BID SPECIFICATIONS

RFB #17-0407

CONCRETE PAD AND ROOF
NEW HANOVER COUNTY ENVIRONMENTAL MANAGEMENT DEPARTMENT
Landfill Composting Site
5210 U.S. Highway 421 North
Wilmington, NC 28401

Request for Bids

Section 1: Advertisement
New Hanover County (NHC) is accepting sealed informal bids from qualified, experienced and licensed contractors for all labor and materials to complete the work in accordance with the Scope of Service and draft contract documents for construction of the Concrete Pad and Roof for the composting site located at the New Hanover County Landfill, 5210 U.S. Highway 421 North, Wilmington, North Carolina.

Bidders must be licensed contractors in the State of North Carolina at the time proposals are submitted. Pursuant to N.C.G.S. S87-15, it will be necessary for contractors to show evidence of such license in the bid document.

Qualified bidders may make an appointment for a pre-bid site visit to review the project location. Appointments may be requested for a site visit to be scheduled on site (with 24 hours of notice) between May 23rd and May 25th, 2017. To schedule an appointment for a site visit, contact Kim Roane, (910) 798-4402 or via email to kroane@nhcgov.com.

All questions must be submitted in writing to Kim Roane, Business Officer, via email @ kroane@nhcgov.com. The deadline for questions from Bidders is Friday, May 26, 2017 at 5:00 PM. Questions will be answered via written addendum issued COB Wednesday, May 31, 2017.

Sealed informal bids addressed to Kim Roane, Business Officer, 3002 U.S. Highway 421 North, Wilmington, North Carolina, 28401 and marked “RFB 17-0407, Concrete Pad and Roof for Composting Site” on the outside of the envelope will be accepted until 3:00 p.m. (EST) on Thursday, June 8, 2017. The deadline time shall be established by the timepiece of New Hanover County’s representative. No bids will be accepted after that time.

A copy of the Scope of Service, technical drawings and contract documents can be reviewed at the New Hanover County Environmental Management Office, 3002 Highway 421 North, Wilmington, North Carolina 28401, between the hours of 8:00 a.m. and 5:00 p.m., Monday through Friday. Please call (910) 798-4402 for appointments.

All prime bidders on this project must be pre-qualified in accordance with New Hanover County’s Pre-Qualification Ordinance, in order to bid. Bids will not be opened unless the bidder is pre-qualified. Pre-qualification applications may be obtained at the County Legal Department, 230 Government Center Drive, Suite 155, Wilmington, N.C. 28403 or by visiting the County’s website at http://legalinsurance.nhcgov.com/contractors-approved-for-bidding/. Deadline for submission of pre-qualification application to County Attorney’s Office is 5:00 p.m. Friday, May 26, 2017.
Section 2: Instructions and General Conditions

2.1 Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>Wednesday, May 17, 2017</td>
<td>Bid Advertisement</td>
</tr>
<tr>
<td>Tuesday, May 23 – Thursday May 25, 2017 by appointment</td>
<td>Site visits may be scheduled. For appointments, contact Kim Roane, Business Officer (<a href="mailto:kroane@nhcgov.com">kroane@nhcgov.com</a>) or (910) 798-4402.</td>
</tr>
<tr>
<td>Friday, May 26, 2017; 5:00 p.m.</td>
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</tr>
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<td>Wednesday, May 31, 2017</td>
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</tr>
<tr>
<td>Thursday, June 8, 2017, 3:00 p.m.</td>
<td>Deadline for receipt of bids.</td>
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2.2 Bidder Instructions

2.2.1 Proposals shall be submitted as a document set, containing one (1) original, two (2) hard copies and one (1) electronic copy on either a CD or a flash drive.

Bids must be submitted by 3:00 p.m. Thursday, June 8, 2017, in a sealed envelope properly marked “RFB # 17-0407 CONCRETE PAD AND ROOF” and addressed to the County at the following address:

New Hanover County
Environmental Management
Attn: Kim Roane, Business Officer
3002 U.S. Highway 421 North
Wilmington, NC 28401

2.2.1 Completion of Bid Form (Price Sheet):

Bidders are expected to examine the specifications herein, the schedule and all instructions. Failure to do so will be at the bidder’s risk. Each bidder shall furnish the information required on the price sheet. Bids must be submitted on
the price sheet contained in this bid package. Bids submitted that are not on the attached price sheet will be rejected. **Bids not signed will be rejected.**

All prices and notations shall be written in ink or typed. Discrepancies between words and numerals will be resolved in favor of words.

Changes or corrections made on the bid **must** be initialed by the individual signing the bid. No corrections will be permitted once bids have been opened.

### 2.2.2 Appointments for Site Visits:
Prospective bidders are welcome to visit the site by appointment prior to bid development. Appointments may be made by contacting Kim Roane, Business Officer, via email at kroane@nhcgov.com, or by phone at (910) 798-4402.

### 2.2.3
No telephone, electronic or facsimile proposals will be considered. Proposals received after the time and date for closing will not be considered.

### 2.2.4
There will not be a public bid opening.

### 2.2.5
After the bid issue date, all communications between the County and prospective bidders regarding this bid request shall be in writing. Any inquiries, requests for interpretation, technical questions, clarification, or additional information shall be directed to Kim Roane, Business Officer, via email: kroane@nhcgov.com. Questions and responses affecting the specifications of the bid will be provided by issuance of an Addendum. **All questions shall be received no later than 5:00 P.M., EST, Friday, May 26, 2017.**

### 2.2.6
The deadline for receipt of all proposals is **Thursday, June 8, 2017, at 3:00 PM, EST.** Any proposals received after the scheduled closing time will not be accepted.

### 2.2.7
New Hanover County reserves the right to allow or disallow minor deviations or technicalities should the County deem it to be in the best interest of the County. New Hanover County shall be the sole judge of what is to be considered a minor deviation or technicality.

### 2.2.8
Once an award is made, all proposals become public record and will be disclosed upon request. According to General Statutes 132 - 1.2, trade secrets contained in a bid may be kept confidential if the bidder, at the time the bid is submitted, designates the secret and requests that it be kept confidential. This right of privacy will be construed as narrowly as possible to protect the interests of the vendor while attempting to maximize the availability of information to the public.
2.2.9 Bidders may withdraw or withdraw and resubmit their bid at any time prior to the closing time for receipt of bids. No bid may be withdrawn after the scheduled closing time for receipt of bids and as such shall constitute a firm offer that is binding for a period of ninety (90) days.

2.2.10 The award will be made to the responsible bidder whose proposal is determined to be the most advantageous to the County. Although price will be considered, it will not be the sole determining factor.

2.2.11 Bids must be signed by an authorized individual of the firm(s). Bids that are not signed will be rejected.

2.2.12 The County reserves the following rights, which may be exercised at its sole discretion:
- to reject any or all bids or any part thereof, or to accept any bid, or any part thereof;
- to supplement, amend, substitute or otherwise modify this bid at any time;
- to cancel this bid with or without the substitution of another bid;
- to take any action affecting this bid, this bid process, or the services or facilities subject to this bid that would be in the best interests of the County;
- to issue additional requests for information;
- to require one or more bidders to supplement, clarify or provide additional information in order for the County to evaluate the bids submitted;
- to conduct investigations with respect to the qualifications and experience of each bidder;
- to waive any defect or irregularity in any bid received;
- to reject any or all bids;
- to award all, none, or any part of the items that is in the best interest of the County, with one or more of the bidders responding, which may be done with or without re-solicitation;
- to enter into any agreement deemed by the County to be in the best interest of the County, with one or more of the bidders responding.

2.2.13 The successful vendor is expected to enter into a contract with the County.

2.2.14 Unless specifically stated to the contrary, any manufacturer’s names, trade names, brand names or catalog numbers used in the specifications of the Request for Bid are for the purpose of describing and/or establishing the quality, design and performance required. Any such reference is not intended to limit or restrict an offer by any bidder and is included in order to advise the potential bidder of the requirements for the County. Any offer which proposes quality, design, or performance, will be considered.
2.2.15 Any person, firm(s), corporation or association submitting a proposal shall be deemed to have read and understood all the terms, conditions and requirements in the specifications and/or scope of work.

2.2.16 All proposals and accompanying documentation will become the property of New Hanover County at the time the proposals are opened and as such will not be returned to the bidder.

2.2.17 The County is exempt from and will not pay Federal Excise Taxes or Transportation Taxes.

2.2.18 If the Vendor is required to charge North Carolina sales tax on bidder's sales, bidder shall not include it as part of the bid price. The County will pay North Carolina sales tax over and above bid prices when invoiced. Contractor shall Submit a Sales Tax Report (attached) with each invoice submitted to the County.

2.2.19 The bidder's products, service and facilities shall be in full compliance with any and all applicable state, federal, local, environmental and safety laws, regulations, ordinances and standards or any standards adopted by nationally recognized testing facilities regardless of whether or not they are referred to in the bid documents.

2.2.20 Failure to comply with these provisions or any other provisions of the General Statutes of North Carolina will result in rejection of bid.

2.2.21 Permitting: Contractor shall be responsible for any and all permits and all associated documentation necessary to complete the work.

2.2.22 Warranty:

- Contractor shall specify the warranty period for the project, which shall include all parts, labor and craftsmanship from date of installation
- The full cost of the warranty as specified herein shall be supported solely by the bidder (Contractor).
- Any potential actions that would potentially void the warranty must be clearly specified by the contractor

2.2.23 Insurance:

Before commencing any work and prior to contract execution, the Contractor shall procure insurance in the contractor's name and maintain all insurance policies for the duration of the contract of the types and in the amounts listed in the attached draft Contract. The insurance shall provide coverage against claims for injuries to persons or damages to property which may arise from operations or in connection with the performance of the work hereunder by the contractor.
his agents, representatives, employees, or subcontractors, whether such operations by himself/herself or anyone directly or indirectly employed by him/her.

2.2.24 The successful bidder will be a contractor familiar with this type of work with the necessary equipment and personnel to perform the work within the required time.

2.2.25 Costs incurred by prospective bidders in the preparation of the response to this Request for Bid are the responsibility of the responding bidder and will not be reimbursed by the County.

2.2.26 Federal Taxes: New Hanover County is exempt from and will not pay Federal Excise Taxes or Transportation taxes.

2.2.27 North Carolina Sales Tax: If bidder is required to charge North Carolina sales tax on bidder’s sales, bidder shall not include it as part of the bid price. County will pay North Carolina sales tax over and above bid prices when invoiced.

