

(for use with 1910-1, 1996 Edition)

This is EXHIBIT A, part of the Agreement between
Owner and Engineer for Professional Services dated

_____, _____.

Engineer's Services

Article 1 of the Agreement is ~~amended and~~ supplemented to include the ~~following agreement of the parties provisions of this Exhibit.~~ Engineer shall provide Basic and Additional Services as set forth below.

If a reasonable reading of this Agreement is that a service is to be provided as a Basic Service, the listing of a similar service in this Agreement is not intended to limit the performance of that service as a Basic Service. Without limiting the Owner's other rights and remedies, it is agreed that services that are needed because of the failure of the Engineer to comply with this Agreement or with its duties to the Owner shall be performed or provided by the Engineer without charge. Where the Agreement states that a service will be done or goods will be provided, it will be construed to require the Engineer to do the service or provide the goods, unless the context requires otherwise.

PART 1 -- BASIC SERVICES Applies:

A1.01 Study and Report Phase

A. Engineer shall:

1. Consult with Owner to define and clarify Owner's requirements for the Project and available data.

2. Advise Owner as to the necessity of Owner's providing data or services of the types described in Exhibit B which are not part of Engineer's Basic Services, and assist Owner in obtaining such data and services.

3. Identify, consult with, and analyze requirements of governmental authorities having jurisdiction to approve the portions of the Project designed or specified by Engineer, including but not limited to mitigating measures identified in the environmental assessment.

4. Identify and evaluate four (as identified in Attachment No. 1) alternate solutions available to Owner and, after consultation with Owner, recommend to Owner those solutions which in Engineer's judgment meet Owner's requirements for the Project.

5. Prepare a report (the "Report") which will, as appropriate, contain schematic layouts, sketches and conceptual design criteria with appropriate exhibits to indicate the agreed-to requirements, considerations involved, and those alternate solutions available to Owner which Engineer recommends. This Report will be accompanied by Engineer's opinion of Total Project Costs for each solution which is so recommended for the Project with each component separately itemized, including the following, which will be separately itemized: opinion of probable Construction Cost, allowances for contingencies and for the estimated total costs of

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design, professional, and related services provided by Engineer and, on the basis of information furnished by Owner, allowances for other items and services included within the definition of Total Project Costs.

6. Perform or provide the following additional Study and Report Phase tasks or deliverables: As identified in Attachment No. 1

7. Furnish three review copies of the Report to Owner within See schedule in Attachment No. 1 days of authorization to begin services and review it with Owner.

8. Revise the Report in response to Owner's and other parties' comments, as appropriate, and furnish three final copies of the revised Report to the Owner within See schedule in Attachment No. 1 days after completion of reviewing it with Owner.

B. Engineer's services under the Study and Report Phase will be considered complete on the date when the final copies of the revised Report have been delivered to Owner.

A1.02 Preliminary Design Phase

A. After acceptance by Owner of the Report, selection by Owner of a recommended solution and indication of any specific modifications or changes in the scope, extent, character, or design requirements of the Project desired by Owner, and upon written authorization from Owner, Engineer shall:

1. On the basis of the above acceptance, selection, and authorization, prepare Preliminary Design Phase documents consisting of final design criteria, preliminary drawings, outline specifications and written descriptions of the Project.

2. Provide necessary field surveys and topographic and utility mapping for design purposes. Utility mapping will be based upon information obtained from utility owners.

3. Advise Owner if additional reports, data, information, or services of the types described in Exhibit B are necessary and assist Owner in obtaining such reports, data, information, or services.

4. Based on the information contained in the Preliminary Design Phase documents, submit a revised opinion of probable Construction Cost and any adjustments to Total Project Costs known to Engineer, which will be itemized as provided in paragraph A1.01.A.5.

5. Perform or provide the following additional Preliminary Design Phase tasks or deliverables: As identified in Attachment No. 1.

6. Furnish the Preliminary Design Phase documents to and review them with Owner.

7. Submit to Owner three final copies of the Preliminary Design Phase documents and revised opinion of probable Construction Cost within See schedule in Attachment No. 1 days after authorization to proceed with this phase.

B. Engineer's services under the Preliminary Design Phase will be considered complete on the date when final copies of the Preliminary Design Phase documents have been delivered to Owner.

A1.03 Final Design Phase

A. After acceptance by Owner of the Preliminary Design Phase documents and revised opinion of probable Construction Cost as determined in the Preliminary Design Phase, but subject to any Owner-directed modifications or changes in the scope, extent, character, or design requirements of or for the Project, and upon written authorization from Owner, Engineer shall:

1. On the basis of the above acceptance, direction, and authorization, prepare final Drawings indicating the scope, extent, and character of the Work to be performed and furnished by Contractor. Specifications will be prepared, where appropriate, in general conformance with the 16-division format of the Construction Specifications Institute.

2. Provide technical criteria, written descriptions, and design data for Owner's use in filing applications for permits from or approvals of governmental authorities having jurisdiction to review or approve the final design of the Project and assist Owner in consultations with appropriate authorities.

3. Advise Owner of any adjustments to the opinion of probable Construction Cost and any adjustments to Total Project Costs known to Engineer, itemized as provided in paragraph A1.01.A.5.

4. Perform or provide the following additional Final Design Phase tasks or deliverables:
As identified in Attachment No. 1.

5. Prepare and furnish Bidding Documents for review and approval by Owner, its legal counsel, and other advisors, as appropriate, and assist Owner in the preparation of other related documents.

6. Submit three final copies of the Bidding Documents and a revised opinion of probable Construction Cost to Owner within See schedule in Attachment No. 1 days after authorization to proceed with this phase.

B. In the event that the Work designed or specified by Engineer is to be performed or furnished under more than one prime contract, or if Engineer's services are to be separately sequenced with the work of one or more prime Contractors (such as in the case of fast-tracking), Owner and Engineer shall, prior to commencement of the Final Design Phase, develop a schedule for performance of Engineer's services during the Final Design, Bidding or Negotiating, Construction, and Post-Construction Phases in order to sequence and coordinate properly such services as are applicable to the work under such separate prime contracts. This schedule is to be prepared and included in or become an amendment to Exhibit A whether or not the work under such contracts is to proceed concurrently.

C. The number of prime contracts for Work designed or specified by Engineer upon which the Engineer's compensation has been established under this Agreement is one.

D. Engineer's services under the Final Design Phase will be considered complete on the date when the submittals required by paragraph A1.03.A.6 have been delivered to Owner.

A1.04 Bidding or Negotiating Phase

A. After acceptance by Owner of the Bidding Documents and the most recent opinion of probable Construction Cost as determined in the Final Design Phase, and upon written authorization by Owner to proceed, Engineer shall:

1. Assist Owner in advertising for and obtaining bids or negotiating proposals for the Work and, where applicable, maintain a record of prospective bidders to whom Bidding Documents have been issued, attend pre-Bid conferences, if any, and receive and process Contractor deposits or charges for the Bidding Documents.
2. Issue Addenda as appropriate to clarify, correct, or change the Bidding Documents.
3. Consult with Owner as to the acceptability of subcontractors, suppliers, and other individuals and entities proposed by Contractor for those portions of the Work as to which such acceptability is required by the Bidding Documents.
4. Perform or provide the following additional Bidding or Negotiating Phase tasks or deliverables: As indicated on Attachment No. 1.
5. Attend the Bid opening, prepare Bid tabulation sheets, and assist Owner in evaluating Bids or proposals and in assembling and awarding contracts for the Work.

As part of Basic Services, the Engineer shall perform the paragraph A1.04 services for two rounds of bids if the Owner, in its discretion, decides to bid a second round.

B. The Bidding or Negotiating Phase will be considered complete upon commencement of the Construction Phase or upon cessation of negotiations with prospective Contractors (except as may be required if Exhibit F is a part of this Agreement).

A1.05 Construction Phase

A. Upon successful completion of the Bidding and Negotiating Phase, and upon written authorization from Owner, Engineer shall:

1. General Administration of Construction Contract. Consult with Owner and act as Owner's representative as provided in the General Conditions. The extent and limitations of the duties, responsibilities and authority of Engineer as assigned in said General Conditions shall not be modified, except as Engineer and Owner may otherwise agree in writing. All of Owner's instructions to Contractor will be issued through Engineer, who shall have authority to

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act on behalf of Owner in dealings with Contractor to the extent provided in this Agreement and said General Conditions except as otherwise provided in writing.

2. Resident Project Representative (RPR). Provide the services of an RPR at the Site to assist the Engineer and to provide more extensive observation of Contractor's work. Duties, responsibilities, and authority of the RPR are as set forth in Exhibit D. The furnishing of such RPR's services will not extend Engineer's responsibilities or authority beyond the specific limits set forth elsewhere in this Agreement.

3. Selecting Independent Testing Laboratory. Assist Owner in the selection of an independent testing laboratory to perform the services identified in paragraph B2.01.0.

4. Pre-Construction Conference. Participate in a Pre-Construction Conference prior to commencement of Work at the Site.

5. Baselines and Benchmarks. As appropriate, establish baselines and benchmarks for locating the Work which in Engineer's judgment are necessary to enable Contractor to proceed.

