Tinley Creek Streambank Stabilization

Request for Proposal #21-015

Scope of Services Prepared for

ORLAND PARK

14700 S. Ravinia Ave
Orland Park, IL 60462

Prepared by
Cardno, Inc.
6605 W. Steger Road
Monee, IL 60449

April 12, 2021

Cardno

Cover Letter

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Supplemental Response

April 12, 2021

Mr. John C. Mehalek, Office of the Village Clerk
Village of Orland Park
14700S. Ravinia Ave
Orland Park, IL 60462

RE: Tinley Creek Streambank Stabilization Request for Proposals #21-015

Dear Mr. Mehalek and Board of Trustees for Village of Orland Park:

Cardno, Inc. (Cardno) understands the Village of Orland Park (Village) is seeking an environmental and engineering consulting partner for the Tinley Creek Streambank Stabilization Project (Project) located in the Village. The Cardno team including **Cardno**, **Andrews Engineering (SBE)**, **Aqua Vitae (VOSB),** and **Valdes Engineering (MBE)** offers the right depth and breadth of experience and commitment to effectively review and update the previous Project design, conduct site surveys, design additional streambank sections, prepare separate exhibits and deliver Plans, Specifications, and Estimates that would be used by the Village to pursue future contracts.

Cardno previously submitted a Technical Proposal and our Proposal Summary Sheet (Price Proposal). We now are providing a scope of services and a detailed cost estimate with hourly breakdown with costs related to the scope of services as requested in an email from Khurshid Hoda on April 5, 2021. We are also submitting our detailed schedule that will assist in scope understanding. Should the Village require additional information or clarification of any portion of our package, please contact Project Manager Heather Schwar, PE, with phone and email provided below. Cardno appreciates this opportunity to partner with the Village of Orland Park.

Sincerely,

Cardno Inc.

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for Cardno
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Project Understanding

The Cardno team understands that the Village and their partner, MWRDGC, wish to address the ongoing streambank erosion along the entire reach of Tinley Creek within the Village (excluding the forest preserve and golf course), which is owned by private homeowners and Homeowner's Associations. The project will include design phases from preliminary engineering through final design and bid. The project will require an approach which will be viewed as "fair" and "inclusive" to property owners in order for easement agreements to be completed and long-term maintenance to occur. In addition, franchise utility coordination and agency permit requirements will need to be determined as early as possible in the design process to ensure a successful and timely project.

Properties that are not critical for a successful streambank stabilization project or if easement conditions cannot be agreed upon, will be removed from the project. Because the Village and MWRDGC are providing funding for separate project elements, detailed cost estimates will be prepared to show funding sources for the two agencies.

In addition to exceptional project management and an understanding of Village and MWRDGC processes and expectations, the Tinley Creek Streambank Stabilization Project requires a consultant team that is experienced in providing a variety of services, including hydraulic modeling, permitting, preliminary engineering through final design for streambank and channel stabilization, vegetation management, long-term monitoring and of course, public involvement. The Cardno team is ready and capable to perform the services the Village requires to ensure a successful streambank stabilization of Tinley Creek.

We have assumed a reach length of approximately 3.1 miles along the Tinley Creek (2.6 miles investigated by Christopher Burke per July 30, 2020 from 151st Street at the northern end to 162nd Street and Laurel Drive at the southern end) and an additional ~ 0.5 miles of Tinley Creek south of Laurel Drive to 88th Avenue per the addendum answers provided by the Village. We assumed the project excludes the small section of stream within the Village, east of 82nd Avenue and south of Basswood Road.

Scope of Services

Task A. Overall Project Management and Coordination Services

1. Provide overall project management and coordination services through all phases of the project. This include reporting and review of ongoing activities, monitoring of schedule and budget, and communication with the Village and where needed, with MWRDGC.
2. Provide Project Workplan, which will include a project scope, staff roles, budget, schedule, outline of our project communication plan including record keeping procedures, and identify the procedures needed for a smooth project delivery.
3. Develop, implement and maintain a Quality Assurance/Quality Control (QA/QC) Plan to address technical quality, technical accuracy, consistency, compatibility, and conformance with MWRDGC standards. The QA/QC scope will include a detailed plan of checks and review steps for each task within the scope of services by all design team firms. The process will track review of reports, plans and specifications, documenting all comments by the Village and MWRDGC, with verification that all comments have been addressed through all project phases.
4. Lead and manage Project Kick-off Meeting to introduce the Village to the key Cardno team members and to initiate the project. Provide a Kick-off summary document.
5. Lead and manage Bi-Monthly Status and Coordination Meetings with the Village (virtual meetings are proposed at this time) to provide updates on progress and to bring issues to the Village's attention for timely action. Assume two status meetings per month.
6. Provide Safety Plan and ensure adherence to the Village's, MWRDGC's and Cardno's safety requirements across our Cardno team.
7. Submit monthly invoicing

