

October 24, 2012

Ray Smith, P.E., R.L.S.
 Engineering Division Manager
 Town of Prescott Valley Public Works
 7501 E. Civic Circle
 Prescott Valley, AZ 86314
 928-759-3035

**Subject: Engineering Design Services Scope and Estimated Fees for
 Agua Fria Floodplain Revisions & Unit 16 Stormwater Mitigation
 Study, CIP#E340, Town of Prescott Valley**

Dear Mr. Smith:

We are pleased to furnish this scope of services and fee estimate for the Agua Fria Floodplain Revisions & Unit 16 Stormwater Mitigation Study, and look forward to the opportunity to expand on our working relationship with the Town of Prescott Valley. Exhibit 1 includes the approximate limits of analysis and design associated with the major task categories listed herein. The scope of services, standard terms and conditions, and fee estimates detail the tasks and associated fees required for this project. The proposed completion date for the project is Friday, June 14, 2013. We propose to perform the following services associated with the project:

Proposed Total Contract Amount Fixed Fee of \$225,000:

Tasks 1000–Pre-Design Fixed Fee of \$34,160:

Task 1001-1005: Data Acquisition and Agua Fria PJD Fieldwork

This task includes attending a pre-design meeting with the Town, verifying, researching and acquiring the following items/data; recorded plats and easements, property owner data, rights-of-way (ROW) documents, existing FEMA data, existing floodplain conditions for Manning's roughness coefficient, and existing utility data. Lyon will coordinate with utility companies to obtain infrastructure data and design blue staking of the existing utilities. As a part of the Potential Waters of the U.S. (WoUS) Delineation, Lyon and Biozone will conduct a site visit to collect field data and site pictures to prepare the Preliminary Jurisdictional Delineation Exhibit and documentation. Lyon will prepare all documentation for the Preliminary Jurisdictional Determination submittal to the U.S. Army Corps of Engineers (USACE).

Task 1006-1009: Field Survey

This task includes Lyon surveying existing Agua Fria floodplain and Unit 16 infrastructure (drainage, water, and sewer) within the project limits, supplemental topographic information for floodplain mapping (Agua Fria), and the supplemental topographic information within Unit 16.

Task 2000–Unit 16 Master Drainage Plan and 30% Design

Fixed Fee of \$68,100

Task 2001: Existing Infrastructure Hydraulic Analysis

This task includes the evaluation of existing drainage infrastructure and respective capacity including storm drains, culverts, and existing channels. This analysis will also evaluate the overall depth and approximate extents of flooding within the project area as defined in Exhibit 1.

Task 2002-2003: Existing Condition Hydraulic Report with Proposed Design Alternatives

This task includes the preparation of the design report to discuss the evaluation of existing drainage infrastructure together with design alternatives to improve the existing hydraulic conditions where necessary within the project scope. The design alternatives will be evaluated using a Design Alternative Matrix that will include items such as: impact to private property, construction cost, utility realignments, and coordination with the future roadway (Robert Road & Santa Fe Loop). The design matrix will identify the preferred design alternative for the preparation of 30% design. A flood risk map will be prepared that shows the areas of highest risk to life or property within the project area defined in Exhibit 1.

Task 2004-2009: 30% Preliminary Design, Unit 16 Master Drainage Plan and Phasing Report

This task will include the preparation of the 30% design plans for the preferred design alternatives identified in tasks 2002-2003. The design alternatives and 30% design will identify the horizontal and vertical locations of all proposed drainage infrastructure, including storm drain, culverts, and channels, proposed easement or property acquisition, and roadway improvements for the following:

- 1) Robert Road Extension and stormwater conveyance from Tranquil Boulevard to future Santa Fe Loop Road and/or Agua Fria River floodplain including the Western Boulevard area stormwater release at Long Mesa Drive
- 2) Stormwater crossing Long Mesa Drive approximately 1,000 feet east of Robert Road to final outfall in Agua Fria River floodplain
- 3) Stormwater crossing Long Mesa Drive approximately 1,600 feet east of Robert Road to final outfall in Agua Fria River floodplain
- 4) Mission Lane stormwater improvement outfall at Long Mesa Drive to final outfall in Agua Fria River floodplain

These design plans will identify construction limits based on future available funding from the Town. Lyon will also prepare an Estimate of Probable Construction Cost based on the final 30% design plans and phasing limits. The proposed improvements within the 30% design will be based on the Unit 16 Master Drainage Report. This report will provide the evaluation and hydraulic analysis of the proposed drainage infrastructure to be constructed. See 30% Design Plan Set

Content at the end of this proposal for a complete list of items that will be included within the 30% Design.

Task 3000–Aqua Fria CLOMR

Fixed Fee of \$81,475

Task 3001: Existing Floodplain and Floodway HEC-RAS Analysis

Lyon will evaluate and model the existing floodplain and floodway utilizing HEC-RAS. The HEC-RAS analysis will be based on the existing effective FEMA 100-year hydrology and Town of Prescott Valley aerial topography as supplemented by Lyon Engineering survey crews.

Task 3002-3003: Proposed Floodplain Management Options

Lyon will prepare preliminary hydraulic analysis of proposed design alternatives using HEC-RAS to show the potential impacts of the floodplain management options to contain the Agua Fria River floodplain to minimize impact to Prescott Valley Unit 16. The floodplain management options will be designed to prevent flooding of private property and to determine the preliminary horizontal and vertical location of the future Santa Fe Loop Road. The design alternatives will be evaluated using a design matrix to determine a preferred design alternative. The matrix will evaluate each design alternative based on construction cost, impacts to property, FEMA requirements, and other design criteria required for design and construction. Lyon will provide an estimate of probable construction cost for each design alternative.

