

# **Racine Water Utility**

## **Racine Water Treatment Plant – Low Lift Pump VFD Project**

### ***Project Background***

In 2018, the Racine Water Utility (RWU) engaged CDM Smith to perform an evaluation of the existing low lift pumping system to address aging equipment and increase the reliability of the low lift pumps. The results of the evaluation were summarized in the June 2018 report. The evaluation recommended installation of new low voltage (480V) variable frequency drives (VFDs) and new motors for three of the existing low lift pumps (LLP-2, LLP-4, and LLP-5). Low lift pump LLP-3 would remain constant speed and not be modified as part of this project.

In 2020, RWU engaged CDM Smith to perform design services for the project. In addition to the items above, the project also includes valve and actuator replacements, HVAC modifications, electrical modifications, and instrumentation and controls modifications. RWU has obtained PSC approval for these improvements and intends to issue bonds to fund the project.

### ***Scope of Work***

CDM Smith will provide general office-based Construction Services as described in Paragraph 1.4 of Exhibit A.

Field inspections will be provided by the design electrical engineer on a periodic basis. Neither full time nor part time inspection by a Resident Engineer is included in this scope.

Monthly construction progress meetings will be held at the Water Treatment Plant and be attended, either virtually or in person, by either the project manager or the project electrical engineer. During months where work progress is limited, virtual meetings may be used instead of in-person meetings. For purposes of estimating, twenty half-day construction progress meetings are included in this scope.

The electrical engineer shall witness field performance tests of each VFD and attend the initial O&M training session.

### ***Assumptions***

CDM Smith has made the following assumptions:

- Per the construction contract requirements, Substantial Completion is assumed to be achieved within 585 calendar days, and Final Completion within 630 Calendar Days.
- No Resident Engineer (RE) or Resident Project Representative (RPR) is being provided by CDM Smith
- RWU will provide and install all PLC hardware and components, as well as provide the PLC and SCADA programming necessary for the desired level of functionality for control of the VFDs.

## ***Project Approach***

CDM Smith's project approach is broken into four main tasks:

- Task 1: Project Management
- Task 2: General Services and Project Controls
- Task 3: Site Visits and Startup Assistance

### **Task 1: Project Management**

The objective of this task is to assure the Project is delivered to the expectations of the Racine Water Utility. CDM Smith will provide overall project management and coordination and will be available to conference call or meet with RWU to discuss project updates, status, and critical items during the duration of the project.

### **Task 2: General Construction-Phase Services and Project Controls**

This task will include general services for the administration of the construction contract. This includes the following:

- Preparing Conformed Drawings and Specifications
- Shop Drawing Review
- Review of Contractor Requests for Information
- Review of Contractor Requests for Substitutions
- Prepare Work Change Directives, Field Orders, and Change Orders
- Applications for Payment Review (Construction Progress Reviewed Only)
- Record Drawings based on Contractor As-Builts

### **Task 3: Site Visits, Startup Assistance, and Closeout**

This task includes the following:

- Attendance of Monthly Progress Meetings, either virtually or in person
- Periodic Site Observations/Inspections
- Observe and Assist with Equipment Startup
- Final Punchlist

## ***Project Schedule***

This project would begin upon execution of the contract by RWU and be completed after final completion is issued and record drawings are delivered.

## ***Project Fee***

Payment for engineering services related to this project will be in conformance with the provisions of the Agreement as described herein for a cost plus fee amount not to exceed \$208,733

Estimated charges by phase are summarized in Table 1 below:

**Table 1 – Engineering Fee Summary**

<b>Project Task</b>	<b>Labor Hours</b>	<b>Labor Dollars</b>	<b>Other Direct Costs</b>	<b>Total</b>
Task 1: Project Management	200	\$22,226	\$0	\$22,226
Task 2: General Construction-Phase Services and Project Controls	639	\$110,006	\$0	\$110,006
Task 3: Site Visits, Startup Assistance, and Closeout	378	\$71,501	\$5,000	\$76,501
<b>Project Totals</b>	<b>1,217</b>	<b>\$203,733</b>	<b>\$5,000</b>	<b>\$208,733</b>

**EXHIBIT A  
TO AGREEMENT BETWEEN  
OWNER AND ENGINEER  
Scope of Work**

This is an exhibit attached to and made a part of the Agreement dated \_\_\_\_\_, 20\_\_\_\_, between the Racine Water Utility (OWNER) and CDM SmithS Inc. (ENGINEER) for professional services.

