

**PROFESSIONAL ENGINEERING AGREEMENT  
FOR THE  
APEX 24-INCH TRANSMISSION WATERLINE**

**EXHIBIT “A”  
SCOPE OF BASIC SERVICES**

**PURPOSE OF EXHIBIT**

This exhibit outlines the scope of work for Basic Services to be provided for the City of North Las Vegas (City) by Kleinfelder, Inc (Consultant) for the Apex 24-inch Transmission Waterline Project located in Apex, North Las Vegas along U.S. Route 93. The City reserves the right to cancel, re-prioritize, and/or alter the schedule of the Project as identified herein. Nothing in this Exhibit is to be construed to either conflict or take precedence over the terms and conditions of the primary Agreement.

**PROJECT DESCRIPTION**

The City intends to construct the extension of its water transmission system in the Apex Industrial Park (AIP) to promote growth and development in the area. The Project will serve current and future water demands and provide potable water service along U.S. 93 between Apex Power Parkway and Grand Valley Parkway in the Northern Flats West and Northern Flats Subparks.

The Project will provide for the design and construction of 2.6 miles of 24-inch diameter transmission pipeline and three pressure reducing valve stations (PRV) to transfer water between the 2975, 2670, 2545 and 2420 Pressure Zones. The construction of the Apex 24-inch Transmission Waterline will further complete the City’s master planned water system in the AIP.

The Improvements will include:

- Approximately 2.6 miles of 24-inch Ductile Iron Pipe (DIP) transmission main;
- Fiber optic conduit parallel with the 24-inch transmission main;
- Cathodic Protection;
- Restrained Joint;
- Air Release Valve and Blowoff;
- Three (3) PRV Stations;
- Waterline Access Road; and
- All necessary appurtenances to ensure a factual water line.

**STANDARDS**

The Improvements shall be designed in accordance with locally adopted standards and procedures. Such standards will include, but are not limited to:

1. Uniform Standard Specifications for Public Works' Construction Off-site Improvements, Clark County Area, Nevada, current edition.
2. Uniform Standard Drawings for Public Works' Construction Off-site Improvements, Clark County Area, Nevada, Volume I and II, current editions.

When the Project involves other infrastructure, the locally adopted standards for such shall be recognized and followed. Such standards may include, but are not limited to:

1. City of North Las Vegas Water Service District Rules and Regulations, current edition.
2. Uniform Design and Construction Standards for Water Distribution Systems, Clark County Nevada, current edition.
3. Design and Construction Standards for Wastewater Collection Systems, Southern Nevada, current edition.
4. Americans with Disabilities Act Accessibility Guidelines (ADAAG).
5. Department of Justice, Code of Federal Regulations 28 CFR Part 36, Revised as of July 1, 1994 for Americans with Disabilities (ADA).
6. City of North Las Vegas Title 17.

Consultant acknowledges and agrees that the above reference materials are not comprehensive. Consultant shall verify and add to the list as needed to complete the Project to industry care and standards, and shall not be used as a basis to seek additional compensation.

## **SCOPE OF WORK**

The scope of work is divided into five (5) Tasks as listed below. The different tasks parallel the stages associated with project implementation. Each task consists of a series of separate activity efforts.

**Task 1: Project Management** – Services related to the monitoring, reporting and coordination efforts with the City and other agencies required to effectively manage the Project.

**Task 2: Preliminary Engineering Services** – Services intended to establish the proposed configuration and establish a schematic design for the proposed Improvements before proceeding into final design for the work. The proposed Improvements and design requirements will be outlined in the Preliminary Design Report (PDR).

**Task 3: Final Design Services** – Services related to preparation of construction Contract Documents and cost estimates for the Improvements.

**Task 4: Bid Phase Support Services** – Service that will support the City’s solicitation period during the Project advertisement and award.

**Task 5: Construction Administration Support Services** – Services that will support the City during the construction activities.

## **SUBCONSULTANTS**

The following sub consultants will be used for the Project:

<b>Aerial Topography:</b>	Aerial Mapping Consultants
<b>Cathodic Protection:</b>	V&A Consulting Engineers, Inc.
<b>Utility Potholing:</b>	KCI Technologies, Inc.

Replacement of any of the above noted sub-consultants will require a two (2) week notification to the City for review that outlines the reason(s) behind the proposed change and the submission of the qualifications of the replacement firm including key personnel. Approval of such replacement does not constitute an extension of Project delivery time nor will it be used as justification to increase the Consultant’s fees.