Task B. Information Review

1. Review previously completed design documents prepared by Michael Baker including the 2014 completed design, environmental and geotechnical data used to develop the design, July 2020 update memo provided to the Village, previously submitted permits and hydraulic models.
    a. Assume the following Baker design information will be provided:
        i. HEC-RAS files
        ii. 98% Opinion of Probable Costs and Design Reports/Criteria
        iii. 98% CADD files
            1. Existing topo and ALTA surveys
            2. Proposed conditions
            3. Retaining walls
            4. Utility locates
            5. Existing and proposed easements
        iv. Previous easement exhibits with metes and bounds descriptions
        v. Previous meeting agendas and minutes
            1. Public meetings
            2. IDNR
            3. USACE
2. Convert the redline update of the plan set into geospatial layers and upload them to ArcGIS Online (AGO). Use AGO extensively through the information review, assessment and design phases

3. Meet with MWRDGC to verify streambank stabilization design requirements and criteria as they apply to Tinley Creek. All designs and improvements (update/revise or new) will meet MWRDGC requirements or guidelines and streambank stabilization best practices.

   Deliverable: Provide meeting minutes

4. Meet and conduct a half-day site visit with utilities such as ComEd and cable TV to review existing easements and discuss new easements to provide adequate lead time to process new public utility easements and schedule relocates.

   Deliverable: Hold one (1) additional meeting with utilities at completion of 60% Design to verify design (see Task E).

Task C. Site Surveys

1. Walk the entire project length, including the new middle reach and southern extension) and verify what previously designed elements are appropriate from the Baker Plan and 2020 update memo.

   a. Review existing site features for consistency with the Baker plans.

   Deliverable: Document comments in AGO and share a list of comments with the Village.

2. Conduct a second walkthrough of the project site and include the Village on the visit to explain initial design analysis. We believe in the two-step process because we want the opportunity to collect and process information and provide the Village with clear and concise options.

   Deliverable: Provide meeting minutes from our walkthrough discussions.

3. Provide a summary report indicating what portions of the Baker Plan are adequate and need no or minimal changes prior to permitting and construction and what sections will need additional design work.

   a. Additional design work may be due to a change in previous conditions, developing an approach that is acceptable to a property owner, and/or modifying the design so that the treatments on the entire project flow together better without causing unintended consequences to adjacent properties or downstream stream reaches.

   b. Identify additional areas to survey or areas that require an updated/revised topographic survey.

   Deliverable: Provide a summary report of design elements

4. Conduct a topographical survey of streambanks and property owner features near the streambanks (utilities, structures, etc.) to update and/or replace existing topographic surveys as needed to complete 30% design.

   a. Use conventional land and GPS survey techniques to survey elevations; surface water; borehole locations and elevations; utility clearance (as applicable); and other surface and subsurface features. All personnel performing these procedures are required to have the appropriate health and safety and task training.

   b. Record the appropriate site-specific references (e.g. State Plane Coordinate System [SPCS]) used for their survey points. The survey location identifier, corresponding coordinates and elevation (including the method used to determine elevation) will be recorded on field forms.

   c. Complete additional site survey (stream, topographic utility, etc.) if required to inform the 60% design.

5. Conduct a geomorphic assessment, collecting standard parameters such a longitudinal profile and representative cross sections.

    a. Incorporate stream survey into revised topographic survey to understand the whole stream system throughout the project reach.

    b. Collect bank stability information. Complete a streambank erosion assessment of both banks along Tinley Creek using a model called the Bank Erosion Hazard Index (BEHI) to evaluate the susceptibility of a streambank to erosion for multiple erosional processes. Provide a quantitative rating for each bank that allows comparison among banks and highlights where work should be focused, labeled with descriptive words such as “low potential, moderate potential, or extreme potential” based on the BEHI score.

    c. Upload BEHI GIS layer to the AGO map so the Village and property owners can understand where bank erosion is an issue and potentially why work has to focus on one area of the stream vs. other areas of the stream.

