Work Authorization # 08
Rollingwood Park Drainage Study
KFA PROJECT # _____
City of Rollingwood General Engineering Services

This work authorization is made pursuant to the terms and conditions of the original Professional Service Agreement dated **November 16, 2020**, by and between K Friese & Associates, Inc. and the City of Rollingwood.

SERVICES PROVIDED BY K FRIESE & ASSOCIATES, INC.:

Refer to Attachment A for details.

DELIVERABLES: Refer to Attachment A for details.

DURATION:

This Agreement shall remain in effect until **December 31, 2024**, unless terminated as provided herein, or extended by mutual agreement in writing. This Agreement is subject in all respects to the Terms and Conditions attached hereto and incorporated herein by reference.

BUDGET: Lump Sum amount totaling **$70,340.00,**
Refer to Attachment B for details.

CLIENT:

CITY OF ROLLINGWOOD	K FRIESE & ASSOCIATES, LLC
SIGNED:_____	SIGNED:_____
TYPED NAME:_____	TYPED NAME: Thomas M. Owens, P.E.
TITLE:_____	TITLE: Vice President
DATE:_____	DATE:_____

Attachments:
Attachment A – Scope
Attachment B – Fees

ATTACHMENT A – SCOPE OF SERVICES

CITY OF ROLLINGWOOD
ROLLINGWOOD PARK DRAINAGE STUDY

PROJECT DESCRIPTION

The City of Rollingwood (City) has requested that K Friese + Associates, LLC (KFA) provide a drainage study focusing on the drainage concerns associated with Rollingwood Park.

It is KFA's understanding that there are currently four identified areas of priority concern, as identified by the Park Commission. This study will analyze and develop conceptual solutions at these locations. The developed concepts will then be used for planning and budgeting purposes only.

Related previous studies include the Infrastructure Improvements Plan (IIP) completed by KFA in June of 2020 and the Drainage at Rollingwood Community Park memorandum by LNV, Inc. dated May 12, 2014.

The identified locations to be evaluated by this study are illustrated in Figure 1 and are summarized as follows:

- **Location 1: Detention at Nixon and Gentry Drive**

  Concern: The existing stormwater detention pond at the NE corner of Nixon Drive and Gentry Drive captures runoff from the public parking lot along Gentry, then discharges onto Nixon Drive. This discharge onto Nixon Drive results in nuisance street flooding and contributes to downstream flooding in major storm events.

  Background: The roadways in this area serve as the primary method of storm conveyance, draining the contributing runoff from Rollingwood Drive, Randolph Drive, Gentry Drive, and Pickwick Drive. The IIP identified a major drainage improvement project to construct a storm drainage system along Nixon Drive and is identified as Projects E, F and H. A drainage study completed by LNV (May 2014) explored high-level opportunities to implement BMP solutions such as rain gardens or bioswales and modification of the existing pond to provide peak flow mitigation. No detailed analysis was performed as part of this work.

  Approach Summary: Analyze the existing peak runoff rate and volume to estimate the current performance of the existing detention pond. A detailed topographic will not be conducted for this high-level analysis. Instead, KFA will utilize approximate field measurements and LiDAR terrain data. The study will develop conceptual solutions to explore the feasibility of increasing the storage capacity of the existing pond to mitigate peak discharge onto Nixon Drive. Furthermore, the analysis will include the assessment of potential modifications to the pond's outlet structure, proposing up to two options designed to reduce the discharge rate onto the street.

- **Location 2: Erosion Issues Upper Park - Near Field House Bluff**
  Concern: Areas of the upper park and athletic fields generate surface runoff that travels in a northwesterly direction towards the existing baseball field house. Runoff at this point becomes concentrated flow and discharges over a limestone bluff that is

experiencing erosion. Primary erosion concerns include gully and head cutting of the bluff.

Background: The drainage memo completed by LNV outlined high-level opportunities to provide erosion stabilization techniques. No detailed analysis was performed with this study.

Approach Summary: Analyze the existing runoff and identify cost-effective opportunities to stabilize the bluff and reduce the runoff velocity across the open fields. Potential mitigating solutions may include installation of bioretention along the perimeter of the fields to capture runoff and discharge through an underground pipe to the lower park. The bluff will be evaluated for grade stabilization and erosion control measures.

- **Location 3: Erosion Issues Lower Park - Near Wastewater Lift Station**
  Concern: The lower park, which is the area along Nixon Drive northwest of City Hall, drains to the north over a limestone bluff near the wastewater lift station. Runoff from the park is resulting in erosion and slope stability issues along the bluff.