## **TASK 1 PROJECT MANAGEMENT**

Consultant is responsible for the management of all services provide by Consultant to the City. This task is to extend across all tasks of the project for an estimated 24-month design project duration and will end after Task 4 Bid Phase Support Services. The Consultant Project Manager will monitor, report, and coordinate with the City Project Manager.

### **1.1 Project Administration**

Consultant shall:

- Perform day-to-day work to administer interrelated activities.
- Manage personnel, resources, and sub-consultants.
- Develop and monitor detailed schedules, milestones, and budgets.
- Coordinate with the City and other agencies.
- Prepare and distribute monthly detailed schedule updates.
- Draft schedules shall be submitted to the City three (3) working days prior to its due date for review and approval prior to distribution. Upon receiving City’s review, Consultant shall revise and disseminate to all impacted and affected parties within two working days.

***Deliverables:***

- *Project Schedule – PDF electronic file*
- *Schedule Updates – PDF electronic file*

## **1.2 Kick-off Meeting**

Consultant shall:

- Conduct an initial Project meeting with the City and other agencies as required within seven working days following issuance of the Notice to Proceed. This meeting will be held to review the scope of work, discuss data and information provided by the City, review the timing and intent of project deliverables, review the Project schedule, introduce key personnel, establish lines of communication, clarify the City's and other government agency requirements for the Project, and identify any missing data and information necessary to proceed with the Project. The meeting will be held in-person with availability for staff to attend virtually via MS Teams.
- Prepare the meeting agenda and meeting minutes, noting discussion issues, decisions, and action items, for review by the City prior to issuing final versions for distribution. The proposed agenda will be provided to the City at least three business days before the meeting and draft meeting minutes will be provided within two business days of the meeting.

***Deliverables:***

- *Meeting Agenda and Minutes – PDF electronic file*

## **1.3 Progress Meetings**

Consultant shall:

- Conduct a maximum of six (6) progress meetings during the Preliminary Design Phase to discuss and review the progress of the Project and identify any issues that may affect the project deliverables. The meetings will be held in-person with availability for staff to attend virtually via MS Teams.
- Prepare meeting agendas and minutes recording the discussion issues, decisions, and action items for review by the City prior to issuing final versions for distribution. The proposed agendas will be provided to the City at least three (3) business days before each meeting and draft meeting minutes shall be provided within two (2) business days of each meeting.

***Deliverables:***

- *Meeting Agendas and Minutes – PDF electronic file*

## **1.4 Utility and Entity Coordination**

Consultant shall:

- Coordinate with affected utility companies, other governmental agencies and design consultants as necessary to obtain information on existing and proposed utility facilities within the vicinity of the proposed Improvements and determine where there may be conflicts. Agencies to be contacted by the Consultant shall include, but are not limited to: City, Nevada Department of Environmental Protection (NDEP), Clark County Regional Flood Control District (CCRFCD), Nevada Department of Transportation (NDOT), Southern Nevada Water Authority (SNWA), NV Energy, CenturyLink, Southwest Gas, Cox Communications and other local and state agencies.
- Secure and review City water, sewer, and storm drainage facility GIS information, fiber optic information, and other available records in the area of the proposed Improvements.
- Provide ongoing coordination throughout the Preliminary Design and Final Design phases to ensure utility conflicts are resolved.
- Track all utility submittals and comments on a Utility Submittal Matrix.
- Conduct a maximum of two (2) meetings to coordinate project design with local entities and utilities.
- Provide two (2) potholes, including backfill, compaction, surface restoration, traffic control and permits if needed, to determine the location of underground utilities along the alignment. Pothole locations will require review and approval from the City prior to performing the work.

***Deliverables:***

- *Utility Submittal Matrix – PDF electronic file*
- *Meeting Agendas and Minutes – PDF electronic file*
- *Subsurface Utility Report – PDF electronic file*

## **TASK 2 PRELIMINARY ENGINEERING SERVICES**

Consultant will document technical and engineering decisions, recommendations, preliminary plans, PRV layouts, project descriptions, and design criteria established during the Preliminary Engineering Phase culminating in and documented in The Preliminary Design Report (PDR). The pipeline alignment has been established per the City's Apex Water and Wastewater Master Plan Update, dated July 22, 2022 which will require an assessment by Consultant to ensure it remains viable.