6. Visits to Site and Observation of Construction. In connection with observations of Contractor's work in progress while it is in progress:

a. Make visits to the Site at intervals appropriate to the various stages of construction, as Engineer deems necessary based on Engineer's exercise of professional judgment, in order to observe as an experienced and qualified design professional the progress and quality of the Work. However, those visits shall be made at least once per month unless the Owner otherwise agrees. Such visits and observations by Engineer, and the Resident Project Representative, if any, are not intended to be exhaustive or to extend to every aspect of Contractor's work in progress or to involve detailed inspections of Contractor's work in progress 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 as assisted by the Resident Project Representative, if any. Based on information obtained during such visits and such observations, Engineer will determine in general if Contractor's work is proceeding in accordance with the Contract Documents, will determine if the Work is being performed in a manner indicating that the Work when completed will be in accordance with the Contract Documents, and will endeavor to guard the Owner against defects and deficiencies in the Work. ~~and~~ Engineer shall keep Owner informed in writing of the progress of the Work.

b. The purpose of Engineer's visits to, and representation by the Resident Project Representative, if any, at 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 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. 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 Contractor's work, or for any failure of Contractor to comply with Laws and Regulations 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.

7. Defective Work. Recommend to Owner that Contractor's work be disapproved and rejected while it is in progress if, on the basis of such observations, 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.

8. Clarifications and Interpretations; Field Orders. Issue necessary clarifications and interpretations of the Contract Documents as appropriate to the orderly completion of Contractor's 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 but shall promptly send all such Field Orders to the Owner's representative.

9. Change Orders and Work Change Directives. Recommend Change Orders and Work Change Directives to Owner, as appropriate, and prepare Change Orders and Work Change Directives as required.

10. Shop Drawings and Samples. Review and approve or take other appropriate action in respect to 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 and for the purpose of determining that if the Work is performed as shown by the submittals, it will be in compliance with 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. Engineer has an obligation to meet any Contractor's submittal schedule that has earlier been acceptable to Engineer. The Engineer shall determine what aspects of the Work shall be the subject of submittals, and shall not knowingly permit such aspects to proceed in the absence of approved submittals.

11. Substitutes and "or-equal." Evaluate and determine the acceptability of substitute or "or-equal" materials and equipment proposed by Contractor, but subject to the provisions of paragraph A2.02.A.2 of this Exhibit A.

12. Inspections and Tests. Require such special inspections or tests of Contractor's work as deemed reasonably necessary, and receive and review all certificates of inspections, tests, and approvals required by Laws and Regulations 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.

13. Disagreements between Owner and Contractor. Render formal written decisions on all claims of Owner and Contractor relating to the acceptability of Contractor's work or the interpretation of the requirements of the Contract Documents pertaining to the execution and progress of Contractor's 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.

14. Applications for Payment. Based on Engineer's observations as an experienced and qualified design professional and on review of Applications for Payment and accompanying supporting documentation:

a. 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, Contractor's 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 the 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 Contractor's work. In the case of unit price work, Engineer's recommendations of payment will include final determinations of quantities and classifications of Contractor's work (subject to any subsequent adjustments allowed by the Contract Documents). The responsibilities of Engineer contained in paragraph A1.05.A.6.a are expressly subject to the limitations set forth in paragraph A1.05.A.6.b and other express or general limitations in this Agreement and elsewhere.

b. By recommending any payment, Engineer shall not thereby be deemed to have represented that 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 Contractor's 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 Contractor's work in progress or for the means, methods, techniques, sequences, or procedures of construction or safety precautions or programs incident thereto, or Contractor's compliance with Laws and Regulations 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 portion of the work in progress, 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.

15. Contractor's Completion Documents.

a. Receive and review maintenance and operating instructions, schedules, and guarantees.

b. Receive bonds, certificates, or other evidence of insurance not previously submitted and required by the Contract Documents, certificates of inspection, tests and approvals, Shop Drawings, Samples and other data approved as provided under paragraph A1.05.A.10, and the annotated record documents which are to be assembled by Contractor in accordance with the Contract Documents to obtain final payment. The extent of such Engineer's review will be limited as provided in paragraph A1.05.A.10.

c. Engineer shall transmit these documents to Owner.

16. Substantial Completion. Promptly after notice from Contractor that Contractor considers the entire Work ready for its intended use, in company with Owner and Contractor, 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.

17. Additional Tasks. Perform or provide the following additional Construction Phase tasks or deliverables: As indicated in Attachment No. 1.

18. Final Notice of Acceptability of the Work. 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 also provide a notice in the form attached hereto as Exhibit E (the "Notice of Acceptability of Work") that the Work is acceptable (subject to the provisions of paragraph A1.05.A.14.b) to the best of Engineer's knowledge, information, and belief and based on the extent of the services provided by Engineer under this Agreement.

19. Time for Performance. The Engineer shall perform all of Engineer's tasks in the Construction Phase within a reasonable time, considering, among other relevant factors, the Contractor's Contract Time, schedules that the Engineer has indicated as acceptable, and the time that is appropriate for the tasks to be done to the level of professional skill and care that are required.

B. Duration of Construction Phase. The Construction Phase will commence with the execution of the first Construction Agreement for the Project or any part thereof and will terminate upon written recommendation by Engineer for final payment to Contractors. If the Project involves more than one prime contract as indicated in paragraph A1.03.C, Construction Phase services may be rendered at different times in respect to the separate contracts.

C. Limitation of Responsibilities. Engineer shall not be responsible for the acts or omissions of any Contractor, or of any of their subcontractors, suppliers, or of any other individual or entity

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performing or furnishing any of the Work. Engineer shall not be responsible for failure of any Contractor to perform or furnish the Work in accordance with the Contract Documents.

A1.06 Post-Construction Phase

A. Upon written authorization from Owner, Engineer, during the Post-Construction Phase, shall:

1. Provide assistance in connection with the testing and adjusting of Project equipment or systems.
2. Assist Owner in training Owner's staff to operate and maintain Project, equipment, and systems.
3. Assist Owner in developing procedures for control of the operation and maintenance of, and record keeping for Project equipment and systems.
4. Together with Owner, visit the Project to observe any apparent defects in the Work, assist Owner in consultations and discussions with Contractor concerning correction of any such defects, and make recommendations as to replacement or correction of Defective Work, if present.
5. Perform or provide the following additional Post-Construction Phase tasks or deliverables: As indicated on Attachment No. 1.
6. In company with Owner or Owner's representative, provide an inspection of the Project within one month before the end of the Correction Period to ascertain whether any portion of the Work is subject to correction.

B. The Post-Construction Phase services may commence during the Construction Phase and, if not otherwise modified in this Exhibit A, will terminate at the end of the Correction Period.

PART 2 -- ADDITIONAL SERVICES

A2.01 Additional Services Requiring Owner's Authorization in Advance

A. If authorized in writing by Owner, Engineer shall furnish or obtain from others Additional Services of the types listed below. These services will be paid for by Owner as indicated in Article 4 of the Agreement.

1. Preparation of applications and supporting documents (in addition to those furnished under Basic Services) for private or governmental grants, loans or advances in connection with the Project; preparation or review of environmental assessments and impact statements; review and evaluation of the effects on the design requirements for the Project of any such statements and documents prepared by others; and assistance in obtaining approvals of authorities having jurisdiction over the anticipated environmental impact of the Project.

2. Services to make measured drawings of or to investigate existing conditions or facilities, or to verify the accuracy of drawings or other information furnished by Owner.

3. Services resulting from significant changes in the scope, extent, or character of the portions of the Project designed or specified by Engineer or its design requirements including, but not limited to, changes in size, complexity, Owner's schedule, character of construction, or method of financing; and revising previously accepted studies, reports, Drawings, Specifications, or Contract Documents when such revisions are required by changes in Laws and Regulations enacted subsequent to the Effective Date of this Agreement or are due to any other causes beyond Engineer's control.

4. Services resulting from Owner's request to evaluate additional Study and Report Phase alternative solutions beyond those identified in paragraph A1.01.A.4.

5. Services required as a result of Owner's providing incomplete or incorrect Project information with respect to Exhibit B.

6. Providing renderings or models for Owner's use.

7. Undertaking investigations and studies including, but not limited to, detailed consideration of operations, maintenance, and overhead expenses; the preparation of feasibility studies, cash flow and economic evaluations, rate schedules, and appraisals; assistance in obtaining financing for the Project; evaluating processes available for licensing, and assisting Owner in obtaining process licensing; detailed quantity surveys of materials, equipment, and labor; and audits or inventories required in connection with construction performed by Owner.

8. Furnishing services of Engineer's Consultants for other than Basic Services.

9. Services attributable to more prime construction contracts than specified in paragraph A1.03.C.

10. Services during out-of-town travel required of Engineer other than for visits to the Site or Owner's office.

11. Preparing for, coordinating with, participating in and responding to structured independent review processes, including, but not limited to, construction management, cost estimating, project peer review, value engineering, and constructibility review requested by Owner; and performing or furnishing services required to revise studies, reports, Drawings, Specifications, or other Bidding Documents as a result of such review processes.

12. Preparing additional Bidding Documents or Contract Documents for alternate bids or prices requested by Owner for the Work or a portion thereof.

13. Determining the acceptability of substitute materials and equipment proposed during the Bidding or Negotiating Phase when substitution prior to the award of contracts is allowed by the Bidding Documents.

14. Assistance in connection with Bid protests, rebidding, or renegotiating contracts for construction, materials, equipment, or services, except when such assistance is required by Exhibit F or other provisions of this Agreement.

15. Providing construction surveys and staking to enable Contractor to perform its work other than as required under paragraph A1.05.A.5, and any type of property surveys or related engineering services needed for the transfer of interests in real property; and providing other special field surveys.

16. Providing Construction Phase services beyond the Contract Times set forth in Exhibit C.

17. Providing assistance in resolving any Hazardous Environmental Condition in compliance with current Laws and Regulations.

