



SCHNABEL ENGINEERING SOUTH, P.C.

June 28, 2019
Revised October 10, 2019

Mr. Shannon Baldwin
Town Manager
Town of Lake Lure
2948 Memorial Highway
Lake Lure, NC 28746

**Subject: 18P21021.01, Revised Task Order No. 3, Professional Dam Engineering Services
for the Lake Lure Dam Rehabilitation Project, Lake Lure, North Carolina**

Dear Mr. Baldwin:

SCHNABEL ENGINEERING SOUTH, P.C. (Schnabel) is pleased to submit this revised task order proposal for professional dam engineering services for the Lake Lure Dam Rehabilitation project.

BACKGROUND AND PROJECT DESCRIPTION

Lake Lure Dam and its associated impoundment are owned and operated by the Town of Lake Lure (Town) and serve as the centerpiece of the community. The dam is a concrete multiple-arch buttress dam with a maximum height of about 104 feet. The dam also includes an intake tower and penstock that supply water to a hydroelectric generating station located within the dam. The dam was designed by Mees and Mees of Charlotte, NC, and construction was completed in September 1926. Lake Lure Dam is regulated by NCDEQ Dam Safety as a very large, high hazard potential structure.

Marks Enterprises of NC, PLLC (Dr. Marks) was hired by the Town in 2016 to perform an inspection of the dam. The findings and recommendations from Dr. Marks' work are included in his Phase I Study dated September 2017 and Phase II Study dated February 2018. In May 2018, NCDEQ Dam Safety issued a letter to the Town and Dr. Marks requesting additional investigations and engineering analyses, and clarifications on several of Dr. Marks' recommendations. The primary additional information requested by NCDEQ Dam Safety included finite element modeling to further evaluate the stability and anticipated structural performance of the dam, underwater investigations and non-destructive testing of the upstream face of the dam, hydrology and hydraulic (H&H) modeling of the dam and spillway, and preparation of an Emergency Action Plan (EAP).

In August 2018, the Town selected Schnabel to address the requests from NCDEQ Dam Safety and perform an updated condition assessment of the dam. The updated condition assessment was performed in accordance with our Task Order Nos. 1 and 2 with the Town dated September 17, 2018 and December 19, 2018. The scope of services associated with the condition assessment included a review of available information, topographic and bathymetric surveys, a visual inspection of the dam and appurtenances, an

underwater investigation of the dam, geologic mapping, finite element stability analyses, preliminary scour analyses, and hydrologic and hydraulic analyses. These investigations and analyses were performed by Schnabel, with support from our subconsultants Ed Holmes and Associates Land Surveyors, PA, and Underwater Construction Corporation, Inc., between September 2018 and February 2019. The results of the condition assessment were presented in our Condition Assessment Summary Report provided to the Town on February 28, 2019. Additional tasks included updating the EAP and breach inundation maps and developing a spillway gate operations plan.

Based on the results of the condition assessment, Lake Lure Dam is in overall fair condition considering its age. However, there are several items that warrant repair, monitoring, and/or additional investigation or assessment. In addition, the dam does not meet NCDEQ Dam Safety requirements for hydraulic capacity and structural stability under seismic loading conditions. The concrete gravity gated spillway sections also do not meet global stability requirements for the load cases analyzed, and there is no functional reservoir drain.

In an effort to summarize and prioritize the issues and /or deficiencies at the dam, we developed a table in our assessment report that provides a description of each issue or deficiency, a brief recommendation, and a priority level (low, medium, or high) based on considerations for safe operation of the dam, risks to the downstream community, and regulatory requirements. The table divides the items into one of five categories based on the recommended action(s): (1) Investigations, (2) Analyses, (3) Capital Improvement Projects, (4) Interim Improvements/Repairs, and (5) Routine Monitoring, Operation, and Maintenance activities. During our meeting with NCDEQ Dam Safety on April 17, 2019, the top priority recommendations were discussed and agreed upon, including developing rehabilitation alternatives to address the dam safety deficiencies along with additional investigations required to support the development of alternatives, which is the basis of this proposal.