6. During the stream assessment, create a photographic record and document the existing conditions of the stream and streambanks (both sides).

    a. Use a drone to record low-elevation, high-resolution video of the stream corridor.

    b. During the stream assessment, photograph the stream and document important features such as current bank cover (natural vegetation, wood retaining wall, hard armoring, etc.). Integrate this information along with parcel coverages provided by Cook County into GIS.

    c. Provide GIS product for project use and for Village’s use once the project finishes. We envision a GIS map that the Village can click on an address and see photos and description of the baseline bank conditions to allow comparison in the future and resolve any potential conflicts (unauthorized changes to the banks by the residents, Homeowners’ Associations, or other entities). As added benefit, post-construction monitoring reports could be uploaded to the map and used for future reporting.

    Deliverable: Provide GIS product for project use and for Village’s use

7. Complete a site evaluation of the vegetation by ecologist/vegetation specialist and determine if areas would benefit from treatment and/or removal of invasive, non-native vegetation that are preventing long-rooted native vegetation and accelerating bank erosion.

    a. Include in the design documents brush clearing and invasive treatment where non-native shrub species are present within the creek corridor. If possible, recommend native plantings that are salt-tolerant and have been successful in urban environments at stabilizing banks by themselves or along with structural toe protection.

    Deliverable: Provide an evaluation report

Task D. Streambank Stabilization Design - 30% Preliminary Design

1. Revise or prepare a new streambank stabilization design for entire project reach, including middle stream reach and southern extension. The design elements will include extension of streambank, additional streambank treatment, and reduction or elimination of in-stream practices not focused on addressing or minimizing erosion.

    a. Designs to stabilize the banks with grading activities, native vegetation and toe protection, rather than retaining walls as much as possible, limiting walls to provide a more natural appearance to the stream corridor, provide floodplain capacity and

connection to reduce flood water elevations, allow for more efficient permitting, and save on construction costs, as well as provide a sense of equity among the residents regarding changes to their properties and long-term maintenance.

2. Complete a boring within the public right of way on the north side of 86th Ave near the Orland Brook Condo Association property and pool area. Based on previous plans, we assume a boring about 35 feet deep.
3. Identify properties that are not critical for the successful stabilization of streambanks. See Task F for property owner coordination and easement meetings with the Village at the 30% Preliminary Design.

   Deliverable: Submit design documents including design plans in CAD to the Village and MWRDGC for reviews. Incorporate comments as appropriate. Incorporate comments from permitting agencies if received. See Task G for pre-application meetings with permitting agencies at the 30% Preliminary Design.

Task E. Streambank Stabilization Design - 60% Design Engineering

1. Further refine the streambank stabilization design for entire project reach, including middle stream reach and southern extension. Comments from the Public Design Charrette (Task F) will be addressed, as well as additional design details added to the plan set in CAD, including erosion control, site access plans, planting plans, design typical sections.
2. Update the steady state HEC-RAS Hydraulic model to determine impacts to water surface elevations and aid in the design. The modeling will also be used to secure an Illinois Department of Natural Resources Office of Water Resources (IDNR-OWR) permit (see Task G).
3. Update/revise and/or develop new specifications in MasterSpec format including general notes and other related information for project elements and construction procedures. The specifications will meet MWRDGC requirements and design guidelines and be written to clearly convey technical information to the Contractor(s) in an effort to limit change orders and to use locally and readily available construction materials that comply with the USACE and IDNR-OWR permit conditions.
4. Complete Draft Design Report detailing the stream assessment and survey, permitting, project design and criteria.
5. Complete estimated construction costs with separate bid items for project elements within MWRDGC scope and those that are entirely Village's responsibility.

   Deliverable: Submit design documents to the Village and MWRDGC for reviews. Incorporate comments as appropriate, including estimated construction costs. The cost estimates shall include separate bid items for project elements within MWRDGC scope and those that are entirely Village's responsibility. Address review comment in preparation for Public Meeting (see Task F for Public Meeting).
6. Concurrent Tasks:
   a. See Task G for pre-application meetings with permitting agencies at the 60% Design.
   b. See Task F for survey and property owner coordination and easement meetings with the Village at the 60% Design.
   c. See Task E for meeting with the franchise utility companies to verify the design at 60% Design.

d. See Task C for additional site survey (stream, topographic utility, etc.) if required to inform the 60% Design.

Task F. Public Involvement and Easement Preparations

1. Conduct property owner coordination and easement meetings with the Village throughout the entire length of the project.

   Deliverables:

   - Two meetings at 30% Preliminary Design: Review existing easements and easements which were sought as part of the previous design. Identify property owners who did not previously wish to participate in the project and determine how to best approach them.
   - Two meetings at 60% Design: Verify properties to include and properties not necessary for stabilization.
   - One meeting at 90% Design: Final verification before execution of easement agreements by Village. Conduct final property surveys to confirm easements before the Village executes them if needed (See # 4 below).