~~18. Preparing and furnishing to Owner Record Drawings showing appropriate record information based on Project annotated record documents received from Contractor.~~

19. Preparation of operation and maintenance manuals.

20. Preparing to serve or serving as a consultant or witness for Owner in any litigation, arbitration or other dispute resolution process related to the Project.

21. Providing more extensive services required to enable Engineer to issue notices or certifications requested by Owner under paragraph 6.01.G of the Agreement.

22. Other services performed or furnished by Engineer not otherwise provided for in this Agreement.

A2.02 Required Additional Services

A. Engineer shall perform or furnish, without requesting or receiving specific advance authorization from Owner, the Additional Services of the types listed below. Engineer shall advise Owner in writing promptly after starting any such Additional Services.

1. Services in connection with Work Change Directives and Change Orders to reflect changes requested by Owner so as to make the compensation commensurate with the extent of the Additional Services rendered.

2. 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 Agreement in evaluating and determining the acceptability of a substitution which is found to be inappropriate for the Project or an excessive number of substitutions.

~~3. Services resulting from significant delays, changes, or price increases occurring as a direct or indirect result of materials, equipment, or energy shortages.~~

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4. Additional or extended services during construction made necessary by (1) emergencies or acts of God endangering the Work, (2) an occurrence of a Hazardous Environmental Condition, (3) Work damaged by fire or other cause during construction, (4) a significant amount of defective, neglected, or delayed work by Contractor, (5) acceleration of the progress schedule involving services beyond normal working hours, or (6) default by Contractor.

5. Services (other than Basic Services during the Post-Construction Phase) in connection with any partial utilization of any part of the Work by Owner prior to Substantial Completion.

6. Evaluating an unreasonable claim or an excessive number of claims submitted by Contractor or others in connection with the Work.

(for use with 1910-1, 1996 Edition)

This is EXHIBIT B, consisting of 3 pages, part of the Agreement between Owner and Engineer for Professional Services dated ,

Owner's Responsibilities

Article 2 of the Agreement is amended and supplemented to include the following agreement of the parties.

B2.01 In addition to other responsibilities of Owner as set forth in this Agreement, Owner shall:

A. Provide Engineer with all criteria and full information as to Owner's requirements for the Project, including design objectives and constraints, space, capacity and performance requirements, flexibility, and expandability, and any budgetary limitations; and furnish copies of all design and construction standards which Owner will require to be included in the Drawings and Specifications; and furnish copies of Owner's standard forms, conditions, and related documents for Engineer to include in the Bidding Documents, when applicable.

B. Furnish to Engineer any other available information pertinent to the Project including reports and data relative to previous designs, or investigation at or adjacent to the Site.

C. Following Engineer's assessment of initially-available Project information and data and upon Engineer's request, furnish or otherwise make available such additional Project related information and data as is reasonably required to enable Engineer to complete its Basic and Additional Services. Such additional information or data would generally include the following:

1. Property descriptions.
2. Zoning, deed, and other land use restrictions.
3. Property, boundary, easement, right-of-way, and other special surveys or data, including establishing relevant reference points.
4. 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, with appropriate professional interpretation thereof.
5. Environmental assessments, audits, investigations and impact statements, and other relevant environmental or cultural studies as to the Project, the Site, and adjacent areas.
6. Data or consultations as required for the Project but not otherwise identified in the Agreement or the Exhibits thereto.

D. Give prompt written notice to Engineer whenever Owner observes or otherwise becomes aware of a Hazardous Environmental Condition or of any other development that affects the scope or time of performance of Engineer's services, or any defect or nonconformance in Engineer's services or in the work of any Contractor.

E. Authorize Engineer to provide Additional Services as set forth in Part 2 of Exhibit A of the Agreement as required.

F. Arrange for safe access to and make all provisions for Engineer to enter upon public and private property as required for Engineer to perform services under the Agreement. Nothing in this Agreement is intended to require ENGINEER to go onto public or private property in an unsafe manner or when it is unsafe to do so.

G. 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 advisors or consultants as Owner deems appropriate with respect to such examination) and render in writing timely decisions pertaining thereto.

H. Provide reviews, approvals, and permits from all governmental authorities having jurisdiction to approve all phases of the Project designed or specified by Engineer and such reviews, approvals, and consents from others as may be necessary for completion of each phase of the Project.

I. Provide, as required for the Project:

1. Accounting, bond and financial advisory, independent cost estimating, and insurance counseling services.
2. Legal services with regard to issues pertaining to the Project as Owner requires, Contractor raises, or Engineer reasonably requests.
3. Such auditing services as Owner requires to ascertain how or for what purpose Contractor has used the moneys paid.
4. Placement and payment for advertisement for Bids in appropriate publications.

J. 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, cost estimating, project peer review, value engineering, and constructibility review.

K. Furnish to Engineer data as to Owner's anticipated costs for services to be provided by others for Owner so that Engineer may make the necessary calculations to develop and periodically adjust Engineer's opinion of Total Project Costs.

L. If Owner designates a construction manager or an individual or entity other than, or in addition to, Engineer to represent Owner at the Site, define and set forth as an attachment to this

Exhibit B the duties, responsibilities, and limitations of authority of such other party and the relation thereof to the duties, responsibilities, and authority of Engineer.

M. If more than one prime contract is to be awarded for the 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 individual or entity and the relation thereof to the duties, responsibilities, and authority of Engineer as an attachment to this Exhibit B that is to be mutually agreed upon and made a part of this Agreement before such services begin.

N. Attend the pre-bid conferences, bid openings, pre-construction conferences, construction progress and other job related meetings, and Substantial Completion and final payment inspections.

O. Provide the services of an independent testing laboratory to perform all inspections, tests, and approvals of Samples, materials, and equipment required by the Contract Documents, or to evaluate the performance of materials, equipment, and facilities of Owner, prior to their incorporation into the Work with appropriate professional interpretation thereof.

P. Provide inspection or monitoring services by an individual or entity other than Engineer (and disclose the identity of such individual or entity to Engineer) as Owner determines necessary to verify:

1. That Contractor is complying with any Laws and Regulations applicable to Contractor's performing and furnishing the Work.
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.

Q. Provide Engineer with the findings and reports generated by the entities providing services pursuant to paragraphs B2.01.O and P.

R. Perform or provide the following additional services: As indicated in Attachment No. 1.

(for use with 1910-1, 1996 Edition)

This is EXHIBIT C, consisting of 5 pages, part of the Agreement between Owner and Engineer for Professional Services dated ., .

Payments to Engineer for Services and Reimbursable Expenses

Article 4 of the Agreement is amended and supplemented to include the following agreement of the parties:

ARTICLE 4 -- PAYMENTS TO THE Engineer

C4.01 For Basic Services Having A Determined Scope --
Lump Sum Method of Payment

A. Owner shall pay Engineer for Basic Services set forth in Exhibit A, except for services of Engineer's Resident Project Representative and Post-Construction Phase services, if any, as follows:

1. A Lump Sum amount of \$124,000 based on the following assumed distribution of compensation:

	Phase 1		
a.	Study and Report Phase –	\$ 124,000	Lump Sum
	Phase 2		
b.	Preliminary Design Phase	\$ TBD*	
c.	Final Design Phase	\$ TBD*	
d.	Bidding and Negotiating Phase	\$ TBD*	
d1.	Re-Bid Phase	\$ TBD*	
	Phase 3		
e.	Construction Phase	\$ TBD*	
		\$	

* TBD – The fee shall be determined once the Owner has selected and approved the alternative sewer system to replace the existing Turnage Heights Lift Station. The fees shall be added by an amendment to this contract.

2. Engineer may alter the distribution of compensation between individual phases noted herein to be consistent with services actually rendered, but shall not exceed the total Lump Sum amount unless approved in writing by the Owner.

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(Exhibit C - Basic Services With Determined Scope -- Lump Sum Method)

3. The Lump Sum includes compensation for Engineer's services and services of Engineer's Consultants, if any. Appropriate amounts have been incorporated in the Lump Sum to account for labor, overhead, profit, and Reimbursable Expenses.

4. The portion of the Lump Sum amount billed for Engineer's services will be based upon Engineer's reasonable estimate of the proportion of the total services actually completed during the billing period to the Lump Sum.

5. The Lump Sum is conditioned on Contract Times to complete the Work not exceeding (See schedule in Attachment No. 1) months. Should the Contract Times to complete the Work be extended beyond this period, the total compensation to Engineer shall be appropriately adjusted as the parties may agree by an amendment to this contract. Except to the extent provided in an amendment, the Owner shall not be obligated to pay any compensation greater than the Lump Sum.

6. If more prime contracts are awarded for Work designed or specified by Engineer for this Project than identified in Exhibit A, the Engineer shall be compensated an additional amount equal to \$ (To be determined as needed.) for all Basic Services for each prime contract added.

C4.02 For Basic Services Having An Undetermined Scope -- Standard Hourly Rates Method of Payment

A. Owner shall pay Engineer for Basic Services having an undetermined scope as follows:

1. Resident Project Representative Services. For services of Engineer's Resident Project Representative, if any, under paragraph A1.05A.2.a of Exhibit A, an amount equal to the cumulative hours charged to the Project by each class of Engineer's employees times Standard Hourly Rates for each applicable billing class for all Resident Project Representative services performed on the Project, plus Reimbursable Expenses and Engineer's Consultant's charges, if any. The total compensation under this paragraph is estimated to be \$ TBD* based upon Contract Times as set forth in paragraph C4.01. *To be determined based on actual alternative selected by the Owner.