1.0 ENGINEER'S SERVICES

1.1 Study and Report Phase  
Not Used

1.2 Design Phase  
Not Used

1.3 Bidding or Negotiating Phase  
Not Used

1.4 Construction Phase  
During the Construction Phase:

1.4.1 General Administration of Construction Contract.  
ENGINEER shall consult with and advise OWNER and act as OWNER's representative as provided in the Standard General Conditions. The extent and limitations of the duties, responsibilities and authority of ENGINEER as assigned in said Standard General Conditions shall not be modified, except to the extent provided herein. All of OWNER's instructions to Contractor will be issued through ENGINEER who shall have authority to act on behalf of OWNER in dealings with Contractor to the extent provided in this Agreement and said Standard General Conditions except as otherwise provided in writing.

1.4.2 Visits to Site and Observation of Construction.  
In connection with observations of the work of Contractor while in progress:

1.4.2.1 ENGINEER shall make visits to the site at intervals appropriate to the various stages of construction as ENGINEER deems necessary in order to observe as an experienced and qualified design professional the progress and quality of the various aspects of Contractor's work. Such visits and observations by ENGINEER are not intended to be exhaustive or to extend to every aspect of the work in progress, or to involve detailed inspections of the work beyond the responsibilities specifically assigned to ENGINEER in this Agreement and the Contract Documents, but rather are to be limited to spot checking, selective sampling and similar methods of general observation of the work based on ENGINEER's exercise of professional judgment. Based on information obtained during such visits and such observations, ENGINEER shall endeavor to determine in general if such work is proceeding in accordance with the Contract Documents and ENGINEER shall keep OWNER informed of the progress of the work. The responsibilities of ENGINEER contained in this paragraph are expressly subject to the limitations set forth in paragraph 1.4.2.2 and other express or general limitations in this Agreement and elsewhere.

1.4.2.2 The purpose of ENGINEER's visits to the site will be to enable ENGINEER to

better carry out the duties and responsibilities assigned to and undertaken by ENGINEER during the Construction Phase, and, in addition, by the exercise of ENGINEER's efforts as an experienced and qualified design professional, to provide for OWNER a greater degree of confidence that the completed work of Contractor will conform in general to the Contract Documents and that the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents has been implemented and preserved by Contractor. On the other hand, ENGINEER shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct or have control over Contractor's work nor shall ENGINEER have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by Contractor, for safety precautions and programs incident to the work of Contractor or for any failure of Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's furnishing and performing the work. Accordingly, ENGINEER neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents.

1.4.2.3 Duties, Responsibilities and Authority of the Resident Project Representative are set forth in Exhibit B, which is not used in this agreement as Resident Project Representative is not being provided.

1.4.3 Defective Work.

During such visits and on the basis of such observations, ENGINEER shall have authority to disapprove of or reject Contractor's work while it is in progress if ENGINEER believes that such work will not produce a completed Project that conforms generally to the Contract Documents or that it will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents.

1.4.4 Clarifications and Interpretations; Field Orders.

ENGINEER shall issue necessary clarifications and interpretations of the Contract Documents as appropriate to the orderly completion of the work. Such clarifications and interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents. ENGINEER may issue Field Orders authorizing minor variations from the requirements of the Contract Documents.

1.4.5 Change Orders and Work Change Directives.

ENGINEER shall recommend Change Orders and Work Change Directives to OWNER as appropriate, and shall prepare Change Orders and Work Change Directives as required.

1.4.6 Shop Drawings

ENGINEER shall review and approve (or take other appropriate action in respect of) Shop Drawings and Samples and other data which Contractor is required to submit, but only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Such reviews and approvals or other action will not extend to means, methods, techniques, sequences or procedures of construction or to safety precautions and programs incident thereto.