### **2.1 Records Review and Information Research**

Consultant shall:

- Obtain and review plans, maps, reports, record drawings, or other information that will likely affect the Project.
- Conduct site visits as necessary to complete the design of the Improvements.
- Provide ongoing supplemental research of public records during Project development.
- Coordinate with other design consultants currently working on other capital improvement projects or private developments within the area(s).

## 2.2 Hydraulic Analysis

Consultant shall:

- Prepare a Hydraulic Analysis Report of the proposed water system and evaluate system hydraulics for interim and full buildout demands.
- The Consultant will confirm the proposed system pressures and velocities meet the City's standards.
- Prepare and submit two (2) copies of the draft Hydraulic Analysis Report for review and approval to the City. Review comments will be addressed and incorporated into the Final Hydraulic Analysis Report.

### ***Deliverables:***

- *Hydraulic Analysis Report (Draft) – PDF electronic file*
- *Hydraulic Analysis Report (Final) – PDF electronic file*

## 2.3 Geotechnical Investigation

Consultant shall:

- Review available published geologic and geotechnical information along and within the vicinity of the Project.
- Drill and log fourteen (14) borings that extend to 15 to 25 feet below the existing surface along the waterline alignment, spaced no more than 1,000 feet apart. Contact Underground Service Alert (USA) as necessary for location of utilities in public easements as well as obtain encroachment permits and traffic control permits for work performed during the drilling operations.
- Log the subsurface conditions encountered in the explorations at the time of exploration as well as perform laboratory test on the boring samples to determine physical engineering characteristics including soil corrosivity tests.

- Backfill all borings with soil immediately after their completion.
- Environmental sampling and testing will not be performed in conjunction with the geotechnical exploration.
- Groundwater samples will not be collected or sampled.
- Perform engineering analyses and provide a formal report outlining observations, conclusions and recommendations for trench backfill, compaction, and pavement alternatives as to mill and overlay or remove and replace.
- Prepare and submit two (2) copies of a draft Geotechnical Report for review prior to submittal of the Final Design Report. Review comments will be addressed and incorporated into the Final Design Report.

***Deliverables:***

- *Geotechnical Report (Draft) – PDF electronic file*
- *Geotechnical Report (Final) – PDF electronic file*

## **2.4 Cathodic Protection**

Consultant shall:

- Consultant through the Cathodic Protection Engineer subconsultant, shall conduct an alignment review to assess soil corrosivity, identify potential sources of stray current interference (high voltage power lines and adjacent utilities with cathodic protection), and review proposed City facilities to assure that corrosion protection/electrical isolation is properly integrated. Corrosion analysis shall be performed by a National Association of Corrosion Engineers (NACE) Certified Cathodic Protection Specialist.
- Prepare a draft Soil Corrosivity Report with results and analysis of the soil resistivity and chemical analysis. The degree of corrosivity of the soil will be discussed with respect to the ductile iron pipes. Recommendations will be made for corrosion control of the proposed material options. Comments will be incorporated into a final Report.

***Deliverables:***

- *Soil Corrosivity Report (Draft) – PDF electronic file*
- *Soil Corrosivity Report (Final) – PDF electronic file*

## **2.5 Survey and Right-of-Way**

Consultant shall:

- Perform field survey work for gathering data to prepare construction mapping, field verify provided topography, and establish horizontal and vertical control. Construction mapping will be prepared at a scale of 1"=20' and shall include planimetric features and topographic contours. Contours intervals shall be 1-foot.
- Perform boundary survey identifying all easements, right-of-way, temporary construction easements, additional right-of-way and easements required to procure the work, and author legal descriptions association with temporary construction easements, addition right-of-way, and/or additional easements.

## 2.6 Permit Matrix

Consultant shall:

- Research permits applicable to the Project and prepare all technical data and draft applications which may be necessary to obtain regulatory permits from state and local agencies, including the City, Nevada Division of Environmental Protection (NDEP), NV Energy, CenturyLink, Kinder Morgan and others as required. The City will sign all permit applications prepared by the Consultant.

It is anticipated that the Consultant shall assist the City with the procurement of the following:

### 1. NDEP Permit to Construct a Water System

- Prepare a summary matrix of required permits. The City will provide a typical permit matrix form to the Consultant.
- Review all non-City owned utility agencies design plans related to accommodating the Consultant generated design.

