

Exhibit “A” - Scope of Work

1. Project Services. Consultant agrees to perform professional services for a project known and described as Kiowa Drain #3 Wash Stabilization (“Project”). The Services are described in the following subtasks:

Task 1. – Data Collection & Utility Coordination

- a. Research and evaluate existing City, County, and private utility information (e.g., as-builts, quarter section maps, GIS) regarding existing facilities such as roadway, drainage, traffic, and utilities. The City will provide available as-builts and other related existing data including right-of-way tract maps.
- b. Review the previously completed hydrologic analysis completed for Kiowa Drain #3. The previously completed hydrologic analysis will be used for this design. Obtain and review recently completed City FLO-2D model.
- c. Review the previously completed hydraulic and sedimentation analysis for Kiowa Drain #3. The City will provide electronic versions of the previously completed modeling.
- d. Request an Arizona Blue Stake ticket as part of the geotechnical investigation to identify existing utilities within the Project limits and request existing utility information.
- e. Coordination with utility companies for plan review and obtain necessary utility clearances or relocations to include: submittal of plans, comment resolution forms and review of relocation plans for all affected utility owners.

Task 2. – Coordinate Control, Topo Survey, Right-of-Way and Geotechnical

- a. Prepare a survey request and coordinate topographic survey and right of way services with the City and sub-consultant.
- b. Review and update the CAD files for control and topographic survey data as well as right-of-way information provided.
- c. Verify obtained topographic information at progress meeting.
- d. Coordinate geotechnical investigations for drop structure, grade control structures and any bank protection design.

Task 3. – Hydraulic and Scour Analysis

- a. Prepare an existing and proposed conditions hydraulic analysis for Kiowa Drain #3. No additional hydrology is anticipated. The hydraulic analysis is prepared in HEC-RAS. Cross sections from the previously completed analysis are updated using Project topography. The hydraulic analysis is for the 10- and 100-year storm event. Hydraulic analysis is compared to the recently completed City FLO-2D model.

- b. Determine the wash stable slope using acceptable methods identified by the United States Bureau of Reclamation. The wash is assumed to be a clear water condition and does not include an upstream sediment supply impacting the stable slope.
- c. Locate and size new drop structures using the calculated stable slope. The drop structures are designed to maintain a 100-year water surface elevation a minimum of one (1) foot below the lowest top of bank elevation.
- d. Size and locate energy dissipation facilities downstream of the drop structures to meet existing hydraulic energy levels before leaving the structure.
- e. Locate and size new grade control structures using the calculated stable slope. The grade control structures are designed to maintain a 100-year water surface elevation a minimum of one (1) foot below the lowest adjacent top of bank elevation.
- f. Prepare a Drainage Report to document the analysis. A Draft Drainage Report is submitted with the 60% Submittal. The Consultant will respond to one round of comments for the report. A Final Drainage Report is submitted with the 90% Submittal.

Task 4. – Construction Documents

- a. Submit construction documents at three (3) stages, 60%, 90% and Final.
- b. Establish a wash construction centerline based on existing survey monuments.
- c. Prepare structural design calculations and detail sheets for up to two drop structures and two grade control structures based on site specific geotechnical parameters. Design will be performed in accordance with IBC and ACI requirements.
- d. Prepare wash stabilization plans and details. The following sheet list is anticipated for the final construction documents:
 - i. Cover Sheet (1 Sheet)
 - ii. Legend & Notes (1 Sheet)
 - iii. Survey and Geometric Control (1 Sheet)
 - iv. Typical Sections (1 Sheet)
 - v. 1" = 20' Wash Plan & Profile (3 Sheets)
 - vi. Miscellaneous Channel Details (2 Sheets)
 - vii. Structural Details (5 Sheets)
- e. Prepare a 3D proposed surface in AutoCAD Civil 3D and develop cut and fill lines as well as earthwork quantities.

Task 5. – Environmental Services

- a. **Section 404 Clean Water Act (CWA) Approved Jurisdictional Determination Request**
 - i. Based on the current definition of Waters of the U.S. (WOTUS), the channels within the Project limits would not qualify as WOTUS. These channels would likely be considered Excluded Features, specifically (b)(3) Ditches (including roadside ditches) excavated wholly in and draining only dry land that do not carry a relatively permanent flow of water.

- ii. Identify the boundaries of these channels in the field (1 day/2 people) and will utilize methodology approved by the Corps of Engineers (Corps) for establishing the Ordinary High Water Mark (OHWM). Representative photographs will be taken to document channel characteristics.
- iii. Prepare an Approved Jurisdictional Determination Request that will document the methodology and results of the evaluation and will include the following:
 - Cover letter
 - Approved Jurisdictional Determination Form
 - Figure 1. Vicinity Map
 - Figure 2. 7.5-Minute USGS Quadrangle Map
 - Figure 3. Photo Locations Map
 - Ground Photographs
- iv. Submit the AJD request to the Corps for review and one (1) round of comments. Consultant will finalize the AJD based on the Corps comments. This task assumes no WOTUS will be present onsite and Section 404/401 permitting will not be required.