2. Post-Construction Phase Services. For Post-Construction Phase services under

paragraph A1.06 of Exhibit A, an amount equal to the cumulative hours charged to the Project by each class of Engineer's employees times Standard Hourly Rates for each applicable billing class for all services performed on the Project, plus Reimbursable Expenses and Engineer's Consultant's charges, if any. The total compensation under this paragraph is estimated to be \$ TBD*. *To be determined based on actual alternative selected by the Owner.

C4.03 For Additional Services

A. Owner shall pay Engineer for Additional Services as follows:

1. General. For services of Engineer's employees engaged directly on the Project pursuant to paragraph A2.01 or A2.02 of Exhibit A, except for services as a consultant or witness under paragraph A2.01.A.20, an amount equal to the cumulative hours charged to the Project by each class of Engineer's employees times Standard Hourly Rates for each applicable billing class for all Additional Services

Sheet C-2

(Exhibit C - All Other Services/Charges -- Standard Hourly Rates Method of Payment)

performed on the Project, plus Reimbursable Expenses and Engineer's Consultant's charges, if any.

The amount of \$ 15,000 for Phase 1 shall be established for the following additional services:

Phase 1

Additional Alternative Evaluations
Additional Meetings with Third Party Stakeholders
Additional Flow Measurements
Certified Mailing Costs

Phases 2 & 3

Additional Subsurface Utility Engineering Level B
Additional Subsurface Utility Engineering Level A
Additional Phase I Environmental Site Assessment
Phase II Environmental Site Assessment
Additional Geotechnical Services
Additional Easement Surveys and Mapping
Site Plan and Zoning Permitting
Advertisement Costs for Bidding
Permit Fees
Recording Fees for Deeds and Mapping
Additional Construction Administration
Additional Construction Observation

2. Serving as a Witness. For services performed by Engineer's employees as witnesses giving testimony in any litigation, arbitration, or other legal or administrative proceeding under paragraph A2.01.A.20, at the rate of \$ 1,800 per day or any portion thereof (but compensation for time spent in preparing to testify in any such litigation, arbitration, or proceeding will be on the basis provided in paragraph C4.03.A.1). Compensation for Engineer's

Consultants for such services will be on the basis provided in paragraph C4.06.

C4.04 For Reimbursable Expenses

A. When not included in compensation for Basic Services under paragraph C4.01, Owner shall pay Engineer for Reimbursable Expenses at the rates set forth in Appendix 1 to this Exhibit C.

B. Reimbursable Expenses include the following categories: transportation and subsistence incidental thereto; obtaining bids or proposals from Contractor(s); providing and maintaining field office facilities including furnishings and utilities; subsistence and transportation of Resident Project Representative and their assistants; toll telephone calls and telegrams; reproduction of reports, Drawings, Specifications, Bidding Documents, and similar Project-related items in addition to those required under Exhibit A, and, if authorized in advance by Owner, overtime work requiring higher than regular rates. In addition, if authorized in advance by Owner, Reimbursable Expenses will also include expenses incurred for computer time and the use of other highly specialized equipment.

C. The amounts payable to Engineer for Reimbursable Expenses will be the Project-related internal expenses actually incurred or allocated by Engineer, plus all invoiced external Reimbursable Expenses allocable to the Project, the latter multiplied by a Factor of 1.15.

D. The Reimbursable Expenses Schedule will be adjusted annually (as of January 1) to reflect equitable changes in the compensation payable to Engineer.

E. This part E applies does not apply. The amounts that might be charged as Reimbursable Expenses are included in compensation for Basic Services, so there is no separate charge for Reimbursable Expenses incurred while performing Basic Services.

C4.05 Standard Hourly Rates

A. Standard Hourly Rates are set forth in Appendix 2 to this Exhibit C and include salaries and wages paid to personnel in each billing class plus the cost of customary and statutory benefits, general and administrative overhead, non-project operating costs, and operating margin or profit.

B. The Standard Hourly Rates will be adjusted annually (as of January 1) to reflect equitable changes in the compensation payable to Engineer.

C4.06 For Engineer's Consultant's Charges

A. Whenever compensation to Engineer herein is stated to include charges of Engineer's Consultants, those charges shall be the amounts billed by Engineer's Consultants to Engineer times a Factor of 1.15.

C4.07 Factors

A. The external Reimbursable Expenses and Engineer's Consultant's Factors include Engineer's overhead and profit associated with Engineer's responsibility for the administration of such services and costs.

C4.08 Other Provisions Concerning Payment

A. Progress Payments. The portion of the amounts billed for Engineer's services which are related to the services identified in paragraphs C4.02 and C4.03, will be during the billing period based on the cumulative hours charged to the Project by each class of Engineer's employees times the Standard Hourly Rate for each class plus Reimbursable Expenses and Engineer's Consultant's charges, if any.

B. Extended Contract Times. Should the Contract Times to complete the Work be extended beyond the period identified in paragraph C4.01, payment for Engineer's services shall be continued based on the Standard Hourly Rates Method of Payment.

C. Estimated Compensation Amounts

1. Engineer's estimate of the amounts that will become payable for Basic Services are only estimates for planning purposes, are not binding on the parties, and are not the minimum or maximum amounts payable to Engineer under the Agreement.

2. When estimated compensation amounts have been stated herein and it subsequently becomes apparent to Engineer that a compensation amount thus estimated will be exceeded, Engineer shall give Owner written notice thereof. Promptly thereafter Owner and Engineer shall review the matter of services remaining to be performed and compensation for such services. Owner shall either agree to such compensation exceeding said estimated amount or Owner and Engineer shall agree to a reduction in the remaining services to be rendered by Engineer, so that total compensation for such services will not exceed said estimated amount when such services are completed. If Engineer exceeds the estimated amount

before Owner and Engineer have agreed to an increase in the compensation due Engineer or a reduction in the remaining services, the

Engineer shall be paid for all services rendered hereunder only if the parties execute a written agreement to that effect.

This is Appendix 1 to EXHIBIT C, consisting of 1 pages, referred to in and part of the Agreement between Owner and Engineer for Professional Services dated _____, _____.

Reimbursable Expenses Schedule

Current agreements for engineering services stipulate that the Reimbursable Expenses are subject to review and adjustment per Exhibit C. Reimbursable expenses for services performed on the date of the Agreement are:

FAX	<u>\$ NA</u> /page
8"x11" Copies/Impression	<u>\$.10</u> /page
Blue Print Copies	<u>\$.20</u> /sq. ft.
Reproducible Copies (Mylar)	<u>\$2.00</u> /sq. ft.
Reproducible Copies (Paper)	<u>\$ NA</u> /sq. ft.
Mileage (auto)	<u>IRS Rate</u> /mile
Field Truck Daily Charge VAC	<u>\$145</u> /day
Mileage (Field Truck)	<u>\$0.85</u> /mile
Field Survey Equipment Scanner	<u>\$ 2,700</u> /day
Confined Space Equipment	<u>\$ NA</u> /day plus expenses
Resident Project Representative	<u>\$ NA</u> /month
Equipment	
Computer CPU Charge	<u>\$ NA</u> /hour
Personal Computer Charge	<u>\$ NA</u> /hour
CAD Charge	<u>\$ NA</u> /hour
CAE Terminal Charge	<u>\$ NA</u> /hour
VCR and Monitor Charge	<u>\$NA</u> /day, <u>\$NA</u> /week, or <u>\$NA</u> /month
Video Camcorder	<u>\$ NA</u> /day, plus <u>\$ NA</u> /tape
Electrical Meters Charge	<u>\$ NA</u> /week, or <u>\$ NA</u> /month
Flow Meter Charge	<u>\$ NA</u> /week, or <u>\$1,250</u> /month
Rain Gauge	<u>\$ NA</u> /week, or <u>\$250</u> /month
Sampler Charge	<u>\$ NA</u> /week, or <u>\$ NA</u> /month
Dissolved Oxygen Tester Charge	<u>\$ NA</u> /week
Fluorometer	<u>\$ NA</u> /week
Laboratory Pilot Testing Charge	<u>\$ NA</u> /week, or <u>\$ NA</u> /month
Soil Gas Kit	<u>\$ NA</u> /day
Submersible Pump	<u>\$ NA</u> /day
Water Level Meter	<u>\$ NA</u> /day, or <u>\$ NA</u> /month
Soil Sampling	<u>\$ NA</u> /sample
Groundwater Sampling	<u>\$ NA</u> /sample
Health and Safety Level D	<u>\$ NA</u> /day
Health and Safety Level C	<u>\$ NA</u> /day
Electronic Media Charge	<u>\$ NA</u> /hour
Long Distance Phone Calls	at cost
Meals and Lodging	at cost

This is Appendix 2 to EXHIBIT C, consisting of 3 pages, and part of the Agreement between Owner and Engineer for Professional Services dated , .

Standard Hourly Rates Schedule

Current agreements for engineering services stipulate that the standard hourly rates are subject to review and adjustment per Exhibit C. Hourly rates for services performed on the date of the Agreement are, in dollars per hour:

See attached 2014 Hourly Rate Schedule – Note Rates are subject to change annually.