2.2.28 Responsibility of Compliance with Legal Requirements
The bidder’s products, service and facilities shall be in full compliance with any and all applicable state, federal, local, environmental and safety laws, regulations, ordinances and standards or any standards adopted by nationally recognized testing facilities regardless of whether or not they are referred to in the bid documents.

2.3 References
The Contractor shall provide at least three (3) references of work completed of a similar nature. Contact information shall include company name, company address, contact name, contact phone number, contact email address and type & cost of project completed.

2.4 TERM and TIME/COMPLETION SCHEDULE
The CONTRACTOR will commence services upon receipt of executed contract and purchase order, which shall constitute the notice to proceed. Bidder must complete the section of the Bid Price Sheet regarding the number of calendar days for completion of work. Completion schedule shall be as described within the final contract document, developed as per bid award agreement.

2.5 Equal Opportunity
The non-discrimination clause contained in Section 202 (Federal) Executive Order 11246, as amended by Executive Order 11375, relative to Equal Employment
Opportunity for all persons without regard to race, color, religion, sex or national origin, and the implementing rules and regulations prescribed by the Secretary of Labor, are incorporated herein. The contractors agree not to discriminate against any employees or applicants for employment because of physical or mental handicap in regard to any position for which the employees or applicant is qualified. The contractor agrees to take affirmative action to employ, advance in employment and otherwise treat qualified handicapped individuals without discrimination based upon their physical or mental handicap in all employment practices.

2.6 Minority Participation

The bidder will make good faith efforts to subcontract with individuals who are minorities to include women, Black Americans, Hispanic Americans, Native Americans, Asian-Pacific Americans, and Asian-Indian Americans. Bidders should submit along with the bid information concerning minority business enterprises that they have contacted and those which will participate in the contract. The information will include:

1. Name, address, phone number, and email address of each minority firm.
2. Description of the work to be performed by each minority firm named.
3. Dollar value of the work to be performed by each firm named.

2.7 Contractor Safety Compliance Requirements

2.7.1 Contractor is responsible for compliance with OSHA and all federal, state and local laws, ordinances, rules and regulations that in any way affect the work, including but not limited to notices and training.

2.7.2 Contractor shall sign and return NHC Environmental Management Contractor Compliance Requirements document (attached).

2.7.3 The Contractor shall be solely responsible for maintaining safety at all work sites.

2.7.4 The Contractor shall take all reasonable steps to ensure safety for both workers and visitors to include traffic control.

Section 3: Contract draft

The Draft Contract is attached to this RFB.
Section 4: Scope of Work (also referred to as Contract “Exhibit A”)

Bid Specifications
Concrete Pad and Roof
New Hanover County Landfill Composting Site
RFB # 17-0407

4.1 Contractor shall provide turnkey services necessary to construct a new concrete pad and partial roof cover over the pad, including all site preparations, foundation work, electrical panel installation, grading and permitting. The overall dimensions of the concrete pad are 80 feet wide by 95 feet long, with an 8” thickness. The roof shall cover two portions of the area over the concrete pad, as detailed in the attached drawing.

4.2 Site Preparation:
- Contractor shall be responsible for locating all utilities prior to beginning the work
- Contractor shall be responsible for any needed site preparation work required to install the roof over the concrete pad.
- Contractor shall be responsible for any costs arising as the result of hitting underground utilities.
- Contractor shall complete site prep to include bringing subgrade to final elevation and attain required soil compaction necessary for concrete placement. The County will be responsible for the testing of the soil compaction.

4.3 Permitting:
- Contractor shall be responsible for any and all permits and all associated documentation necessary to complete the work.

4.4 Coordination with Duke Energy:
- Contractor shall be responsible for all coordination with Duke Energy to provide electrical service to the single electrical panel to be installed on the concrete pad by the Contractor.
4.5 Technical Specifications:

SECTION 033000
CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The Drawings and provisions of the General Conditions, Supplementary conditions, and the Sections included under Division 1, General Requirements, are included as a part of this Section as though bound herein.

1.2 SUMMARY

A. This Section specifies cast-in place concrete, including formwork, reinforcing, mix design, placement procedures, and finishes.

B. Concrete paving and walks are specified in Division 2.

1.3 SUBMITTALS

A. **General**: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.

B. Product data for proprietary materials and items, including reinforcement and forming accessories, admixtures, patching compounds, waterstops, joint systems, curing compounds, dry-shake finish materials, and others as requested by Engineer.


D. Samples of materials as requested by Engineer, including names, sources, and descriptions, as follows:

   1. Normal weight aggregates.
   2. Reglets.
   3. Vapor retarder.
E. Laboratory test reports for concrete materials and mix design test.

F. Materials certificates in lieu of materials laboratory test reports when permitted by Engineer. Materials certificates shall be signed by manufacturer and Contractor, certifying that each material item complies with or exceeds specified requirements. Provide certification from admixture manufacturers that chloride content complies with specification requirements.

G. Minutes of pre-construction conference.

1.4 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of following codes, specifications, and standards, except where more stringent requirements are shown or specified:

1. ACI 318, "Building Code Requirements for Reinforced Concrete."
2. Concrete Reinforcing Steel Institute (CRSI), "Manual of Standard Practice."

B. Materials and installed work may require testing and retesting at any time during progress of work. Tests, including retesting of rejected materials for installed work, shall be done at Contractor's expense.

C. Concrete Pre-Construction Conference: A conference at Project site may be held at the discretion of the Construction Administrator.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Forms for Exposed Finish Concrete: Plywood, metal, metal-framed plywood faced, or other acceptable panel-type materials, to provide continuous, straight, smooth, exposed surfaces. Furnish in largest practicable sizes to minimize number of joints and to conform to joint system shown on drawings.

B. Use overlaid plywood complying with U.S. Product Standard PS-1 "A-C or B-B High Density Overlaid Concrete Form," Class I.

C. Use plywood complying with U.S. Product Standard PS-1 "B-B (Concrete Form) Plywood," Class I, Exterior Grade or better, mill-oiled and edge-sealed, with each piece bearing legible inspection trademark.
D. **Forms for Unexposed Finish Concrete:** Plywood, lumber, metal, or other acceptable material. Provide lumber dressed on at least 2 edges and one side for tight fit.

E. **Form Coatings:** Provide commercial formulation form-coating compounds with a maximum VOC of 350 mg/l that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

F. **Form Ties:** Factory-fabricated, adjustable-length, removable or snap-off metal form ties, designed to prevent form deflection and to prevent spalling concrete upon removal. Provide units that will leave no metal closer than 1-1/2 inches to exposed surface.

G. **Cylindrical Forms:** Form round-section members with paper or fiber tubes, constructed of laminated plies using water-resistant type adhesive with wax-impregnated exterior for weather and moisture protection.
   1. Provide units with sufficient wall thickness to resist loads imposed by wet concrete without deformation.
   2. Provide manufacturer’s standard plastic-lined-interior units.
   3. Provide protective covering if forms around columns to be left exposed to the elements for longer than a week or two.

   a) The protective cover shall be constructed of Tyvek type breathable infiltration barrier. Cut to size approximately one foot longer than twice the height of the form and one to two feet wider than the diameter of the form to be protected. Once the form is in place run protective material down center of tube and drape over exterior, lap side to protect exterior and interior surfaces. Staple or otherwise fasten side and bottom seams. Remove prior to placing concrete.

2.2 **REINFORCING MATERIALS**

A. **Reinforcing Bars:** ASTM A 615, Grade 60, deformed.

B. **Weldable Reinforcing Bars:** ASTM A 706, Grade 60, deformed.

C. **Steel Wire:** ASTM A 82, plain, cold-drawn steel.

D. **Welded Wire Fabric:** ASTM A 185, welded steel wire fabric.

E. **Supports for Reinforcement:** Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Use wire-bar-type supports complying with CRSI specifications.

   1. For slabs-on-grade, use supports with sand plates or horizontal runners where base material will not support chair legs.
2. For exposed-to-view concrete surfaces, where legs of supports are in contact with forms, provide supports with legs that are plastic protected (CRSI, Class 1) or stainless steel protected (CRSI, Class 2).

2.3 CONCRETE MATERIALS

A. Portland Cement: ASTM C 150, Type I.

1. Use one brand of cement throughout project unless otherwise acceptable to Engineer.

B. Fly Ash: Not Permitted.

C. Aggregates:

2. For exterior exposed surfaces, do not use fine or coarse aggregates containing spalling causing deleterious substances.
3. Local aggregates not complying with ASTM C 33 but that special tests or actual service have shown to produce concrete of adequate strength and durability may be used when acceptable to Engineer.

D. Water: Drinkable.

E. Admixtures, General: Provide admixtures for concrete that contain not more than 0.1 percent chloride ions.

F. Air-Entraining Admixture: ASTM C 260, certified by manufacturer to be compatible with other required admixtures.

1. Products: Subject to compliance with requirements, provide one of the following:

   Air-Mix or Perma-Air, Euclid Chemical Co.
   Darex AEA or Daravair, W.R. Grace & Co.
   MB-VR or Micro-Air, Master Builders, Inc.
   Sealtight AEA, W.R. Meadows, Inc.
   Sika AER, Sika Corp.

G. Water-Reducing Admixture: ASTM C 494, Type A.

1. Products: Subject to compliance with requirements, provide one of the following:
Eucon WR-75, Euclid Chemical Co.
WRDA, W.R. Grace & Co.
Pozzolith Normal or Polyheed, Master Builders, Inc.
Plastocrete 161, Sika Corp.

H. High-Range Water-Reducing Admixture (Super Plasticizer): ASTM C 494, Type F or Type G

1. Products: Subject to compliance with requirements, provide one of the following:

- "Eucon 37," Euclid Chemical Co.
- "WRDA 19" or "Daracem," W.R. Grace & Co.
- "Rheobuild," Master Builders, Inc.
- "Sikament 300," Sika Corp.

I. Water-Reducing, Accelerating Admixture: ASTM C 494, Type E.

1. Products: Subject to compliance with requirements, provide one of the following:

- "Q-Set," Conspec Marketing & Manufacturing Co.
- "Accelguard 80," Euclid Chemical Co.
- "Pozzutec 20," Master Builders, Inc.

