Request for Proposal

For

Professional Qualifications

For

THE

FINAL DESIGN OF THE REHABILITATION/REPLACMENT OF THE RIVERFRONT BOARDWALK

Statement of Qualifications

Accepted until March 3, 2023

Office of the City Engineer

2310 Second Street

Cuyahoga Falls, Ohio 44221

REQUEST FOR PROPOSAL

For

PROFESSIONAL QUALIFICATIONS

FINAL DESIGN OF THE REHABILITATION/REPLACMENT OF THE RIVERFRONT BOARDWALK

I. INTRODUCTION

The City of Cuyahoga Falls proposes the rehabilitation/replacement of the Riverfront Boardwalk. Cuyahoga Falls must prepare project construction documents for said construction.

Cuyahoga Falls requests proposals to prepare preliminary and final design construction documents and all document preparation associated therewith.

II. BASIC SCOPE OF SERVICES

The basic scope of services shall include providing tools, materials and labor to perform the following work:

It is anticipated the project will include a centerline and right-of-way survey, field location survey, and new typical Boardwalk and Riverwalk sections. Improvements will be in accordance with recommendations presented in the attached renovation plan from January 2023, for this corridor, and will also include considerations for pedestrian and bicycle facilities.

The work shall be in two (2) phases. Phase One will include preliminary drawings, meetings with City personnel for comments and estimate of probable cost. Phase Two shall be submittal of final construction drawings in a format suitable for bidding purposes by the City, including but not limited to, construction drawings, specifications, bid quantities and estimate. Final Construction Documents are to be submitted by December 15, 2023. The final submittal shall address all comments. The work shall include but is not limited to:

A. Prepare centerline layout drawings based on previous surveys and design work, supplemented as needed by field surveys. At this time the Consultant shall recommend to the City a proposed typical section that is in keeping with the character of the area and stays within existing right-of-way and budget, as much as possible.

B. Prepare plan for the Boardwalk and River profile, and detail sheets for the rehabilitation/reconstruction of the Boardwalk and Riverwalk.

III. GENERAL PROJECT PARAMETERS

1. Design

   All design and drafting work shall be performed in accordance with The Ohio Basic Building Code, and The Americans with Disabilities Act for review and approval by the City.

2. Progress Documents

   Submit three (3) interim sets of documents to the City.

3. Governmental Approval

   Submit one (1) complete set of plans to all utility companies within the project area and revised in accordance with their comments. A letter from each utility acknowledging acceptance of the improvements shall be submitted to the City.

IV. OBJECTIVE

The objective is to request a Statement of Qualifications (SOQ's) to select a qualified architectural/engineering firm to complete the services required to design and prepare construction documents for the rehabilitation/replacement of the Riverfront Boardwalk. Because the services are professional services, because qualified consulting architectural/engineering efforts could reduce the overall project cost and because the quality of the public improvements depends on the qualifications of the consultant, selection of the architectural/engineering consulting firm will be based upon a predetermined set of weighted criteria.

V. EVALUATION CRITERIA

The following are the primary evaluation criteria the City plans to utilize to select the best-qualified firm. In addition to the evaluation criteria, the city will be looking at design and engineering experience in roadway design. Selection is very subjective in many areas and the decision of the City Administration will be final and not subject to re-evaluation by the firms submitting a Statement of Qualifications.

- Responsibility and stability – such considerations as length of time firm has been in business, length of time principals have been with firm, financial responsibility, professional liability coverage, etc.
- Experience – such considerations as other similar projects completed by the firm, similar design projects completed by key personnel of the firm, support staff abilities, range of in-house capabilities, etc.
- Location – Such consideration as location of firm's office that will be responsible for project coordination, previous work in the general geographic area, key project personnel office location, etc. Lower project costs should result if limited travel expenses are required and better communication can be maintained which should result in a higher quality project.
- Quality of work – Such considerations as adequateness of material supplied to permit evaluation, evaluation, quality of presentation, cooperation, concern, etc.
- Time schedule and anticipated man-hours to complete the project.

The City will accept SOQ's until 4:00 p.m., March 3, 2023. Consultants must submit their SOQ's electronically to the City of Cuyahoga Falls Engineering Department Email, at Engineering@cityofcf.com. The subject line of the email should read "Statement of Qualifications for Professional Engineering Services, Design of the rehabilitation/replacement of the Riverfront Boardwalk.

The City retains the option of rejecting or accepting any Statement of Qualifications. Should a firm be selected and the City can not negotiate a contract with the selected firm ranked best qualified, the City shall inform the firm in writing of the termination of negotiations and enter into negotiations with the firm ranked next best qualified. If negotiations again fail, the same procedure shall be followed with each next best-qualified firm selected until a contract is negotiated. However, the City retains the right to reject all SOQ's

and initiate the process of obtaining SOQ's from qualified engineering firms at a later date.

VI. Statement of Qualifications

The specific format of the Statement of Qualifications (SOQ's) shall be per the responding firm's judgment. However, shall include the following data:

1. Two-page project summary narrative defining the firm's interpretation of the scope of the project and approach to engineering and design.
2. Project personnel organization.
3. Firm Profile.
4. Principal Profile.
5. Technical Expertise Profile.
6. General anticipated project schedule or time line.
7. General anticipated man-hours to complete the project based on past experience.
8. Additional pertinent information

The City requests that, in addition to a general list of representative projects, responding firms select one or two of its completed projects of similar size and scope. The selected project shall be a project that has been completed for at least three years but no more than five years. A detailed description of services rendered, the name, mailing address and phone number of the client's project manager, and the name and mailing of the general contractor.

The responding firms are also requested to provide a proposed project team that will most likely work on this project. Members should include personnel from the partner down to the engineer-in-training level. Sub-professional: level employees not providing a significant role on the project do not need to be included.

A resume of each member of the team is needed and should detail relevant experience, length of service with the firm, educational background, and professional background. Sub-consultant's roles on the project should also be listed.

VII. INTERVIEWS

The City reserves the right to conduct face-to-face interviews with any, all, or none of the responding firms. In the event the City selection committee deems interviews necessary to select the best firm, the City will establish a meeting at a mutually acceptable time at City office. The City selection committee will meet key members of the firm's proposed project team. It shall be the selection

committee's sole decision on whether any interviews are held and with which firms interviews are held.

CITY OF Cuyahoga Falls

Cuyahoga Falls Boardwalk & Riverwalk Improvements

January, 2023

BRANDSTETTER CARROLL INC
ARCHITECTS . ENGINEERS . PLANNERS

Palmer ENGINEERING

ACKNOWLEDGMENTS

Cuyahoga Falls Boardwalk & Riverwalk Improvements

City Steering Committee

Mayor Don Walters
Tony Demasi, City Engineer
Sara Kline, Parks and Recreation Director
Anthony Zumbo, Public Service Director
Diana Colavecchio, Community Development Director
Bryan Hoffman, Finance Director
Janet Ciotola, Director of Law

City Council

Rachel Loza, Ward 1
Susan Spinner, Ward 2
Meika Marie Penta, Ward 3
Mary Nichols-Rhodes, Ward 4
Michael Brillhart, Ward 5
Adam Miller, Ward 6
Jerry James, Ward 7
Frank Stams, Ward 8
Russ Balthis, At-Large
Tim Gorbach, At-Large
Brian Ashton, At-Large

Consultant Team

BRANDSTETTER CARROLL INC
ARCHITECTS . ENGINEERS . PLANNERS

1220 West Sixth Street, Suite 300
Cleveland, Ohio 44113
(216) 241-4480 VOICE
Architect's Project No. 21088
January, 2023

Patrick Hoagland, ASLA, Project Manager
Darrell Douglas, Landscape Architect
Mitchell McCown, Intern
Nancy Nozik, AIA, Architect
Mitch McCoy, P.E., Palmer Engineering
Trent Steffen, P.E., Palmer Engineering

CITY OF Cuyahoga Falls

PROJECT NARRATIVE

The Need for a Plan

In February 2020 the City of Cuyahoga Falls received a report from Palmer Engineering which resulted in the closing of major portions of the Cuyahoga Falls Boardwalk. The structural analysis identified several major structural deficiencies. The original Boardwalk was installed in phases with most of the boardwalk constructed between 1980 and 1989 (as identified in the Riverfront Boardwalk Study prepared by Palmer Engineering, February 2020). The residents and visitors to Downtown Cuyahoga Falls love this feature which allowed for amazing views of the river right in the heart of Downtown. The city has reinvented Downtown through the transformation of Front Street and the development of the Pavilion, amphitheater, ice rink, and sprayground.