2. Prepare permanent and temporary easement documents that can be used to execute easement agreements with individual property owners and Homeowners' Associations.

   a. Identify properties that are not critical for the successful stabilization of streambanks (included in design tasks, Tasks D, E, and H).

   b. The easement agreements will be prepared and executed by the Village.

   c. Assume property acquisition consultant will not be needed.

   Deliverable: Prepare separate exhibits for impacted property owners.

3. At the beginning of the 60% Design Phase, conduct a 1-day design charrette workshop for the public to discuss concerns and challenges, and agree upon an equitable approach. This meeting will inform the refinement of the design during the 60% design engineering including the design plans, specifications and cost estimates and allow for easement documents to be drafted.

   a. Present the results of the site survey and geomorphic and stream assessment, including the existing conditions, rate of erosion, and causes of erosion to the residents.

   b. Discuss the various methods and approaches available for streambank stabilization and provide an understanding of how each method works and why they would be chosen for a given location (natural materials verses hard armoring, construction cost, impacts to natural resources, site constraints, surrounding infrastructure, etc.).

   c. Conduct a discussion or complete a survey regarding resident's concerns, and listen for any challenges they may see. Guide the discussion towards defining a way to evaluate properties and streambanks for improvement in a way deemed equitable by residents.

   Deliverable: 1-day design charrette workshop

4. Complete property surveys for those requiring easements, verifying property lines assumed during 30% and 60% plan development. Assumed sixty properties/parcels will need detailed parcel boundary surveys for easements. Identify and address any design and easement issues before progressing to the 90% Design Engineering. Confirmation of 3 property surveys is included during 90% Design (see #1c above).

   Deliverable: Three (3) property surveys

5. Provide exhibits based at 60% design, showing proposed easements. The exhibits will show details of improvements including permanent and temporary easement limits.

    a. These exhibits will be at a scale that will highlight individual properties and will show limits of construction work and present a typical section and photo of what the stream will look like within their property limits.

    b. These exhibits will be shared with the property owners at 60% and refined for 90% design. Comments will be collected, and designs will be adjusted if needed and approved by the Village and MWRDGC.

    c. Property surveying will be conducted during this timeframe to demonstrate to the public that no decisions regarding their properties had been made prior to the public or property owner coordination meetings (see #4 above).

    Deliverable: Exhibits

6. Near the end of the 60% Design Phase, prepare and attend one Public Meeting to share and discuss streambank stabilization improvements.

    Deliverable: One (1) Public Meeting

7. After Public Meeting, prepare and attend up to five Village-led meetings with individual property owners, Homeowners' Associations, and other stakeholders to discuss design concerns and easement coordination.

    a. Additional meetings can be attended by two members of the Cardno team at the Village's request at a cost of $750 per meeting (assuming a staff of two at an hour long meeting).

    Deliverable: Up to five (5) Village-led meetings

8. Prepare and present the project to the Village Board of Trustees, if requested by the Village.

Task G. Permitting Coordination and Submittals

1. Conduct three pre-application meetings (1 per design phase) with up to 3 regulatory agencies at a time (2 virtual, and 1 in-person). Agencies may include U.S. Army Corps of Engineers (USACE) Chicago District, IDNR-OWR, Will-South Cook Soil and Water Conservation District (SWCD), and MWRDGC WMO.

    Deliverable: Three (3) pre-application meetings with up to three (3) regulatory agencies

2. Provide permitting services for the design plan of the streambank stabilization including permit applications. The Village will sign and submit applications during the 90% design phase. Permits and regulatory compliance include:

    a. 404/401 permitting requirements through the USACE Chicago District, assuming a Regional Permit 10 will be used. The Chicago District does plan to transition from RP10 to Nationwide Permit (NWP) 13 for bank stabilization in Illinois before it expires in March 2022. Submit permit pre-application before expiration or adjust application to be NWP13.

    b. IDNR-OWR and EcoCAT Floodplain permit and no-rise certification

    c. Endangered Species Act, Section 7 species list, Illinois Endangered Species Protection Act

d. Illinois Natural Areas Preservation Act and the Illinois State Agency Historic Resources Preservation Act, and Illinois State Historic Preservation Office.

    i. Assume additional cultural surveys are not required

e. Will-South Cook SWCD soil erosion control permit

    i. Assume, based on previous soil sampling, no hazardous materials are on properties and bank materials qualify as clean construction or demolition debris

f. IEPA National Pollutant Discharge Elimination System (NPDES) Permit.