J. Water-Reducing, Retarding Admixture: ASTM C 494, Type D.

1. Products: Subject to compliance with requirements, provide one of the following:

- "Eucon Retarder 75," Euclid Chemical Co.
- "Pozzolith R," Master Builders, Inc.
- "Plastiment," Sika Corporation.

2.4 RELATED MATERIALS

A. Granular Base: Evenly graded mixture of fine and coarse aggregates to provide, when compacted, a smooth and even surface below slabs on grade.

B. Sand Cushion: Clean, manufactured or natural sand.

C. Stone Base: #57 stone or approved alternate.

D. Vapor Retarder: Provide vapor retarder cover over prepared base material where indicated below slabs on grade. Use only materials that are resistant to deterioration when tested in accordance with ASTM E 154, as follows:
1. Polyethylene sheet not less than 8 mils thick.

E. **Nonslip Aggregate Finish:** Provide fused aluminum oxide granules or crushed emery as abrasive aggregate for nonslip finish, with emery aggregate containing not less than 50 percent aluminum oxide and not less than 25 percent ferric oxide. Use material that is factory-graded, packaged, rustproof, and non-glazing and is unaffected by freezing, moisture, and cleaning materials.

F. **Absorptive Cover:** Burlap cloth made from jute or kenaf, weighing approximately 9 oz. per sq. yd., complying with AASHTO M 182, Class 2.

G. **Moisture-Retaining Cover:** One of the following, complying with ASTM C 171.
   - Waterproof paper.
   - Polyethylene film.
   - Polyethylene-coated burlap

H. **Liquid Membrane-Forming Curing Compound:** Liquid-type membrane-forming curing compound complying with ASTM C 309, Type I, Class A. Moisture loss not more than 0.055 gr./sq. cm. when applied at 200 sq. ft./gal.

   1. **Products:** Subject to compliance with requirements, provide one of the following:
      
      "Cure & Seal," Conspec Marketing & Manufacturing Co.
      "Spartan-Cote," The Burke Co.
      "Day-Chem Cure and Seal," Dayton Superior Corp.
      "Eucocure," Euclid Chemical Co.
      "L&M Cure," L & M Construction Chemicals, Inc.
      "Masterkure," Master Builders, Inc.

I. **Water-Based Acrylic Membrane Curing Compound:** ASTM C 309, Type I, Class B.

   1. **Products:** Subject to compliance with requirements, provide one of the following:
      
      "High Seal," Conspec Marketing & Manufacturing Co.
      "Dress & Seal #18WB," L&M Construction Chemicals, Inc.
      "Masterseal W," Master Builders, Inc.
"Vocomp 20," W.R. Meadows, Inc.
"Sika Membrane," Sika Corp.

J. **Evaporation Control:** Monomolecular film-forming compound applied to exposed concrete slab surfaces for temporary protection from rapid moisture loss.

1. **Products:** Subject to compliance with requirements, provide one of the following:

   "Aquafilm," Conspec Marketing & Manufacturing Co.
   "Eucobar," Euclid Chemical Co.
   "E-Con," L&M Construction Chemicals, Inc.
   "Confilm," Master Builders, Inc.

K. **Underlayment Compound:** Free-flowing, self-leveling, pumpable, cement-based compound for applications from one inch thick to feathered edges.

1. **Products:** Subject to compliance with requirements, provide one of the following:

   "Conflow," Conspec Marketing & Manufacturing Co.
   "K-15," Ardex, Inc.
   "LevelLayer II," Dayton Superior Corp.
   "Flo-Top," Euclid Chemical Co.
   "Levelex," L&M Construction Chemicals, Inc.
   "Pourcrete," Master Builders, Inc.

L. **Bonding Compound:** Polyvinyl acetate or acrylic base.

1. **Products:** Subject to compliance with requirements, provide one of the following:

   a) **Polyvinyl Acetate (Interior Only):**

      "Primeflow," Conspec Marketing & Manufacturing Co.
      "Superior Concrete Bonder," Dayton Superior Corp.
      "Euco Weld," Euclid Chemical Co.
      "Everweld," L&M Construction Chemicals, Inc.

   b) **Acrylic or Styrene Butadiene:**

      "Strongbond," Conspec Marketing & Manufacturing Co.
      "Acrylic Bondcrete," The Burke Co.
      "Day-Chem Ad Bond," Dayton Superior Corp.
      "SBR Latex," Euclid Chemical Co.
      "Everbond," L & M Construction Chemicals, Inc.
"Acryl-Set," Master Builders Inc.  
"Intralok," W.R. Meadows, Inc.

M. **Epoxy Adhesive**: ASTM C 881, two-component material suitable for use on dry or damp surfaces. Provide material "Type," "Grade," and "Class" to suit project requirements.

1. **Products**: Subject to compliance with requirements, provide one of the following:
   
   "Spec Bond 100," Conspec Marketing & Manufacturing Co.  
   "Burke Epoxy MV," The Burke Co.  
   "Euco Epoxy System #452 or #620," Euclid Chemical Co.  
   "Epoxtite Binder 2390," AC Horn, Inc.  
   "Epabond," L&M Construction Chemicals, Inc.  
   "Concrexive 1001," Master Builders, Inc.  
   "Sikadur 32 Hi-Mod," Sika Corp.

### 2.5 PROPORTIONING AND DESIGN OF MIXES

A. Prepare design mixes for each type and strength of concrete by either laboratory trial batch or field experience methods as specified in ACI 301. If trial batch method used, use an independent testing facility acceptable to Engineer for preparing and reporting proposed mix designs. The testing facility shall not be the same as used for field quality control testing.

B. Submit written reports to Engineer of each proposed mix for each class of concrete at least 15 days prior to start of work. Do not begin concrete production until proposed mix designs have been reviewed by Engineer.

C. Design mixes to provide normal weight concrete with the following properties, as indicated on drawings and schedules:

1. 4000-psi, 28-day compressive strength; (air-entrained).  
2. 3500-psi, 28-day compressive strength; (air-entrained).  
3. 3000-psi, 28-day compressive strength; (air-entrained).

D. **Adjustment to Concrete Mixes**: Mix design adjustments may be requested by Contractor when characteristics of materials, job conditions, weather, test results, or other circumstances warrant, as accepted by Engineer. Laboratory test data for revised mix design and strength results must be submitted to and accepted by Engineer before using in work.

### 2.6 ADMIXTURES
A. Use water-reducing admixture or high-range water-reducing admixture (Superplasticizer) in concrete as required for placement and workability.

B. Use nonchloride accelerating admixture in concrete slabs placed at ambient temperatures below 50 deg F (10 deg C).

C. Use high-range water-reducing admixture (HRWR) in pumped concrete, concrete for industrial slabs, parking structure slabs, concrete required to be watertight, and concrete with water/cement ratios below 0.50.

D. Use air-entraining admixture in exterior exposed concrete unless otherwise indicated. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having total air content with a tolerance of plus or minus 1-1/2 percent within following limits:

1. Concrete structures and slabs exposed to freezing and thawing, deicer chemicals, or hydraulic pressure:
   - 5.5 percent; 1-1/2-inch max. aggregate.
   - 6.0 percent; 1-inch max. aggregate.
   - 6.0 percent; 3/4-inch max. aggregate.
   - 7.0 percent; 1/2-inch max. aggregate.

E. Other concrete (not exposed to freezing, thawing, or hydraulic pressure) or to receive a surface hardener: 2 percent to 4 percent air.

F. Use admixtures for water reduction and set control in strict compliance with manufacturer's directions.

G. Water-Cement Ratio: Provide concrete for following conditions with maximum water-cement (W/C) ratios as follows:

1. Subjected to freezing and thawing; W/C 0.45.
2. Subjected to deicers/watertight; W/C 0.40.

H. Slump Limits: Proportion and design mixes to result in concrete slump at point of placement as follows:

1. Ramps, slabs, and sloping surfaces: Not more than 3 inches.
2. Reinforced foundation systems: Not less than 1 inch and not more than 3 inches.
3. Concrete containing HRWR admixture (Superplasticizer): Not more than 8 inches after addition of HRWR to site-verified 2-inch to 3-inch slump concrete.
4. Other concrete: Not more than 4 inches.

2.7 CONCRETE MIXING

A. Ready-Mix Concrete: Comply with requirements of ASTM C 94, and as specified.

B. When air temperature is between 85 deg F (30 deg C) and 90 deg F (32 deg C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes, and when air temperature is above 90 deg F (32 deg C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 GENERAL

A. Coordinate the installation of joint materials and vapor retarders with placement of forms and reinforcing steel.

3.2 FORMS

A. General: Design, erect, support, brace, and maintain formwork to support vertical and lateral, static and dynamic loads that might be applied until concrete structure can support such loads. Construct formwork so concrete members and structures are of correct size, shape, alignment, elevation, and position. Maintain formwork construction tolerances complying with ACI 347.

B. Construct forms to sizes, shapes, lines, and dimensions shown and to obtain accurate alignment, location, grades, level, and plumb work in finished structures. Provide for openings, offsets, sinkages, keyways, recesses, moldings, rustications, reglets, chamfers, blocking, screeds, bulkheads, anchorages and inserts, and other features required in work. Use selected materials to obtain required finishes. Solidly butt joints and provide backup at joints to prevent leakage of cement paste.

C. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush plates or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete with bottom forms only. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.

D. Provide temporary openings where interior area of formwork is inaccessible for cleanout, for inspection before concrete placement, and for placement of concrete. Securely brace temporary openings and set tightly to forms to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
E. Chamfer exposed corners and edges as indicated, using wood, metal, PVC, or rubber chamfer strips fabricated to produce uniform smooth lines and tight edge joints.

F. Provisions for Other Trades: Provide openings in concrete formwork to accommodate work of other trades. Determine size and location of openings, recesses, and chases from trades providing such items. Accurately place and securely support items built into forms.

G. Cleaning and Tightening: Thoroughly clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, or other debris just before concrete is placed. Retighten forms and bracing before concrete placement as required to prevent mortar leaks and maintain proper alignment.

3.3 VAPOR RETARDER INSTALLATION

A. General: Following leveling and tamping of granular base for slabs on grade, place vapor retarder sheeting with longest dimension parallel with direction of pour.