The city commissioned Brandstetter Carroll Inc. (BCI) and Palmer Engineering to prepare a plan to renovate the boardwalk. In the early stages of the planning process, it was determined that the city should not only renovate the Boardwalk but reimagine the upper-level walkway from behind the amphitheater and along Riverfront Parkway as a Riverwalk that would be accessible to all, including pedestrians and bicycles.

Recommendations

The Process

Representatives from BCI and Palmer Engineering met with a Steering Committee of city staff several times throughout 2021 and 2022. In these meetings options were discussed, features were proposed, and costs were explored. The resulting recommendations identify the proposed design that meets the needs of the city, allows for accessibility, and is affordable. The project may be developed in phases as funding allows.

In addition, geotechnical explorations were performed at key locations to identify areas of concern concerning the structural ability of the area to support the recommended boardwalk improvements. These investigations provided insight to the costs of structural elements.

The Boardwalk

The resulting reimagined Boardwalk and Riverwalk provide for renovations of portions of the Boardwalk and redevelopment of the walkways at the upper level. The Riverwalk would extend from Broad Boulevard bridge to Front Street, with the portion from Broad to the East Portage Trail underpass as the first phase.

The Boardwalk located under the Broad Boulevard bridge is recommended to be renovated to allow for crossing under the bridge from the Sheraton to the amphitheater area without crossing Broad Boulevard. A new set of steps will be installed on the north side of the bridge to provide access to the amphitheater area and the Riverwalk. A more accessible route to cross Broad Boulevard at street level at Front Street will be enhanced to provide for a handicapped accessible crossing.

The portion of the Boardwalk behind the amphitheater will be demolished as this portion is in the worst condition. The portion from the Boardwalk from north of the amphitheater to near the East Portage Trail underpass will be renovated to extend its life and still allow for walks closer to the river

and canoe/kayak takeout access. A larger boardwalk overlook area will be developed just north of the amphitheater where the views are spectacular. A pair of swinging benches will be installed on the overlook. A new set of steps will be installed to traverse from the overlook to the existing Boardwalk level.

The Riverwalk

The proposed Riverwalk will begin at the intersection of Front Street and Broad Boulevard where the walk parallel to Broad Boulevard will be widened and enhanced to allow for improved handicapped accessibility and both pedestrian and bicycle traffic. The entire Riverwalk will feature a blue colored band (ribbon or wave shape) in the pavement to provide a continuous and harmonizing element throughout the project. The pavement will be a combination of enhancement to existing concrete where it is in good condition, new pavement, and a portion along Riverfront Parkway that is currently wood to be replaced and widened. The walk would be at least 12 feet wide, at least to the East Portage Trail underpass. Some lower vegetation will be removed to allow more views of the river. Much of the vegetation to be removed is underbrush or low branches and most trees will remain.

At the East Portage Trail underpass, the pavement will be replaced and bollards installed to protect pedestrians from traffic as the pavement and road are at the same level. Phase 2 of the Riverwalk will extend through the parking lots north of the Portage Trail underpass extending to Front Street. Modification in the design will be required to work within the existing right-of-way adjacent to the Ledgewater Falls townhomes. Another overlook will be placed where the walk comes back close to the river.

The steps leading to Front Street (Adjacent to Leo's restaurant and the fountains) will be replaced with new handrails and the ribbon paving pattern. An entry arch is proposed at this location and near the Broad Boulevard entry to the Riverwalk to provide a signature wayfinding element. Where space is confined at the Front Street at Riverfront Parkway walk, smaller pillars of similar design to the arch are proposed. It is intended that local artists will design the arches and pillars.

Figures

Figure 1 illustrates the plan for the entire corridor from Broad Boulevard to Front Street.

Figure 2 is an enlargement to illustrate the Phase 1 portion from Broad Boulevard to the East Portage Trail underpass.

Figure 3 focuses on the specific recommendations for the Boardwalk elements.

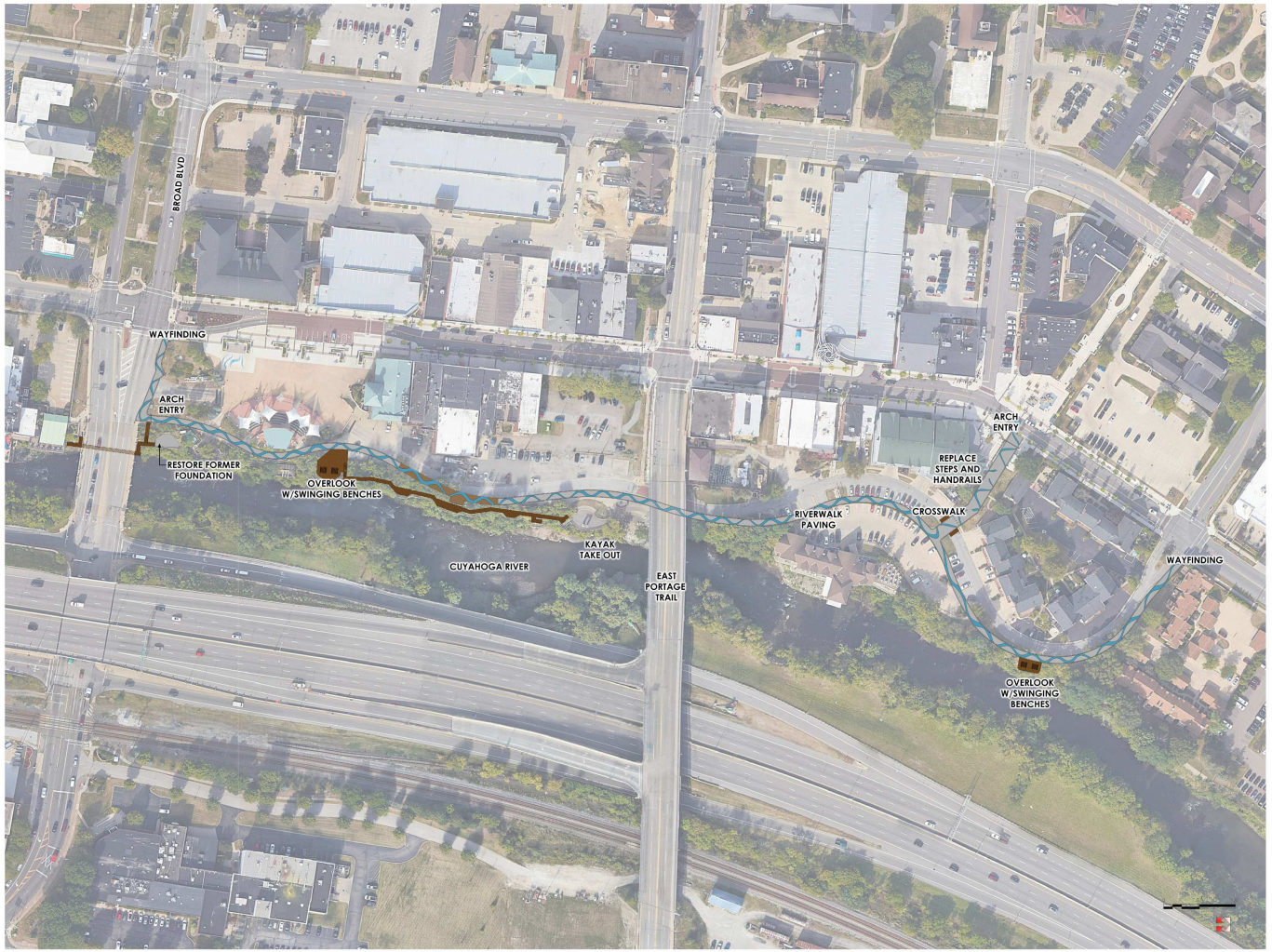
Figure 4 illustrates potential methods to develop the proposed paving patterns and other elements of the proposed design.

Figure 5 provides photos of existing conditions and explanations of the design intent.

Opinion of Probable Project Cost

The design team prepared an opinion of probable project cost for the initial phases of the project. The cost estimates identify two projects. Project 1 includes the Phase 1 Riverwalk improvements and Project 2 includes the Boardwalk repairs and improvements. The goal identified by the city was to develop a project of approximately $2 million and this opinion of cost, including contingencies, general conditions, and Owner costs (such as engineering, design, survey, project management, etc.) is just over the $2 million budget.