Based on direction provided by NCDEQ Dam Safety and our discussions with the Town on October 10, 2019, this proposal was revised to only include the dam rehabilitation alternatives evaluation. A portion of the cost associated with this work will be covered by the FEMA grant funding program.

OBJECTIVE AND SCOPE OF SERVICES

The objective of our proposed services is to develop rehabilitation alternatives to address NCDEQ Dam Safety requirements and extend the service life of the dam. Budgetary costs will be developed for the rehabilitation alternatives to support the Town's future requests for funding. Services for this project will be performed under the supervision of a Professional Engineer licensed in the State of North Carolina. The scope of services for this phase of the project is described in detail in the following sections.

Task 02 – Dam Rehabilitation Alternatives Evaluation

Task 02A – Evaluation of Spillway Capacity & Dam Upgrade Alternatives

As discussed above, the current dam does not meet regulatory criteria for spillway capacity, structural stability of the concrete arches under seismic load, and sliding stability of the gravity spillway section under several load cases. In addition, there are several other items to be addressed as part of the overall dam rehabilitation, some of which still require further assessment. These items include refurbishment or replacement of the spillway gates, replacement of the intake gate hoist, evaluation of the structural

performance of the intake tower, evaluation of the low-level outlet and penstock, and further rock scour analyses.

Based on our preliminary evaluation, post-tensioned anchors appear to be the most feasible approach to stabilize the gravity spillway section. We will consider two alternatives to address the structural deficiencies of the arched section of the dam. A third alternative, consisting of a complete replacement of the dam with a new structure downstream, will be considered but not evaluated in detail as this alternative is not preferred by the Town. For the rehabilitation alternatives, we will consider several options to address the existing dam's inadequate spillway capacity.

We will perform preliminary engineering analyses to confirm hydraulic capacity and structural stability for the rehabilitation alternatives and options using conservative assumptions. The H&H model developed during the initial condition assessment phase will be used to evaluate spillway capacity upgrade options. Similarly, the 3-D finite element stability model developed during the initial condition assessment phase will be used to evaluate the stability options discussed above, supplemented with simplified 2-D stability analyses using a proprietary spreadsheet. Final evaluations of the selected alternative will require additional subsurface investigations and analyses in a later phase. A brief description of the three alternatives are as follows:

Alternative 1 – Structurally upgrade the arched dam section by providing bracing for cross-canyon seismic loads. It is also recommended that this alternative include a membrane liner installed on the upstream face of the dam to reduce seepage and deterioration of the concrete in the arches. Additionally, this alternative will include the installation of post-tensioned anchors to stabilize the gravity spillway section. To meet the required spillway capacity for this alternative, we will consider combinations of lowering some of the arched sections, armoring or raising the abutments, and improving the efficiency/capacity of the gated spillway. The hydraulic option that appears to best meet the needs of the project (e.g., technical merits, constructability, cost efficiency, etc.) will be developed and presented for this alternative.

Alternative 2 – Buttress the downstream portion of the dam by infilling the arched sections with mass concrete. The concrete would be placed in vertical lifts using the arched dam as the upstream form and constructing temporary forms on the downstream face. It is expected that a grout curtain would be installed at the upstream portion of the mass concrete buttress and that drain holes would be installed in the foundation downstream of the grout curtain and a drainage gallery would be formed into the buttress. Additional design measures will be required in two bays to accommodate the existing powerhouse and the switchyard. Similar to Alternative 1, the existing gravity spillway would be post-tensioned to meet stability requirements.

To meet spillway capacity requirements for this alternative, it is expected that the new gravity section (i.e., infilled section) would overtop when the gated spillway capacity was exceeded. The dam abutments would likely be raised and training walls would be provided to limit overtopping to the gravity portion of the dam.