  Background: The drainage memo completed by LNV outlined opportunities for providing erosion stabilization techniques. No detailed analysis was performed with this study.

  Approach Summary: Analyze the existing runoff and identify cost-effective opportunities to stabilize the bluff and reduce the runoff velocity across the lower park. Potential mitigating solutions may include reconstruction of the limestone block wall and minor storm drainage improvements to safely convey water back to street level.

- **Location 4: Conveyance Improvements Near 6 Pleasant Cove**
  Concern: A portion of the upper park athletic fields drains to the northeast near the dog park and into a lower lying area that then travels along the eastern property line of 6 Pleasant Cove. During significant storm events, runoff overwhelms the natural systems and results in the overtopping of flows, presenting flood risks to property owners. No structural flooding issues have been reported associated with this runoff, but the IIP modeling indicated a flood risk in this area.

  Background: This has been an ongoing concern of the property owner at 6 Pleasant Cove and is requesting the City evaluate potential flood mitigation solutions.

  Approach Summary: Analyze the existing runoff and identify opportunities to capture runoff from the park within a small open ditch system along the eastern property line of Pleasant Cove. To reduce the potential for adverse impacts, improvements will aim to maintain existing discharge points and safely convey flow onto Pleasant Cove. There are no storm drain improvements proposed that would tie directly into the creek near Nixon Drive.