Figure 1: Overall Boardwalk and Riverwalk Corridor



BRANDSTETTER CARROLL INC
ARCHITECTS . ENGINEERS . PLANNERS

Palmer ENGINEERING

CUYAHOGA FALLS RIVERWALK/BOARDWALK

CUYAHOGA FALLS, OHIO

September 29, 2022

Figure 2: Boardwalk and Riverwalk Corridor (South Section) Enlargement

CUYAHOGA FALLS RIVERWALK/BOARDWALK
CUYAHOGA FALLS, OHIO

BRANDSTETTER CARROLL INC
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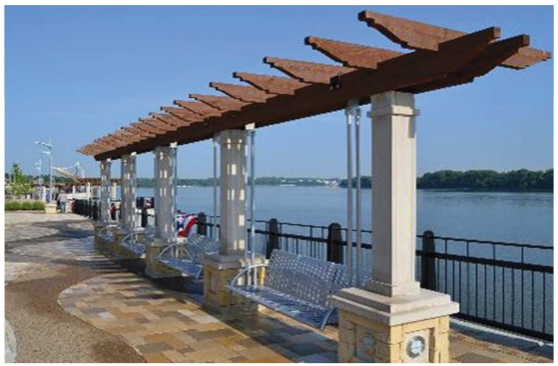
September 29, 2022

Figure 3: Boardwalk Specific Recommendations

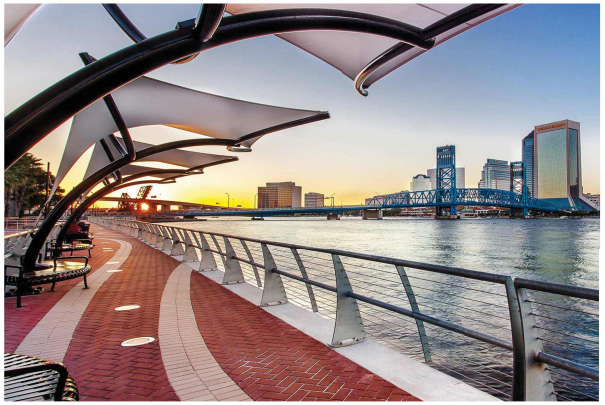
Figure 4: Riverwalk Corridor Elements

SWINGING BENCHES

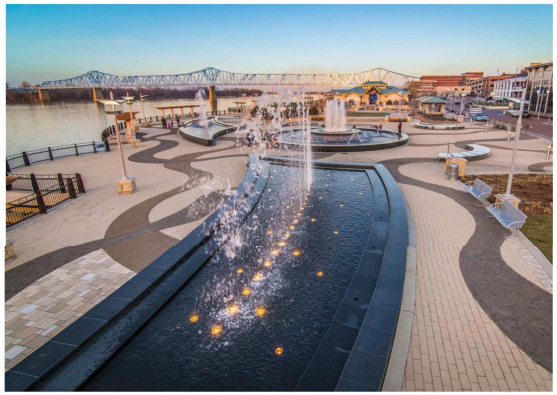


SWINGING BENCHES

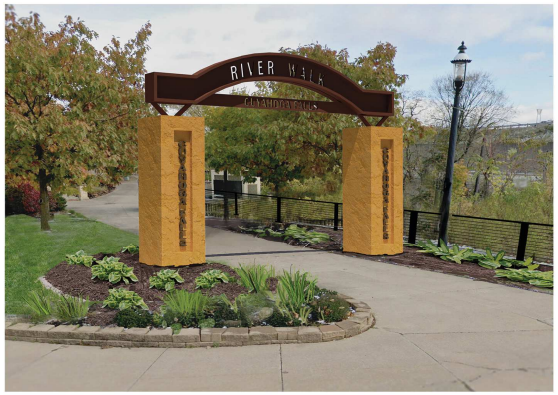
MATCH MATERIALS OF EXISTING FOUNTAIN



PAVING OPTION



PAVING OPTION



ARCH CONCEPT
FINAL DESIGN TO BE BY LOCAL ARTISTS

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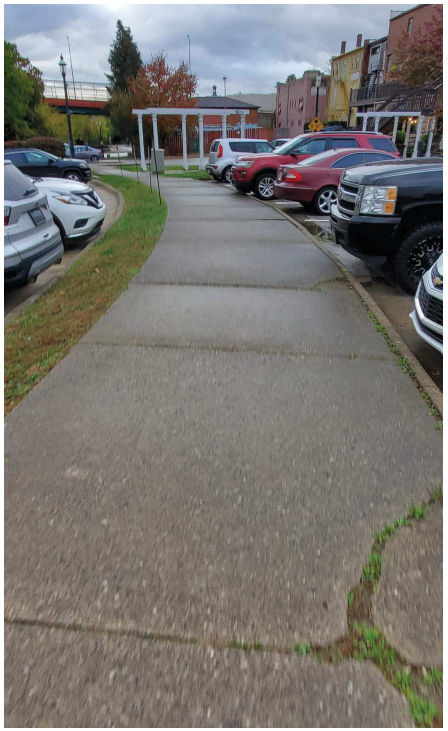
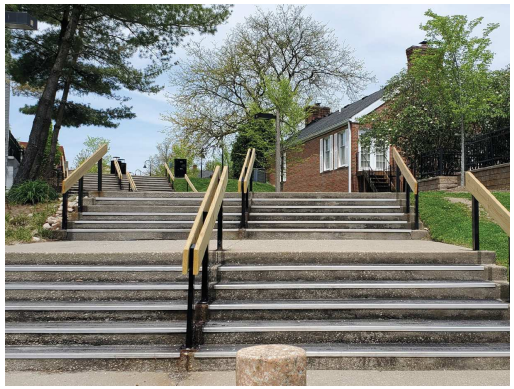
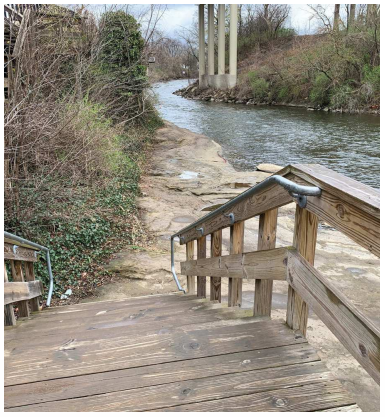
CUYAHOGA FALLS RIVERWALK/BOARDWALK
CUYAHOGA FALLS, OHIO