1.4.7 Substitutes

ENGINEER shall evaluate and determine the acceptability of substitute or "or-equal" materials and equipment proposed by Contractor. However, services in making revisions to Drawings and Specifications occasioned by the acceptance of substitute materials or equipment other than "or-equal" items; and services after the award of the construction contract in evaluating and determining the acceptability of a substitute which is appropriate for the Project or an excessive number of substitutes will only be performed pursuant to an amendment to this Agreement for

additional compensation.

1.4.8 Inspections and Tests.

ENGINEER may require special inspections or tests of the work, and shall receive and review all certificates of inspections, tests and approvals required by laws, rules, regulations, ordinances, codes, orders or the Contract Documents. ENGINEER's review of such certificates will be for the purpose of determining that the results certified indicate compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests or approvals comply with the requirements of the Contract Documents. ENGINEER shall be entitled to rely on the results of such tests.

1.4.9 Disagreements between OWNER and Contractor

ENGINEER shall render the initial decisions on all claims of OWNER and Contractor relating to the acceptability of the work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of the work. In rendering such decisions, ENGINEER shall be fair and not show partiality to OWNER or Contractor and shall not be liable in connection with any decision rendered in good faith in such capacity.

1.4.10 Applications for Payment.

Based on ENGINEER's on-site observations as an experienced and qualified design professional and on review of Applications for Payment and the accompanying data and schedules:

1.4.10.1 ENGINEER shall determine the amounts that ENGINEER recommends Contractor be paid. Such recommendations of payment will be in writing and will constitute ENGINEER's representation to OWNER, based on such observations and review, that, to the best of ENGINEER's knowledge, information and belief, the work has progressed to the point indicated, the quality of such work is generally in accordance with the Contract Documents (subject to an evaluation of such work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents and to any other qualifications stated in the recommendation), and the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is ENGINEER's responsibility to observe the work. In the case of unit price work, ENGINEER's recommendations of payment will include final determinations of quantities and classifications of such work (subject to any subsequent adjustments allowed by the Contract Documents). The responsibilities of ENGINEER contained in paragraph 1.4.10.1 are expressly subject to the limitations set forth in paragraph 1.4.10.2 and other express or general limitations in this Agreement and elsewhere.

1.4.10.2 By recommending any payment ENGINEER shall not thereby be deemed to have represented that on-site observations made by ENGINEER to check the quality or quantity of Contractor's work as it is performed and furnished have been exhaustive, extended to every aspect of the work in progress, or involved detailed inspections of the work beyond the responsibilities specifically assigned to ENGINEER in this Agreement and the Contract Documents. Neither ENGINEER's review of Contractor's work for the purposes of recommending payments nor ENGINEER's recommendation of any payment (including final payment) will impose on ENGINEER responsibility to supervise, direct or control such work or for the means, methods, techniques, sequences or procedures of construction or safety precautions or programs incident thereto, or Contractor's compliance with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's furnishing and performing the work. It will also not impose responsibility on ENGINEER to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or to

determine that title to any of the work, materials or equipment has passed to OWNER free and clear of any liens, claims, security interests or encumbrances, or that there may not be other matters at issue between OWNER and Contractor that might affect the amount that should be paid.

1.4.11 Contractor's Completion Documents.

ENGINEER shall receive, review and transmit to OWNER with written comments maintenance and operating instructions, schedules, guarantees, Bonds, certificates or other evidence of insurance required by the Contract Documents, certificates of inspection, tests and approvals, and marked-up record documents (including Shop Drawings, Samples and other data approved as provided under paragraph 1.4.6 and marked-up record Drawings) which are to be assembled by Contractor in accordance with the Contract Documents to obtain final payment. ENGINEER's review of such documents will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

1.4.12 Substantial Completion

Following notice from Contractor that Contractor considers the entire work ready for its intended use, ENGINEER and OWNER, accompanied by Contractor, shall conduct an inspection to determine if the work is substantially complete. If after considering any objections of OWNER, ENGINEER considers the work substantially complete, ENGINEER shall deliver a certificate of Substantial Completion to OWNER and Contractor.