Deliverable: Permitting Services

Task H. Streambank Stabilization Design - 90% Design with Value Engineering

1. Conduct Value Engineering (VE) process, including a review of the overall design to determine if there are alternative design elements, materials and methods to provide a cost-savings. Following the VE, refine the streambank stabilization design and specifications, cost estimates and permits as necessary.

    a. Additional meetings with property owners are recommended at this time if the VE results in a change of the appearance of the streambank stabilization (additional cost for meetings).

2. Further refine the streambank stabilization design for entire project reach, including middle stream reach and southern extension. Comments from the Public Meeting (Task F) and VE process will be addressed, as well as additional design details added to the plan set in CAD to 90% design-level.

3. Finalize the steady state HEC-RAS Hydraulic model to determine impacts to water surface elevations and aid in the design during 90% Design. The modeling will also be used to secure an Illinois Department of Natural Resources Office of Water Resources (IDNR-OWR) permit (see Task G).

4. Update/revise draft specifications developed during 60% Design (Task E). The specifications will meet MWRDGC requirements and design guidelines and be written to clearly convey technical information to the Contractor(s) in an effort to limit change orders and to use locally and readily available construction materials that comply with the USACE and IDNR-OWR permit conditions.

5. Complete estimated construction costs with separate bid items for project elements within MWRDGC scope and those that are entirely Village's responsibility.

    Deliverable: Estimated construction costs

6. Update Draft Design Report will be updated to the 90% Design Report by including public involvement information, additional design details including specifications, and easement information.

    Deliverable: Draft Design Report

7. Prepare annual Operation and Maintenance (O&M) costs of the streambank improvements over a 20-year period.

    Deliverable: Operation and Maintenance

8. Submit design documents to the Village and MWRDGC for reviews. Address review comment in preparation for Village Board of Trustees meeting (see Task F).

Deliverable: Design documents

9. Concurrent Tasks:
    a. See Task F for meeting with the Village to finalize easement documents and execute
    b. See Task G for pre-application meetings with permitting agencies at the 90% Design.

Task I. Final PS&E and Bid

1. Concurrent Tasks:
    a. See Task F, Present the final design to the Village Board of Trustees, if requested by the Village.
    b. Additional meetings with impacted property owners to discuss expectations during construction are proposed for an additional fee.

Deliverables:

- Provide assistance as needed to the Village and MWRDGC in making the determination of properties for inclusion in the final design plans and specifications.
- Prepare a complete PS&E document that will be used by the Village to solicit bids from qualified contractors. Refine detailed construction cost estimate to be used to evaluate bids.
- Prepare an estimated construction schedule for improvements. Include Gantt charts for graphical presentation.
- Assist the Village in developing the Invitation to Bid along with criteria that the Village can use to evaluate a contractor's qualifications and bid.
- Develop a proposed scope of services (without professional fees) for construction engineering or construction observation services to implement the improvements.
- Assist the Village in reviewing bids collected by the Village for the construction of the project. The bidding process will be led and managed by the Village staff.

Professional Fee and Schedule

The Cardno team offers the following hourly breakdown with costs and a detailed schedule related to the provided scope of services on the next pages.

