

**MURRAY, SMITH & ASSOCIATES**  
**EXHIBIT A - SCOPE OF WORK**  
**CITY OF CAMAS**  
**WELL 17 PRELIMINARY ENGINEERING**

**Background**

The City of Camas (City) has an interest in developing a new groundwater source to meet its growing water supply demands and provide for a more redundant water supply system. Over the last 10 years, the City has been experiencing average annual growth of approximately 230 new housing units. The City anticipates this current growth rate to continue into the near future. The majority of this growth is occurring in the western portion of the City, within the water system 542/544 pressure zone. The City is proposing to develop its newest groundwater well, Well 17, to supply this pressure zone.

This preliminary engineering effort will evaluate City-identified potential well sites, select a preferred site, further evaluate the preferred site to include drilling a well for capacity testing, and if successful, obtaining the necessary water rights for development of the well as a municipal water source. Pacific Groundwater Group (PGG) will continue previous Well 17 groundwater investigation and permitting efforts, taking the lead with hydrogeologic and water rights permitting.

**Project Schedule**

It is anticipated that the initial well siting evaluation, drilling and testing of the well, and preparation of the water right application in accordance with the Ecology cost-reimbursement agreement program will take 12 months. An additional 8 months is anticipated for final Ecology issuance of the water right permit. For the purpose of this scope and budgeting, it is assumed all work will be completed in 20 months.

**Scope of Work Tasks**

**Task 1: Project Management**

Work under this task includes managing the subconsultant team to maintain the project schedule and budget, providing Quality Assurance/Quality Control (QA/QC) of deliverables and preparing and submitting monthly invoices along with progress reports and schedule updates. Project activities will be monitored for potential changes and, with City approval, project tasks, task budgets and approaches will be modified to keep the overall project within budget and on schedule. This task also includes similar project management tasks for PGG, including additional communication with the City, Washington Department of Ecology (Ecology), Washington Department of Health (Health), Clark County Public Health (CCPH) and Washington Department of Fish and Wildlife (WDFW) that may be required.

## ***Task Deliverables***

- Monthly invoice and status report
- Meeting agenda and minutes

## ***Assumptions***

- Project duration of 20 months assuming successful test well and processing of the water right application through the Ecology cost-reimbursement agreement program.
- A total of 6 coordination meetings with City staff including project kickoff, Ecology pre-application, site evaluation and preferred site selection, well location coordination and test well evaluation and preparation of Ecology cost-reimbursement agreement.

## ***Task 2: Identify Preferred Location for Well 17 Site***

Work under this task includes identifying and evaluating potential well sites and selecting a preferred site for further detailed evaluation and test well siting under Task 3.

Potential sites include the Underwriters Laboratory (UL) property along NW Lake Road, City-owned properties near the UL site, and the Lacamas Shores Homeowners Association (LSHA) green belt next to Lacamas Lake. Other potential sites on the west side of Lacamas Lake will also be identified for consideration, up to a total of 6 sites. This task assumes the City will lead coordination efforts with all private property owners as to the potential interest/feasibility in developing a well on their property.

### ***Subtask 2.1: Develop Overall Study Area Map and Perform Pre-Screening***

Work under this subtask includes reviewing the overall study area for potential sites and performing a pre-screening of the identified sites. A study area map will be developed that identifies the location of potential well sites and known constraints to include estimated hydrogeologic limits, wetland and environmental areas as identified by GIS, and city-owned properties.

Identified potential sites will have a “windshield survey” conducted to further identify fatal flaws. Depending upon the outcome of the pre-screening, approximately 3 to 6 sites will be selected for further evaluation.

### ***Subtask 2.2: Develop Site Selection Criteria***

Under this subtask, based on coordination with City staff, site selection criteria will be developed. Potential criteria will include, but not be limited to, the following:

- Land ownership and parcel size
- Existing / proposed land uses, development considerations and permitting requirements
- Proximity to existing water system infrastructure including distribution system piping
- Archaeological resource potential
- Existing environmental conditions and permit requirements
- Potential source vulnerability to contaminants
- Hydrogeologic suitability and water rights risks
- Cost considerations including land acquisition, permitting, and construction of on-site and required off-site facilities

### *Subtask 2.3: Site Evaluation and Preferred Site Selection*

Under this subtask, the selected sites from Subtask 2.1 will be evaluated. This feasibility analysis will provide a side-by-side comparison of all sites, identifying risks and potential fatal flaws at each location, and budget level cost considerations for each site as outlined in Subtask 2.2. Specific considerations will include:

- Site access, piping requirements and site issues
- PGG will review hydrogeologic information and assess the relative rates of potential streamflow capture from Lacamas Creek upstream of the lake
- Archaeological Services (ASCC) will complete an archaeological assessment of the potential sites including background research and literature review to assess the archaeological potential at each location.
- BergerABAM (BA) will complete a high-level overview of land use planning, permitting and environmental condition considerations
- Industrial Systems (IS) will coordinate CPU electrical service availability and requirements for providing power based on estimated pump horsepower, treatment equipment and building electrical loads
- Coordination with the City's water system planning consultant, Carollo Engineering, regarding required system integration and costs

A draft memorandum documenting the site evaluation criteria, updated study area map identifying potential sites and site evaluation matrix will be submitted to the City for review. Based on the application of the site selection criteria and discussions with City staff, a preferred site will be identified for further evaluation and siting of the test well under Task 3.