As discussed above, there are several ancillary items that may require repair, refurbishment or replacement depending on additional investigations and analyses (as discussed below). For example, repair of the spillway gates may be warranted based on observations during our gate inspection and/or

future additional analyses. Similarly, stabilization of the intake tower may be necessary. These items are considered incidental to either Alternative 1 or 2 and will be included in the cost estimates and schedule evaluations presented for these alternatives.

Alternative 3 – Construct a new concrete gravity dam downstream of the existing dam (potentially several hundred feet downstream). This structure would include a new gated spillway, intake tower, and powerhouse and, as such, would require FERC licensing. A secondary overflow spillway with training walls would also be constructed to provide additional hydraulic capacity for the spillway design storm. The existing dam would be partially demolished and lower portions left in place assuming approval by permitting agencies. Significant environmental permitting efforts are expected for this alternative because it will be constructed in a new footprint.

Task 02B – Construction Cost and Schedule Estimates for the Alternatives

The purpose of this subtask is to present a preliminary engineer's opinion of probable construction cost (EOPCC) and construction schedule estimate for the rehabilitation alternatives, Alternatives 1 and 2. Schnabel will meet with a local North Carolina contractor specializing in dams and heavy construction to discuss constructability issues, access into the work area, and review unit cost items developed for the alternatives. Preliminary costs for a new pre-fabricated bridge across the dam and removal of the existing bridge will also be developed. The cost opinions developed for the alternatives will be "Class 4" estimates, according to the categories of cost estimates defined by the Association for the Advancement of Cost Engineering (AACE) International. The accuracy range for Class 4 estimates can be expected to vary from up to 30% below to up to 50% above actual costs. An appropriate level of contingency for this estimate class, likely 20% to 30%, will be applied to the costs developed for this study.

We will also develop estimated construction schedules for Alternatives 1 and 2 and review the schedule assumptions with the contractor. We will also meet with an environmental consultant to discuss USACE and NCDEQ permitting requirements and expected timeframes for such required permits. We will solicit the Town's input as well as that of NCDEQ Dam Safety when formulating the schedules.

Task 02C – Presentation of Alternatives

We will prepare a report presenting each of the alternatives, with the primary focus on Alternatives 1 and 2. The report will include the following:

- Narrative discussion of each alternative,
- Summary of the preliminary analyses used to size various components,
- Qualitative discussion of advantages and disadvantages of each alternative, including the expected service life of each alternative,
- Sketches of plan layout, profile, and typical cross sections (Alternatives 1 and 2 only),
- A discussion of permitting requirements,
- Engineer's opinion of probable construction cost (Alternatives 1 and 2 only), and
- Discussion of schedule implications (Alternatives 1 and 2 only).

EXCLUSIONS

Services not specifically identified above are not included in the scope of services under this agreement. The following services are not included in our proposed scope, but can be provided upon request:

- Attendance at meetings.
- Geotechnical investigations.
- Structural assessment of the intake tower.
- Detailed design and associated engineering evaluations of each dam rehabilitation and/or replacement concept; preliminary evaluations will be performed as stated above.
- Design of a new bridge over the dam as this is unresolved with NCDOT.
- Evaluation of improved permanent downstream access alternatives.
- Hands-on inspection of the spillway (Tainter) gates.
- Destructive evaluation at the Tainter gates to evaluate the embedded loop welded trunnion anchor rods.
- Structural analysis of the Tainter gates.
- Permitting support or payment of permitting fees.
- Preparation of funding applications or funding support.

ASSUMPTIONS & LIMITATIONS

This phase of work provides conceptual designs to be used for selection of a repaired or replacement dam. A subsurface geotechnical investigation will be required for design of the selected alternative. Modifications to the selected conceptual design will likely occur based on the results of our findings in the subsurface geotechnical investigation. Likewise, our engineer's opinion of probable cost will be modified as appropriate to support the design of the repaired or replacement dam in the next phase of work.

This proposal does not include professional fees associated with obtaining or preparing local, state, or federal permits. Upon your request, the selected conceptual rehabilitation or replacement design for the dam will be presented to NCDEQ Dam Safety, as described in Task 2C above. The Dam Safety permit application would be prepared as part of the design phase of the selected conceptual design.