Billing Class 9	Senior Associate	=====
Billing Class 8	Staff Manager	=====
Billing Class 7	Professional VI	=====
Billing Class 6	Professional V	=====
Billing Class 5	Professional IV	=====
Billing Class 4	Professional III	=====
Billing Class 3	Professional II	=====
Billing Class 2	Technician II	=====
Billing Class 1	Technician I	=====
Principal		=====
Support Staff		=====

2014 SCHEDULE OF HOURLY RATES

Employee Classification	Per Diem Rates (Fee/Hour)
--------------------------------	--------------------------------------

Engineering

Principal	\$260.00
Engineering Manager	\$230.00
Sr. Project Manager.....	\$190.00
Project Manager.....	\$160.00
Technical Specialist.....	\$240.00
Project Engineer IV	\$192.00
Project Engineer III	\$170.00
Project Engineer II.....	\$135.00
Project Engineer I.....	\$125.00
Engineer Intern.....	\$115.00
Designer III	\$125.00
Designer II.....	\$105.00
Designer I.....	\$84.00
Sr. CAD Technician.....	\$78.00
CAD Technician	\$63.00
Sr. Project Administrator	\$90.00
Project Administrator.....	\$78.00
Administrative Assistant	\$63.00

Construction

Construction Administrator III	\$135.00
Construction Administrator II	\$125.00
Construction Administrator I.....	\$105.00
Project Representative III	\$125.00
Project Representative II	\$105.00
Project Representative I	\$85.00

Field Services

Field Technician I.....	\$75.00
Field Technician II.....	\$100.00
Field Services Manager	\$120.00

Employee Classification	Per Diem Rates (Fee/Hour)
--------------------------------	--------------------------------------

Surveying

Sr. Surveyor/Project Manager III.....	\$205.00
Sr. Surveyor/Project Manager II	\$185.00
Sr. Surveyor/Project Manager I.....	\$148.00
Project Surveyor.....	\$117.00
Survey Intern.....	\$105.00
Sr. Survey CAD Technician.....	\$95.00
Survey CAD Technician	\$80.00
Survey Technician	\$74.00
Survey Field Supervisor	\$90.00
Project Coordinator	\$105.00
Field Survey Party (1 Person Crew).....	\$95.00
Field Survey Party (2 Person Crew).....	\$135.00
Field Survey Party (3 Person Crew).....	\$175.00
Photogrammetrist.....	\$135.00
Photogrammetric Technician	\$80.00

Subsurface Utility Engineering

Utility Engineering Sr. Project Manager.....	\$190.00
Utility Engineering Project Manager	\$160.00
Utility Engineering Technician I.....	\$69.00
Utility Engineering Technician II	\$80.00
Utility Engineering Analyst	\$90.00
Utility Engineering Specialist	\$120.00
Utility Engineering Party (2 Person Crew)	\$150.00
Utility Engineering Party (3 Person Crew)	\$185.00

Geospatial Information Systems

GIS Specialist.....	\$105.00
GIS Technician II.....	\$85.00
GIS Technician I.....	\$65.00
LiDAR Field Technician.....	\$80.00
LiDAR Technician I.....	\$65.00
LiDAR Technician II.....	\$85.00
LiDAR Technician III	\$115.00

Hydrographic Surveying

Hydrographic Specialist I.....	\$85.00
Hydrographic Specialist II.....	\$95.00

Expenses

In addition to labor, McKim & Creed bills for the following project related costs at a contractually agreed markup: printing; conference calling charges; document review, permit or recording fees paid on behalf of the client; shipping; bid advertisement; specialty materials, software or equipment rental; sub-consultant fees; costs of project related employee travel including meals, lodging, airfare and miscellaneous travel costs such as tolls, parking etc.; mileage for all company-owned vehicles (trucks) will be billed at \$0.85/mile; employee owned vehicles used for transportation related to the project will be charged at the prevailing federal mileage rate allowed by the IRS at the time the travel occurs.

McKim & Creed also bills for the cost of internal reproduction and the use of specialized equipment related to subsurface utility vacuum excavation, mobile scanning (LIDAR), and hydrographic surveying.

Rates are valid through December 31, 2014

EXHIBIT D (4 pages)
**ARTICLE 14 DUTIES, RESPONSIBILITIES, AND LIMITATIONS OF AUTHORITY
OF RESIDENT PROJECT REPRESENTATIVE**

14.1 *Resident Project Representative pursuant to Paragraph 1.01C of the Agreement*

A. ENGINEER shall furnish a Resident Project Representative (“RPR”), assistants, and other field staff to assist ENGINEER in observing progress and quality of the Work. The RPR, assistants, and other field staff under this Exhibit D may provide full time representation or may provide representation to a lesser degree.

B. Through such additional observations of Contractor’s work in progress and field checks of materials and equipment by the RPR and assistants, ENGINEER shall endeavor to provide further protection for OWNER against defects and deficiencies in the Work. However, 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 the Contractor’s Work nor shall ENGINEER have authority over or responsibility for the means, methods, techniques, sequences, or procedures selected by Contractor, for safety precautions and programs incident to the Contractor’s work in progress, for any failure of Contractor to comply with Laws and Regulations applicable to Contractor’s performing and furnishing the Work, or responsibility of construction for Contractor’s failure to furnish and perform the Work in accordance with the Contract Documents. In addition, the specific limits set forth in Section A.1.05 of Exhibit A of the Agreement are applicable.

C. The duties and responsibilities of the RPR are limited to those of ENGINEER in the Agreement with the OWNER and in the Contract Documents, and are further limited and described as follows:

1. *General:* RPR is ENGINEER’s agent at the Site, will act as directed by and under the supervision of ENGINEER, and will confer with ENGINEER regarding RPR’s actions. RPR’s dealings in matters pertaining to the Contractor’s work in progress shall in general be with ENGINEER and Contractor, keeping OWNER advised as necessary. RPR’s dealings with subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with OWNER with the knowledge of and under the direction of ENGINEER.

2. *Schedules:* Review the progress schedule, schedule of Shop Drawing and Sample submittals, and schedule of values prepared by Contractor and consult with ENGINEER concerning acceptability.

3. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.

4. *Liaison:*

a. Serve as ENGINEER’s liaison with Contractor, working principally through Contractor’s superintendent and assist in understanding the intent of the Contract Documents.

b. Assist ENGINEER in serving as OWNER’s liaison with Contractor when Contractor’s operations affect OWNER’s on-Site operations.

c. Assist in obtaining from OWNER additional details or information, when required for proper execution of the Work.

5. *Interpretation of Contract Documents:* Report to ENGINEER when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by ENGINEER.

6. *Shop Drawings and Samples:*

a. Record date of receipt of Samples and approved Shop Drawings.

- b. Receive Samples which are furnished at the Site by Contractor, and notify ENGINEER of availability of Samples for examination.
 - c. Advise ENGINEER and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by ENGINEER.
7. *Modifications:* Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report with RPR's recommendations to ENGINEER. Transmit to Contractor in writing decisions as issued by ENGINEER.
8. *Review of Work and Rejection of Defective Work:*
- a. Conduct on-Site observations of Contractor's work in progress to assist ENGINEER in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - b. Report to ENGINEER whenever RPR believes that any part of Contractor's work in progress will not produce a completed Project that conforms generally to the Contract Documents or will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise ENGINEER of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection or approval.
9. *Inspections, Tests, and System Startups:*
- a. Consult with ENGINEER in advance of scheduled major inspections, tests, and systems startups of important phases of the Work.
 - b. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate OWNER's personnel, and that Contractor maintains adequate records thereof.
 - c. Observe, record, and report to ENGINEER appropriate details relative to the test procedures and systems startups.
 - d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections, and report to ENGINEER.
10. *Records:*
- a. Maintain at the Site orderly files for correspondence, reports of job conferences, reproductions of original Contract Documents including all Change Orders, Field Orders, Work Change Directives, Addenda, additional Drawings issued subsequent to the execution of the Contract, ENGINEER's clarifications and interpretations of the Contract Documents, progress reports, Shop Drawing and Sample submittals received from and delivered to Contractor, and other Project related documents.
 - b. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, weather conditions, data relative to questions of Change Orders, Field Orders, Work Change Directives, or changed conditions, Site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to ENGINEER.
 - c. Record names, addresses and telephone numbers of all Contractors, subcontractors, and major suppliers of materials and equipment.
 - d. Maintain records for use in preparing Project documentation.
 - e. Upon completion of the Work, furnish original set of all RPR Project documentation to ENGINEER.

11. *Reports:*
 - a. Furnish to ENGINEER periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.
 - b. Draft and recommend to ENGINEER proposed Change Orders, Work Change Directives, and Field Orders. Obtain backup material from Contractor.
 - c. Furnish to ENGINEER and OWNER copies of all inspection, test, and system startup reports.
 - d. Report immediately to ENGINEER the occurrence of any Site accidents, any Hazardous Environmental Conditions, emergencies, or acts of God endangering the Work, and property damaged by fire or other causes.
12. *Payment Requests:* Review Applications for Payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to ENGINEER, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.
13. *Certificates, Operation and Maintenance Manuals:* During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Specifications to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to ENGINEER for review and forwarding to OWNER prior to payment for that part of the Work.
14. *Completion:*
 - a. Before ENGINEER issues a Certificate of Substantial Completion, submit to Contractor a list of observed items requiring completion or correction.
 - b. Observe whether Contractor has arranged for inspections required by Laws and Regulations, including but not limited to those to be performed by public agencies having jurisdiction over the Work.
 - c. Participate in a final inspection in the company of ENGINEER, OWNER, and Contractor and prepare a final list of items to be completed or corrected.
 - d. Observe whether all items on final list have been completed or corrected and make recommendations to ENGINEER concerning acceptance and issuance of the Notice of Acceptability of the Work.

D. Resident Project Representative shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).
2. Exceed limitations of ENGINEER's authority as set forth in the Agreement or the Contract Documents.
3. Undertake any of the responsibilities of Contractor, subcontractors, suppliers, or Contractor's superintendent.
4. Advise on, issue directions relative to or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work unless such advice or directions are specifically required by the Contract Documents.