*Task Deliverables:*

- Draft and Final Site Selection Evaluation memorandum.

*Assumptions:*

- City will identify city owned properties in the study area available for possible well development.
- City will meet with private property owners to assess the feasibility of developing a well on individual properties.
- The City will coordinate and pay for water quality sampling and testing from the nearby Vanport Well for WDOH regulated contaminants and water quality data required to determine the need for water treatment facilities.
- PGG will review available hydrogeologic information for areas along the west side of Lacamas Lake in proximity to potential well sites including published studies, water well reports from the Department of Ecology, City-provided information, and previous project records. Relative rates of potential streamflow capture from Lacamas Creek upstream of the lake will be based on previous modeling work. Possible approaches to maximize the use of the Kunze Farm water rights as mitigation will be considered.
- BA will determine the general extent of wetlands, streams and/or fish and wildlife habitat conservation areas based on the review of existing documentation and windshield survey of the potential sites.

***Task 3: Preferred Site Evaluation and Testing***

Work under this task includes further detailed evaluation of the preferred well site and drilling the test as outlined in the following tasks:

*Subtask 3.1: Preferred Well Site Evaluation and Approvals*

Following the Task 2 preferred well site selection, additional archaeological evaluation and planning / permitting will be completed as follows:

- ASCC will complete an archaeological predetermination of the preferred site including a surface investigation (no greater than 1 acre), subsurface investigation to include up to 3 shovel test probes, background research and thorough review of available records, documentation, maps and other pertinent literature. The final report will be distributed to DAHP, the City and relevant tribes.
- BA will complete a shorelines and/or critical areas exemption application, including the completion of the application forms and letter requests.

Once the water right application is submitted/amended (see Task 4.1), Ecology will issue a Preliminary Permit to drill and test a production well at the site. This permit will include provisions to satisfy regarding the drilling and testing of the well which will be incorporated into the drilling plan.

Work under this subtask will include PGG coordination with the Department of Health (Health) and Clark County Public Health (CCPH) to complete required site reviews.

*Subtask 3.2: Phase 1 Environmental Site Assessment (ESA)*

A Phase 1 ESA to be completed by GRI will be performed on the preferred well site as required, particularly if the site has existing or a history of past development. If the preferred site is located on a City owned property with no documented previous development of potential contamination risk, the City may determine an ESA is not required.

The ESA will evaluate whether the potential exists for soil and/or groundwater contamination on the property and whether additional assessment would be warranted to evaluate this risk. The Phase 1 ESA will include a review of current and historical uses of the site and adjacent areas, review of government agency files for records of contaminant sources in the vicinity as outlined in ASTM E 1527-13, a physical reconnaissance of the site and visual survey of neighboring properties, and evaluation of the hydrogeologic setting of the site. Information gathered will be compiled in a report that will include conclusions regarding the risk of contamination at the site and recommendations for additional work that might be warranted.

*Subtask 3.3: Test Well Contract Document Preparation, Drilling, and Testing*

Following well site approval, PGG will prepare a well drilling plan and a set of technical specifications that describe the well construction and testing. The specifications will become the basis for the City to solicit bids from qualified well drilling contractors. The selected drilling company will be contracted directly to the City. PGG will act as the City's field representative during the well drilling and testing.

Based on current information, the proposed well will likely target the same zone in which the nearby Vanport Manufacturing well was completed. This well produced approximately 500 gpm and may have hydraulic connection to Lacamas Lake (which will be important for

maximizing yield and limiting the mitigation requirements). Given the differences in elevation between the Vanport site and a site that the City might use up the hill (about 140 feet difference), drilling to at least 300 feet is probable. It is anticipated that a 12-inch diameter well installed using air-rotary drilling techniques and a sand-packed screen design will be used. A successful well might be able to provide up to 500 gallons per minute (gpm).

MSA will work with PGG to select the final well location on the project site that meets the City's immediate and future operational needs. A preliminary site layout and concept plan will be developed for City review. Depending upon the well operational and treatment needs, site access, vehicle turnaround, and building requirements may vary.