B. Lap joints 6 inches and seal vapor retarder joints with manufacturers' recommended mastic and pressure-sensitive tape.

3.4 PLACING REINFORCEMENT

A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars," for details and methods of reinforcement placement and supports and as herein specified.

B. Avoiding cutting or puncturing vapor retarder during reinforcement placement and concreting operations.

C. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that reduce or destroy bond with concrete.

D. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcing by metal chairs, runners, bolsters, spacers, and hangers, as approved by Engineer.

E. Place reinforcement to obtain at least minimum coverages for concrete protection. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement operations. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.
F. Install welded wire fabric in as long lengths as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.5 JOINTS

A. Construction Joints: Locate and install construction joints as indicated or, if not indicated, locate so as not to impair strength and appearance of the structure, as acceptable to Engineer.

B. Provide keyways at least 1-1/2 inches deep in construction joints in walls and slabs and between walls and footings. Accepted bulkheads designed for this purpose may be used for slabs.

C. Place construction joints perpendicular to main reinforcement. Continue reinforcement across construction joints except as otherwise indicated. Do not continue reinforcement through sides of strip placements.

D. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

E. Isolation Joints in Slabs-on-Ground: Construct isolation joints in slabs-on-ground at points of contact between slabs-on-ground and vertical surfaces, such as column pedestals, foundation walls, grade beams, and elsewhere as indicated.

F. Joint filler and sealant materials are specified in Division 7 Sections of these specifications.

G. Contraction (Control) Joints in Slabs-on-Ground: Construct contraction joints in slabs-on-ground to form panels of patterns as shown. Use saw cuts 1/8 inch wide by 1/4 slab depth or inserts 1/4 inch wide by 1/4 of slab depth, unless otherwise indicated. Cut joints within 8-12 hours of placement.

1. Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strip into fresh concrete until top surface of strip is flush with slab surface. Tool slab edges round on each side of insert. After concrete has cured, remove inserts and clean groove of loose debris.

2. Contraction joints in unexposed floor slabs may be formed by saw cuts as soon as possible after slab finishing as may be safely done without dislodging aggregate.

3. If joint pattern not shown, provide joints not exceeding 15 feet in either direction and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays).
H. Joint sealant material is specified in Division 7 Sections of these specifications.

3.6 INSTALLATION OF EMBEDDED ITEMS

A. General: Set and build into work anchorage devices and other embedded items required for other work that is attached to or supported by cast-in-place concrete. Use setting drawings, diagrams, instructions, and directions provided by suppliers of items to be attached thereto.

B. Install reglets to receive top edge of foundation sheet waterproofing and to receive thru-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, relieving angles, and other conditions.

C. Forms for Slabs: Set edge forms, bulkheads, and intermediate screed strips for slabs to obtain required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

3.7 PREPARATION OF FORM SURFACES

A. General: Coat contact surfaces of forms with an approved, nonresidual, low-VOC, form-coating compound before reinforcement is placed.

B. Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

C. Coat steel forms with a nonstaining, rust-preventative material. Rust-stained steel formwork is not acceptable.

3.8 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other crafts to permit installation of their work; cooperate with other trades in setting such work.

B. General: Comply with ACI 304, "Recommended Practice for Measuring, Mixing, Transporting, and Placing Concrete," and as herein specified.

C. Deposit concrete continuously or in layers of such thickness that no concrete will be placed on concrete that has hardened sufficiently to cause the formation of seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as herein specified. Deposit concrete to avoid segregation at its final location.
D. **Placing Concrete in Forms:** Deposit concrete in forms in horizontal layers not deeper than 24 inches and in a manner to avoid inclined construction joints. Where placement consists of several layers, place each layer while preceding layer is still plastic to avoid cold joints.

E. Consolidate placed concrete by mechanical vibrating equipment supplemented by hand-spaying, rodding, or tamping. Use equipment and procedures for consolidation of concrete in accordance with ACI 309.

F. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations not farther than visible effectiveness of machine. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing segregation of mix.

G. **Placing Concrete Slabs:** Deposit and consolidate concrete slabs in a continuous operation, within limits of construction joints, until the placing of a panel or section is completed.

H. Consolidate concrete during placing operations so that concrete is thoroughly worked around reinforcement and other embedded items and into corners.

I. Bring slab surfaces to correct level with straightedge and strike off. Use highway straight edge, bull floats or darbies to smooth surface, free of humps or hollows. Do not disturb slab surfaces prior to beginning finishing operations.

J. Maintain reinforcing in proper position during concrete placement.

K. **Cold-Weather Placing:** Comply with provisions of ACI 306. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.

L. **Hot-Weather Placing:** When hot weather conditions exist that would seriously impair quality and strength of concrete, place concrete in compliance with ACI 305.

3.9 **FINISH OF FORMED SURFACES**
A. **Rough Form Finish**: For formed concrete surfaces not exposed to view in the finish work or concealed by other construction. This is the concrete surface having texture imparted by form-facing material used, with tie holes and defective areas repaired and patched and fins and other projections exceeding 1/4 inch in height rubbed down or chipped off.

B. **Smooth Form Finish**: For formed concrete surfaces exposed to view or to be covered with a coating material applied directly to concrete, or a covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, painting, or other similar system. This is an as-cast concrete surface obtained with selected form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch defective areas with fins and other projections completely removed and smoothed.

C. **Smooth Rubbed Finish**: Provide smooth rubbed finish to scheduled concrete surfaces, which have received smooth form finish treatment, not later than one day after form removal.

   1. Moisten concrete surfaces and rub with carborundum brick or other abrasive until a uniform color and texture is produced. Do not apply cement grout other than that created by the rubbing process.

D. **Grout-Cleaned Finish**: Provide grout-cleaned finish to scheduled concrete surfaces that have received smooth form finish treatment.

   1. Combine one part portland cement to 1-1/2 parts fine sand by volume, and a 50:50 mixture of acrylic or styrene butadiene-based bonding admixture and water to consistency of thick paint. Blend standard portland cement and white portland cement, amounts determined by trial patches, so that final color of dry grout will match adjacent surfaces.
   2. Thoroughly wet concrete surfaces, apply grout to coat surfaces, and fill small holes. Remove excess grout by scraping and rubbing with clean burlap. Keep damp by fog spray for at least 36 hours after rubbing.

E. **Related Unformed Surfaces**: At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike-off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.10 MONOLITHIC SLAB FINISHES

A. **General Information (Slabs on Grade)**: Above average floor finish tolerances may be required on BMS Engineers Projects. The requirements indicated are based upon the
B. Float Finish (Flt-Fn) - Not Critical Floor Tolerance:
   1. Specified Overall Value: FF 25/FL 20
   2. Minimum Local Value: FF 20/FL 17
   3. Apply float finish to monolithic slab surfaces that are to receive trowel finish and other thick finishes as hereinafter specified, and slab surfaces which are to be covered with waterproofing membrane or sand-bed terrazzo, and as otherwise shown on Drawings or in schedules.

C. Trowel Finish (Tr-Fn) - Typical:
   1. Specified Overall Value: FF 30/FL 23
   2. Minimum Local Value: FF 25/FL 20
   3. Apply trowel finish to slab surfaces that are to be covered with resilient flooring, paint, or other thin film finish coating system.

D. Scratch Finish: Apply scratch finish to monolithic slab surfaces to receive concrete floor topping or mortar setting beds for tile, portland cement terrazzo, and other bonded applied cementitious finish flooring material, and as otherwise indicated.

   1. After placing slabs, plane surface to tolerances for floor flatness (Ff) of 15 and floor levelness (Fl) of 13. Slope surfaces uniformly to drains where required. After leveling, roughen surface before final set with stiff brushes, brooms, or rakes.

E. Float Finish: Apply float finish to monolithic slab surfaces to receive trowel finish and other finishes as hereinafter specified; slab surfaces to be covered with membrane or elastic waterproofing, mud set tile or sand-bed terrazzo; and as otherwise indicated.

   1. After screeding, consolidating, and leveling concrete slabs, do not work surface until ready for floating. Begin floating, using float blades or float shoes only, when surface water has disappeared, when concrete has stiffened sufficiently to permit operation of power-driven floats, or both. Consolidate surface with power-driven floats or by hand-floating if area is small or inaccessible to power units. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to a uniform, smooth, granular texture.

F. Trowel Finish: Apply trowel finish to monolithic slab surfaces to be exposed to view and slab surfaces to be covered with resilient flooring, carpet, thin set ceramic or quarry tile, paint, or other thin film finish coating system.

   1. After floating, begin first trowel finish operation using a power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over surface. Consolidate concrete surface by final hand-troweling operation, free of
trowel marks, uniform in texture and appearance. Grind smooth surface defects that would telegraph through applied floor covering system.

G. Trowel and Fine Broom Finish: Where ceramic or quarry tile is to be installed with thin-set mortar, apply trowel finish as specified, then immediately follow with slightly scarifying surface by fine brooming.

H. Nonslip Broom Finish: Apply nonslip broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.

1. Immediately after float finishing, slightly roughen concrete surface by brooming with fiberbristle broom perpendicular to main traffic route. Coordinate required final finish with Engineer before application.

3.11 CONCRETE CURING AND PROTECTION

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply in accordance with manufacturer’s instructions after screeding and bull floating, but before power floating and troweling.

B. Start initial curing as soon as free water has disappeared from concrete surface after placing and finishing. Weather permitting, keep continuously moist for not less than 7 days.

C. Curing Methods: Perform curing of concrete by curing and sealing compound, by moist curing, by moisture-retaining cover curing, and by combinations thereof, as herein specified.

D. Provide moisture curing by following methods.

1. Keep concrete surface continuously wet by covering with water.
2. Use continuous water-fog spray.
3. Cover concrete surface with specified absorptive cover, thoroughly saturate cover with water, and keep continuously wet. Place absorptive cover to provide coverage of concrete surfaces and edges, with 4-inch lap over adjacent absorptive covers.

E. Provide moisture-cover curing as follows:
1. Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width with sides and ends lapped at least 3 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

F. Provide curing and sealing compound to exposed interior slabs and to exterior slabs, walks, and curbs as follows:

1. Apply specified curing and sealing compound to concrete slabs as soon as final finishing operations are complete (within 2 hours and after surface water sheen has disappeared). Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer’s directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

2. Use membrane curing compounds that will not affect surfaces to be covered with finish materials applied directly to concrete.