For the purposes of this study, we will assume that a new one-lane bridge will be provided over the existing dam and structural modifications to the dam required to support the bridge will not be significant. The design of the bridge and the entity to perform the design is "to-be-determined". Cost estimates for the new one-lane bridge across the dam will be limited to preliminary costs for demolition of the existing bridge and installation of a new pre-fabricated, one-lane bridge across the dam.

PROJECT FEES

Our fees are summarized in the table below and are for the specific scope of services detailed herein. A detailed breakdown of our fees is included as Attachment 1, and our current Schedule of Personnel Fees is included as Attachment 2. The fee for work requested beyond the scope of services included herein will be based on our current unit prices at the time the work is authorized or a negotiated lump sum.

Breakdown of Fees by Task

Task	Fee Type	Fee ¹
Task 02 – Dam Rehabilitation Alternatives Evaluation	Lump Sum	\$138,980
Total Not-to-Exceed Task Order Amount:		\$138,980

Note 1: Fees rounded to nearest \$10.

SUMMARY AND SCHEDULE OF DELIVERABLES

We anticipate the draft deliverables associated with the dam rehabilitation alternatives evaluation (Task 02) will be provided to the Town for review within approximately 18 weeks of receipt of a signed task order. Review comments provided by the Town and other key stakeholders on the draft deliverables will be addressed and final deliverables will generally be provided within two weeks of receipt of the review comments. Draft deliverables will be provided in digital (PDF) format, and final deliverables will be provided in both digital (PDF) and hard copy format as required by the Professional Services Agreement between the Town and Schnabel dated September 12, 2018 (Attachment 3).

PAYMENTS

Invoices will be submitted monthly as a percentage of completion of the lump sum fee. Payment terms will be in accordance with the Professional Services Agreement between Schnabel and the Town.

GENERAL

The Terms and Conditions of the Professional Services Agreement between Schnabel and the Town will apply to the services proposed herein. Your acceptance of this task order proposal by signing and returning one copy of this letter will form our agreement for these services. You may transmit your acceptance of this proposal electronically with the understanding that the signature on the electronic document will be considered an original signature. This task order proposal is valid for 90 days from the date shown.

Town of Lake Lure
Lake Lure Dam – Task Order No. 3 Proposal

We appreciate the opportunity to submit our proposal for these services and look forward to continuing to work with the Town on this project. Please contact us if you have any questions regarding this proposal.

Sincerely,

SCHNABEL ENGINEERING SOUTH, P.C.



Jonathan M. Pittman, PE
Project Manager / Senior Vice President

JMP:CMJ:LSF:MEL:TJF

Attachments:

- (1) Detailed Fee Breakdown (1 Sheet)
- (2) Schedule of Personnel Fees (1 Sheet)
- (3) Professional Services Agreement and Terms and Conditions (5 Sheets)

This task order proposal is:

ACCEPTED BY: TOWN OF LAKE LURE, NC
SIGNATURE: C. Shannon Baldwin
PRINTED NAME: C. SHANNON BALDWIN
TITLE: TOWN MANAGER DATE: 10/24/19

This contract is entered into as set forth by the Lake Lure Town Council on October 15, 2019:

“To adopt Task Order No. 3 proposal as presented from Schnabel Engineering in the amount of \$138,980, \$70,000 to be paid by grant and the remaining \$68,980 to be paid by budget amendment.”

This instrument has been
preaudited in the manner required
by the Local Government Budget
and Fiscal Control Act

[illegible]



SCHEDULE OF PERSONNEL FEES – GREENSBORO, NORTH CAROLINA
Effective until December 31, 2019

Senior Consultant	\$288.00/hr
Principal	269.00/hr
Senior Associate	237.00/hr
Associate	206.00/hr
Senior Engineer/Scientist	179.00/hr
Project Engineer/Scientist	153.00/hr
Senior Staff Engineer/Scientist	131.00/hr
Staff Engineer/Scientist/Technologist	114.00/hr
Senior Technician II (see note 3)	109.00/hr
Senior Technician I (see note 3)	90.00/hr
Technician III (see note 3)	80.00/hr
Technician II (see note 3)	67.00/hr
Technician I (see note 3)	56.00/hr
CADD III	120.00/hr
CADD II	112.00/hr
CADD I	92.00/hr
Clerical/Admin	78.00/hr