	Cardno				Aqua Vitae				Andrews				Valdes				Cardno Team			
	Labor				Labor				Labor				Labor				TOTAL Labor		Expenses with	
	Hours	Costs	Expenses	TOTAL Labor and Expenses	Hours	Costs	Expenses	TOTAL Labor and Expenses	Hours	Costs	Expenses	TOTAL Labor and Expenses	Hours	Costs	Expenses	TOTAL Labor and Expenses	Hours	Costs	5% markup	TOTAL Labor and Expenses
A. OVERALL PROJECT MANAGEMENT AND COORDINATION SERVICES	312	$ 43,080		$ 43,080													312	$ 43,080		$ 43,080
Bi-Monthly Client Update Meetings, during design (assume 48)	264	$ 36,000	$ 3,168	$ 39,168													264	$ 36,000	$ 3,326	$ 39,326
Schedule, budget and Invoicing	192	$ 26,220	$ 48	$ 26,268													192	$ 26,220	$ 50	$ 26,270
Project Kick-off Meeting	16	$ 2,308	$ 100	$ 2,408	4	$ 598		$ 598	8	$ 1,334	$ 217	$ 1,551					28	$ 4,240	$ 333	$ 4,573
B. INFORMATION REVIEW																				
Data gathering (review of previous plans and data, models, permits)	64	$ 9,080		$ 9,080	40	$ 5,980		$ 5,980	65	$ 12,248		$ 12,248					169	$ 27,308		$ 27,308
MWRDGC meeting for design criteria	24	$ 3,554		$ 3,554	20	$ 2,990		$ 2,990	22	$ 3,772	$ 217	$ 3,989					66	$ 10,316	$ 228	$ 10,544
ComEd, Cable TV and other Utilities Meetings	16	$ 2,640		$ 2,640	10	$ 1,495		$ 1,495									26	$ 4,135		$ 4,135
C. SITE SURVEYS																				
Site survey (topographic and utilities)	8	$ 1,320		$ 1,320	20	$ 2,990		$ 2,990	860	$ 98,141	$ 23,160	$ 121,301					888	$ 102,451	$ 24,318	$ 126,769
Geomorphic Stream Assessment (including review of previous design)	236	$ 35,500	$ 7,320	$ 42,820													236	$ 35,500	$ 7,686	$ 43,186
BEHI erosion survey	58	$ 5,930	$ 3,480	$ 9,410													58	$ 5,930	$ 3,654	$ 9,584
Survey of plants and brush (invasive evaluation) for clearing	62	$ 7,160	$ 1,000	$ 8,160													62	$ 7,160	$ 1,050	$ 8,210
Photographic Recording of existing site conditions	60	$ 6,260	$ 1,500	$ 7,760													60	$ 6,260	$ 1,575	$ 7,835
D. STREAMBANK STABILIZATION DESIGN - 30% PLAN																				
Previously designed reach updates	68	$ 10,430		$ 10,430	20	$ 2,990		$ 2,990	88	$ 14,398	$ 450	$ 14,848					176	$ 27,818	$ 473	$ 28,291
New reach design	46	$ 7,050		$ 7,050	40	$ 5,980		$ 5,980									86	$ 13,030		$ 13,030
Identify properties to include/exclude	14	$ 2,290		$ 2,290	5	$ 748		$ 748									19	$ 3,038		$ 3,038
Soil Borings (only 1)											$ 7,500	$ 7,500							$ 7,875	$ 7,875
Preliminary Stability design																				
CADD	40	$ 5,760		$ 5,760	70	$ 6,440		$ 6,440									110	$ 12,200		$ 12,200
30% plan submittal	44	$ 6,960		$ 6,960	40	$ 4,830		$ 4,830									84	$ 11,790		$ 11,790
Address comments from Village and MWRDGC	26	$ 4,100		$ 4,100	20	$ 2,990		$ 2,990									46	$ 7,090		$ 7,090
E. STREAMBANK STABILIZATION DESIGN - 60% PLAN																				
Design refinement	220	$ 33,200		$ 33,200	20	$ 2,990		$ 2,990	74	$ 11,857	$ 450	$ 12,307					314	$ 48,047	$ 473	$ 48,519
verify properties for inclusion/exclusion	8	$ 1,320		$ 1,320	5	$ 748		$ 748									13	$ 2,068		$ 2,068
Planting and riprap sizing (salt tolerant plants and rock for scour protection)	16	$ 2,220		$ 2,220	40	$ 4,830		$ 4,830									56	$ 7,050		$ 7,050
draft specification development and revisions	40	$ 5,520		$ 5,520	80	$ 9,660		$ 9,660									120	$ 15,180		$ 15,180
60% Cost estimate (breakout of Village and MWRDGC costs)	40	$ 5,520		$ 5,520	60	$ 6,670		$ 6,670									100	$ 12,190		$ 12,190