b. Biological Resources Memorandum

- i. Obtain and review an Official Species List for the Project area from the U.S. Fish and Wildlife Service (USFWS) Information, Planning, and Consultation (IPaC) system to determine if threatened, endangered, proposed, and/or candidate species may occur in the Project vicinity.
- ii. Obtain and review the Arizona Game and Fish Department (AGFD) on-line environmental review tool (OERT) to determine if special status species are known to occur in the Project vicinity.
- iii. Conduct one site visit to document site characteristics with ground photography.
- iv. Draft Biological Resources Memorandum.
- v. Submit the draft Biological Resources Memorandum to the City for review and one (1) round of comments.
- vi. Finalize the Biological Resources Memorandum based on the City's comments.

c. Cultural Resources Survey (Section 106 of the National Historic Preservation Act)

- i. Conduct a Class I inventory of known cultural resources within the area of potential effects (APE) and a defined buffer zone. Relevant information related to previous projects and known archaeological sites in the vicinity of the APE will be gathered from a variety of sources, including AZSITE; the Arizona State Museum (ASM); Archaeological Records Office (ARO); and the ADOT Historic Preservation Team (HPT) Portal. Other potential sources of information may include General Land Office (GLO) records and historic USGS topographical quadrangle maps, and historic aerial photographs.

- ii. Conduct a Class III cultural resources field survey of the Project area. Obtain necessary cultural resources permits. Desert Archaeology holds a current AAA Permit (2023-017bl) for conducting non-collection surveys in the state. Conduct systematic inspection of the ground surface within the Project area by an archaeologist and the identification of any cultural remains that are visible. Examine Project area by archaeologists in area within the APE not covered by modern materials, such as asphalt paving. Evaluate standing buildings or structures within or adjacent to the Project area for age and function. Relocate previously identified sites within the APE, if possible, and rerecorded.
- iii. Assess, record, map and photograph all cultural resources that are identified. Record new discovered sites within the APE using current ASM site forms. Relocate, assess and document according to current ASM standards previously recorded sites. Evaluate significance of any site encountered during the Class III survey using the National Register of Historic Places criteria. Record cultural remains not meeting ASM site definition criteria as isolated occurrences.
- iv. Develop a report for the Project that meets the compliance requirements of federal, state, and local agencies and provides recommendations for the further consideration of significant cultural resources recommended as eligible for the National Register of Historic Places that cannot be avoided. Report to follow content and formatting guidelines established by the Arizona State Historic Preservation Office and ASM.
- v. Facilitate Section 106 consultation through preparation of draft consultation letters and other tasks as needed for up to three scope changes. Curate final report with ASM upon acceptance by all compliance review agencies.

Task 6. – Project Estimate and Specifications

- a. A list of anticipated quantities is prepared and submitted at each design stage.
 - i. Present quantities on the plan sheets and in a separate quantities spreadsheet using custom bid items based on City item descriptions.
 - ii. An Opinion of Probable Cost (OPC) is provided for these quantities.
- b. Technical special provisions are prepared for the 60%, 90%, and Final submittals. The specifications utilize the City format.

Task 7. – Project Management/Pre-Bid Services

- a. Project management includes contract management, invoicing, Project schedule development, internal meetings with staff, Quality Control/Quality Assurance, and CADD maintenance.
- b. Pre-Bid Services include contractor questions, bid tabulation review/recommendation and issuance of addendums as necessary.

Task 8. - Meetings

- a. Attendance at the following meetings as a part of this Project:
 - i. Kickoff Design Meeting

- ii. Plan Review Meetings (3 meetings)
- b. Design progress meetings are assumed to be attended by the Project Manager in the City's office and any technical support will participate by teleconference.
- c. Responsible for preparing meeting agendas, exhibits, and notes.
- d. Field reviews are assumed to be conducted on the same days as meetings described above.
- e. Any meetings beyond those listed above will be considered additional services.
- f. Prepare a summary of comments received following each submittal. The summary includes a response and how it was addressed.

Task 9. – Topo Survey & Right-of-Way

- a. Provide topographic survey and right of way throughout the Project limits. This includes:
 - i. Project Control
 - ii. Right of Way Survey and Mapping
 - iii. Aerial Mapping (one foot contours at 1"=40')
 - iv. Orthophotography
 - v. Field survey for hardscape features
 - vi. Mapping will be provided via Autocad
- a. Prepare legal descriptions and exhibits for up to three (3) temporary construction easements.

Task 10. – Geotechnical Services

- a. Review available published geotechnical reports, topographic information, soil surveys, and aerial photographs of the Project area.
- b. Conduct field trip for geologic reconnaissance and mark test pit locations
- c. Test Pits (maximum ten (10) feet deep) are performed to determine subsurface conditions and obtain representative samples for laboratory analysis. Approximately ten (10) locations are proposed in the wash. Test borings will be blue-staked prior to field services.
- d. Laboratory Analysis includes:
 - i. Compression
 - ii. Swell
 - iii. Minus No. 200 Sieve and Plasticity
 - iv. Moisture Content/Dry Density Ring Samples
- e. A Final Geotechnical Report is provided detailing the results of the field/laboratory testing and recommendations provided for site grading, preparation procedures and thicknesses of pavement and concrete surfaces.

2. Schedule. The Services will commence upon receipt of an executed Agreement and will take 18 months.

3. Services Not Included.

The following items/services are not included in this scope of work and fee schedule. If these items/services are determined to be required, a separate agreement by contract amendment or new contract shall be coordinated between City and the Consultant.

- Hydrology
- Floodplain revision applications
- Private utility relocation design
- Construction phase services
- Street light design
- Environmental Assessment and Statement of Findings
- Other environmental services
- Land acquisition documents
- Public involvement
- Permit or plan review fees