May 9, 2022

Figure 5: Boardwalk and Riverwalk Existing Conditions







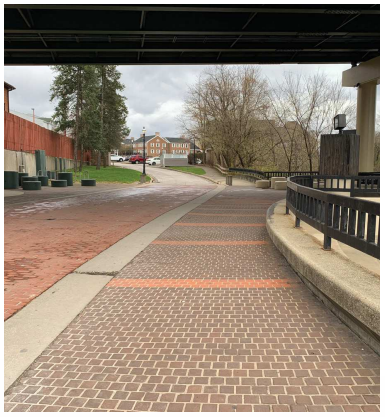


Table 1: Opinion of Probable Cost

October 31, 2022

	COST ITEM	UNIT	UNIT COST	Project 1 Qty.	Project 1 Cost	Project 2 Qty.	Project 2 Cost	Project 3 Qty.	Project 3 Cost
PROJECT ONE- Broad Street to E. Portage Trail Upper River Walk									
Riverwalk - Upper Level Improvements									
1	Demolition- Concrete Pavement	S.F.	$ 10.00	7,020	$ 70,200		$ -		
2	New concrete pavement	S.F.	$ 12.00	3,840	$ 46,080		$ -		
3	New colored concrete (Blue color hardener with broom finish)	S.F.	$ 22.00	1,645	$ 36,190		$ -		
4	Color on existing concrete (clean, etch, and stain)	S.F.	$ 8.00	1,000	$ 8,000		$ -		
5	Boardwalk Overlook	S.F.	$ 90.00	211	$ 18,990		$ -		
6	Overlook Railings	L.F.	$ 65.00	42	$ 2,730		$ -		
7	Concrete curbs	L.F.	$ 40.00	130	$ 5,200		$ -		
8	Pump station screening	L.F.	$ 60.00	104	$ 6,240		$ -		
9	Bollards	Each	$ 2,000.00	14	$ 28,000		$ -		
10	Lighting	Each	$ 4,000.00	12	$ 48,000		$ -		
11	Electric Line/Service	L.S.	$ 30,000.00	1	$ 30,000		$ -		
12	Swinging benches	Each	$ 30,000.00	4	$ 120,000		$ -		
13	Trash receptaces	Each	$ 1,500.00	10	$ 15,000		$ -		
14	Tree removal	L.S.	$ 50,000.00	1	$ 50,000		$ -		
15	Landscape Trees	L.S.	$ 50,000.00	1	$ 50,000		$ -		
	Subtotal - Riverwalk Area - Phase One				**$ 534,630**		**$ -**		
PROJECT TWO									
Boardwalk Improvements									
1	Clearing and grubbing	L.S.	$ 30,000		$ -	1	$ 30,000		$ -
2	Demolition- Existing structures removal	L.S.	$ 100,000		$ -	1	$ 100,000		$ -
3	Slope Stabilization	L.S.	$ 100,000		$ -	1	$ 100,000		$ -
4	Boardwalk Foundations - New Sections	S.F.	$ 25.00		$ -	2,037	$ 50,925		$ -
5	Boardwalk Framing & Decking - New Sections	S.F.	$ 65.00		$ -	2,037	$ 132,405		$ -
6	Boardwalk Railing - New Sections	L.F.	$ 65.00		$ -	680	$ 44,200		$ -
7	Swinging Benches	Each	$ 30,000.00		$ -	2	$ 60,000		
8	Boardwalk Lighting	Each	$ 4,000.00		$ -	16	$ 64,000		$ -
9	New Steps to Remaining Boardwalk	SF	$ 90.00		$ -	100	$ 9,000		$ -
10	Railing on New Steps	L.F.	$ 65.00		$ -	68	$ 4,420		$ -
11	New Steps and Framing at Broad	SF	$ 90.00		$ -	200	$ 18,000		$ -
12	Railing on New Steps	L.F.	$ 65.00		$ -	42	$ 2,730		$ -
	Subtotal - Boardwalk Area				**$ -**		**$ 615,680**		**$ -**
Boardwalk Improvements beneath Broad Blvd and Lower Level- To be completed by City In-House									
1	Repair Boardwalk Framing - Rehabiliated Sections	S.F.	$ 10.00		$ -	4,150	$ 41,500		$ -
2	Boardwalk Decking - Rehabiltated Sections	S.F.	$ 15.00		$ -	4,150	$ 62,250		$ -
3	Boardwalk Railing - Rehabiltated Sections	L.F.	$ 75.00		$ -	1,240	$ 93,000		$ -
					$ -		$ -		$ -
	Subtotal - Boardwalk Area by City				**$ -**		**$ 196,750**		**$ -**
Subtotal - Both Areas					**534,630**		**812,430**		**-**
PROJECT THREE (FUTURE) - E. Portage Trail to Front Street									
Riverwalk - Upper Level Improvements									
1	Demolition- Existing structures and pavements	L.S.	$ 100,000.00		$ -		$ -	1	$ 100,000
2	New Concrete pavement	S.F.	$ 10.00		$ -		$ -	19,500	$ 195,000
3	Decorative Pavement	S.F.	$ 20.00		$ -		$ -	10,400	$ 208,000
4	Concrete curbs	L.F.	$ 30.00		$ -		$ -	2,200	$ 66,000
5	Concrete steps	L.F.	$ 125.00		$ -		$ -	640	$ 80,000
6	Handrails	L.F.	$ 175.00		$ -		$ -	180	$ 31,500
7	Guardrail	L.F.	$ 185.00		$ -		$ -	130	$ 24,050
8	Bollards	Each	$ 1,500.00		$ -		$ -	14	$ 21,000
9	Lighting	Each	$ 3,800.00		$ -		$ -	50	$ 190,000
10	Signage	L.S.	$ 28,000.00		$ -		$ -	1	$ 28,000
11	Swinging Benches	Each	$ 30,000.00		$ -		$ -	8	$ 240,000
12	Trash receptaces	Each	$ 1,200.00		$ -		$ -	12	$ 14,400
13	Existing paver sitting area improvements	S.F.	$ 25.00		$ -		$ -	5,000	$ 125,000
14	Small stage area at existing sitting area	S.F.	$ 25.00		$ -		$ -	200	$ 5,000
15	Paverment graphics (3 Cross walks and striping)	L.S.	$ 20,000.00		$ -		$ -	1	$ 20,000
16	Kayak Launch	Each	$ 100,000.00		$ -		$ -	1	$ 100,000
17	Landscape Trees	L.S.	$ 50,000.00		$ -		$ -	1	$ 50,000
	Subtotal - Riverwalk Area - Phase Two				**$ -**		**$ -**		**$ 1,497,950**
Contingency (15%)					80,195		121,865		149,795
	Subtotal with Contingency				**614,825**		**934,295**		**1,647,745**
8% General Conditions					$49,186		$74,744		$131,820
SUBTOTAL					**$664,010**		**$1,009,038**		**$1,779,565**
Owner Costs (20%) (Engineering, design, survey, project management, etc.)					$132,802		$201,808		$266,935
TOTAL PROJECT COST					**$796,813**		**$1,210,846**		**$2,046,499**
Items by others									
1	Entry gateway arch	L.S.	$ 30,000.00	1	$ 30,000		$ -	1	$ 30,000
2	Entry gateway columns	Each	$ 8,000.00		$ -		$ -	3	$ 24,000
3									
SUBTOTAL					$ 30,000		$ -		$ 54,000
TOTAL PROJECT COST with Fees					**$826,813**		**$1,210,846**		**$2,100,499**

This Estimate excludes escalation. Current market conditions make it extremely difficult to forecast into the future. The last twelve months saw a rapid increase in construction pricing. Going forward, we believe those increases will be hard to maintain and eventually pricing will increase at a more historic rate. Unfortunately, we don't know when that will occur. To further complicate issues, there are material shortages. Obtaining all of these materials will take an extended period of time thus increasing the time frame for the project and the possibility of increased escalation.

Total Cost - Projects 1 & 2 **$2,037,658**

APPENDIX A - GEOTECHNICAL REPORT

CTL Engineering, Inc.
3085 Interstate Parkway, Brunswick, OH 44212
Phone: 330-220-8900 Fax: 330-220-8944

e-mail: ctlcle@ctleng.com

AN EMPLOYEE OWNED COMPANY

Consulting Engineer – Testing – Inspection Services – Analytical Laboratories Established 1927

July 22, 2022

Brandstetter Carroll, Inc.
2360 Chauvin Drive
Lexington, Kentucky 40517 – USA

Attention: Mr. Pat D. Hoagland
Vice-President, Division Principal

Reference: Geotechnical Engineering Report
Cuyahoga River - Riverwalk/Bank Stabilization
Cuyahoga River West Bank from Broad Blvd. to E. Portage Trail
Cuyahoga Falls, Summit County, Ohio

CTL Project No. 20050016CLE

Mr. Hoagland:

CTL Engineering, Inc. has completed the Geotechnical Engineering Report for the above referenced project. Enclosed is the digital (pdf) copy.

Thank you for the opportunity to work with you on this project. If you have any questions or need further information, please feel free to contact our office.

Respectfully Submitted
CTL ENGINEERING, INC.

Matthew Kairouz, P.E.
Project Engineer

GEOTECHNICAL ENGINEERING REPORT

CUYAHOGA RIVER - RIVERWALK/BANK STABILIZATION
CUYAHOGA RIVER WEST BANK FROM BROAD BLVD. TO E. PORTAGE TRAIL
CUYAHOGA FALLS, SUMMIT COUNTY, OHIO

CTL PROJECT NO. 20050016CLE

PREPARED FOR:

BRANDSTETTER CARROLL, INC.
2360 CHAUVIN DRIVE
LEXINGTON, KENTUCKY 40517 – USA

PREPARED BY:

CTL ENGINEERING, INC.
3085 INTERSTATE PARKWAY
BRUNSWICK, OHIO 44212
www.ctleng.com

July 22, 2022

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APPENDIX

I PROJECT LOCATION & DESCRIPTION

The project site is located along the West Bank of the Cuyahoga River between Broad Boulevard and E. Portage Trail in Cuyahoga Falls, Summit County, Ohio. Detailed project information is not available at this time, the project is in the conceptual stage. We understand that the existing sidewalk and ramps over the riverbank are distressed with potential slip underneath, and section of the existing timber boardwalk over the slopes is closed due to safety concerns. We anticipate a redevelopment of a safe access along the river and the construction of two elevated Vista Points and one Ramp Structure.

