site Observation - The **PROFESSIONAL** shall perform a site observation to determine if the project is substantially complete according to the plans and specifications and make recommendation on final payment for each construction phase.

8. During the Construction Services Phase, the **PROFESSIONAL** shall confer with the **CLIENT'S** Project Officer to report project status. A

written progress report shall be submitted and written in such a way that it is suitable for use as a **CLIENT** Council information item.

9. If the Contractor exceeds the completion date in completing construction of the project, or if change orders or project additions extends the completion date, additional services may be added by supplemental agreement.

10. Final Acceptance and Punch List – The **PROFESSIONAL** coordinate final inspection and prepare a punch list of items to be completed. On the basis of such inspection, the **PROFESSIONAL** shall determine if the project is substantially complete according to the plans and specifications and shall make a recommendation to the **CLIENT'S** Project Officer regarding final payment. It is understood that the **CLIENT** will accept the project only after recommendation by the **PROFESSIONAL**. Final acceptance of the project by the **CLIENT** shall not be deemed to release the Contractor from responsibility for insuring that the work is done in a good and workmanlike manner, free of defects in materials and workmanship nor the **PROFESSIONAL** for his liability of design.

B. CONSTRUCTION STAKING

The **PROFESSIONAL** shall be responsible for providing all construction stakes for the project. The construction documents will contain a provision that the **PROFESSIONAL** will provide one set of stakes for each construction operation. Any staking that is destroyed due to construction that has to be replaced, will be at the Contractor's expense.

C. CONSTRUCTION OBSERVATION

1. The **PROFESSIONAL** will provide one or more Resident Engineer or Resident Construction Observer for the project as required during the Construction Phases.

2. The **PROFESSIONAL** shall cause its design personnel to make periodic visits to the site at intervals appropriate to the stage of construction and not less than daily, or as otherwise agreed by the **CLIENT** and **PROFESSIONAL** in writing, to provide field observation to ascertain the progress and quality of the work completed and to determine if the work is being performed in accordance with the Contract Documents. However, the **PROFESSIONAL** shall not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the work. Construction Observation services do not include responsibility for construction means, controls, techniques, sequences, procedures or safety.

3. If the Contractor requests a waiver of any provisions of the plans and specifications, the **PROFESSIONAL** will make a recommendation on the request to the **CLIENT** for its determination. No waiver shall be granted

if such waiver would serve to reduce the quality of the final product. The **CLIENT** shall never be deemed to have authorized the **PROFESSIONAL** to consent to the use of defective workmanship or materials.

4. Notification of Nonconformance – On the basis of on-site observations as a design professional, the **PROFESSIONAL** shall keep the **CLIENT** informed of the progress and quality of the Work and shall guard the **CLIENT** against defects and deficiencies in the Work. The **PROFESSIONAL** shall notify the **CLIENT** of any work which is unsatisfactory, faulty, defective, incomplete or does not conform to the Contract Documents, advise and recommend action required to correct or complete such unsatisfactory, faulty, defective or incomplete work and, at the request of the **CLIENT**, see that these recommendations are implemented by the Contractor.

5. The Resident Engineer or Construction Observer will give guidance to the project during the construction periods, including the following:

   a. Setting and/or checking of lines and grades required during construction.

   b. Observation of the work for general compliance with plans and specifications. Observation does not include observation or administration of the Storm Water Pollution Prevent Plan (SWPPP), if any is required for the site, which is the sole responsibility of **CLIENT**.

   c. Keep a record or log of Contractor's activities throughout construction, including notation on the nature and cost of any extra work or changes ordered during construction.

D. CONSTRUCTION TESTING

1. The **PROFESSIONAL** will coordinate the acceptance testing and monitoring according to the specifications including the services provided by an independent testing laboratory. All testing services will be paid for directly by the **CLIENT**.

2. Assurance sampling, testing and source inspection required is not expected to be provided by the **PROFESSIONAL**.

E. RECORD DRAWINGS

Record Documents - The **PROFESSIONAL** shall furnish reproducible record documents for project according to **CLIENT** requirements. The reproducible record documents shall include one half size paper plan set and one electronic (PDF) plan set for each Project Phase.