G. Curing Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces, by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

H. Curing Unformed Surfaces: Cure unformed surfaces, such as slabs, floor topping, and other flat surfaces, by application of appropriate curing method.

I. Final cure concrete surfaces to receive liquid floor hardener or finish flooring by use of moisture-retaining cover, unless otherwise directed.

3.12 MISCELLANEOUS CONCRETE ITEMS

A. Filling in: Fill in holes and openings left in concrete structures for passage of work by other trades, unless otherwise shown or directed, after work of other trades is in place. Mix, place, and cure concrete as herein specified, to blend with in-place construction. Provide other miscellaneous concrete filling shown or required to complete work.

B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations, as shown on drawings. Set anchor bolts for machines and equipment to template at correct elevations, complying with certified diagrams or templates of manufacturer furnishing machines and equipment.
D. **Steel Pan Stairs**: Provide concrete fill for steel pan stair treads and landings and associated items. Cast-in safety inserts and accessories as shown on drawings. Screed, tamp, and finish concrete surfaces as scheduled.

E. **Reinforced Masonry**: Provide concrete grout for reinforced masonry lintels and bond beams where indicated on drawings and as scheduled. Maintain accurate location of reinforcing steel during concrete placement.

### 3.13 CONCRETE SURFACE REPAIRS

A. **Patching Defective Areas**: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Engineer.

B. Cut out honeycomb, rock pockets, voids over 1/4 inch in any dimension, and holes left by tie rods and bolts, down to solid concrete but in no case to a depth of less than 1 inch. Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brushcoat the area to be patched with specified bonding agent. Place patching mortar before bonding compound has dried.

C. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike-off slightly higher than surrounding surface.

D. **Repair of Formed Surfaces**: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Engineer. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets, fins and other projections on surface, and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry-pack mortar, or precast cement cone plugs secured in place with bonding agent.

E. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

F. **Repair of Unformed Surfaces**: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope and smoothness by using a template having required slope.
G. Repair finished unformed surfaces that contain defects that affect durability of concrete. Surface defects, as such, include crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through nonreinforced sections regardless of width, spalling, popouts, honeycomb, rock pockets, and other objectionable conditions.

H. Correct high areas in unformed surfaces by grinding after concrete has cured at least 14 days.

I. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with patching compound. Finish repaired areas to blend into adjacent concrete. Proprietary underlayment compounds may be used when acceptable to Engineer.

J. Repair defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts and expose reinforcing steel with at least 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

K. Repair isolated random cracks and single holes not over 1 inch in diameter by dry-pack method. Groove top of cracks and cut out holes to sound concrete and clean of dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding compound. Mix dry-pack, consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing. Place dry-pack before bonding compound has dried. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched area continuously moist for not less than 72 hours.

L. Perform structural repairs with prior approval of Engineer for method and procedure, using specified epoxy adhesive and mortar.

M. Repair methods not specified above may be used, subject to acceptance of Engineer.

3.14 QUALITY CONTROL TESTING DURING CONSTRUCTION

A. General: All concrete testing shall be performed by a laboratory meeting the “Recommended Requirements of Independent Laboratory Qualifications”, published by American Council of Independent Laboratories, and ASTM E-329, “Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction. The laboratory shall be selected by the designer and paid for by the owner. Testing shall be
performed in accordance with the testing chapter of ACI-301. One sample of four cylinders shall be taken for each 100 cubic yards, or fraction thereof, of each class of concrete placed each day. Two specimens shall be obtained for testing at 7 days for informational purposes and two specimens shall be obtained for testing at 28 days for acceptance. Evaluation of tests shall be in accordance with ACI-318, section 5.6.

END OF SECTION 033000
4.5 TECHNICAL SPECIFICATIONS (CONT.)

SECTION 061000 ROUGH CARPENTRY

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Framing with engineered wood products.
3. Shear wall panels.
4. Rooftop equipment bases and support curbs.
5. Wood blocking, cants, and nailers.
7. Wood sleepers.
8. Plywood backing panels.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements.

1.3 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Shear panels.
5. Power-driven fasteners.
7. Expansion anchors.
8. Metal framing anchors.

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PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Certified Wood: Materials shall be produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship for the following:

1. Dimension lumber framing.
2. Laminated-veneer lumber.
5. Rim boards.

B. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.
3. Provide dressed lumber, S4S, unless otherwise indicated.
C. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

D. Engineered Wood Products: Provide engineered wood products acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable Design Stresses: Provide engineered wood products with allowable design stresses, as published by manufacturer, that meet or exceed those indicated. Manufacturer’s published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with the ground, Use Category UC3b for exterior construction not in contact with the ground, and Use Category UC4a for items in contact with the ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

D. Application: Treat items indicated on Drawings.

2.3 DIMENSION LUMBER FRAMING

A. Exposed Framing: Provide material hand-selected for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.

1. Species and Grade: As indicated on plans.

2.4 ENGINEERED WOOD PRODUCTS

A. Engineered Wood Products, General: Products shall contain no urea formaldehyde.
B. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.

1. Extreme Fiber Stress in Bending, Edgewise: 2950 psi 12-inch nominal depth members.
2. Modulus of Elasticity, Edgewise: 2,000,000 psi.

C. Wood I-Joists: Prefabricated units, I-shaped in cross section, made with solid or structural composite lumber flanges and wood-based structural panel webs, let into and bonded to flanges. Provide units complying with material requirements of and with structural capacities established and monitored according to ASTM D 5055.

1. Web Material: Either oriented strand board or plywood, complying with DOC PS 1 or DOC PS 2, Exposure 1.
2. Structural Properties: Provide units with depths and design values not less than those indicated.
3. Provide units complying with APA PRI-400, factory marked with APA trademark indicating nominal joist depth, joist class, span ratings, mill identification, and compliance with APA standard.

D. Rim Boards: Product designed to be used as a load-bearing member and to brace wood I-joists at bearing ends, complying with research/evaluation report for I-joists.

1. Material: All-veneer product or product made from any combination solid lumber, wood strands, and veneers.
3. Provide performance-rated product complying with APA PRR-401, rim board, rim board plus grade, factory marked with APA trademark indicating thickness, grade, and compliance with APA standard.

2.5 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.
5. Furring.

B. For items of dimension lumber size, provide No. 2 grade lumber of species SYP OF SPF.

C. For concealed boards, provide lumber with 15 percent maximum moisture content and any of the following species and grades:

1. Mixed southern pine; No. 2 grade; SPIB.
2. Eastern softwoods; No. 2 Common grade; NeLMA.
3. Northern species; No. 2 Common grade; NLGA.
4. Western woods; No. 2 Common, grade; WCLIB or WWPA.

2.6 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.

B. Bolts: Steel bolts complying with ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6); with ASTM A 563 (ASTM A 563M) hex nuts and, where indicated, flat washers.

2.7 METAL FRAMING ANCHORS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Cleveland Steel Specialty Co.
2. KC Metals Products, Inc.
3. Phoenix Metal Products, Inc.
4. Simpson Strong-Tie Co., Inc.
5. USP Structural Connectors.
C. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer, that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.


   1. Use for interior locations unless otherwise indicated.

E. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 (Z550) coating designation; and not less than 0.036 inch (0.9 mm) thick.

   1. Use for wood-preservative-treated lumber and where indicated.

2.8 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Glass-fiber-resilient insulation, fabricated in strip form, for use as a sill sealer; 1-inch (25-mm) nominal thickness, compressible to 1/32 inch (0.8 mm); selected from manufacturer's standard widths to suit width of sill members indicated.

B. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6.4 mm) thick, selected from manufacturer's standard widths to suit width of sill members indicated.

C. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch (0.6 mm).

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.

B. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
C. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

D. Install fire-retardant treated plywood backing panels with classification marking of testing agency exposed to view.

E. Shear Wall Panels: Install shear wall panels to comply with manufacturer's written instructions.

F. Metal Framing Anchors: Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

G. Do not splice structural members between supports unless otherwise indicated.

H. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

I. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

J. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. NES NER-272 for power-driven fasteners.
3. Table R602.3(1), "Fastener Schedule for Structural Members," and Table R602.3(2), "Alternate Attachments," in ICC's International Residential Code for One- and Two-family Dwellings.

END OF SECTION 061000
4.5 TECHNICAL SPECIFICATIONS (CONT.)

SECTION 061753 SHOP-FABRICATED WOOD TRUSSES

SECTION 061753 - SHOP-FABRICATED WOOD TRUSSES

PART 1 - GENERAL

1.1 SUMMARY
A. Section Includes:
1. Wood roof trusses.
2. Wood floor trusses.
3. Wood girder trusses.
4. Wood truss bracing.
5. Metal truss accessories.

B. Allowances: Provide wood truss bracing under the Metal-Plate-Connected Truss Bracing Allowance as specified in Division 01 Section "Allowances."

1.2 ACTION SUBMITTALS
A. Product Data: For metal-plate connectors, metal truss accessories, and fasteners.

B. Shop Drawings: Show fabrication and installation details for trusses.

1. Show location, pitch, span, camber, configuration, and spacing for each type of truss required.
2. Indicate sizes, stress grades, and species of lumber.
3. Indicate locations, sizes, and materials for permanent bracing required to prevent buckling of individual truss members due to design loads.
4. Indicate type, size, material, finish, design values, orientation, and location of metal connector plates.
5. Show splice details and bearing details.

C. Delegated-Design Submittal: For metal-plate-connected wood trusses indicated to comply with performance requirements and design criteria, including analysis data
signed and sealed by the qualified professional engineer responsible for their preparation.

1.3 INFORMATIONAL SUBMITTALS
   A. Product certificates.
   
   B. Evaluation Reports: For the following, from ICC-ES:
      1. Metal-plate connectors.
      2. Metal truss accessories.

COMPOSTING FACILITY LANDFILL NEW HANOVER COUNTY 061753 - 1

1.4 QUALITY ASSURANCE
   A. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with quality-control procedures in TPI 1 for manufacture of connector plates.
      1. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
      2. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.

   B. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program that complies with quality-control procedures in TPI 1 and that involves third-party inspection by an independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction and is certified for chain of custody by an FSC-accredited certification body.