NOTES:

1. Personnel fees will be based upon the actual hours charged times the appropriate hourly rate.
2. Travel by auto to and from jobs will be charged at the current IRS prevailing rate, plus a markup of 10% to cover handling, insurance and overhead. Travel by air or rail, lodging and meal expense for personnel in the field will be billed at cost plus a 10% markup.
3. Overtime for Technicians is time for work on Saturday, Sunday and national holidays, time in excess of 8 hours per day and time between the hours of 7:00 P.M. and 7:00 A.M. A surcharge of \$25/hr is added to the above rate for overtime.
4. Subcontractors and other non-labor project expenses are marked up 10% to cover the cost of handling, insurance and overhead.

PROFESSIONAL SERVICES AGREEMENT

This Professional Services Agreement ("Agreement"), dated as of September 12, 2018 (the "Effective Date"), is by and between the **Town of Lake Lure** (hereinafter "Client"), with an office at 2948 Memorial Highway, Lake Lure, NC 28746 and **Schnabel Engineering South, P.C.** (hereinafter "Consultant") with an office at 11-A Oak Branch Drive, Greensboro, NC 27408 (hereinafter collectively "Parties").

This Agreement is specific to services ("Services") required to rehabilitate and/or upgrade Lake Lure Dam, its hydro-electric generating facility, and appurtenances to meet NCDEQ Dam Safety requirements and extend the service life of the facility ("Project"). Services may include review of existing documents, investigation of the existing condition of the structure, analysis of existing and proposed conditions, design of repairs or modifications, bidding support, construction administration and oversight, and related services. The work will be performed in phases, and the Scope of Work, fees and method of compensation, schedule, and deliverables of service will be presented in individual Task Order Proposals for each phase. Services provided under this Agreement will be performed under the supervision of a Professional Engineer licensed in the State of North Carolina.

In consideration of the mutual agreements herein expressed, the Parties contract, covenant, and agree as follows:

1. SCOPE OF SERVICES/COMPENSATION.

1.1 Consultant shall perform the Services set forth in individual Task Orders, which shall be governed by this Agreement. Each executed Task Order shall include the Scope of Work, fee compensation amounts and method of billing, the schedule of performance, and descriptions of the deliverables of Services..

1.2 Client shall pay Consultant for Services rendered under this Agreement on the basis set forth in each executed Task Order.

2. TERM OF AGREEMENT. Upon execution by the Parties, this Agreement shall have the Effective Date as set forth above and shall remain in force until all obligations related to the Services have been fulfilled, unless sooner terminated as provided herein.

3. ENTIRE AGREEMENT.

3.1 The Agreement between Consultant and Client consists of this Agreement, executed Task Orders, and any exhibits or attachments attached or incorporated herein. Together these elements will constitute the entire Agreement, superseding all prior written or oral negotiations, statements, representations, correspondence, and/or agreements. The Services to be provided by Consultant pursuant to this Agreement are described in each executed Task Order and include the Scope of Work. Both Client and Consultant must mutually acknowledge any changes to this Agreement in writing. All work performed by Consultant on or relating to the Project is subject to the terms and limitations of this Agreement.

3.2 If work is performed, but the parties do not reach agreement concerning modifications to the Scope of Work or compensation, then the terms and conditions of this Agreement apply to such work. Disputes concerning modifications to Scope of Work or compensation shall be resolved pursuant to Article 15, "Dispute Resolution."

4. STANDARD OF CARE, DISCLAIMER OF WARRANTIES.

4.1 Consultant shall perform Services under this Agreement in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions. NO OTHER REPRESENTATION AND NO WARRANTY OR GUARANTEE, EITHER EXPRESS OR IMPLIED, IS INCLUDED OR INTENDED BY THIS AGREEMENT.