CTL assumed minor grade modification with no more than 2 foot of fill or cut taking place for the proposed developments. If the proposed grading requires more than 2 feet of fill especially over the slopes, CTL should be given the opportunity to re-evaluate.

II GEOLOGY AND SITE CONDITIONS

Geology:

According to the Glacial Geology Map for Summit County, Ohio, the project site is a narrow man maid fill over the Cuyahoga Formation of sandstone and shale fine grained to conglomerate.

According to the Ohio Department of Natural Resources (ODNR) abandoned underground mine locator, there are no underground mines in the immediate vicinity of the subject site

Site Observation:

The project site is located in a commercial/entertainment part of the City along a scenic segment of the Cuyahoga River adjacent to an amphitheater, boardwalks, and other park amenities. The site consists of steep down slopes with near vertical and overhang rock

Figure 1: Shear outcrop with overhang & distressed brick Wall above.

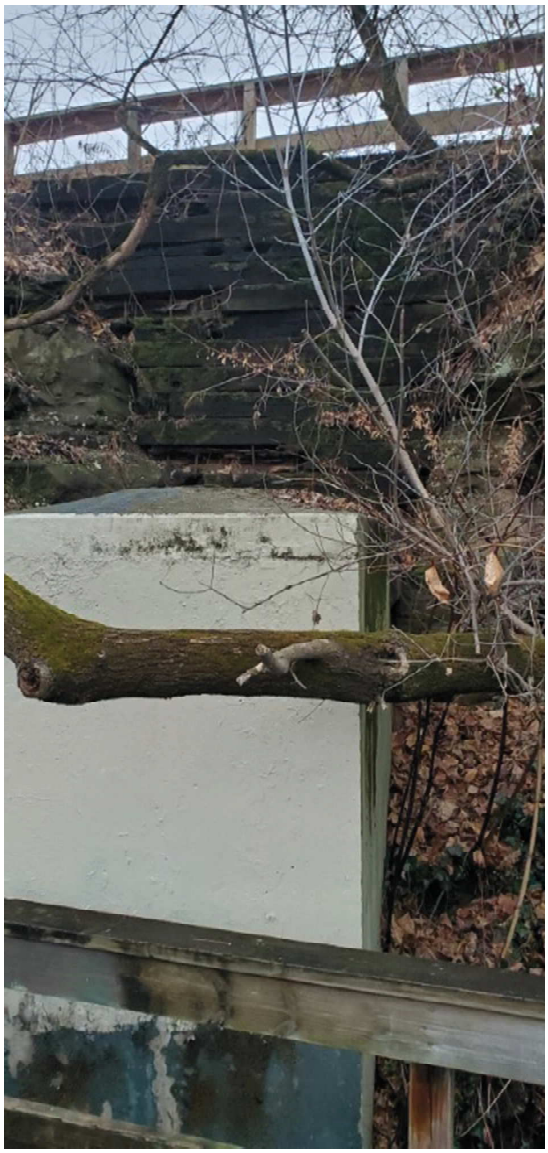


Figure 3:Make shift stone wall above storm discharge

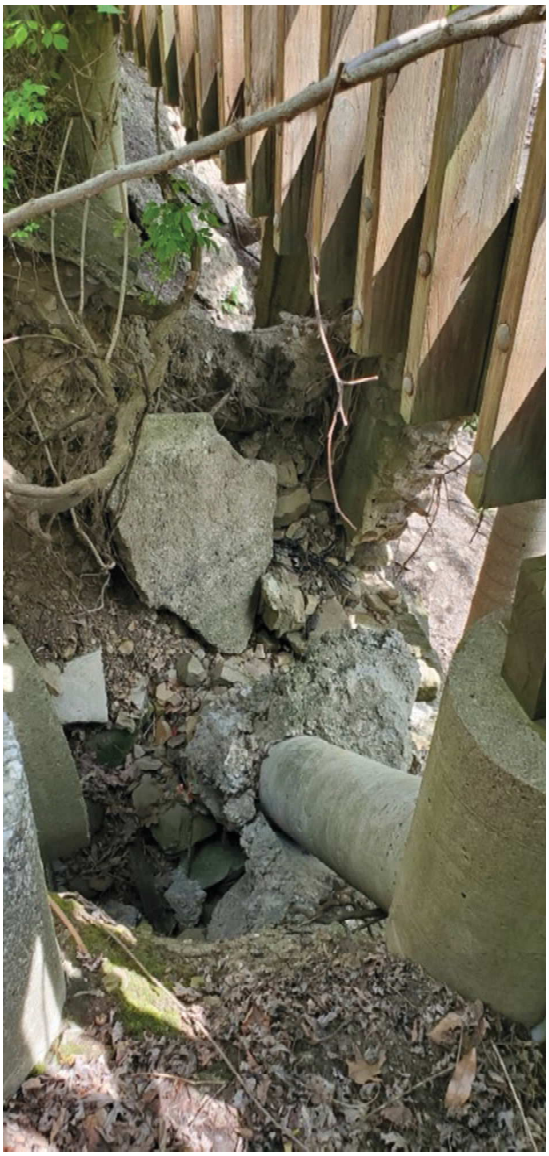


Figure 2:Erosion from storm discharge at upper slopes

outcrop over the Cuyahoga River. The slope is partially wooded with elevated timber ramps and variety of partial retaining walls of concrete, bricks, or stone. Some of the walls are distressed. Distress associated with structural instability were noted throughout the boardwalks in form of leaned ramps or displacements. Surface sloughing is noted throughout the slopes in form of tilted trees. Some of the post foundations for the ramps do not appear to be properly embedded into the rock.

Figure 4:Shallow post footings do not appear to be embedded into the rock.

III SUBSURFACE EXPLORATION

During the period of June 8 to 10, 2022 Ohio TestBor under the directions of CTL Engineering advanced four (4) soil borings with rock coring to depths ranging from 20 to 30 feet below existing grades. CTL Engineering, in collaboration with Palmer Engineering, selected the boring locations as shown approximately on the enclosed Boring Location Plan in Appendix A.

CTL Engineering field located the borings and obtained their respective surface elevations using Google Earth Map. Contractors and design engineers should consider these elevations and any elevations stated in this report as approximate unless they are field verified prior to construction.

The drillers obtained soil samples at 2.5- foot interval in upper 10 feet and at 5-foot interval thereafter using Standard Penetration Tests (SPTs). The SPT consists of driving a 2.0-inch outside diameter (OD) split-spoon sampler 18 inches into the soil with an automatic 140-pound hammer falling 30 inches. The SPT hammer used for this project had an energy ratio of 90 percent in obtaining industry standard N-values (N_{60}-values). Rock cores 5 to 10 feet long were obtained at each boring using NX core barrel.

The drilling crew visually classified the soil and rock samples then secured them in glass jars and wooden boxes and delivered them to accredited CTL laboratory for further testing and analysis. A CTL geologist reclassified the soil samples and performed laboratory tests on representative samples under the direction of the Geotechnical Engineer. The laboratory testing included moisture content, and unconfined compressive strength tests.

The drilling, sampling, and soil testing was performed in accordance with standard geotechnical engineering practices and current ASTM procedures. Appendix B includes the test boring records.

IV FINDINGS

The surfaces material at the soil borings consisted of 10 inches of topsoil, 5 to 6 inches of concrete, and 8 inches of asphalt. The subsurface materials at the boring locations consisted of very loose to medium dense granular fill over sandstone formation.

The fill extended down to depths ranging from 8.5 to 23 feet below existing grades, it consisted of sand with rock fragments, bricks, trace of glass, and organic. The standard penetration (SPT, N_{60}) and moisture content values of fill material ranged mostly from 3 to 18 blows per foot (bpf) and from 6 to 17 percent, respectively.

The sandstone was encountered at depths ranging from 8.5 to 23 feet below existing grades. The upper 3.5 to 6.5 of the rock was very weak and severely weathered. The sandstone was moderately strong and moderately weathered starting at 20 to 25 feet below existing grades. The standard penetration (SPT, N_{60}) and range of moisture content values of sandstone in the upper 3.5 to 6.5 feet was over 50 blows per foot (bpf) and from 4 to 7 percent, respectively. The moisture content of organic deposits was over 100 %. The unconfined compression tests of the cored intact sandstone ranged from 5,000 to 8,500 psi.

Groundwater was encountered within the fill during drilling and at completion of the borings at depths ranging from 6.8 to 19 feet below existing grades (elevations 991.2 to 980.0 feet). It should be noted that fluctuations in groundwater levels should be expected over time due to variations in precipitation, surrounding groundwater use, and the time of year the readings are taken. Static groundwater levels can only be determined through observations made in cased holes over relatively long periods of time.