1.5 DELIVERY, STORAGE, AND HANDLING
   A. Handle and store trusses to comply with recommendations in TPI BCSI, "Building Component Safety Information: Guide to Good Practice for Handling, Installing, Restraining, & Bracing Metal Plate Connected Wood Trusses."

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS
   A. Delegated Design: Engage a qualified professional engineer, as defined in Division 01 Section "Quality Requirements," to design metal-plate-connected wood trusses.
B. Structural Performance: Provide metal-plate-connected wood trusses capable of withstanding design loads within limits and under conditions indicated. Comply with requirements in TPI 1 unless more stringent requirements are specified below.

2.2 DIMENSION LUMBER
A. Certified Wood: For metal-plate-connected wood trusses and permanent bracing, provide materials produced from wood obtained from forests certified by an FSC-accredited certification body to comply with FSC STD-01-001, "FSC Principles and Criteria for Forest Stewardship."

B. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Provide dry lumber with 19 percent maximum moisture content at time of dressing.

C. Permanent Bracing: Provide wood bracing that complies with requirements for miscellaneous lumber in Division 06 Section "Rough Carpentry."

2.3 METAL CONNECTOR PLATES
A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

1. Alpine Engineered Products, Inc.; an ITW company.
2. Cherokee Metal Products, Inc.; Masengill Machinery Company.
3. CompuTrus, Inc.
4. Eagle Metal Products.
6. MiTek Industries, Inc.; a subsidiary of Berkshire Hathaway Inc.
7. Robbins Engineering, Inc.
8. Truswal Systems Corporation; an ITW company.

B. General: Fabricate connector plates to comply with TPI 1.

C. Hot-Dip Galvanized-Steel Sheet: ASTM A 653/A 653M; Structural Steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G90 coating designation; and not less than 0.036 inch thick. D. Stainless Steel Sheet: Type 304 stainless steel.
2.4 FASTENERS
   A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

   1. Provide fasteners for use with metal framing anchors that comply with written recommendations of metal framing manufacturer.
   2. Where trusses are exposed to weather, in ground contact, made from preservative treated wood, or in area of high relative humidity, provide fasteners of Type 304 stainless steel.

   B. Nails, Brads, and Staples: ASTM F 1667.

2.5 METAL FRAMING ANCHORS AND ACCESSORIES
   A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

      1. Cleveland Steel Specialty Co.
      2. KC Metals Products, Inc.
      3. Phoenix Metal Products, Inc.
      4. Simpson Strong-Tie Co., Inc.
      5. USP Structural Connectors.

   B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

      1. Cleveland Steel Specialty Co.
      2. KC Metals Products, Inc.
      3. Phoenix Metal Products, Inc.
      4. Simpson Strong-Tie Co., Inc.
      5. USP Structural Connectors.

   C. Allowable Design Loads: Provide products with allowable design loads, as published by manufacturer that meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.6 FABRICATION
   A. Assemble truss members in design configuration indicated; use jigs or other means to ensure uniformity and accuracy of assembly with joints closely fitted to comply with tolerances in TPI 1. Position members to produce design camber indicated.

   1. Fabricate wood trusses within manufacturing tolerances in TPI 1.
   B. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

PART 3 - EXECUTION

3.1 INSTALLATION
   A. Install wood trusses only after supporting construction is in place and is braced and secured.

   B. If trusses are delivered to Project site in more than one piece, assemble trusses before installing.

   C. Hoist trusses in place by lifting equipment suited to sizes and types of trusses required, exercising care not to damage truss members or joints by out-of-plane bending or other causes.

   D. Install and brace trusses according to TPI recommendations and as indicated.

   E. Anchor trusses securely at bearing points; use metal truss tie-downs or floor truss hangers as applicable. Install fasteners through each fastener hole in metal framing anchors according to manufacturer's fastening schedules and written instructions.

   F. Securely connect each truss ply required for forming built-up girder trusses.

   G. Install and fasten permanent bracing during truss erection and before construction loads are applied. Anchor ends of permanent bracing where terminating at walls or beams.

   1. Install bracing to comply with Division 06 Section "Rough Carpentry."
   2. Install and fasten strongback bracing vertically against vertical web of parallel-chord floor trusses at centers indicated.

   H. Install wood trusses within installation tolerances in TPI 1.

   I. Do not alter trusses in field. Do not cut, drill, notch, or remove truss members.

   J. Replace wood trusses that are damaged or do not meet requirements.
NEW HANOVER COUNTY
Environmental Management Dept.
3002 U.S. Highway 421 North
Wilmington, NC 28401

Kim Roane, Business Officer
ph: 910-798-4402
fax: 910-798-4408

Email: kroane@nhcgov.com

END OF SECTION 061753
NEW HANOVER COUNTY
RFB #17-0407
CONCRETE PAD AND ROOF
Price Sheet/Bid Form

TO: Kim Roane, Business Officer
New Hanover County
3002 Hwy. 421 North
Wilmington, NC 28401

DATE:____________________  CONTRACTOR:______________________________

PHONE:___________________  ADDRESS:__________________________________

North Carolina General Contractor License # ______________________________

UNIT PRICE BID: The undersigned, having carefully examined the Instructions to Bidders,
RFB #17-0407, CONCRETE PAD AND ROOF, dated May 16, 2017, including the following
addenda;

ADDENDUM #_________________  DATED:______________________________

ADDENDUM #_________________  DATED:______________________________

ADDENDUM #_________________  DATED:______________________________

As well as the premises and conditions affecting the work, proposes to furnish all services,
labor, materials and equipment called for to complete the project in accordance with the contract
documents for the following price:

TOTAL TURNKEY BID PRICE: ________________________________

NUMBER OF CALENDAR DAYS FOR PROJECT COMPLETION__________DAYS AFTER
DATE OF PO ISSUANCE serving as Notice to Proceed.

WARRANTY DESCRIPTION:
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
__________________________________________________________________________
NEW HANOVER COUNTY
RFB #17-0407
CONCRETE PAD AND ROOF
Price Sheet/Bid Form (PAGE 2)

Exceptions to bid (express costs to include all labor and materials):

____________________________________________________________________________
____________________________________________________________________________
____________________________________________________________________________

______________________________  _____________________________
Signature                        Title

______________________________  _____________________________
Email Address                    Phone / Cell Phone

______________________________  _____________________________
Company Name                     State of Incorporation
NEW HANOVER COUNTY
RFB #17-0407 CONCRETE PAD AND ROOF

STATEMENT OF ASSURANCES AND COMPLIANCE

The undersigned, as bidder certifies that the General Conditions and Instructions to Bidders, the Draft Contract, the Scope of Work and the Price Sheet/Bid Form found in the bidding documents dated May 16, 2017, have been read and understood.

The bidder hereby provides assurance that the firm represented in this bid, as indicated below:

1) Will comply with all requirements, stipulations, terms, and conditions as stated in the bid document:
2) Currently complies with all applicable State and Federal Laws:
3) Is not guilty of collusion with the vendors possibly interested in this bid or in determining prices to be submitted: and
4) Such agent as indicated below is officially authorized to represent the firm in whose name this bid is submitted.

________________________________  _______________________________________
Name of Firm  Name of Firm Representative

c______________________________  __________________________
Title

c______________________________
Address of Firm

c______________________________
Telephone Number

c______________________________
Date

c______________________________
State of Incorporation
REFERENCES
This form must be completed and submitted with Bid

**Company Name of Bidder:**

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AGREEMENT

THIS CONTRACT made and entered into this ___ day of ___________________ 2017 by and between NEW HANOVER COUNTY, a political subdivision of the State of North Carolina, hereinafter referred to as "County"; and _____________________, a ___________________ hereinafter referred to as "Contractor."

WITNESSETH:

That the Contractor, for the consideration hereinafter fully set out, hereby agrees with the County as follows:

1. **Scope of Services.** Contractor shall provide turnkey services necessary to construct a new concrete pad and partial roof cover over pad at the New Hanover County Landfill located 5210 US Hwy. 421, Wilmington, North Carolina, as more fully described on Exhibit A, attached hereto and incorporated herein by reference.

2. **Time of Performance.** The term of this Agreement shall begin from receipt of Notice to Proceed and all work shall be completed within _____________ of said Notice.

3. **Payment.** County hereby agrees to pay for the cost of this Contract not to exceed a sum of _____________________ ($_______) Dollars. Payment is contingent upon a final County inspection and acceptance of work or services.

4. **Extra Work.** County and Contractor shall negotiate and agree upon the value of any extra work or services prior to the issuance of a County Change Order or Renewal/Amendment (CRA) form covering said extra work or services. Such Change Order or CRA shall set forth the corresponding adjustment, if any, to the Contract Price and Contract Time.

5. **Indemnity.** Contractor shall indemnify and hold County, its officers, officials, agents, and employees, harmless against any and all claims, demands, causes of action, or other liability, including attorney fees, for any property damages, personal injuries or death arising out of, relating to, or resulting from the negligence, willful act, or omission of Contractor, its agents, employees and subcontractors in the performance of work or services.

Accts#70080200 800200

Page 1 of 11

Req._
6. **Insurance.** Before commencing any work or services, Contractor shall procure insurance in Contractor’s name and maintain all insurance policies for the duration of the Contract of the types and in the amounts listed in this Contract. The insurance shall provide coverage against claims for injuries to persons or damages to property which may arise from operations or in connection with the performance of the work hereunder by Contractor, its agents, representatives, employees, or subcontractors, whether such operations by itself or anyone directly or indirectly employed by it.

7. **Minimum Scope and Limits of Insurance**

7.1. **Commercial General Liability**

7.1.1. Contractor shall maintain Commercial General Liability (CGL) and if necessary, Commercial Umbrella Liability (CUL) insurance with a total limit of not less than $1,000,000 for each occurrence for bodily injury and property damage. If such CGL insurance contains a general aggregate limit, it shall apply separately to this work or services, or the general aggregate shall be twice the required limit.

7.1.2. CGL insurance shall be written on Insurance Services Office (ISO) "occurrence" form CG 00 01 covering CGL or its equivalent and shall cover the liability arising from premises, operations, independent contractors, products-completed operations, personal and advertising injury, and liability assumed under an insured contract, including the tort liability of another assumed in a business contract.