5. SITE ACCESS, SITE CONDITIONS, SAMPLES.

5.1 Client will provide rights of entry and access for Consultant to perform its Services.

5.2 Consultant will take reasonable precautions to avoid damage or injury to subterranean structures or utilities in the prosecution of his work. Client agrees to advise Consultant of known or

suspected underground features in the area of the work, and Consultant will not be responsible for damage to below grade features not brought to its attention, or incorrectly shown on plans provided.

5.3 Client shall promptly pay and be responsible for the removal and lawful disposal of contaminated samples and cuttings, and hazardous substances, unless other arrangements are mutually agreed in writing.

6. OWNERSHIP OF DOCUMENTS, RESTRICTIONS ON REUSE.

6.1 All documents, including opinions, conclusions, certificates, reports, drawings and specifications and other documents, prepared or furnished by Consultant and Consultant's independent professional consultants pursuant to this Agreement (collectively "Documents") are instruments of Service. Consultant retains all ownership and property interests in the Documents, including all common law, statutory and other reserved rights, including copyrights, whether or not the Project is completed. Consultant will provide signed and sealed versions of the final deliverables to the Client in both hard copy and electronic format. Client may make and retain copies of them for information and reference in connection with permitting, financing, bidding and construction of renovations and facility improvements relating to the Lake Lure Dam, Hydro-electric Plant and appurtenances as addressed by this Project; however, such copies are not intended or represented to be suitable for reuse by others, and may not be used on other projects or for additions to this Project outside the Scope of the Work.

6.2 At Client's request, Client may negotiate with Consultant to acquire ownership of Documents for a mutually agreed amount. If Client acquires ownership of Documents prepared by Consultant, Client agrees: a) that any subsequent reuse or modification of them by Client or any party obtaining them through Client will be at Client's sole risk and without liability to Consultant, and b) Client will defend, indemnify and hold harmless Consultant from and against any claims, damages, and liabilities arising from or related to any use, reuse or modification of Documents by Client or any party obtaining them through Client. Client agrees that Consultant may retain copies of all documents for its files.

6.3 Electronic communications and CADD data transferred by Email, websites or computer disks (collectively "E-Data") are provided only as an accommodation by Consultant for the benefit of Client. Signed paper prints of documents constitute the contract deliverables. Client assumes the risk that E-Data may differ from the paper deliverables. Client agrees to indemnify and hold harmless Consultant from and against claims, damages, and liabilities for defects or inappropriate use of E-Data created or transmitted by Consultant.

7. THIRD PARTY RELIANCE UPON DOCUMENTS.

7.1 Consultant's performance of the Services, as set forth in this Agreement, is intended solely and exclusively for the Client's benefit and use. No party may claim under this Agreement as a third party beneficiary. Client agrees not to distribute, publish or otherwise disseminate Consultant's Documents, without first obtaining Consultant's prior written consent.

7.2 No third party may rely upon Consultant's Documents including, but not limited to, opinions, conclusions, certificates, reports, drawings and specifications unless Consultant has agreed to such reliance in advance and in writing.

8. ASSIGNMENT, SUBCONTRACTING.

8.1 Neither Client nor Consultant may delegate, assign, sublet, or transfer all or any part of this Agreement, including its duties or interest in this Agreement without the written consent of the other party.

8.2 Notwithstanding Section 8.1, Consultant may subcontract subsurface exploration, testing, and other supplemental services without notification or consent of Client.

9. TERMINATION, SUSPENSION.

9.1 Termination for Convenience. The Client may terminate this Agreement for its convenience upon twenty-one (21) days written notice to Consultant. In the event of termination for convenience, Consultant shall be compensated for all services satisfactorily performed and costs incurred up to the effective date of termination for which Consultant has not been previously compensated. Consultant shall not be reimbursed for anticipatory profits.