V ANALYSES AND RECOMMENDATIONS

The following analyses and recommendations are provided based upon experience, available information, and the subsurface information obtained from the field and laboratory testing. CTL assumed that no more than 2 feet of fill or cut will take place on this site.

Based on the subsurface conditions and our observation, we believe that the overburden granular fill is unstable and will require proper and consistent retaining structures. The granular fill is subject to erosion, scour and piping. These issues will need to be addressed prior to development. Slope stabilizations may be addressed using retaining structures, cobble and boulder along the river at the toe pending on hydraulic factors or poured reinforced concrete mat along the toe as a buttress fill.

Storm discharge points are aggravating the slopes, we believe these storm discharge points may be consolidated (if feasible) prior to reaching the slopes and discharged from dropped

(stepped) manhole(s) to near toe of slopes with erosion protection at the discharge.

Proposed structures and retaining walls should be supported and embedded onto intact rock. Intact rock is expected at depths ranging from 20 to 25 feet below existing grades at about the roadway level and at the surface at the toe near the river bed. The intact rock over the slopes will have to be determined by the Geotechnical Engineer during excavation. Severely weathered weak shale was noted as outcrop over the slopes, this formation appears non-durable and is subject to degradation and may not be adequate for the support of structures without adequate embedment. If intact rock was reached prior to frost depth of 3.5 feet, and the rock excavation was not feasible with conventional equipment, then drilled epoxied anchors into the rock maybe considered with a concrete cap.

Figure 5: Sandstone with weak non-durable Shale interbeds.

The following recommendations are provided where applicable.

A. General Construction and Earthwork

Site preparation and earthwork should be performed in accordance with the ODOT Construction and Material Specifications. Particularly:

1. All topsoil encountered within the proposed construction limits should be stripped and removed. Trees sand tree stumps should be removed and disposed offsite.

2. Subsequent to topsoil/debris removal, the exposed surface should be compacted until a relatively unyielding surface is achieved. Soft or loose soils, wherever encountered, should be disked, dried and recompacted, or undercut and replaced with compacted engineered fill, or otherwise as directed by the Soils Engineer.

3. Proper site drainage should be maintained during earthwork operations to minimize wet weather delays and reduce accumulation of moisture. If the surface soils become softened during wet weather or frozen, these soils should be removed before additional fill is placed. The ground surface across the construction site should be graded so that surface water flows away from the site. It is recommended that the surface of all fill areas be sealed with a smooth-wheel roller at the completion of each day's earthwork activities. Further protection of the site should include the construction of temporary ditches, berms or other surface water diversion devices in order to divert surface water from and not across the site.

4. Engineered fill should be placed in layers not to exceed 8 inches in loose thickness where conventional compaction machine is used and in thickness not exceeding 4 to 6 inches where portable compaction machine is used. In structural areas such as below footings, floor slabs, behind walls, under pavements and sidewalks, each layer of fill should be compacted to at least 98 percent of the maximum dry density as determined by ASTM D-698 standard method (AASHTO T-99), or as otherwise directed by the Soils Engineer. In non-structural areas such as landscape areas, the fill should be compacted to at least 95 percent. In all areas, the fill should be placed at moisture content within the range of ±2% of the optimum moisture content.

5. Fill material may consist of suitable onsite or imported soils with LL and PI values that do not exceed 40 and 20 respectively. Further testing of fill material will be needed during construction. Onsite soils are wet and will require drying or modifying before use. Topsoil and organically contaminated materials are not suitable for use as fill. All fill materials should be observed and approved by the Soils Engineer.

6. Fill placement should extend beyond the limits of all structures or parking areas at a minimum horizontal distance equal to the height of fill or ten (10) feet, whichever is greater when feasible. Fill placement adjacent to slopes steeper than 8:1 H:V should be benched to tie the new fill to existing soils when feasible.

7. Temporary excavations in excess of 4.0 feet in depth should be sloped or shored in accordance with OSHA regulations assuming soil type C within the overburden and very weak rock and soil type A within moderately strong sandstone.

8. Excavation sidewalls for proposed excavation of utility lines, or any incidental retaining walls, should be laid back at a slope rate acceptable to OSHA' regulation assuming soil type C. Excavation sidewalls may exhibit cave-in, particularly with the sand or granular deposits encountered at the site. If groundwater is encountered during construction, excavation sidewalls may need to be laid back at a flatter rate than 1.5H:1V.

B. Foundations

The foundations for new retaining structures, distressed retaining structures to be replaced, new ramps, and for boardwalk to be rehabilitated or replaced should be supported onto intact rock. The foundation should be embedded into intact rock and below frost depths of 3.5 feet below exposed grades whichever is deeper. Such foundations should be designed to resist lateral load using parameters provided in Section D below. The foundations are expected to consist of conventional footings, drilled shaft, or rock anchored pad. Foundations bearing onto intact rock as described in the report may be proportioned using a maximum allowable net bearing pressure of 245 ksf.

C. Seismic Coefficients

Based on the soil type and the Standard Penetration Testing (SPT), the Site Class for the project is Class C. This Site Class was determined using the information obtained in the test borings as well as published information in the vicinity of the project site. Site Class B may be considered for exposed rock areas without overburden.

D. Retaining Walls/Lateral Support

Retaining walls and structures that are subject to lateral loads may be designed using parameters in Table 1 below.

Table 1: Lateral Parameters

Soil Parameters	Existing Granular Fills	Very Weak Rock	Moderately Strong Rock
Total Unit Weight, pcf	120	130	135
Cohesion, ksf	Ignore	Ignore	350
Angle of Internal Friction, Degrees	29	38	38
At Rest Pressure Coefficient, Ko	0.52	0.38	0.38
Active Pressure Coefficient, Ka	0.35	0.24	0.24
Passive Pressure Coefficient, Kp*	N/A	4.17	4.17
Wall Friction Angle, Degrees	N/A	25	25

** Passive and lateral resistance should be considered below an artificial line at 1.5H:1V taken from toe of slopes.*

The parameters stated in the above Table 1 are determined based on the assumption of a level backfill surface and no excessive hydrostatic pressure will occur.

Lateral pressure arising from surcharge loading should be added to the above soil earth pressures to determine the total lateral pressures that the walls must resist. In addition, transient loads imposed on the walls by construction equipment during

backfilling should be taken into consideration during design and construction. Excessively heavy grading and construction equipment (that could impose temporary excessive pressures or long-term excessive pressures against the constructed walls) should not be allowed within five (5) feet (horizontally) of the walls.

Excavation (permanent or temporary) should be either shored or sloped for stability purposes. Temporary retaining walls (shoring) should be designed utilizing the relevant soil parameters shown in the Table above.

We recommend where applicable that a wedge of free-draining material, consisting of crushed stone, sand or other type of granular, porous or non-plastic soils are utilized to backfill a wedge behind all retaining walls. The wedge of free-draining material should have a minimum width of one (1) foot at the base of the wall footing and increase in width by a minimum of 0.8 feet per 1.0 foot of wall height. A footing drain should be used in conjunction with the free-draining backfill. We consider any clayey soils to be unsuitable for use as backfill since these soils tend to "creep" with time. In addition, these soils provide minimal drainage of water behind the retaining wall. It is recommended those walls which are restrained from rotating be designed based on at-rest earth pressure conditions, and those walls which are allowed to rotate be designed based on the active earth pressure conditions.

VI CHANGED CONDITIONS

The evaluations, conclusions, and recommendations in this report are based on our interpretation of the field and laboratory data obtained during the exploration, our understanding of the project and our experience with similar sites and subsurface conditions using generally accepted geotechnical engineering practices. Although individual test borings are representative of the subsurface conditions at the boring locations on the dates drilled, they are not necessarily representative of the subsurface conditions between boring locations or subsurface conditions during other seasons of the year.

In the event that changes in the project are proposed, additional information becomes available, or if it is apparent that subsurface conditions are different from those provided in this report, CTL Engineering should be notified so that our recommendations can modified, if required.

VII TESTING AND OBSERVATION

During the design process, it is recommended that CTL Engineering work with the project designers to confirm that the geotechnical recommendations are properly incorporated into the final plans and specifications, and to assist with establishing criteria for the construction observation and testing.