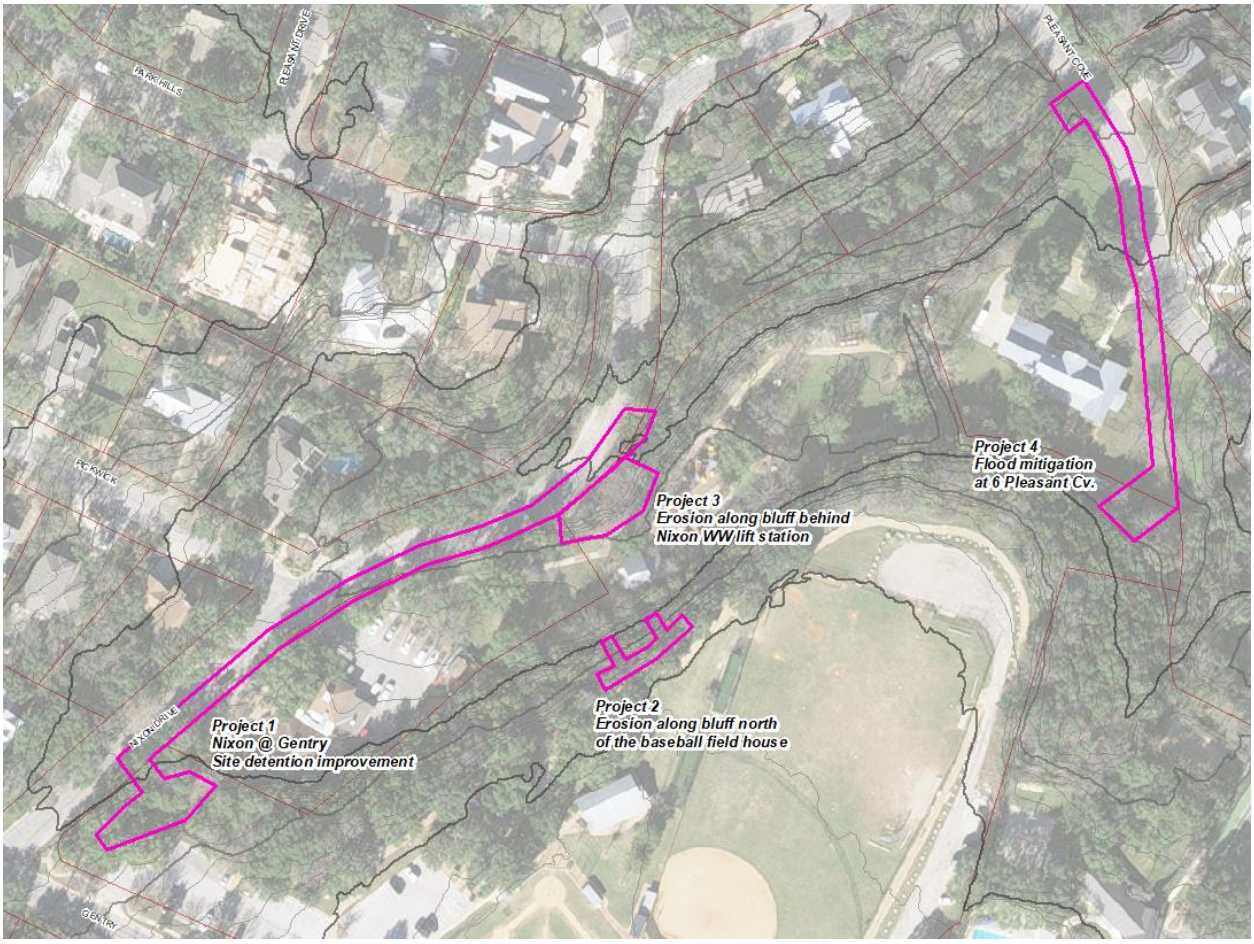

Figure 1: Approximate locations of the 4 Park Drainage Improvement Project Areas

SCOPE OF SERVICES

A. PROJECT MANAGEMENT

This task includes routine communication with the City; preparation of monthly project status reports; resource planning, budgeting, and scheduling; invoicing; implementing and monitoring QA/QC efforts; and other activities associated with managing the project.

KFA will attend up to two coordination meetings with the City to review the preliminary findings and then to present the draft report. Additionally, KFA will attend up to two public meetings. This scope assumes there will be one presentation to the Park Commission and one meeting to City Council. The presentation will include a review of the report deliverables. No new exhibits are included as part of this work.

B. DATA COLLECTION AND FIELD VISITS

KFA will collect available data from various sources including: existing utilities, GIS data, and as-built drawings of roadway/utility improvements.

KFA will perform up to two site visits to identify and locate existing features related to the detention pond and identified erosion hazard areas and to verify proposed design solutions. Any utility surface features and other visible potential conflicts in the approximate project areas will also be identified.

No detailed topographic survey is included in this scope of work.

C. ALTERNATIVES ANALYSIS

KFA will analyze the four identified project areas and develop conceptual solutions to improve localized flooding and erosion issues. The solutions presented will focus on developing minor improvement and maintenance projects.

Prior to commencing the analysis, KFA will confirm with the City our project approach to determine if any modifications may be necessary.

1. Perform preliminary hydrologic and hydraulic analysis to determine technically feasible and cost-effective solutions to the localized flooding and erosion issues for the four identified project locations. Analysis is anticipated to include rational method analysis to assess existing stormwater runoff and to develop conceptual improvements, HEC-HMS or modified rational for the detention pond sizing, and Manning's equation or simplified HEC-RAS modeling.

2. Analysis will include the evaluation of up to one design option for each project area. Design solutions to be evaluated are generally summarized as follows:

    a. Location 1: Evaluate maximizing storage capacity and outlet configuration of the existing detention pond.

b. Location 2: Provide peak flow reduction and control of runoff to minimize erosion potential. Stabilization of the bluff.

c. Location 3: Provide control of runoff to minimize erosion potential. Stabilization of the bluff.

d. Location 4: Evaluate peak flow runoff and size a surface drainage system to safely convey flows to Pleasant Cove.

3. Identify known utility conflicts and provide potential solutions for relocations, as required.

4. Identify if any additional easements are anticipated for construction of the proposed project options.

5. Identify potential permitting requirements associated with the proposed projects.

6. Prepare supporting plan view exhibits to illustrate the proposed options including alignments, drainage structure sizing, areas of anticipated easement needs, and anticipated utility conflicts. No typical sections or detailed design is included with this task. A total of four plan view exhibits will be provided.

7. Prepare conceptual level cost estimates.

D. REPORT

Prepare and submit a draft and final Park Drainage Study report that summarizes the all the items outlined by this scope of work. It will document the methodology and assumptions used, data obtained, and summarize the hydrologic, hydraulic, and alternatives assessments. A preliminary schedule for each conceptual solution will also be included.

SCHEDULE

1. Following execution of the contract and NTP, the preliminary report and draft conceptual solutions will be completed within three months of Notice to Proceed (NTP).