9.2 Termination for Cause. The Client may terminate this Agreement upon fourteen (14) days written notice may terminate this Agreement if Consultant fails to substantially perform through no fault of Client and does not commence correction of such performance within five (5) days of written notice and

diligently complete the correction thereafter. In the event of termination for fault, Consultant shall be compensated for all services satisfactorily performed and costs incurred up to effective date of termination for which Consultant has not been previously compensated. All costs and charges incurred by Client to complete the Services beyond the total compensation available under this Agreement when terminated shall be deducted from any compensation due or which may become due to Consultant, and to the extent such deduction is insufficient to cover such costs and charges to Client, Consultant shall be and remain liable to pay Client the amount of such excess.

9.3 Client's Failure to Pay. In the event of any failure of payment by Client when due, Consultant shall have the right to suspend work on the Project and may retain any and all work products whether prepared by Consultant or submitted to Consultant by others, until payment has been brought current. In such event, Consultant shall have no liability for any damages or losses that may result from any delay associated the suspension of work or for the withholding of work products. If Client's failure to pay continues for more than sixty (60) days, Consultant may terminate this Agreement effective upon written notice to Client.

10. ALLOCATION OF RISK.

10.1 Consultant's total cumulative liability to Client (including, but not limited to, attorneys' fees and costs awarded under this Agreement) irrespective of the form of action in which such liability is asserted by Client or others, shall not exceed the total compensation received by Consultant under this Agreement or \$3,000,000, whichever is greater.

10.2 Client and Consultant agree to limit each's liability to the other in the following respects: Neither party will have liability to the other for any special, consequential, incidental, exemplary, or penal losses or damages including but not limited to losses, damages or claims related to the unavailability of the other party's property or facility, shutdowns or service interruptions, loss of use, lost profits or revenue, inventory or use, charges or cost of capital or claims of the other party's customer.

10.3 The limitations of liability of this Agreement shall survive the expiration or termination of this Agreement.

11. INSURANCE.

11.1 Consultant shall procure and maintain for the duration of the Project and three years following, with insurance carriers reasonably acceptable to the Client, the following insurance coverage:

- (a) Commercial General Liability on an occurrence form, including coverage for premises and completed operations/products, Contractual Liability, General Aggregate per Project, "x cu" coverages
 - \$1,000,000 each occurrence
 - \$ 10,000 Medical Expenses
 - \$1,000,000 Personal and Advertising Injury
 - \$2,000,000 General Aggregate
 - \$2,000,000 Products/Completed Operations Aggregate
- (b) Automobile Liability - Including coverage for Owned, Hired, and Non-Owned Autos
 - \$1,000,000 Combined Single Limit
- (c) Workers Compensation and Employer's Liability
 - Statutory Limits for Workers Compensation
 - \$500,000 each accident
 - \$500,000 each occurrence by disease
 - \$500,000 by disease - policy limit
- (d) Umbrella Liability – applying over all above-referenced policies
 - \$10,000,000 each occurrence
- (e) Professional Liability
 - \$3,000,000 each claim
 - \$3,000,000 annual aggregate

11.2 Additional Insured. Except for Workers Compensation and Professional Liability, policies shall include Client as Additional Insured on a primary and noncontributory basis, to include ongoing and completed operations.

12. INDEMNIFICATION.

12.1 Indemnification of Client. Subject to the provisions and limitations of this Agreement and to the extent allowable by law, Consultant agrees to indemnify and hold harmless Client, its shareholders, officers, directors, employees, and agents from and against any and all claims, suits, liabilities, damages, expenses (including without limitation reasonable attorney's fees and costs of defense) or other losses (collectively "Losses") to the extent caused by Consultant's negligent performance of its Services under this Agreement.

12.2 Indemnification of Consultant. Subject to the provisions and limitations of this Agreement and to the extent allowable by law, Client agrees to defend, indemnify and hold harmless Consultant from and against any and all claims by third parties related to services provided by Consultant under this Agreement, and against any and all Losses to the extent caused by the negligence of Client, its employees, agents and contractors. In addition, except to the extent caused by Consultant's sole negligence, Client expressly agrees to defend, indemnify and hold harmless Consultant from and against any and all Losses arising from or related to the existence, disposal, release, discharge, treatment or transportation of Hazardous Materials, or the exposure of any person to Hazardous Materials, or the degradation of the environment due to the presence, discharge, disposal, release of or exposure to Hazardous Material.