VIII CLOSING

The report was prepared by CTL Engineering, Inc. (Consultant) solely for the use of the Client in accordance with an executed contract. The Client's use of or reliance on this report is limited by the terms and conditions of the contract and by the qualifications and limitations stated in the report. It is also acknowledged that the Client's use of and reliance of this report is limited for reasons which include: actual site conditions that may change with time; hidden conditions, not discoverable within the scope of the assessment, may exist at the site; and the scope of the investigation may have been limited by time, budget and other constraints imposed by the Client.

Neither the report, nor its contents, conclusions nor recommendations are intended for the use of any party other than the Client. Consultant and the Client assume no liability for any reliance placed on this report by such party. The rights of the Client under contract may not be assigned to any person or entity, without the consent of the Consultant which consent shall not be unreasonably withheld.

This geotechnical report does not address the environmental conditions of the site. The Consultant is not responsible for consequences or conditions arising from facts that were concealed, withheld, or not fully disclosed at the time the assessment was conducted.

To the fullest extent permitted by law, the Consultant and Client agree to indemnify and hold each other, and their officers and employees harmless from and against claims, damages, losses and expenses arising out of unknown or concealed conditions. Furthermore, neither the Consultant nor its employees shall be liable to the Owner in an amount in excess of the available professional liability insurance coverage of the Consultant. In addition, Client and Consultant agree neither shall be liable for any special, indirect or consequential damages of any kind or nature.

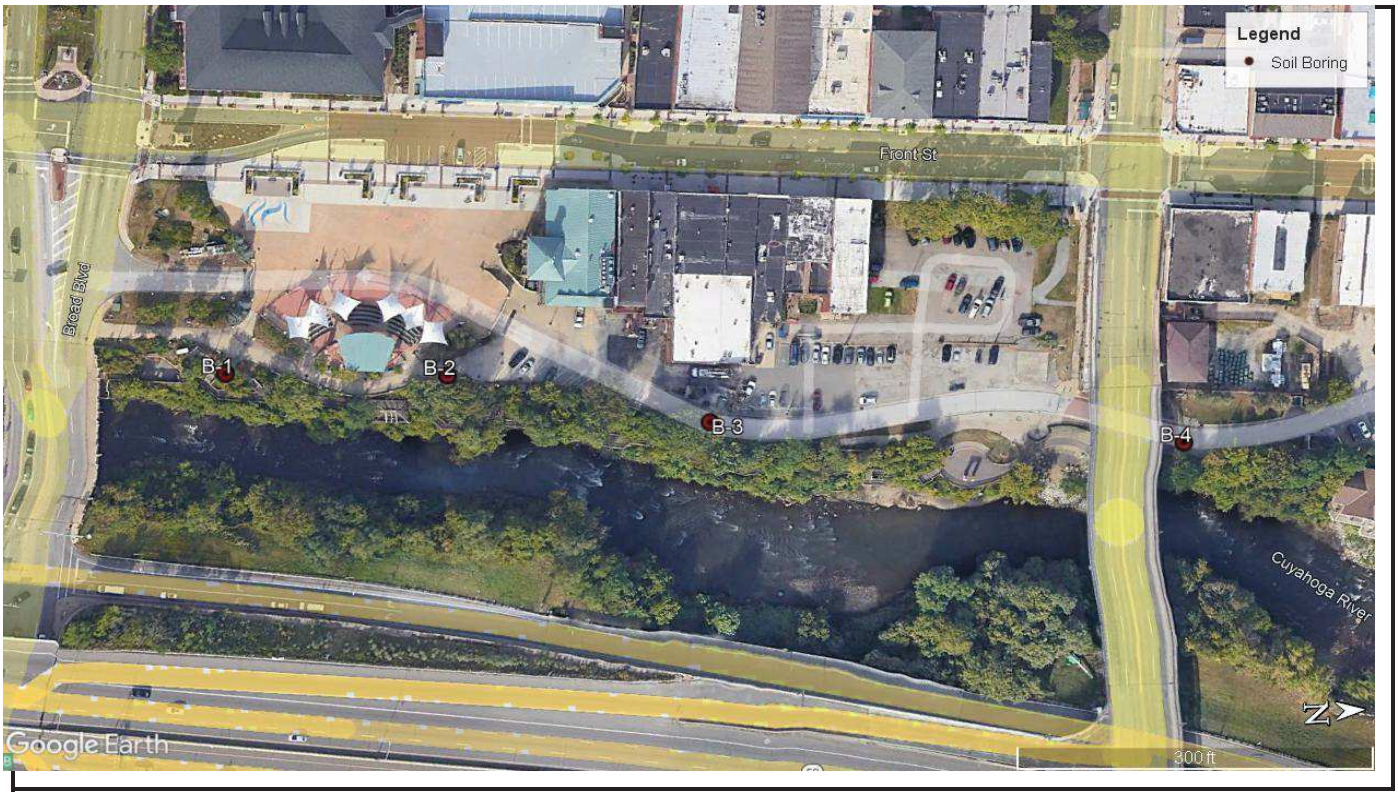
The Consultant's services have been provided consistent with its professional standard of care. No other warranties are made, either expressed or implied.

Respectfully Submitted,
CTL ENGINEERING, INC.

Matthew Kairouz, P.E.
Project Engineer

APPENDIX A

- **BORING LOCATION PLAN**
- **SOIL PROFILE**



	SITE LOCATION MAP			
	Date 7/22/2022	Brandstetter-Carrol, Inc. Cuyahoga Falls - Riverwalk Cuyahoga River Between Broad Blvd. & E. Portage Trail Cuyahoga Falls, Summit County, Ohio		
CTL ENGINEERING, INC. GEOTECHNICAL ENGINEERS TESTING * INSPECTION LABORATORY SERVICES	**Scale** None			
	Drawn By MK	**Reviewed By**	**Page** 1 of 1	**Project No.** 22050016CLE

APPENDIX B - STEERING COMMITTEE MEETINGS SUMMARIES

CONFERENCE MEMORANDUM
CUYAHOGA FALLS BOARDWALK
PROJECT NO. 21088

PRESENT: **Mayor Don Walters**
Tony Demasi, City Engineer
Sara Kline, Parks and Recreation Director
Mitch McCoy, Palmer Engineering
Patrick D. Hoagland, ASLA, Brandstetter Carroll Inc.

BRANDSTETTER CARROLL INC
ARCHITECTS | ENGINEERS | PLANNERS

3:00 PM.
September 10, 2021

1. The purpose of this meeting was to provide an opportunity for Mayor Walters to identify his vision for the development and improvement of the Boardwalk Project. He sees this as much larger than just replacement of the boardwalk. He stated that cutting a ribbon on just replacing the boardwalk would not be very exciting and he would like to have a "WOW" factor, and something that would attract tourism to the area. He wants a bigger project than this.
2. There may be a name for this project and "Riverwalk" is the first one that comes to mind.
3. He sees this as the main walk being the current upper level walk which extends from the Sheraton Inn, under Broad Street, and to the park area where the pavilion and amphitheater are currently located and extending all the way along the upper level walkway to Front Street. There are a lot of outstanding views of the river in this area and he would like to open it up to more overlooks and possibilities.
4. He would like to see a loop that would include Front Street with the distances marked. They may also even have times of the year when they have horse drawn carriages in this area.
5. There may be some type of archway or entranceway at the Broad Street area and at the opposite end.
6. It was noted that some of the portions of the boardwalk can be omitted so that it does not have to be a continuous walkway on the boardwalk level. However, there should be some upper level overlooks where the vegetation should be cleared to provide better views.
7. It was noted that the parking spaces that are adjacent just to the north of the amphitheater can be removed so that we can widen the sidewalk out in the walkway in this area.
8. It was noted that several of the LED lights on the boardwalk were replaced last year.
9. The portage access needs to stay where it is currently located.
10. As we walked the area, Mayor Walters noted that there is a light show that takes place under the Portage Trail bridge. He sees possibly putting a stage with a railing at the back end of an amphitheater type area in this area as well as possibly putting a mesh for projecting movies or something underneath the bridge to attract more activities in this area.
11. It was noted that there is a recently completed Public Art Plan for the community and Diane Calavecchio would be the contact for this. They may have some additional funds. They would like to have some artwork included as a part of this process as well as interpretation elements to provide interest. This could be historical facts, river facts, and other educational type exhibits that would be of interest.

12. The mayor realizes that this is beyond the original scope of updating and replacing the boardwalk but it would have a much broader appeal and more impact on the City.

If you should disagree with any information contained herein, please kindly notify our office in writing within 10 days of receipt of this memorandum.