5. Advise on, issue directions regarding, or assume control over safety precautions and programs in connection with the activities or operations of OWNER or Contractor.
6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by ENGINEER.
7. Accept Shop Drawing or Sample submittals from anyone other than Contractor.
8. Authorize OWNER to occupy the Project in whole or in part.

EXHIBIT E (2 pages)

NOTICE OF ACCEPTABILITY OF WORK

Project: _____

Contractor: _____

Owner: City Of Durham

Owner's Construction Contract Identification:

Effective Date of the Construction Agreement:

Construction Contract Date:

Engineer:

The undersigned Engineer hereby gives notice to the above Owner and Contractor that the completed Work furnished and performed by the Contractor under the above Contract is acceptable, expressly subject to the provisions of the related Contract Documents and the terms and conditions set forth on the reverse side hereof.

ENGINEER

By: _____

Title: _____

Dated: _____, 20_____

(Reverse side of Notice)

CONDITIONS OF NOTICE OF ACCEPTABILITY OF WORK

The Notice of Acceptability of Work (“Notice”) on the front side of this sheet is expressly made subject to the following terms and conditions to which all persons who receive said Notice and rely thereon agree:

1. Said Notice is given with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.
2. Said Notice reflects and is an expression of the professional judgment of the Engineer.
3. Said Notice is given as to the best of the Engineer’s knowledge, information, and belief as of the date hereof.
4. Said Notice is based entirely on and expressly limited by the scope of services the Engineer has been employed by the Owner to perform or furnish during construction of the Project (including observation of the Contractor’s work) under the Engineer’s Agreement with the Owner and under the Construction Contract referenced on the other side hereof, and applies only to facts that are within the Engineer’s knowledge or could reasonably have been ascertained by the Engineer as a result of carrying out the responsibilities specifically assigned to the Engineer under the Engineer’s Agreement with the Owner and the Construction Contract referenced on the other side hereof.
5. Said Notice is not a guarantee or warranty of the Contractor’s performance under the Construction Contract referenced on the other side hereof nor an assumption of responsibility for any failure of the Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents.

EXHIBIT F
ARTICLE 15 Construction Cost Limit

This Exhibit F not used.

EXHIBIT G
ARTICLE 16 Insurance

16.1 *Insurance*

A. The limits of liability for the insurance required by paragraph 6.05.A and 6.05.B of the Agreement are as follows:

1. By ENGINEER:

	Required limits of liability
a. Workers' Compensation	Statutory
b. Employer's Liability --	
(1) Each Accident	NA
(2) Disease, Policy Limit:	NA
(3) Disease, Each Employee	NA
c. General Liability --	
(1) Each Occurrence (Bodily Injury and Property Damage)	\$1,000,000
(2) General Aggregate:	\$1,000,000
d. Excess or Umbrella Liability	
(1) Each Occurrence:	\$1,000,000
(2) General Aggregate	\$1,000,000
e. Automobile Liability --	
Either [(1) and (2)], <i>or</i> (3)	
(1) Bodily Injury, each accident	NA
(2) Property Damage, each accident	NA
(3) Combined Single Limit (Bodily Injury and Property Damage, each accident)	\$1,000,000
f. Professional Liability, per claim	
(1) Maximum deductible	\$300,000
(2) Minimum aggregate limit	\$5,000,000 per claim \$7,000,000 aggregate

B. Engineer shall maintain professional liability insurance applicable to all of Engineer's services to which this Agreement applies, including coverage for all engineers, architects, and design professionals either employed by or contracted by Engineer to perform Engineer's services to which this Agreement applies. If Engineer's services to which this Agreement applies include Construction Phase services, that insurance must be in effect by the time the first of those services are performed and maintained continuously for a minimum of three full years after acceptance of the Work by Owner. If Engineer's services to which this Agreement applies do not include Construction Phase services, that insurance must be in effect by the time the first of those services are performed and maintained continuously for a minimum of three full years after the later of (i) the last providing of Engineer's services to which this Agreement applies, or (ii) the receipt by the Owner of the last invoice from Engineer for Engineer's services to which this Agreement applies.

2. By Owner: none

(end of Exhibit G)

EXHIBIT H

ARTICLE 17 Dispute Resolution

After the Owner has engaged a general contractor for construction work and during the construction administration phase of this Agreement only, the parties may avail themselves of the dispute resolution process adopted by the State Building Commission pursuant to G.S. 143-135.26(11) and G.S. 143-128(f1).

EXHIBIT I

Allocation of Risks

Exhibit I is not applicable

EXHIBIT J

ARTICLE 18 Special Provisions

18.1 (Compensation for Engineer's Errors)

A. If the Engineer creates plans or specifications containing an error that causes actual construction of a portion of Work that needs to be changed solely because of the Engineer's error, the Engineer shall pay the Owner all costs of correcting the error, including an amount to compensate the Owner for time spent by Owner's employees because of the error without regard to what other services those employees might have done for the Owner had the error not occurred.

1 (Unforeseen Conditions) An error shall not be grounds for payment under this Paragraph 18.1 if the error occurred because of physical conditions were:

- not in fact known to the Engineer,
- not in fact known to the Engineer's consultants,
- not readily apparent to the Engineer, and
- not readily apparent to the Engineer's consultants.

2 (Cost of Employees' Time) The cost of the employees' time will be calculated as follows: the time spent by any salaried employee of the Owner because of the error shall be compensated at an hourly rate equal to the employee's gross salary (using standards to determine gross salary for federal income tax purposes) during the applicable fiscal year of the Owner divided by the number of hours worked by that employee for the Owner during that fiscal year.

3 (Limits on Double Payments) If this Paragraph 18.1 is applied to compensate the Owner for an error, the Engineer shall not owe the Owner any other compensation to remove the erroneously built Work and replace it with correct Work. However, the payment of such compensation or the application of this Paragraph 18.1 shall not affect liability for personal injury or damage to property. (In the preceding sentence, "damage to property" excludes the damage suffered by the Owner for the cost of replacing the erroneously installed Work for which this Paragraph provides compensation, but it includes all other general, special, consequential, or other kinds of damage resulting from the error.)

4 (Limit on Use of Payment against Engineer) A payment by the Engineer pursuant to this Paragraph 18.1 shall be considered a compromise, and the City shall not introduce the fact of the payment in any legal action or proceeding except to the extent that compromises are admissible.

5 (Nonpayment Hereunder Not to Prevent Other Claims) If this Paragraph 18.1 is not applied so as to compensate the Owner for an error, this Paragraph 18.1 shall not be used to construe this Agreement so as to reduce any remedy that is available to the Owner because of that error. For example, to the extent an error is not compensated for because of the amount exceeds the insurance deductible, the Owner will not be deemed to have waived a claim therefor.

18.2 (Assignment of Subcontracts) All contracts between the Engineer and others to provide services on the Project, in which the services are expected to take more than one month to complete and the compensation is expected to exceed \$5,000, shall contain a provision allowing the Owner or a person designated by the Owner to assume the Engineer's rights under the contract so as to require continued performance according to the terms of the contract, provided, however, that neither the Owner nor the person designated by the Owner shall be liable for breaches or other events or occurrences that took place before it assumed the contract. The Engineer will demonstrate compliance with this Paragraph 18.2 when requested by the Owner.

(end of Exhibit J)



EXHIBIT K

Accessibility Letter of Compliance

Chapter 11, NC State Building Code, 2012
ICC/ANSI A117.1-2009



January 1, 2012

The Durham City-County Inspections Department requires independent verification of all accessible **site** elements and requirements, per the above referenced codes, for all projects which include site plans, within the city and county of Durham, North Carolina.

Chapter 2, section 201 of the 2009 ICC/ANSI A117.1 Standard and Commentary also states that . . . “compliance with the ADA should be verified independently.” This is important as the North Carolina Accessibility Code is NOT deemed compliant with the ADA standards.

To meet these requirements, each project must have a professional architect, surveyor, or engineer make an onsite evaluation of the project when completed, and verify compliance with the approved plans and the above codes, or simply, the North Carolina Accessibility Codes, then provide a sealed letter to this department confirming such.

Any discrepancies noted during the professional’s evaluation would need to be addressed to the contractor/owner/builder, and corrected, prior to a return visit by that professional to confirm corrections have been adequately made to achieve full compliance.

This on site evaluation should include, but not be limited too, slope and cross slope on accessible routes and accessible parking areas, ramps, travel distance, intermediate landings where appropriate, and access to required entrance(s) and other site elements.

A detailed analysis or description of the evaluation process is not necessary. A simple statement reflecting that the site evaluation has found the “as placed” or “as built” components to be in compliance with the applicable codes and the approved site plan. Please avoid terms such as “I think”, “I believe” or “I feel”. The evaluation should reveal to project to be in compliance or not.

Thank you for your assistance in this matter.

David Coward,
Chief Building Inspector

**ATTACHMENT NO. 1
TO
TURNAGE HEIGHTS LIFT STATION ABANDONMENT
AND
MUD CREEK OUTFALL PROJECT
FOR
CITY OF DURHAM
AND
McKIM & CREED, INC.
April 11, 2014
M&C # 131225**

Project Understanding

The City of Durham desires to abandon the existing Turnage Heights Lift Station located at the intersection of Cameron Blvd. (Hwy 751) and Erwin Road and construct approximately 7,000 LF of 18-inch gravity outfall along Mud Creek to interconnect with the City's existing 18-inch gravity outfall in the vicinity of Ridgewood and Albridge subdivisions.