13. INVOICES, PAYMENTS.

13.1 Payment is due without retainage upon presentation of invoice and is past due thirty (30) days from invoice date, and will not be contingent upon receipt of funds from third parties. Client agrees to pay a service charge of one percent (1%) per month or fraction thereof on past due payments under this Agreement.

13.2 It is further agreed that in the event a lien or suit is filed to enforce overdue payments under this Agreement, Consultant will be reimbursed by Client for all costs of such lien or suit and reasonable Attorney's fees in addition to accrued service charges, where the court of appropriate jurisdiction enters a finding in favor of Consultant.

14. NOTICE. All notices, requests, claims, demands and other communications hereunder shall be in writing. Such notices shall be given (i) by delivery in person, (ii) by a nationally recognized commercial courier service; or (iii) by United States Postal Service, registered mail, postage prepaid and return receipt requested. Notices shall be effective upon actual delivery at the following addresses:

Client: Town of Lake Lure
2948 Memorial Highway
Lake Lure, NC 28746

Consultant: Schnabel Engineering South, P.C.
11-A Oak Branch Drive
Greensboro, NC 27407

or to that address which the receiving Party may from time to time give notice to the other Party in writing. Rejection or other refusal to accept, or the inability to deliver because of changed address of which no notice was given, shall be deemed to be receipt of the notice as of the date of such rejection, refusal to accept or inability to deliver.

15. DISPUTE RESOLUTION.

15.1 Claims, disputes, and other matters in controversy between Consultant and Client caused by or any way related to this Agreement will be submitted to non-binding mediation as a condition precedent to litigation. The cost for mediation including the mediator's fees, reproduction of documents, and miscellaneous out-of-pocket expenses will be borne equally by each party to this Agreement.

15.2 The law of the State of North Carolina will govern the validity of these terms, their interpretation and performance. Client and Consultant agree that venue for any litigation will be in the courts of the State of North Carolina, and Consultant and Client both hereby waive any right to initiate any action in, or remove any action to, any other jurisdiction.

16. FORCE MAJEURE.

16.1 Any delay in or failure of performance of, either party to this Agreement shall not constitute a default, if and to the extent such delay or failure is caused by occurrences beyond the reasonable control of the party affected, including but not limited to, acts of God or the public enemy, acts of war, public disorder, insurrection, rebellion, sabotage, flood, riot, or any causes a party is unable, with reasonable diligence, to prevent; provided, however, that a party who is prevented from performing for any reason shall immediately notify the other party in writing of the reason for the non-performance and the anticipated extent of any delay.

17. SEVERABILITY.

17.1 This Agreement reflects the entire agreement of the parties with respect to its terms and supersedes all prior agreements, whether written or oral. If any portion of this Agreement is void or voidable, such portion will be deemed stricken and the Agreement reformed to as closely approximate the stricken portions as the law allows.

IN WITNESS WHEREOF, the parties, by their duly authorized representatives, have hereunto executed this Agreement, on the day and year first above written.

CONSULTANT:

Schnabel Engineering South, PC

By: 

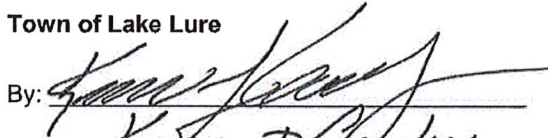
Name: Jonathan Pittman
(print)

Title: Senior Vice President

Date: September 15, 2018

CLIENT:

Town of Lake Lure

By: 

Name: Karen J. Conkey
(print)

Title: Mayor

Date: September 15, 2018

Exhibits:

None
Rev 2018-08

This instrument has been
preaudited in the manner required
by the Local Government Budget
and Fiscal Control Act