CADD					70	$ 6,440		$ 6,440									70	$ 6,440		$ 6,440
60% plan submittal	88	$ 11,830		$ 11,830	40	$ 4,830		$ 4,830									128	$ 16,660		$ 16,660
Address comments from Village and MWRDGC	48	$ 6,280		$ 6,280	20	$ 2,990		$ 2,990									68	$ 9,270		$ 9,270
F. PUBLIC INVOLVEMENT AND EASEMENT PREPARATIONS																				
Meetings with Village for coordinaiton for landowners and easements	60	$ 8,640	$ 240	$ 8,880	25	$ 3,738		$ 3,738	16	$ 2,668	$ 434	$ 3,102					101	$ 15,046	$ 708	$ 15,754
Land survey of easements based on 60% design, confirm 90% design (60 parcels	28	$ 4,620		$ 4,620									80	$ 10,028	$ 280	10308	108	$ 14,648	$ 294	$ 14,942
Easement exhibit preparations	240	$ 19,200		$ 19,200													240	$ 19,200		$ 19,200
Public meeting (1)	60	$ 8,850		$ 8,850	10	$ 1,495		$ 1,495	8	$ 1,334	$ 217	$ 1,551					78	$ 11,679	$ 228	$ 11,907
Landowner and HOA meetings (assume 5)	18	$ 2,970	$ 240	$ 3,210													18	$ 2,970	$ 252	$ 3,222
Present to Village Board of Trustees	24	$ 3,960	$ 120	$ 4,080	10	$ 1,495		$ 1,495	8	$ 1,334	$ 217	$ 1,551					42	$ 6,789	$ 354	$ 7,143
G. PERMITTING COORDINATION AND SUBMITTALS																				
Pre-application Meetings	28	$ 3,136	$ 120	$ 3,256	20	$ 2,990		$ 2,990									48	$ 6,126	$ 126	$ 6,252
Permitting submittals, finalization and acquistion	100	$ 11,200	$ 380	$ 11,580													100	$ 11,200	$ 399	$ 11,599
Floodplain modeling and permitting	96	$ 15,800		$ 15,800													96	$ 15,800		$ 15,800
H. STREAMBANK STABILIZATION DESIGN - 90% PLAN																				
Value Engineering and Design finalization	80	$ 11,840		$ 11,840	60	$ 7,820		$ 7,820	54	$ 8,982	$ 150	$ 9,132					194	$ 28,642	$ 158	$ 28,799
Updates for Permits	28	$ 3,348		$ 3,348	20	$ 2,990		$ 2,990									48	$ 6,338		$ 6,338
Finalize specifications	36	$ 5,060		$ 5,060	40	$ 4,830		$ 4,830									76	$ 9,890		$ 9,890
CADD					70	$ 6,440		$ 6,440									70	$ 6,440		$ 6,440
90% Cost estimate (breakout of Village and MWRDGC costs)	16	$ 2,320		$ 2,320	20	$ 1,840		$ 1,840									36	$ 4,160		$ 4,160
Prepare estimated construction schedule (Gantt)	16	$ 2,320		$ 2,320	10	$ 1,208		$ 1,208									26	$ 3,528		$ 3,528
90% plan submittal	40	$ 5,960		$ 5,960	40	$ 4,830		$ 4,830	64	$ 10,419	$ 300	$ 10,719					144	$ 21,209	$ 315	$ 21,524
Prepare O&M costs for next 20 years	16	$ 2,320		$ 2,320	15	$ 1,955		$ 1,955									31	$ 4,275		$ 4,275
Address comments from Village and MWRDGC	18	$ 2,690		$ 2,690	20	$ 2,990		$ 2,990									38	$ 5,680		$ 5,680
J. FINAL PS&E FOR BID																				
MWRD and Village review of property inclusion	8	$ 1,320		$ 1,320													8	$ 1,320		$ 1,320
Final PS&E for Bid	40	$ 5,860		$ 5,860	55	$ 6,210		$ 6,210									95	$ 12,070		$ 12,070
Assist Village with bid invitation and criteria	24	$ 3,120		$ 3,120	10	$ 1,495		$ 1,495									34	$ 4,615		$ 4,615
Develop scope of construction engineering/observation	8	$ 1,040		$ 1,040	10	$ 1,495		$ 1,495	54	$ 8,982	$ 150	$ 9,132					72	$ 11,517	$ 158	$ 11,674
Assist Village in review of bids	8	$ 1,310		$ 1,310	10	$ 1,495		$ 1,495	26	$ 4,543		$ 4,543					44	$ 7,348		$ 7,348
	3002	$ 408,416	$ 17,716	$ 426,132	1069	$ 132,503	$ -	$ 132,503	1347	$ 180,010	$ 33,463	$ 213,473	80	$ 10,028	$ 280	$ 10,308	5498	$ 730,957	$ 54,032	$ 784,989
																			Submitted TOTAL FEE:	**$ 785,000**