It is further understood that the proposed 18-inch outfall would extend through a section of Duke Forest and near the Duke Lemur Center. There are potential environmental concerns and sensitive research areas along this corridor of Mud Creek that could preclude the extension of the 18-inch gravity outfall. Therefore, the City has decided to develop the Project in three phases. The first phase, Phase 1, will consist of the Study and Report Phase. As part of the Study and Report Phase, the City has requested to evaluate other potential alternate solutions. Phase 2 will consist of the Preliminary Design Phase through the Bid/Award Phase. The third phase, Phase 3, will be the construction phase to include Construction Administration, Construction Observation through Project Close-Out.

Phase 1

Study and Report Phase

The Study and Report Phase is comprised of the following subtasks:

Subtask - Project Management and Data Collection –

McKim & Creed (M&C) shall provide for project management and data collection services that will include:

- Prepare and attend project meetings with the City
- Maintain a project filing system throughout the life of the project
- Prepare monthly invoices for services in the City's format
- Maintain a project cost accounting system throughout the life of the project

- Prepare a written project program (WPP) to be utilized during the project
- Collect and review the various reports prepared by Black & Veatch (B&V) and Brown & Caldwell (B&C) to be utilized for the basin evaluations
- Prepare property owner notification letters
- Provide for field reconnaissance and assessment of the project area

Subtask - Flow Evaluations –

M&C will provide for flow evaluations which will include the accumulation of the proposed/projected flows for the THP subbasin, the BMP subbasin and the NHO subbasin, and will include the in-stream flow metering of the THP and NHO subbasins.

- McKim & Creed (M&C) will utilize the flow projections developed by Black & Veatch (B&V) for the THP and BMP subbasins. It is understood that flow projections will need to be developed by M&C for a portion of the NHO subbasin as currently the City has not developed flow projections for this subbasin. M&C will utilize the flow methodology developed and used by B&V and accepted by the City so as to be consistent with the previously developed flow projections. For the THP and BMP subbasins, M&C will not be developing new flow projections but rather utilizing the flow projections previously developed by B&V for the purpose of evaluating existing and proposed pipe sizes and proposed pumping rates. Flow projections will also be utilized to evaluate existing downstream infrastructure. M&C will also review the Lift Station Assessment Report prepared by Brown & Caldwell for information pertaining to the Garrett Road (Broadmoor) Lift Station. A skeletonized model will be developed for each subbasin, as needed, to assist in the evaluation of the downstream infrastructure. The City has completed drawdown tests of the Turnage Heights lift station and has provided the results to M&C. A condition assessment of the Turnage Heights Lift Station has not been performed and is not included in the scope of this Study Phase. M&C's evaluation of downstream infrastructure will include the Garrett Road Lift Station and its existing 16-inch force main, to its terminus point at the 36-inch gravity interceptor in the NH1 subbasin. Part of this evaluation will be the review and understanding of the analysis and recommendations of B&V on the Garrett Road Lift Station basin, BMP. The evaluation of the downstream infrastructure will provide for analyses of hydraulic and/or pumping capacity of the existing infrastructure with recommendations for upsizing if required. However, a condition assessment of the existing infrastructure has not been performed and is not included in the scope of this Study Phase.
- M&C will provide for in-stream flow metering of the THP and NHO subbasins. The in-stream flow metering is needed to verify and document the existing dry weather base flows and existing wet weather flows in each subbasin in order to evaluate the future projected flows to determine if the existing pipe sizes (both gravity and force main) and

if the pumping rates of the Garrett Road Lift Station are adequate. The scope of work will generally be as follows:

- McKim & Creed will develop a Preliminary Flow Meter Location Map in an effort to determine where the proposed open channel flow meters will be placed (estimated to be 4 locations, two in each subbasin). McKim & Creed will use this map as a basis for conducting flow meter installation reconnaissance. During the reconnaissance period each identified potential flow monitoring site will be evaluated to ensure that reliable data can be recovered from the location. Metering and sensor configurations shall take into account any special conditions such as surcharging, extreme depths, siltation and debris, odd shaped pipes, etc. It is of the utmost importance that the conditions that may negatively affect flow data collection be established prior to meter installation. The reconnaissance shall be conducted during a one day period.
- Using the information obtained during the reconnaissance period, McKim & Creed will prepare a flow meter installation map showing flow meter catchment boundaries. Copies of the flow meter installation map will be provided to the City for review. McKim & Creed will then begin flow meter installations at the locations identified on the flow meter installation map. Upon completion of final installation each flow meter will be monitored simultaneously for 60 days. **Note: A minimum of three (3) rainfall events are needed to provide for accuracy for projecting the wet weather conditions. If additional monitoring time is required beyond the 60 days, then the cost shall be negotiated as additional services.** McKim & Creed will be responsible for equipment calibration and ensure performance within the manufacturer's specification. Flow meters will be set to record depth and velocity measurements at 15 minute intervals at every site.
- During the flow-metering effort both remote and on-site data retrieval will occur. Each day every site's data will be downloaded and the depth and velocity readings reviewed. As anomalies are identified, McKim & Creed staff will access the affected flow monitoring site and determine the problem causing the inappropriate readings. If equipment failure is the cause that equipment will be removed and replaced within 48 hours.
- During the flow monitoring period, rainfall gauging will also be performed at one (1) location in each subbasin for a total of two (2) locations. M&C will only set one rainfall gauging station in Subbasin NHO. The City has an existing rainfall gauging station set by ADS in Subbasin THP and will make this data available to M&C. The rainfall data will be used to determine storm water inflow and rainfall induced groundwater infiltration. The rain gauges will be setup to measure rainfall accumulation in tenths of an inch, recording at 15 minute increments that will correspond with the flow monitoring intervals.

- The City also has in-stream metering in the NHO and NH1 subbasins provided by ADS. ADS also monitors the pump-run times of the existing Turnage Heights Lift Station. The City will make this data available to assist in the flow analysis.
- Using the flow meter and rainfall data, McKim & Creed shall perform a flow analysis of each flow meter service area. This will entail development of a synopsis that identifies the following flow characteristics:
 - Model Dry Day Flow
 - Model Wet Weather Flow
 - Rainfall Induced Inflow
 - Rainfall Induced Infiltration
 - Apparent Groundwater Infiltration

Subtask - Alternative Evaluations -

The project alternatives basically fall into two categories, with two alternatives in each category: gravity sewer and lift station/force main.

Please see the attached Exhibit Map indicating the four alternatives outlined below.

Gravity Sewer Alternatives

- Alternative No. 1 – Abandonment of the existing Turnage Heights Lift Station and installation of approximately 7,000 LF of 18-inch outfall along Mud Creek to the existing 18-inch gravity outfall. Both north and south sides of Mud Creek will be considered.
- Alternative No. 2 - Abandonment of the existing Turnage Heights Lift Station and extension of approximately 2,600 LF of 18-inch outfall along Hwy 751 to the existing 18-inch gravity outfall on Sandy Creek. The existing 10-inch gravity main (current discharge point of the Turnage Heights force main) will likely be replaced due to its shallow depth. This alternative will require the crossing of 15-501 at its intersection with Hwy 751.

Lift Station/Force Main Alternatives

- Alternative No. 3 – Abandonment of the existing Turnage Heights Lift Station with new lift station and force main along Hwy 751 to terminate at the existing 18-inch gravity outfall on Sandy Creek. The force main would generally follow the alignment of the existing Turnage Heights Lift Station Force Main alignment. This alternative would also evaluate reuse of the existing force main and discharge location at the 10-inch gravity line. The need for upgrade of the existing 10-inch gravity line will be evaluated.

- Alternative No. 4 – Abandonment of the existing Turnage Heights Lift Station with new lift station and force main along the US 15/501 corridor to terminate at the existing 24-inch gravity outfall on Sandy Creek near the intersection of 15/501 and Cornwallis Road.

The follow items shall be provided in order to complete the subtask for the alternative evaluations:

- Preliminary Phase I Site Assessment will consist of a database search of the government records through VERAcheck or Environmental Data Resources (EDR) and providing a one page memo of findings for each of the four (4) alternative alignments.
- McKim & Creed will assist the City in notifying property owners within or adjacent to the proposed pipe line corridors for the purposes of entering their properties for site walks, surveys, environmental evaluations, etc. Services provided will include:
 - Develop GIS map showing properties to be notified
 - Develop draft letter and owner-response form for City of Durham review
 - Develop owner address listing from available GIS parcel data
 - Mail notifications and document responses.
- Preliminary Subsurface Utility Engineering (SUE), Level B, will consist of a site inspection and an electro-magnetic sweep to determine the approximate number and type of underground utilities for each of the four (4) alternative alignments.
- Preliminary Wetland/Stream Buffer/Floodplain Review will consist of a review, evaluation, and recommendation from an environmental perspective to assist in the alignment for each of the four (4) alternate alignments and providing a brief report of the review.
- Preliminary right-of-way and easement research for each of the four (4) alternative alignments.
- Provide for a preliminary meeting and follow up meeting, attended by staff from Duke Forest - Lemur Center and City of Durham (two meetings total).
- Provide for meeting with NCDOT District Office to discuss preliminary alignment options and to obtain information for proposed NCDOT road improvement projects that might impact the preliminary alignment options.
- Provide for a meeting with the City of Durham’s staff to review the preliminary evaluations.

Subtask - Report Preparation –

M&C will prepare the Preliminary Engineering Report (PER) that will include the following items:

- Prepare the detailed information including layout and mapping/figures for the 4 alternatives for the draft PER.
- Provide for quantity take-offs and develop cost opinions for the 4 alternatives.
- Develop and write the draft PER and submit to the City's staff for review.
- Provide for a review meeting of the draft PER which will also include the data/input/information gathered at the various meetings mentioned above with the City's staff.
- Prepare the final PER document.
- Provide for a review meeting of the final PER with the City's staff to review the Final (PER) which will include a recommended alternative.