7.1.3. County, its officers, officials, agents, and employees are to be covered as additional insureds under the CGL by endorsement CG 20 10 and CG 20 37 or an endorsement providing equivalent coverage as respects to liability arising out of activities performed by or on behalf of Contractor; products and completed operations of Contractor; premises owned, leased or used by Contractor; and under the CUL, if any. The coverage shall contain no special limitations on the scope of protection afforded to County, its officers, officials, agents, and employees.

7.1.4. Contractor’s CGL insurance shall be primary as respects County, its officers, officials, agents, and employees. Any other insurance or self-insurance maintained by County, its officers, officials, agents, and employees shall be in excess of and shall not contribute to Contractor’s insurance.

7.2. **Workers’ Compensation and Employer’s Liability**
7.2.1. Contractor shall maintain Workers' Compensation as required by the general statutes of the State of North Carolina and Employer's Liability Insurance.

7.2.2. Employer's Liability, and if necessary, CUL insurance shall not be less than $1,000,000 for each accident for bodily injury by accident, $1,000,000 for each employee for bodily injury by disease, and $1,000,000 policy limit.

7.2.3. The insurer shall agree to waive all rights of subrogation against County, its officers, officials, agents, and employees for losses arising from work or services performed by Contractor for County.

7.3. Business Auto Liability

7.3.1. Contractor shall maintain applicable Business or Personal Auto Liability and, if necessary, CUL insurance with a limit of not less than $1,000,000 each accident. Personal auto insurance may be accepted in lieu of Business Auto Insurance.

7.3.2. Such insurance shall cover liability arising out of any auto, including owned, hired, and non-owned autos used in the performance of work or services.

7.3.3. Business Auto coverage shall be written on ISO form CA 00 01, or a substitute form providing equivalent liability coverage. If necessary, the policy shall be endorsed to provide Contractual liability coverage equivalent to that provided in ISO form CA 00 01.

7.3.4. Contractor's Business Auto Liability insurance shall be primary as respects County, its officers, officials, agents, and employees. Any other insurance or self-insurance maintained by County, its officers, officials, agents, and employees shall be in excess of and shall not contribute to Contractor's insurance.

7.4. Deductibles and Self-Insured Retentions

7.4.1. Any deductibles or self-insured retentions must be declared to and approved by County. At the option of County, either the insurer shall reduce or eliminate such deductibles or self-insured retentions as respects County, its officers, officials, agents, or employees; Contractor shall procure a bond guaranteeing payment of deductibles or self-insured retentions.
7.4.2. Contractor shall be solely responsible for the payment of all deductibles to which all policies are subject, regardless of whether County is an insured under the policy.


7.5.1. Any failure to comply with reporting provisions of the policies listed in this Contract shall not affect coverage provided to County, its officers, officials, agents, and employees.

7.5.2. Each insurance policy required by this Contract shall be endorsed to state that coverage shall not be canceled by either party except after thirty (30) days prior written notice has been given to County, 230 Government Center Drive, Ste. #125, Wilmington, NC 28403.

7.5.3. If Contractor’s liability policies do not contain the standard ISO separation of insureds provision, or a substantially similar clause, they shall be endorsed to provide cross-liability coverage.

7.6. Acceptability of Insurers. Insurance is to be placed with insurers licensed to do business in the State of North Carolina with an A.M. Best’s rating of no less than A VII unless County has granted a specific exemption.

7.7. Evidence of Insurance

7.7.1. Contractor shall furnish County with a certificate(s) of insurance, executed by a duly authorized representative of each insurer, showing compliance with the insurance requirements prior to commencing the work or services, and thereafter upon renewal or replacement of each certified coverage until all operations under this Contract are deemed complete.

7.7.2. Evidence of additional insured status shall be noted on the certificate of insurance as per requirements in this Contract.

7.7.3. With respect to insurance maintained after final payment in compliance with requirements, an additional certificate(s) evidencing such coverage shall be provided to County with final application for payment and thereafter upon renewal or replacement of such insurance until the expiration of the period for which such insurance must be maintained.
7.8. **Subcontractors.** Contractor shall include all subcontractors as insureds under its policies or shall furnish separate certificates for each subcontractor. All coverage for subcontractors shall be subject to all of the requirements stated herein. CGL coverage shall include independent contractors' coverage, and Contractor shall be responsible for assuring that all subcontractors are properly insured.

7.9. **Conditions**

7.9.1. County may, at its discretion and with approval of Risk Management and the Finance Department, accept letters of credit or custodial accounts in lieu of specific insurance requirements.

7.9.2. Contractor shall warrant that the insurance contributing to the satisfaction of insurance requirements in this Contract and shall not be canceled, terminated, or modified by Contractor without prior written approval of County.

7.9.3. Contractor shall promptly notify New Hanover County Environmental Management and New Hanover County Risk Management at (910) 798-7497 of any accidents arising in the course of operations under the Contract causing bodily injury or property damage.

7.9.4. County reserves the right to obtain complete, certified copies of all required insurance policies.

7.9.5. Failure of County to demand a certificate of insurance or other evidence of full compliance with these insurance requirements or failure of County to identify a deficiency from evidence that is provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

7.9.6. County does not represent that coverage and limits will be adequate to protect Contractor and such coverage and limits shall not be deemed as a limitation of Contractor's liability under the indemnities granted to County in this Contract.

7.9.7. If Contractor fails to maintain the insurance as set forth herein, County shall have the right to purchase said insurance at Contractor's expense. Contractor agrees to reimburse County for all expenses incurred for such purchase.
7.9.8. Contractor or its agent may apply to County for approval of higher deductibles based on financial capacity and quality of the carrier affording coverage.

7.9.9. County shall have the right to prohibit Contractor or any subcontractor from performing work or services and may withhold payment until required certificates has been received and approved by County.

8. **Independent Contractor.** The parties mutually agree that the Contractor is an independent contractor and not an agent of the County, and as such, the Contractor shall not be entitled to any County employment benefits, such as, but not limited to, vacation, sick leave, insurance, workmen's compensation, or pension and retirement benefits.

9. **Default and Termination.** If Contractor fails to prosecute the work or services with such diligence as will insure its completion within the Contract time, or if Contractor breaches any of the terms or conditions contained in this Contract and fails to cure said breach within two (2) days of County's mailing of Notice of Default, or otherwise fails to perform the work or services hereunder to the County's reasonable satisfaction, County may terminate this Contract forthwith. Upon termination, County may, without prejudice to an action for damages or any other remedy, take the prosecution of the work or services out of the hands of Contractor. County may enter into another Contract for the completion of the Contract, or use such other methods as may be required for the completion of the Contract. County may deduct all costs of completing the Contract from any monies due or which may become due to Contractor. In the event this Contract is terminated prior to completion of the services by the Contractor, the Contractor shall be paid for work or services performed to the date of termination. In no event will the amount due Contractor in the event of termination exceed that amount set forth in this Contract. Nothing contained herein shall prevent the County from pursuing any other remedy, which it may have against Contractor, including claims for damages.

10. **Termination for Convenience.** County may terminate this Contract for convenience at any time and without cause. Upon receipt of notice, Contractor shall immediately discontinue providing the work or service and, if applicable, the placing any
orders for any materials, facilities, and supplies in connection with the performance of the work or services of this Contract.

11. **Non-appropriation.** All funds for payment by County under this Contract are subject to the availability of an annual appropriation of Commissioners for the services provided under the Contract, County will terminate the Contract, without termination charge or liability, on the last day of the then-current fiscal year or when the appropriation made for then-current year for the services/items covered by this Contract is spent, whichever occurs first. If at any time funds are not appropriated for the continuance of this Contract, cancellation shall be accepted by the Contractor on ten (10) business days’ prior written notice, but failure to give such notice shall be of no effect and County shall not be obligated under this Contract beyond the date of termination.

12. **Non-waiver of Rights.** The parties mutually agree that either party’s failure to insist upon the strict performance of any provision of this Contract or to exercise any right based upon a breach thereof, or the acceptance of any performance during such breach, shall not constitute a waiver of any rights under this Contract.

13. **Conflict of Interest.** No paid employee of the County shall have a personal or financial interest, direct or indirect, as a contracting party or otherwise, in the performance of this Contract.

14. **Subcontracts.** The Contractor shall utilize no subcontractors for performing the work or services to be performed under this Contract without the prior written approval of the County.

15. **Entire Contract.** This Contract constitutes the entire understanding of the parties.

16. **Binding Effect.** This Contract shall be binding upon the parties hereto, and their heirs, successors, executors, administrators and assigns.

17. **Severability.** If any provision of this Contract is held unenforceable, all remaining provisions of this Contract shall remain in full force and effect.

18. **Inclusive Terms.** Use of the masculine herein shall include the feminine and neuter, and the singular shall include the plural.

19. **Governing Law.** All of the terms and conditions contained herein shall be interpreted in accordance with the laws of the State of North Carolina.
20. **E-Verify Compliance.** Pursuant to S.L. 2015-294, Contractor shall fully comply with the U.S. Department of Homeland Security employee legal status E-Verify requirements for itself and all its subcontractors. Violation of the provision, unless timely cured, shall constitute a breach of Contract.

21. **Iran Divestment Act of 2015 Compliance Pursuant to N.C.G.S. 147-86.55 et. seq.** The Act requires that the State, a North Carolina local government, or any other political subdivision of the State of North Carolina must not utilize any contractor or subcontractor found on the State Treasurer’s Final Divestment List. Contractor certifies that it or its subcontractors are not listed on the Final Divestment List created by the North Carolina State Treasurer pursuant to N.C.G.S. 147-85.60. The State Treasurer’s Final Divestment List can be found on the State Treasurer’s website at the address www.nctreasurer.com/Iran and will be updated every 180 days.

22. **Accounting Procedures for Refund of County Sales & Use Tax.** Pursuant to G.S. 105-164.14(c), the County is entitled to a refund of sales and/or use taxes paid by contractors on purchases of building materials, supplies, fixtures and equipment that become a part of or are annexed to any building or structure that is owned or leased by the County and is being erected, altered or repaired for use by the County.

Contractors shall provide a "certified statement" containing the specific required information. The certified statement must include all of the following information:

a. the date the property was purchased;
b. the type of property purchased;
c. the cost of property purchased and the amount of sales and use taxes paid thereon;
d. the project for which the property was used;
e. if the property was purchased in this State, the county to which it was delivered; and
f. if the property was not purchased in this State, the county in which the property was used.