1.4.13 Final Notice of Acceptability of the Work.

ENGINEER shall conduct a final inspection to determine if the completed work of Contractor is acceptable so that ENGINEER may recommend, in writing, final payment to Contractor. Accompanying the recommendation for final payment, ENGINEER shall indicate that the work is acceptable (subject to the provisions of paragraph 1.4.10.2) to the best of ENGINEER's knowledge, information and belief and based on the extent of the services performed and furnished by ENGINEER under this Agreement.

1.4.14 Limitation of Responsibilities.

ENGINEER shall not be responsible for the acts or omissions of any Contractor, or of any subcontractor, any supplier, or of any other person or organization performing or furnishing any of the work. ENGINEER shall not be responsible for Contractor's failure to perform or furnish the work in accordance with the Contract Documents.

1.4.15. Duration of Construction Phase.

The Construction Phase will commence with the execution of the construction contract for the Project or any part thereof and will terminate upon written recommendation by ENGINEER of final payment.

The duties and responsibilities of ENGINEER during the Construction Phase as set forth in this paragraph 1.4 are amended and supplemented as follows:

- For the Low Lift Pump VFD Project ENGINEER will not be providing any full or part time Resident Project Representative Services.

## 2.0 OWNER'S RESPONSIBILITIES

2.1 Furnish to ENGINEER, as requested by ENGINEER for performance of Services as required by the Contract Documents, the following:

2.1.1 Data prepared by or services of others, including without limitation explorations and tests of subsurface conditions at or contiguous to the site, drawings of physical conditions in or relating

to existing surface or subsurface structures at or contiguous to the site, or hydrographic surveys;

- 2.1.2 The services of an independent testing laboratory to perform all inspections, tests and approvals of samples, materials and equipment;
- 2.1.3 Appropriate professional interpretation of all of the foregoing;
- 2.1.4 Environmental assessments, audits, investigations and impact statements, and other relevant environmental or cultural studies as to the Project, the site and adjacent areas;
- 2.1.5 Field surveys for design purposes and property, boundary, easement, right-of-way, topographic and utility surveys or data, including relevant reference points;
- 2.1.6 Property descriptions;
- 2.1.7 Zoning, deed and other land use restrictions; and
- 2.1.8 Other special data or consultations not covered in Article 2.

OWNER shall be responsible for, and ENGINEER may rely upon, the accuracy and completeness of all reports, data and other information furnished pursuant to this paragraph. ENGINEER may use such reports, data and information in performing or furnishing services under this Agreement.

- 2.2 Provide, as required by the Contract Documents, engineering surveys and staking to enable Contractor to proceed with the layout of the work, and other special field surveys.
- 2.3 Provide access to and make all provisions for ENGINEER to enter upon public and private property as required for ENGINEER to perform services under this Agreement.
- 2.4 Examine all alternate solutions, studies, reports, sketches, Drawings, Specifications, proposals and other documents presented by ENGINEER (including obtaining advice of an attorney, insurance counselor and other consultants as OWNER deems appropriate with respect to such examination) and render in writing decisions pertaining thereto.
- 2.5 Provide approvals and permits from all governmental authorities having jurisdiction to approve the portions of the Project designed or specified by ENGINEER and such approvals and consents from others as may be necessary for completion of such portions of the Project.
- 2.6 Provide, as may be required for the Project:
  - 2.6.1 Accounting, bond and financial advisory, independent cost estimating and insurance counseling services;
  - 2.6.2 Such legal services as OWNER may require or ENGINEER may reasonably request with regard to legal issues pertaining to the Project, including any that may be raised by Contractor; and
  - 2.6.3 Such auditing services as OWNER may require to ascertain how or for what purpose Contractor has used the moneys paid on account of the Contract Price.
- 2.7 Provide such inspection or monitoring services by an individual or entity other than ENGINEER as OWNER may desire to verify:
  - 2.7.1 That Contractor is complying with any law, rule, regulation, ordinance, code or order applicable to Contractor's performing and furnishing the work; or

2.7.2 That Contractor is taking all necessary precautions for safety of persons or property and complying with any special provisions of the Contract Documents applicable to safety.