During well construction, PGG staff will oversee the well construction and be present for key portions of the drilling process, primarily the target aquifer zone. PGG will keep close contact with the well drilling contractor throughout the drilling to ensure gathering the needed information concerning the geology encountered and that representative samples are collected. Based on the results of drilling, a screen assembly will be designed for the contractor to install. The design will be reviewed by the contractor and the City prior to ordering the screen materials. Once the contractor has placed the screen and successfully exposed it to the target aquifer, the development of the well screen will be coordinated to help maximize well efficiency and minimize sand production.

The well will be tested in accordance with the requirements of Ecology's Preliminary Permit and, if the well is expected to be sufficient as a future supply source, testing will also meet Health and CPH guidelines. Short-term testing at various pumping rates to select a final production rate, followed by a long-term test of up to 24 hours in duration is anticipated. Water level measurements will be collected by hand and using electronic transducers throughout the testing period. Water level records will also be collected for a few days before and after testing, if feasible.

### ***Task Deliverables***

- Phase 1 Environmental Site Assessment
- Archaeological predetermination report
- Shorelines and/or critical areas exemption application
- Final well drilling and testing project report for DOH source approval

### ***Assumptions***

- The City will pay all permit fees including, but not limited to, County and Health.
- For a preferred site that is not already City-owned, the City will secure all required right of entry agreements, or easements as required, and assist with property access for required site inspections. Boundary survey, easement exhibits and/or legal descriptions are not included in this scope of work.

- Completion of the test well is SEPA exempt.
- The test well will be located outside of wetlands and USACE regulated waters. A Joint Aquatic Resource Permit Application and critical areas report will not be required.
- City will work with PGG to solicit bids from qualified well drilling contractors

#### ***Task 4: Water Rights Assistance***

##### ***Subtask 4.1: Water Right Applications Submittal***

Work under this subtask includes holding a pre-application meeting with Ecology staff to discuss the selected well site, the modeled impacts, and a preliminary mitigation plan. This meeting will provide the technical and regulatory issues pertinent to the water right processing. Potential approaches include filing a new application, or requesting an amendment to the pending application G230019 to change the point of withdrawal from the Camas Meadows Golf Course to the newly selected site for Well 17.

If a new water right will be requested, PGG will prepare an *Application for Water Right* with supporting information (maps, public notice, and cover letter) for the selected Well 17 location. An amendment of the currently pending application will likewise require updates to the supporting information to support the new site.

##### ***Subtask 4.2: Prepare Phase 1 CRA Report***

Work under this subtask is contingent upon drilling a successful well. Work will include processing the water right application using Ecology's cost-reimbursement agreement (CRA) program. Work will include PGG preparing a Phase 1 CRA report that details the results of well drilling and testing and outlines proposed mitigation to offset projected impacts from use of the well.

The Phase 1 report will include a summary of the hydrogeologic setting, analysis from the well testing, identification of senior applicants in the affected basin (if any), a review of processing considerations such as consistency with the Instream Flow Rule (WAC 173-528) and Ecology's 4-part test for permit issuance, and the proposed mitigation plan. A preliminary scope of work for the Phase 2 CRA processing task will be provided.

It is anticipated that the City may need to offer two forms of mitigation to address regulatory concerns and impacts to Lacamas Creek. The Kunze Farm water rights will likely be sufficient to address streamflow capture impact upstream of Lacamas Lake. In addition, the City will likely need to address streamflow capture impacts to the lake since Lacamas Creek is closed to further appropriation above its confluence with the Washougal River (WAC 173-

528-070). Work may include working with the City to find water rights to transfer to a trust program to address any residual concerns on regulated water bodies in proximity to Well 17. The Phase 1 report will be coordinated with the City and Ecology as needed.

*Subtask 4.3: Coordinate Phase 2 CRA Processing of Permit*

It is anticipated that Ecology will require the Phase 2 CRA investigation be accomplished by another Ecology-approved contractor. Work under this subtask includes assisting the City in selecting a CRA contractor to complete the processing. This contractor will author a Report of Examination (ROE) for Ecology's review and concurrence. Work includes assisting as needed with ROE development and reviews, coordinating outreach to other stakeholders (such as the WDFW), and recommending corrections or additions to the City's mitigation plan if the processing identifies deficiencies that need to be addressed.

***Task Deliverables***

- Phase 1 CRA Report
- Final Water Right Permit Application

***Assumptions***

- Up to one meeting for the Phase 1 CRA task with the City to discuss water right mitigation.
- Up to one meeting for the Phase 2 CRA task with Ecology and the Ecology approved contractor.
- City will pay all costs associated with the Ecology water right cost reimbursement agreement processing.

**Proposed Budget**

It is proposed that the above-described work be accomplished on a time and expense basis not to exceed \$156,650 as summarized in the attached Fee Estimate.