Detailed Weekly Schedule: Tinley Creek Streambank Stabilization

Weeks after NTP	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	
Year	2021																																				2022																																																					2023																	
Month	May					June				July				August					September				October				November						December				January					February				March				April				May					June				July				August					September				October					November				December				January				February				March				April				May
A. OVERALL PROJECT MANAGEMENT AND COORDINATION SERVICES																																																																																																									CONSTRUCTION BEGINS
- Bi-Monthly Client Update Meetings, during design (assume 48)		M		M		M		M			M		M		M		M		M		M		M		M		M		M			M		M			M		M		M		M		M		M		M		M			M		M		M		M		M		M		M		M		M		M			M		M		M			M		M		M		M		M		M			M		M		M		M		M		M		M		M		
- Schedule, budget and Invoicing (monthly)					D				D				D					D				D				D					D				D					D				D				D					D				D					D					D				D					D					D				D				D				D				D			D	
- Project Kick-off Meeting			M																																																																																																						
B. INFORMATION REVIEW																																																																																																									
- Data gathering (review of previous plans and data, models, permits)																																																																																																									
- MWRDGC meeting for design criteria						M																																																																																																	
- ComEd, Cable TV and other Utilities Meetings							M	M																																															M																																																	
C. SITE SURVEYS																																																																																																									
- Site survey (topographic and utilities) and verifications (not easements)																																																																																																									
- Geomorphic Stream Assessment (including review of previous design)																																																																																																									
- BEHI erosion survey																																																																																																									
- Survey of plants and brush (invasive evaluation) for clearing																																																																																																									
- Photographic Recording of existing site conditions																																																																																																									
D. STREAMBANK STABILIZATION DESIGN - 30% PLAN																																																																																																									
- Previously designed reach updates																																																																																																									
- New reach design																																																																																																									
- Identify properties to include/exclude																																																																																																									
- Soil Borings (only 1 likely needed near the Orlan Brook Condo pool)																																																																																																									
- Preliminary Stability Design																																																																																																									
- 30% plan submittal and Village/MWRD Review																										D																																																																																									
- Address comments from Village, MWRDGC and permitting agencies																														M																																																																																									
E. STREAMBANK STABILIZATION DESIGN - 60% PLAN																																																																																																									
- Design refinement																																																																																																									
- Verify properties for inclusion/exclusion, send to PLS																																																																																																									
- Planting and riprap sizing																																																																																																									
- Draft specification development and revisions, draft design report																																																																																																									
- 60% Cost estimate (breakout of Village and MWRDGC costs)																																																																																																									
- 60% plan submittal and Village/MWRD Review																																													D																																																											
- Address comments from Village and MWRDGC																																																		M																																																					
F. PUBLIC INVOLVEMENT AND EASEMENT PREPARATIONS																																																																																																									
- Meetings with Village for coordinaiton for landowners and easements					M																			M												M																	M																					M																																
- Land survey of easements based on 60% design, and confirm at 90% design																																																																																																									
- Easement exhibit preparations, refinements, and execution																																																																																																									
- Public meeting (1)																																																									M																																														
- Landowner and HOA meetings (assume 5)																																W																										M	M	M								V	V	V																V	V	V															
- Present to Village Board of Trustees																																																																																			M												V											
G. PERMITTING COORDINATION AND SUBMITTALS																																																																																																									
- Pre-application Meetings (up to 3 agencies at a time)																								M																												M																														M																					
Permitting Submittals, finalization and acquistion																							D																													D																														D																D				
- Floodplain modeling and permitting																																																																																				D																D				
H. STREAMBANK STABILIZATION DESIGN - 90% PLAN																																																																																																									
- Value Engineering and Design finalization																																																																																																									
- Design finalization																																																																																																									
- Updates for Permits																																																																																																									
- Finalize specifications																																																																																																									
- 90% Cost estimate (breakout of Village and MWRDGC costs)																																																																																																									
- Prepare estimated construction schedule (Gantt)																																																																																																									
- 90% plan submittal and Village/MWRD Review																																																																													D																														
- Prepare O&M costs for next 20 years																																																																																			D																						
- Address comments from Village, MWRDGC and permitting agencies																																																																																	M																								
I. FINAL PS&E FOR BID																																																																																																									
- MWRD and Village Review (determine properties for bid)																																																																																																									
- Final PS&E for Bid																																																																																										D															
- Assist Village with bid invitation and criteria																																																																																																									
- Develop scope of construction engineering/observation																																																																																																									
- Invitation to Bid Issued																																																																																																									
- Assist Village in review of bids																																																																																																									

LEGEND:

- D — Deliverable
- M — Meeting attended or lead by Cardno Team
- V — Additional Meetings lead by the Village (suggested by Cardno, per meeting fee)
- W — Design Charette/workshop

- 30% — Preliminary Design
- 60% — Design Engineering
- 90% — 90% Design
- F — Final PS&E for Bid

Please Respect the Environment

ABOUT CARDNO

Cardno is an ASX-200 professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno's team includes leading professionals who plan, design, manage, and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange [ASX:CDD]. For additional information, visit www.cardno.com.

Cardno ZERO HARM EVERY JOB. EVERY DAY.

At Cardno, our primary concern is to develop and maintain safe and healthy conditions for anyone involved at our project worksites. We require full compliance with our Health and Safety Policy Manual and established work procedures and expect the same protocol from our subcontractors. We are committed to achieving our Zero Harm goal by continually improving our safety systems, education, and vigilance at the workplace and in the field. Safety is a Cardno core value and through strong leadership and active employee participation, we seek to implement and reinforce these leading actions on every job, every day.

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