ENGINEER does not undertake in this Agreement to perform the services referred to in 2.7.1 and 2.7.2 above. The identity of any individual or entity employed to perform such services and the scope of such services will be disclosed to ENGINEER.

- 2.8 Advise ENGINEER of the identity and scope of services of any independent consultants employed by OWNER to perform or furnish services in regard to the Project, including, but not limited to, Construction Management, Cost Estimating, Project Peer Review, Value Engineering, and Constructability Review. If OWNER designates a person or entity other than, or in addition to, ENGINEER to represent OWNER at the site, OWNER shall define and set forth in an exhibit that is to be mutually agreed upon and attached to and made a part of this Agreement before such services begin, the duties, responsibilities and limitations of authority of such other party and the relation thereof to the duties, responsibilities and authority of ENGINEER.
- 2.9 Prior to the commencement of the Construction Phase, notify ENGINEER of any variations in the language of the Notice of Acceptability of Work, or of any notice or certification other than such Notice that ENGINEER will be requested to provide to OWNER or third parties in connection with the financing or completion of the Project. OWNER and ENGINEER shall reach agreement on the terms of any such requested notice or certification and OWNER shall authorize such Special Services as are necessary to enable ENGINEER to provide the notice or certification requested under this paragraph.
- 2.10 If more than one prime contract is to be awarded for work designed or specified by ENGINEER, designate a person or entity to have authority and responsibility for coordinating the activities among the various prime contractors, and define and set forth the duties, responsibilities and limitations of authority of such person or entity and the relation thereof to the duties, responsibilities and authority of ENGINEER in an exhibit that is to be mutually agreed upon and attached to and made a part of this Agreement before such services begin.
- 2.11 Furnish to ENGINEER data or estimated figures as to OWNER's anticipated costs for services to be provided by others for OWNER (such as services pursuant to paragraphs 2.1, 2.2 and 2.4 through 2.11, inclusive) and other costs so that ENGINEER may make the necessary calculations to develop and periodically adjust ENGINEER's opinion of Total Project Costs.
- 2.12 Attend the pre-bid conference, bid opening, pre-construction conferences, construction progress and other job-related meetings and Substantial Completion and final payment inspections.
- 2.13 Provide labor and safety equipment to open and protect manholes and/or to operate valves and hydrants as required by the ENGINEER.
- 2.14 Bear all costs incident to compliance with the requirements of the OWNER's Responsibilities.

3.0 TIME PERIOD FOR PERFORMANCE

The time periods for the performance of ENGINEER's services as set forth in Article 2 of said Agreement are as follows:

- See attached Low Lift Pump VFD Project Construction Services Scope of Work Proposal Dated February 9, 2021.

4.0 METHOD OF PAYMENT

The method of payment for Services rendered by ENGINEER shall be as set forth below:

Work done by the ENGINEER will be paid at the direct salary cost of such services for employees plus 215% of the direct salary cost for overhead and profit, plus actual out-of-pocket expense costs. The maximum compensation for the ENGINEER'S SERVICES shall not exceed \$208,773 without authorization of the OWNER.

Direct salary cost is defined as chargeable salaries without fringe benefits.

Actual out-of-pocket expense costs are all costs other than salary costs and communication costs that are incurred during the progress of the work. The actual out-of-pocket expense costs include: air fare, automobile rental if required, mileage charges, parking, tolls, taxi, telephone, mailing, printing, reproduction, meals and lodging costs, and other miscellaneous costs incurred specifically for this project.

The charges for in-house laboratory analyses and rental of field equipment will be at the ENGINEER's regular rates.

For work done by subcontract or consultants, costs will be billed at the actual cost to the ENGINEER of such services plus 15 percent.

5.0 SPECIAL PROVISIONS

OWNER has established the following special provisions and/or other considerations or requirements in respect of the Assignment:

None