#### ***Deliverables:***

- *Permit Matrix – PDF electronic file*

## 2.7 Preliminary Cost Estimate

Consultant shall:

- Prepare a preliminary opinion of probable cost of construction, and total project cost including design, permits and contingency to correspond with a 30% level of Project completion.
- Research and secure recent bid tabs of similar construction applications and utilize such information to derive a viable cost estimate taking into account the potential bid climate at the time of bid solicitation.

#### ***Deliverables:***

- *Preliminary Cost Estimate – PDF electronic file*



## **2.8 Preliminary Design Report (30% Design Submittal)**

Consultant shall prepare a PDR to serve as the foundation for development of detailed design documents. The City will review the Draft PDR and provide written comments. Responses from Consultant are required back to the City prior to the review workshop. All comments shall be incorporated where appropriate in the Final PDR.

The Consultant shall:

- Prepare and submit four (4) copies of the Draft PDR to the City for review. The PDR will include the following items:
  - Executive summary.
  - Table of contents.
  - Description of the Improvements.
  - Site review inventory, utilities and topographic features, including photos.
  - Geotechnical investigation report for the Project.
  - Calculations, drawings, exhibits and tables to support analyses and recommendations.
  - Opinion of Probable Construction Cost including preliminary bid schedule, quantities, and total Project cost.
  - Permit Matrix and status of all permits required for the improvements.
  - Right-of-way and easement requirements.
  - Drawing list and 30% plans (11"x17", true one-half size).
  - Outline of the Technical Specifications.
  - Summary of utility installations, potential conflicts, relocations and permits associated with the Improvements.
  - Meeting minutes and pertinent correspondence. The meeting will be held in-person with availability for staff to attend virtually via MS Teams. Two (2) members from the Consultant's team will attend in-person.
  - Correspondence depicting coordination with City divisions and other agencies.
  - List of existing maps, reports, and documents reviewed.

- Meet with the City and other agencies to obtain comments on the PDR and to achieve consensus on all design concepts for the Project.
- Address comments with written responses and prepare a comment matrix.
- Submit four (4) stamped copies of the Final PDR concurrent with the 90% design submittal to the City incorporating the comment matrix responses. Responses to the comment matrix will be an attachment to the Final PDR.
- Utilize personnel independent of the Project to perform a QA/QC review of the preliminary plans, specifications, and estimates prior to production and submittal.

***Deliverables:***

- *Preliminary Design Report (Draft) – PDF electronic file*
- *Written Responses to Comments on Draft PDR – PDF electronic file*
- *Workshop Materials and Minutes – PDF electronic file*
- *Preliminary Design Report (Final) – PDF electronic file*
- *Preliminary Opinion of Probable Construction Cost – PDF electronic file*

### **TASK 3 FINAL DESIGN SERVICES**

Upon receipt of written authorization by the City, the Consultant shall perform all Final Design Services necessary to provide for construction of the Improvements including furnishing plans and specifications to the City for review, approval, and printing.

#### **3.1 90% Design Submittal**

Consultant shall:

- Develop 90% design documents that incorporate all applicable review comments, that includes, but not limited to, plans, technical specifications, special conditions, and all other related documentation needed for bid solicitation and construction.
- Provide response matrix or responses on redlined plans that include responses to all previous review comments.
- Provide progress drawings and Contract Documents to the City for review and comment.

The drawing list is expected to include, but not limited to the following:

General Sheets:	5
Survey Sheets:	5
Plan and Profile Sheets:	16

Civil Detail Sheets	9
Mechanical Sheets:	3
Mechanical Detail Sheets	3
Structural Sheets	2
Instrumentation & Controls	2

- Submit plans and documents to all other affected agencies and utility companies for review and approval.
- Provide updated schedule, cost estimate, permit matrix, and utility submittal matrix.
- Utilize personnel independent of the Project to perform a QA/QC review of the 90% plans, specifications, and estimates, prior to production and submittal.

***Deliverables:***

- *90% Design Drawings – PDF electronic file*
- *90% Technical Specifications – PDF electronic file*
- *90% OPCC – PDF electronic file*
- *Response to the City’s comments on the 90% submittal documents*

### **3.2 90% Review Meeting with City Staff**

Consultant shall:

- Coordinate and conduct a 90% review meeting with the City and appropriate agencies, and conduct a detailed “plans-in-hand” on-site review.
- Address and incorporate appropriate comments from the 90% review, review meeting, and on-site review into the 100% draft plans and documents and provide written responses to all comments.