ASSUMPTIONS AND EXCLUSIONS

1. Field survey is not included in this scope.
2. Subsurface utility engineering (SUE) is not included in this scope.
3. No modeling beyond that specifically described in the scope is included.
4. Development of design plans, specifications and estimates beyond concept level are not included.
5. Preparation of easement documents are not included herein.
6. City will provide to KFA all data in City's possession relating to KFA's services on the Project. KFA will reasonably rely upon the accuracy, timeliness, and completeness of the information provided by the City.
7. City will give prompt notice to KFA whenever City observes or becomes aware of any development that affects the scope or timing of KFA's services.
8. The City shall examine information submitted by KFA and render in writing or otherwise provide comments and decisions in a timely manner.
9. The Project will proceed in a continuous manner with no significant delays.

ADDITIONAL SERVICES

1. The City and KFA may agree that KFA shall perform services outside the Scope of Work described in this proposal. KFA will submit a written estimate of fees based on standard rates indicated on the "Compensation Rate Schedule" included as part of the Professional Service Agreement contract. KFA will obtain the City's authorization prior to initiating any Additional Services.

Attachment B - KFA MANPOWER/BUDGET ESTIMATE
CITY OF ROLLINGWOOD GENERAL ENGINEERING SERVICES
ROLLINGWOOD PARK DRAINAGE STUDY

2/6/2024

		Hourly Bill Rate	$ 275.00	$ 185.00	$ 180.00	$ 110.00	$ 120.00	$ 90.00			
		Task	Quality Manager Hours	Project Manager Hours	Project Engineer Hours	EIT Hours	Senior CADD Operator Hours	Administration Hours	Total Labor Hours	Total Labor Cost	Total Cost
A		**PROJECT MANAGEMENT**									
	1	Project Management (invoicing, schedule, coordination) (3 months)		6					6	$1,110.00	$1,110.00
	2	Quality Asusrance and Quality Control	2		8				10	$1,990.00	$1,990.00
	3	Coordination meetings (2)		6		6			12	$1,770.00	$1,770.00
	4	Public Meetings (Park Commission Meeting, City Council Meeting)		12		8			20	$3,100.00	$3,100.00
		Task A Subtotal	**2**	**24**	**8**	**14**	**0**	**0**	**48**	**$7,970.00**	**$7,970.00**
B		**DATA COLLECTION AND FIELD VISITS**									
	1	Obtain and review available data		2		4			6	$810.00	$810.00
	2	Field Visits (2)		6		12			18	$2,430.00	$2,430.00
		Task B Subtotal	**0**	**8**	**0**	**16**	**0**	**0**	**24**	**$3,240.00**	**$3,240.00**
C		**ALTERNATIVES ANALYSIS**									
	1	Hydrologic and Hydraulic Analysis (Existing Conditions)									
		Location 1 (HMS or modified rational analysis of pond)		8		20	4		32	$4,160.00	$4,160.00
		Location 2 (rational method peak flow analysis)		4		16	4		24	$2,980.00	$2,980.00
		Location 3 (rational method peak flow analysis)		4		16	4		24	$2,980.00	$2,980.00
		Location 4 (rational method peak flow analysis)		4		16	4		24	$2,980.00	$2,980.00
	2	Conceptual Solution Development									
		Location 1 (HMS or modified rational analysis of pond, discharge pipe routing)		8		20			28	$3,680.00	$3,680.00
		Location 2 (bioretention, minor drainage improvements, slope stabilization)		4		16			20	$2,500.00	$2,500.00
		Location 3 (slope stabilization)		4		16			20	$2,500.00	$2,500.00
		Location 4 (simple HEC-RAS or Manning's analysis for channel section sizing)		8		20			28	$3,680.00	$3,680.00
	3	Utility conflicts review		4		8			12	$1,620.00	$1,620.00
	4	ROW and easements review		4		8			12	$1,620.00	$1,620.00
	5	Review permitting requirements		2		2			4	$590.00	$590.00
	6	Drainage area and conceptual solution exhibits (4)		4		40	64		108	$12,820.00	$12,820.00
	7	Conceptual cost estimates (4)		4		12			16	$2,060.00	$2,060.00
		Task C Subtotal	**0**	**62**	**0**	**210**	**80**	**0**	**352**	**$44,170.00**	**$44,170.00**
D		**REPORT**									
	1	Draft Report		24		40	16		80	$10,760.00	$10,760.00
	2	Final Report		8		16	8		32	$4,200.00	$4,200.00
		Task D Subtotal	**0**	**32**	**0**	**56**	**24**	**0**	**112**	**$14,960.00**	**$14,960.00**
		Project Totals	**2**	**126**	**8**	**296**	**104**	**0**	**536**	**$70,340.00**	**$70,340.00**