XII. WORK SCHEDULE

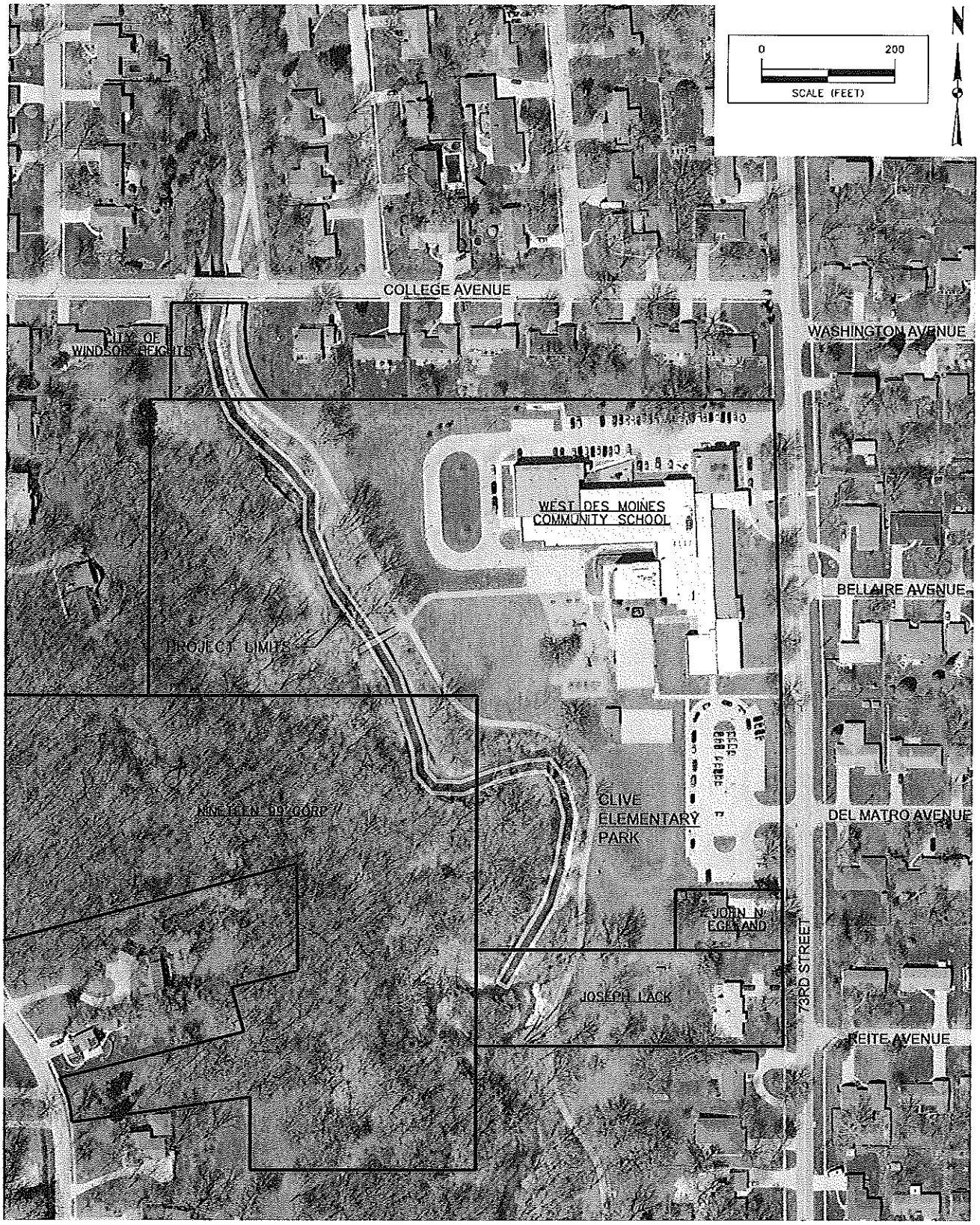
This project, from design through construction completion, shall be performed by the **PROFESSIONAL** in accordance with the following schedule:

Providing the Notice to Proceed is received by April 13, 2015 and the weather is favorable for field work, it is understood the recommended preliminary design with right of way needs will be completed by July 17, 2015. The final plans and specifications will be completed concurrently with regulatory approvals with a target approval date of December 2015 in anticipation of a January 2016 letting. The expected construction completion date is December 2016.

XIII. COMPENSATION & TERMS OF PAYMENT

As set forth in the agreement, the engineering fee will be on an hourly not to exceed basis. The current fee schedule is shown in Exhibit C. Total fees of services will not exceed the following amounts without approval of the **CLIENT.**

BASIC SERVICES			TOTAL
1.	Project Management	$	4,500.00
2.	Design Meetings	$	3,500.00
3.	Survey	$	8,000.00
4.	Environmental Services	$	5,500.00
5.	Concept Plan and Educational Plan	$	10,000.00
6.	Preliminary Design	$	24,000.00
7.	Final Design & Plans	$	18,000.00
8.	Right of Way Services (3 Parcels)	$	15,000.00
9.	Bidding Phase	$	2,400.00
10.	Construction Services	$	35,000.00
	TOTAL	$	125,900.00



SNYDER & ASSOCIATES
Engineers and Planners

NORTH WALNUT CREEK
STREAMBANK STABILIZATION IMPROVEMENTS
MARCH 31, 2015

EXHIBIT B

EXHIBIT C

SNYDER & ASSOCIATES, INC.
2015-16
STANDARD FEE SCHEDULE

Billing Classification/Level	Billing Rate	
Professional		
Engineer, Landscape Architect, Land Surveyor, Legal, GIS, Environmental Scientist Project Manager, Planner, Right-of-Way Agent, Graphic Designer		
Principal	$183.00	/hour
Principal	$172.00	/hour
Senior	$156.00	/hour
VIII	$144.00	/hour
VII	$137.00	/hour
VI	$132.00	/hour
V	$123.00	/hour
IV	$112.00	/hour
III	$104.00	/hour
II	$94.00	/hour
I	$81.00	/hour
Technical		
Technicians--CADD, Survey, Construction Observation		
Lead	$110.00	/hour
Senior	$106.00	/hour
VIII	$99.00	/hour
VII	$91.00	/hour
VI	$81.00	/hour
V	$73.00	/hour
IV	$67.00	/hour
III	$56.00	/hour
II	$47.00	/hour
I	$42.00	/hour
Administrative		
II	$56.00	/hour
I	$46.00	/hour
Reimbursables		
Mileage	*current IRS standard rate*	
Outside Services	*As Invoiced*	

Walnut Creek Stream Stablization / Flood Reduction Project at Clive Elementary

Consultant	Kirkham Michael	Snyder & Associates	Emmons & Oliver
Project Management	$ 4,110	$ 4,500	$ 3,675
Survey	$ 4,420	$ 8,000	
Meetings (Design)	$ 1,080	$ 3,500	$ 18,420
Hydraulic Review	$ 6,200	$ 5,500	
Concept Design	$ 7,940	$ 34,000	$ 19,741
Final Design/Plans	$ 12,820	$ 18,000	
Letting	$ 2,440	$ 2,400	
TOTAL	**$41,830**	**$75,900**	**$41,836**