***Deliverables:***

- *Meeting Agendas and Minutes – PDF electronic file*

### **3.3 100% Design Submittal**

Consultant shall:

- Develop 100% complete design documents that incorporate all applicable review comments.
- Provide response matrix or responses on redlined plans that include responses to all previous review comments.

- Provide progress drawings and Contract Documents to the City for review and comment.
- Submit plans and documents to all other affected agencies and utility companies.
- Provide updated schedule, cost estimate, permit matrix, and utility submittal matrix.

***Deliverables:***

- *100% Design Drawings – PDF electronic file*
- *100% Technical Specifications – PDF electronic file*
- *100% OPCC – PDF electronic file*
- *Response to the City's comments on the 100% submittal documents*

### **3.4 100% Review Meeting with City Staff**

Consultant shall:

- Coordinate and conduct a 100% review meeting with the City and appropriate agencies, and conduct a detailed “plans-in-hand” on-site review.
- Address and incorporate appropriate comments from the 100% review, review meeting, and on-site review into the final draft plans and documents and provide written responses to all comments.

***Deliverables:***

- *Meeting Agendas and Minutes – PDF electronic file*

### **3.5 Permitting**

Consultant shall:

- Prepare final applications for all appropriate permits.
- Assist the City in preparing required exhibits and backup information.
- Coordinate City signatures on permit applications.
- Submit permit applications on City's behalf.
- Obtain approved permits from agencies.

### **3.6 Final Design Submittal**

Consultant shall:

- Address all final review comments and incorporate applicable comments pursuant to the City's 100% review into the final plans, contract documents, special conditions, technical specifications, bid schedule and cost estimates.
- Furnish to the City copies of all Project drawings in AutoCAD format.
- Provide one set of final, sealed, full-size original drawings (signed by the appropriate public agencies and utility companies), Contract Documents, Specifications, and bid schedule, all in a form approved by the City and suitable for reproduction as well as in digital format.
- Provide calculations, design worksheets, and other information for the City's files.
- Ensure that all drawings, specifications, and reports shall be sealed, signed, and dated for each discipline, by an appropriate professional engineer(s) licensed in Nevada.
- The City will provide the Invitation to Bid, Instructions to Bidders, Bid Proposal, Contract Award Instructions, Construction Contract and General Conditions to be included in the contract documents for the Consultant to revise to be project specific.

***Deliverables:***

- *Final design drawings – PDF electronic file & AutoCAD format*
- *Final technical specifications – PDF electronic file*
- *Final OPCC – PDF electronic file*

### **TASK 3      BID PHASE SUPPORT SERVICES**

Consultant shall:

- Attend one pre-bid conference to provide technical support to the City.
- Address questions posed by prospective bidders and stakeholders that may include revising the plans, specifications, and Engineer's cost estimate in whole or in part as a result of said questions. This task assumes the Consultant will address no more than ten Request for Information (RFI) requests and prepare no more than two addenda. Consultant errors and omissions resulting in an RFI and/or issuance of an addendum shall not count towards the maximum outlined herein.

- Confer with the City prior to revising the plans, specifications, and Engineer's cost estimate as a result of questions posed by prospective bidders and stakeholders.
- Assist the City in evaluating the bid proposals received and provide recommendations on the suitability of the bids by way of advising the City whether to reject or accept the bids and accept the lowest responsible bidder.
- Prepare one set of conformed construction drawings of the plans and specifications based on the revisions performed in any of the addenda issued during the Bid Phase Support.
- Provide electronic files of all documents prepared by the Consultant.

#### **TASK 4      CONSTRUCTION ADMINISTRATION SUPPORT SERVICES**

Consultant shall:

- Review Contractor submittals including shop drawings. This task assumes the Consultant will review no more than 24 Contractor submittals.
- Review Contractor RFIs. This task assumes the Consultant will review no more than 24 Contract RFIs. Consultant errors and omissions resulting in an RFI and/or issuance of an addendum shall not count towards the maximum outlined herein.
- Review and address any construction conflicts identified in the field.
- Modify the plans, in whole or in part, as a result of addressing an RFI or additional construction activities not defined in the construction documents.
- Support the City in preparing change orders. This task assumes no more than three (3) change orders.
- Provide in both hard copy and electronic media all documents prepared by the Consultant including field notes.
- Attend meetings as requested by the City. This task assumes the Consultant will attend no more than four (4) meetings.