Patrick D. Hoagland 09/13/2021

Patrick D. Hoagland, ASLA Date

PDH/meg

C: Tony Demasi
Sara Kline
Mitch McCoy
Nancy Nozik
Darrell Douglas
File

CONFERENCE MEMORANDUM
CUYAHOGA FALLS BOARDWALK
PROJECT NO. 21088

PRESENT: **Mayor Don Walters**
Tony Demasi, City Engineer
Sara Kline, Parks and Recreation Director
Anthony Zumbo, Public Service Director
Diana Colavecchio, Community Development Director
Bryan Hoffman, Finance Director
Mitch McCoy, Palmer Engineering
Trent Steffen, Palmer Engineering
Patrick D. Hoagland, ASLA, Brandstetter Carroll Inc.

BRANDSTETTER CARROLL INC
ARCHITECTS | ENGINEERS | PLANNERS

10:00 AM.
May 10, 2022

The purpose of this meeting was to update the Committee on progress and discuss options. The following items were discussed:

1. Deck options were shown including using precast planks, wood, or a composite. Due to cost, wood will be used.
2. The blue ribbon/wave is approved for the Riverwalk design.
3. The area on the Riverfront Parkway walk that is wood will be widened and replaced.
4. There is approximately 5 years left on the wood decking.
5. People will want to continue to get to the river level because this are of the river has become the best trout fishing area since the dam was removed.
6. Need to add tree trimming to the cost estimate.
7. The current Council budget placeholder is $1.75 million for this project.
8. It was decided to keep the old building foundation between the amphitheater and Broad Boulevard. And the walkway under Broad must be kept.

If you should disagree with any information contained herein, please kindly notify our office in writing within 10 days of receipt of this memorandum.

Patrick D. Hoagland 05/10/2022
Patrick D. Hoagland, ASLA Date

PDH/meg

C: Tony Demasi
Sara Kline
Mitch McCoy
Nancy Nozik
Darrell Douglas
File

CONFERENCE MEMORANDUM
CUYAHOGA FALLS BOARDWALK
PROJECT NO. 21088

PRESENT: **Mayor Don Walters**
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Trent Steffen, Palmer Engineering
Patrick D. Hoagland, ASLA, Brandstetter Carroll Inc.

BRANDSTETTER CARROLL INC
ARCHITECTS | ENGINEERS | PLANNERS

9:00 AM.
June 22, 2022

The purpose of this meeting was to walk the project site and to determine overlook locations. The following items were discussed:

1. Two locations were identified for the overlooks. One north of the amphitheater and one south.
    a. The overlook south of the amphitheater will be located north of the sewage pump station. This overlook will have stairs to connect to the boardwalk under Broad.
    b. Some type of screening fence is desired around the pumpstation. The fence may require the City to raise the red warning light.
    c. The other will be north of the amphitheater stage.
    d. The last plans had shown demolition of the boardwalk north of this overlook, but the City would like to upgrade it and keep the connection to the kayak take-out.
    e. Trees and underbrush will need to be removed to open views in this area.
    f. The old pergola area behind the stage will be removed.
2. The concrete behind the stage is in good condition. Therefore, it was determined to investigate methods to provide the wave pattern in the old concrete as well as in areas with new paving. The idea of blue color was mentioned. Options will be investigated.
3. North of the stage the pathway slopes in both directions. Mr. Hoagland suggested that a curb be placed between the road and the riverwalk for separation and to make the walk more level across. This was agreed upon.
4. In the area of the current wood sidewalk which is about 6' wide, it is desired to expand the walk to 10' wide and to open views in the area.
5. Where the wood walk transitions to concrete, it was determined to expand the walk on the river side to 10'.
6. Small seatwall areas near Portage Trail Bridge – The sidewalk is in poor condition from the middle of the southern area to where the brick pattern starts under the bridge. This will be replaced.

7. Where the walk narrows, it is desired to include black, ornamental metal bollards along the edge of the road. These should be about 5' apart. There are currently some concrete bollards in this area that will be replaced.
8. The project will not include any improvements to the two sitting areas at this time.
9. The phase will end at the north end of the brick sidewalk, with the bollards extending to the concrete walk.
10. The scope included some public engagement, but it was decided that is no longer necessary.
11. Mr. Hoagland will check with an ADA expert on the need to provide access to the lower boardwalk.
12. Next steps:
    a. Revise the plans to show the items discussed.
    b. Update the cost estimate.
    c. Obtain a cost for tree removal.
    d. Check on the status of the geotech investigations.
    e. Identify areas where a detailed survey is needed to prepare the construction documents.
    f. Investigate options for the pavement markings that will work on new and old concrete as well as on the area that is currently the wood sidewalk.
13. The group discussed the potential schedule to advertise for bids in Spring 2023.
14. Mr. Demasi will check on whether the consultant selection process included detailed design also.
15. A general range of mid-August was set for the next meeting.

If you should disagree with any information contained herein, please kindly notify our office in writing within 10 days of receipt of this memorandum.

Patrick D. Hoagland 06/23/2022

Patrick D. Hoagland, ASLA Date

PDH/meg

C: Tony Demasi
Sara Kline
Mitch McCoy
Nancy Nozik
Darrell Douglas
File

CONFERENCE MEMORANDUM
CUYAHOGA FALLS BOARDWALK
PROJECT NO. 21088

PRESENT: **Mayor Don Walters**
Tony Demasi, City Engineer
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Anthony Zumbo, Public Service Director
Diana Colavecchio, Community Development Director
Bryan Hoffman, Finance Director
Mitch McCoy, Palmer Engineering
Trent Steffen, Palmer Engineering
Patrick D. Hoagland, ASLA, Brandstetter Carroll Inc.

BRANDSTETTER CARROLL INC
ARCHITECTS | ENGINEERS | PLANNERS

11:00 AM.
August 17 2022

The purpose of this meeting was to update the Committee on progress and discuss options. The following items were discussed:

1. Mayor Walters opened the discussion by suggesting that a wheelchair lift be placed just north of Broad to get to the lower level. After discussion, it was determined that the best accessible route is the on-street level crossing at Front Street and Broad.
2. Discussion of demo vs. renovation of the lower boardwalk. It was determined to keep as much as possible that is in good condition and that the City would do the wood replacement. This work would come out of the City budget.
3. It was suggested that the entire project should be designed at once and then broken into phases based on budget capability.
4. In the area north of the E. Portage Trail underpass, the route may change which might require relocation of the Burntwood Restaurant dumpster. Tony DeMasi will check on the ownership of the current sidewalk north of E. Portage Trail.
5. It was asked if switchbacks could work to provide handicapped access at the steps at Leo's. It was decided this is not likely to work.

If you should disagree with any information contained herein, please kindly notify our office in writing within 10 days of receipt of this memorandum.

Patrick D. Hoagland 08/17/2022
Patrick D. Hoagland, ASLA Date

PDH/meg

C: Tony Demasi
Sara Kline
Mitch McCoy
Nancy Nozik
Darrell Douglas
File

CONFERENCE MEMORANDUM
CUYAHOGA FALLS BOARDWALK
PROJECT NO. 21088

PRESENT: **Mayor Don Walters**
Sara Kline, Parks and Recreation Director
Patrick D. Hoagland, ASLA, Brandstetter Carroll Inc.

BRANDSTETTER CARROLL INC
ARCHITECTS | ENGINEERS | PLANNERS

10:00 AM.
September 30, 2022

Mr. Hoagland was in the area and stopped by to discuss some suggestions for the Boardwalk and Riverwalk. Mayor Walters was available, and we met in his office. The following items were discussed.

1. Add stairs to allow access to the boardwalk under Broad Blvd bridge
2. Keep the access to the lower abandoned foundation south of the amphitheater
3. Fence enclosure around the equipment
4. New overlook at the upper level just north of the amphitheater
5. Provide stairs from this new upper overlook to the lower existing boardwalk
6. Repair the lower boardwalk extending to the canoe takeout. This may be an annual maintenance item rather than CIP.
7. Keep the proposed replacement of the 6' side wood sidewalk and extend to 10' wide, and also add a 10' x 25' overlook area

If you should disagree with any information contained herein, please kindly notify our office in writing within 10 days of receipt of this memorandum.

Patrick D. Hoagland 09/30/2022
Patrick D. Hoagland, ASLA Date

PDH/meg

C: Tony Demasi
Sara Kline
Mitch McCoy
Nancy Nozik
Darrell Douglas
File