Task 3004-3012: 30% Design Plans and FEMA CLOMR Submittal

Lyon will prepare the 30% design plans for the preferred floodplain management option and Santa Fe Loop Road as described below:

- 1) Santa Fe Loop Road 30% design plans from the proposed Viewpoint Drive Extension improvements approximately 4,200 feet eastward to a location past a proposed crossing of the Agua Fria River floodplain
- 2) Floodplain containment design along entire S36-T15N-R01W that ties into the proposed Viewpoint Drive Extension drainage infrastructure at the west and Fain Cattle and Ranch land at the east

The 30% design will identify the horizontal and vertical locations of all proposed drainage infrastructure, including storm drain, culverts, and channels, levees, proposed easement or property acquisition, and roadway improvements for the extension of Santa Fe Loop. These design plans will identify construction limits based on future available funding from the Town. Lyon will also prepare an estimate of probable construction cost based on the final 30% design plans and phasing limits. Based on these design plans, Lyon will prepare the FEMA Endangered Species Act (ESA) documentation, proposed floodplain and floodway analysis, CLOMR report, property owner notifications and newspaper ads, and MT-2 forms and report letters. Lyon Engineering will coordinate with stakeholders, including, but not limited to the State Land Department, Kinder Morgan, Sanford Cohen, and Fain Land & Cattle Company.

Task 4000–Subconsultants/Reimbursables Fixed Fee of \$41,265

Task 4001-4003: Preliminary Jurisdictional Determination, Geotechnical Analysis/Report, and FEMA CLOMR Review Fee

Lyon has subcontracted Ninyo & Moore Geotechnical and Environmental Sciences Consultants to provide geotechnical analysis and recommendations for both the Unit 16 infrastructure design and the Agua Fria floodplain containment infrastructure design. A geotechnical report will be prepared to support the recommended design alternatives and 30% construction plans. Lyon Engineering has subcontracted Biozone, Inc. for the fieldwork and analysis required for the USACE PJD submittal packet and the State Land Department PJD coordination.

Project Deliverables:

Final deliverables will include a hard copy of all plans and reports, electronic copy in PDF format, and CADD files for all 30% design plans. The anticipated deliverables for this project include the following:

- Agua Fria floodplain containment 30% design plan set and 30% Opinion of Probable Construction Cost
- Santa Fe Loop Road 30% design plan set and 30% Opinion of Probable Construction Cost
- Agua Fria FEMA CLOMR approval
- Agua Fria PJD USACE (United States Army Corp of Engineers) approval
- Robert Road from Tranquil Boulevard to Santa Fe Loop Road 30% design plan set and 30% Opinion of Probable Construction Cost
- Long Mesa Drive drainage outfall and conveyance 30% design plan set and 30% Opinion of Probable Construction Cost for the following locations:
 - Stormwater crossing Long Mesa Drive approximately 1,000 feet east of Robert Road to final outfall in Agua Fria River floodplain
 - Stormwater crossing Long Mesa Drive approximately 1,600 feet east of Robert Road to final outfall in Agua Fria River floodplain
 - Mission Lane stormwater improvement outfall at Long Mesa Drive to final outfall in Agua Fria River floodplain
- Roadmap document which will include the following items:
 - Proposed limits of all improvements with project phase lines that are based on expected fiscal year budget
 - Location of required right of way and easement acquisitions
 - Affected property owner data sheet

30% Design Plan Set Content For Unit 16 and Agua Fria Improvements

- a) Existing conditions including
 - i. Right-of-way and easements
 - ii. Topography (Town of Prescott Valley 2008 Aerial Topography)
 - iii. Benchmarks

- iv. Adjacent property lines (based on Yavapai County GIS)
 - v. Existing pavement limits (Town of Prescott Valley 2008 Aerial Topography)
 - vi. Existing vertical and centerline alignments
 - vii. All existing utility information based on the best information available at the time (electric, gas, fiber, water, sewer, effluent and storm drain) located within project limits
- b) Proposed preliminary improvements including:
- i. Road and drainage alignment and configuration as described in tasks 2000 and 3000 above
 - ii. Cut and fill catch points
 - iii. Wall locations if required
 - iv. Drainage structures
 - v. Water mains conflicts and relocations
 - vi. Sewer mains conflicts and relocations
 - vii. Dry utility anticipated conflicts and relocations
 - viii. Centerline plan & profile for all required facilities including – road and drainage
 - ix. Roadway typical sections and levee typical section
 - x. Levee material specifications
 - xi. All required FEMA CLOMR submittal items including; reports, plans, and hydraulic models
 - xii. Pavement sections
 - xiii. Conceptual erosion control
 - xiv. Right-of-way including parcel and owner information
- c) 30% Engineers Cost Estimate

We appreciate the opportunity to provide engineering design services for the Town of Prescott Valley on this project. Please call or email if you have any questions regarding the Tasks included in this proposal.

Regards,
Lyon Engineering



Scott A. Lyon, P.E., R.L.S.
Vice President

Attachments:
Exhibit 1 – Project Scope Areas
Town of Prescott Valley Professional Services Agreement