If the contractor makes several purchases from the same vendor, the certified statement must indicate each invoice number, the inclusive dates of the invoices, the total amount each invoice, and the state and local sales and use taxes paid on the purchase.
The statement must also include the cost of any tangible personal property withdrawn from the Contractor's warehouse stock and the amount of state and local sales or use tax paid by the Contractor. If subcontractors are used, similar certified statements by its subcontractors must be obtained by the general contractor and furnished to the County. Local sales or use taxes included in the Contractor's statements must be shown separately from the State sales or use taxes. The Contractor's statements must not contain sales or use taxes paid on purchases of tangible personal property purchased by the contractor for use in performing the contract which does not annex to, affix to or in some manner become a part of the building or structure that is owned or leased by the County and is being erected, altered or repaired for use by the County.

Examples of property on which sales or use tax has been paid by the Contractor and which shall not be included in the Contractor's statement are scaffolding, forms for concrete, fuel for the operation of machinery and equipment, tools, equipment, equipment repair parts and equipment rentals.

A certified statement must be provided with each pay request. If there was no sales or use tax paid during the period, the contractor shall provide a "Zero" sales and use tax statement.

23. Notices. All notices required hereunder to be sent to either party shall be sent to the following designated addresses, or to such other address or addresses as may hereafter be designated by either party by mailing of written notice of such change of address, by Certified Mail, Return Receipt Requested:

To County:
New Hanover County Environmental Management
Attention: Kim Roane, Business Officer
3002 U.S. Hwy 421 North
Wilmington, NC 28401

To Contractor:

________________________________________________________________________

________________________________________________________________________
24. **Assignability.** The parties hereto agree that this Contract is not transferable and shall not be assigned by either party without the written consent of the other party to this Contract.

25. **Contract Under Seal.** The parties hereto expressly agree to create a Contract under seal.

IN WITNESS WHEREOF, the parties have hereunto affixed their hands and seals, the day and year first above written and by authority duly given.

[SEAL]

NEW HANOVER COUNTY

__________________________

County Manager

ATTEST:

Clerk to the Board

[SEAL]

CONTRACTOR

BY: __________________________ (Seal)

President

ATTEST:

Secretary

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

__________________________

County Finance Officer

Approved as to form:

__________________________

County Attorney
STATE OF NORTH CAROLINA
NEW HANOVER COUNTY

I, ________________, a Notary Public of the State and County aforesaid, certify that Kymberleigh G. Crowell acknowledged that she is Clerk to the Board of Commissioners of New Hanover County, and that by authority duly given and as the act of the Board, the foregoing instrument was signed in its name by its ________ County Manager, sealed with its corporate seal and attested by herself as its Clerk.

WITNESS my hand and official seal, this ____ day of ______________________, 2017.

My commission expires: ________________

Notary Public

STATE OF ________________
______________ COUNTY

I, ________________, a Notary Public in and for the State and County aforesaid, certify that ________________, personally came before me this day and acknowledged that (s)he is President of ________________, a ________________ and that by authority duly given and as the act of the ________________ corporation, the foregoing instrument was signed in its name by its President.

WITNESS my hand and official seal, this ____ day of ______________________, 2017.

Notary Public

My commission expires: ________________
CONTRACTOR’S SALES TAX REPORT
N.C. STATE AND LOCAL TAXES PAID

Contractor: ___________________________  Project: ___________________________

<table>
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<tr>
<th>Vendor</th>
<th>Invoice Date</th>
<th>Invoice Number</th>
<th>Inv. Amount Before</th>
<th>NC State Tax Paid</th>
<th>County Tax Paid</th>
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I certify that taxes were paid on the purchases listed above and these purchases were for the cost of building materials, supplies, fixtures, and/or equipment which became a part of, or are annexed to a building or structure being erected, repaired, or altered under the above referenced project with the County.

Signed: ____________________________________________

Title: ______________________________________________

Date: _______________________________________________
Contractor Compliance Requirements
Introduction

The safety and health of all contractors, customers, and employees of the New Hanover County Department of Environmental Management is of primary importance. As a result, the prevention of occupationally induced injuries and illnesses will be given precedence over operating productivity whenever necessary.

Our goal is to maintain a safety and health program conforming to all applicable OSHA standards and to lead in safety program management within our industry. To be successful will require contractor cooperation in all safety and health matters.

As a contractor you will be required, as part of your contract, to take an active role in the Department of Environmental Management safety and health program. The following contractor safety and health requirements, when adhered to, will ensure safety for contractors, customers, and County employees. Additionally, potential damage to equipment and property will be avoided. It is impossible to document all possible situations or to provide precise guidance for every contingency a contractor may encounter in the course of their work. However, adherence to the rules as written and the desire to apply safe work practices will result in the highest level of safety.
General Requirements

1. All contractor employees shall abide by the Department of Environmental Management safety and health rules and regulations at all times. The DEM Safety Manual is available for copy or review in each of the Department’s offices.

2. The contractor and all contracted employees are required to follow the procedures for signing in and out. Procedures may differ depending on the section of the department the contractor is working in; they will be explained fully before the work begins.

3. The contractor shall have a competent individual in charge at the job site to supervise the job, conduct an adequate accident prevention program, and ensure compliance to OSHA and DEM rules.

4. All accidents or injuries shall be reported immediately to the DEM Project Manager or Safety Manager.

5. Contractor employees are not allowed to enter areas other than the work site, unless it is required for the performance of their job.

6. The contractor shall inform the Project Manager of any known hazardous conditions that exist, due to the contract work being done, in areas where Departmental employees may be exposed to the known hazards.

7. The contractor shall provide Material Safety Data Sheets for all containers of hazardous substances brought onto DEM property.

8. The contractor shall sign the “Contractor Hold Harmless” waiver form in order to use any Department equipment.

9. Periodic job site inspections will be conducted by the DEM Project Manager or Safety Manager to ensure that the job is proceeding safely in accordance with safety rules.

10. Violation of these rules is grounds for immediate termination of contract work.
Standards of Conduct

The Department of Environmental Management has established standards to ensure the smooth, safe, and efficient operations of the Department. Violation of these standards is considered serious and may lead to termination of the contract. The following are prohibited:

1. Willful damage to any Departmental property, customer property, or the property of Department employees.
2. Possession, use, or distribution of alcohol, narcotics, or illegal drugs on Department property.
3. Possession of firearms, ammunition, concealed weapons, or explosives (unless properly authorized).
4. Abusive or threatening language, harassment, disrespectful behavior, workplace violence, or interfering with the work of Department employees.
5. Theft or attempted theft from the Department or Department employees.
6. Refusal to perform contracted work or refusal to obey instructions.
7. Sleeping on the job.
8. Negligence or conduct which could result in injury or damage to property.
Contractor Safety Training

Please place a check by each of the following categories in which one or more of your employees has been trained. It is understood that not all contractors will have employees who are trained in all of the areas listed.

- Personal Protective Equipment
- First Aid and CPR
- Lockout/Tagout
- Confined Space Entry
- Respiratory Protection
- Hazardous Communication
- Material Safety Data Sheets
- Fire Prevention and Protection
- Fall Protection
- Scaffolding
- Heavy Equipment Training/Certification (includes bulldozer, loader, forklift, excavator, grader, roller, back-hoe, bobcat)
- Welding, Cutting, and Brazing
- Electrical Safety
- Trenching/Excavation
- Other

* If the contracting company has ten (10) or more employees, they will be required to present OSHA 300 Logs, at a minimum for the past three calendar years, along with their bid.

The Department of Environmental Management reserves the right to ask for any training records from the categories that were checked above. The County reserves the right to reject the bid of any firm that cannot document proper safety training as it relates to conducting the work included in the contract.
Contractor Agreement to Comply

I, __________________________, a representative of __________________________ do hereby acknowledge that my company has received a copy of the guidelines governing contract work being performed on New Hanover County Department of Environmental Management property. It is agreed that as part of the contract my company and its employees will comply with these guidelines and all the written programs which apply to the work being performed.

Signed __________________________ Date __________________________

(Contractor)

Please return this signed page to the designated Department of Environmental Management Project Manager. A copy of the signed form will be kept in the Safety Officer’s files.
1. DESIGN LOADS:
   - ROOF LIVE LOAD: 20 PSF
   - FLOOR LIVE LOAD: 400 PSF

2. BASIC WIND DESIGN VELOCITY: 150 MPH (TILE STATE BUILDING CODE LATEST EDITION)

3. SOIL EARTHQUAKE ZONES:
   - ZONE 1: 1.5 PSF
   - ZONE 2 & 3: 0.5 PSF

4. STRUCTURAL NOTES:
   - 1. DESIGN LOADS:
     - ROOF LIVE LOAD: 20 PSF
     - FLOOR LIVE LOAD: 400 PSF

   - 2. BASIC WIND DESIGN VELOCITY: 150 MPH (TILE STATE BUILDING CODE LATEST EDITION)

   - 3. SOIL EARTHQUAKE ZONES:
     - ZONE 1: 1.5 PSF
     - ZONE 2 & 3: 0.5 PSF

5. LAYOUT:
   - 1. THE CONTRACTOR SHALL PROVIDE ALL LAYOUT REQUIRED TO CONSTRUCT HIS WORK

6. FOUNDATION:
   - 1. FOOTING DESIGN IS BASED ON AN ALLOWABLE SILL BEARING PRESSURE OF 1,000 PSF

7. CONCRETE:
   - 1. CONCRETE COMPREHENSIVE STRENGTH AT 28 DAYS: 4000 PSI
   - 2. REINFORCING STEEL: ASTM A615, GRADE 60
   - 3. ALUMINUM WIRE: ASTM A416

8. STRUCTURAL:
   - 1. ALL WORK SHALL COMPLY WITH THE N.C. STATE BUILDING CODE (LATEST EDITION)

9. ROOF TRUSS GENERAL NOTES:
   - 1. TRUSS TRUSS LAMINATING: THE DRAWINGS ARE FOR DESIGN PURPOSES ONLY

   - 2. THE DRAWINGS ARE BEST QUALITY PRINTED ON THE DRAWING SHEETS

   - 3. THE DRAWINGS ARE IN ACCORDANCE WITH THE N.C. STATE BUILDING CODE

   - 4. TRUSS CONSTRUCTION AND MATERIALS CONFORM TO THE SPECIFICATIONS SHOWN IN THE DRAWINGS