Additional Services

The following items are foreseeable tasks, but outside the current base scope of services and shall be considered additional services. Performance of these services are contingent upon written approval from the City after detailed scopes have been agreed upon.

- Providing for additional property deed research and property owner contacts beyond the scope previously indicated for Phase I Environmental Site Assessment in Basic Services.
- Providing for additional Quality Level B Subsurface Utility Engineering beyond the scope previously indicated for SUE Quality Level B in Basic Services.
- Providing for detailed wetland delineation, survey and mapping.
- Providing for easement surveying and mapping.
- Providing for geotechnical investigations.
- Providing for additional flow metering locations and additional days for metering beyond the scope previously indicated in Basic Services.

- Providing for taking paint samples at the existing Turnage Heights Lift Station for testing for lead paint.
- Providing for Phase II Environmental Site Assessments.
- Providing for soils analysis for contaminated soil, and assisting in developing/monitoring a plan to assure proper disposal of same.
- Providing for professional services and a detailed environmental investigation(s) for acquiring an Army Corps of Engineers Individual Wetlands Permit.
- Providing for assistance with wetland mitigation if required by USACE.
- Providing for an environmental assessment (EA) and a supplemental environmental assessment in accordance with the State Environmental Act if required by NCDENR.
- Providing for detailed investigations and/or surveys for archaeological sites, protected/threatened/endangered species of shellfish, fish, wildlife and natural vegetation.
- Assisting the City with easement acquisitions.
- Providing for preparing and submitting the site plan and zoning submittal packages that may be required for the project to the joint City of Durham/County of Durham Planning Department for approval of site plans.
- Providing for Quality Level A Subsurface Utility Engineering services to determine the exact horizontal and vertical location of underground utilities. Quality Level A services allow for direct inspection of underground facilities. McKim & Creed uses a non-destructive and minimally intrusive vacuum excavation method to expose utilities at critical points. Verification of type and location of each utility is recorded and reported in a document describing the utility and the surrounding work site. An estimate for Quality Level A is recommended to be established at \$11,250 (estimated 15 locations at \$750.00/hole) for project. A minimum of five location holes must be performed per mobilization of the SUE vacuum truck based on the cost of \$750.00/hole.
- Providing for hydraulic modeling beyond the scope previously indicated in Basic Services for the sewer system improvements or existing sewer system.
- Providing for detailed flow projections beyond utilizing the flow projections already developed by B&V for the THP and BMP subbasins.

- Providing for the evaluation of the Eno Economic Development District. It appears at this time that Orange County will not be proceeding with the EDD.
- Providing for design of any downstream improvements to existing infrastructure in the NHO and BMP subbasins including the Garrett Road (Broadmoor) Lift Station that may be determine as a result of the flow evaluations.
- Providing for Sewer System Evaluation Surveys (SSES) of the existing sewer systems to include pipe cleaning, CCTV inspections, smoke testing, dye testing, manhole inspections and night flow isolations.
- Providing for hydraulic modeling of Mud Creek to determine or develop No Rise Certifications, Letter of Map Revision (LOMR) and Conditional Letter of Map Revision (CLOMR) if aerial crossings of streams are required due to the requirements of the detailed design.
- Providing for the design, bidding, construction administration and construction observation for the selected alternative.
- Preparing pre-qualification documents and assisting in the pre-qualification of prime contractors/ bidders.
- Provide for preliminary meetings with the HOA for the Ridgewood and Albridge subdivisions.
- Providing for public outreach meetings.
- Providing for a project web site.

Owner's Responsibilities

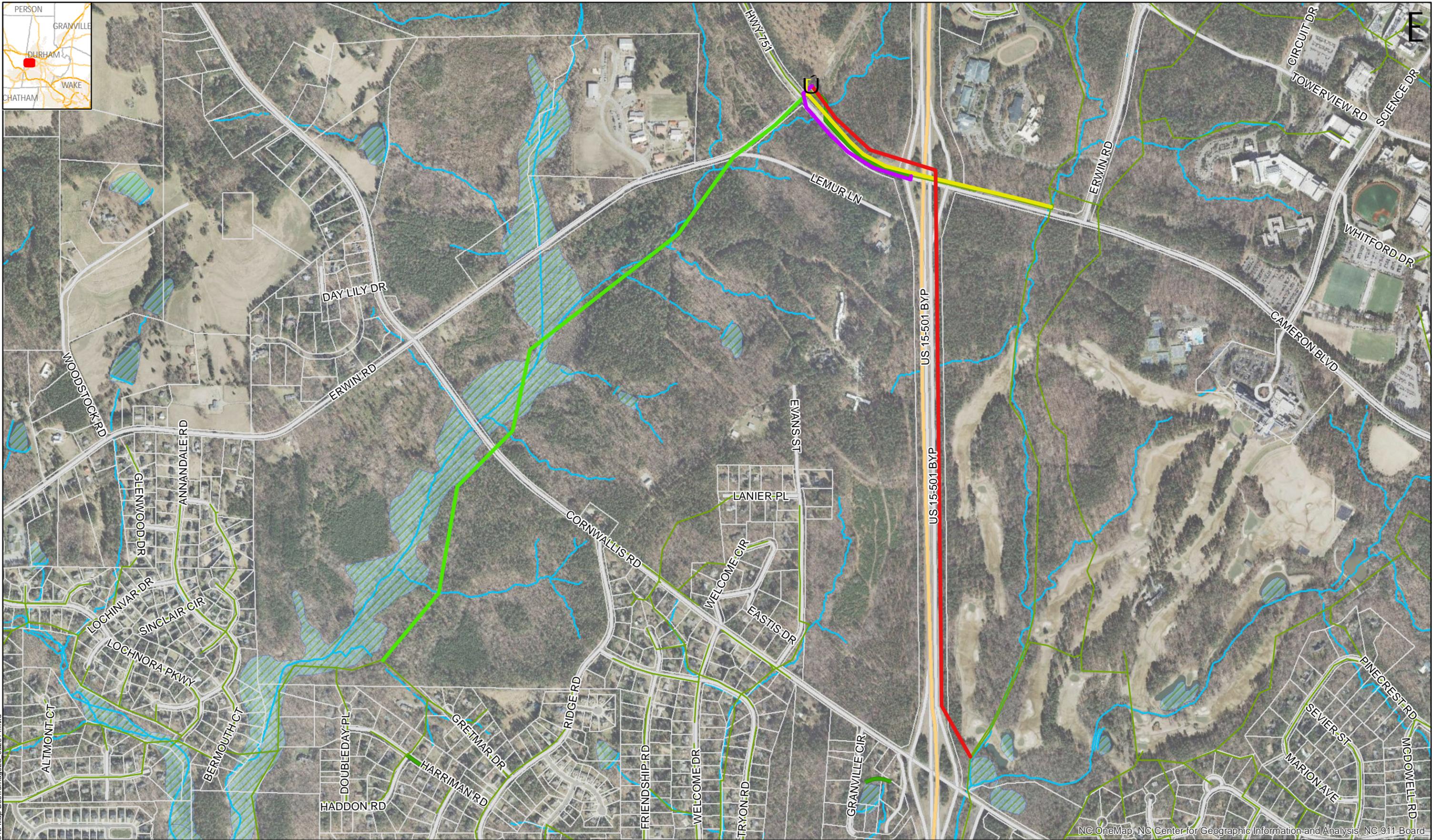
The following items shall be considered the responsibility of the Owner:

- The City shall pay for the mailing costs of the required notification letters to the property owners. Mailing costs shall be invoiced as a reimbursable expense to be paid from the additional services budget. Note that certified notification is not required.
- The City shall pay for all costs of publishing the Advertisement to Bids including any advertisements in minority publications. Advertisement costs shall be invoiced as a reimbursable expense to be paid from the additional services budget.
- The City shall be responsible for the acquisition and cost of all easements and fee simple property.

- The City shall prepare all deeds for easements and fee simple purchases.
- The City shall pay all recording fees for deeds, maps, and easement maps. Recording fees shall be invoiced as a reimbursable expense to be paid from the additional services budget.
- The City shall pay all permit application fees as required for permitting. Permit fees shall be invoiced as a reimbursable expense to be paid from the additional services budget.
- The City shall prepare all preliminary and final assessment rolls and documentation as required for annexation purposes.
- The City shall assist in field locations of the City's utilities.
- The City shall provide for excavation and uncovering of existing facilities as may be required.
- The City shall provide the GIS Geodatabase Design (Water/Sewer) for preparing record drawings.
- The City shall provide the flow projections developed by B&V for the THP and BMP subbasins.
- The City shall provide the ADS in-stream metering and Turnage Heights Lift Station monitoring data.
- City will pay for any wetland Mitigation costs.

Project Schedule

The following project schedule has been developed based on a Notice to Proceed of May 1, 2014 for Phase 1 only and that an EA will not be required. Note: The project schedule may be affected if additional in-stream flow metering is required. The final project schedule will be developed at a later date based on the actual alternative selected by the City.



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NC OneMap, NC Center for Geographic Information and Analysis, NC 911 Board

- Alt 1 - Gravity
- Alt 2 - Gravity
- Alt 3 - LS/FM
- Alt 4 - LS/FM
- U New Pump Station
- Sewer Gravity Mains
- Sewer Force Mains
- Rivers & Streams
- Parcels
- Wetlands

Turnage Heights Lift Station Abandonment Exhibit Map
 PW#131225
 City of Durham, NC

1 inch = 800 feet

