Fayette County

"Where Quality Is a Lifestyle"

PURCHASING DEPARTMENT
140 Stonewall Avenue West, Ste 204
Fayetteville, Georgia 30214
Phone: 770-305-5420
www.fayettecountyga.gov

December 29, 2017

Subject: Invitation to Bid #1435-B: Kenwood Park Pavilion Construction

Gentlemen/Ladies:

Fayette County, Georgia is seeking bids for construction of a new pavilion at Kenwood Park. You are invited to submit a bid in accordance with the information contained herein.

Questions concerning this invitation to bid should be addressed to me in writing via email to PurchasingGroup@fayettecountyga.gov or fax to (770) 719-5208. Questions will be accepted until 3:00 pm, Thursday, January 25, 2018.

Purchasing Department office hours are Monday through Friday 8:00 a.m. to 5:00 p.m. The office telephone number is (770) 305-5420.

Please return your response to the following address:

Fayette County Purchasing Department
140 Stonewall Avenue West, Suite 204
Fayetteville, Georgia 30214

Bid Number: 1435-B
Bid Name: Kenwood Park Pavilion Construction

Your envelope *must* be sealed, and should show your company's name and address.

Bids will be received at the above address until 3:00 pm, Tuesday, January 30, 2018 in the Purchasing Department, Suite 204. Bids will be opened at that time.

Bids must be signed to be considered. Late bids cannot be considered. Faxed bids cannot be considered.

If you download this invitation to bid from the county's web site, it will be your responsibility to check the web site for any addenda that might be issued for this solicitation. The county cannot not be responsible for a vendor not receiving information provided in any addendum.

Thank you for participating in the solicitation process.

Sincerely,

Ted L. Burgess
Director of Purchasing

Fayette County, Georgia
Checklist of Required Documents

(Please return this checklist and the documents listed below with your submittal)

INVITATION TO BID #1435-B: KENWOOD PARK PAVILION CONSTRUCTIN

Company Information form _____

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1) _____

Schedule of Values (Exhibit A) _____

Exceptions, if any _____

References form _____

Addendum, if any _____

Survey – Communication of Opportunity to Bid _____

COMPANY NAME: _____

INVITATION TO BID #1435-B

KENWOOD PARK PAVILION CONSTRUCTION

FOR FAYETTE COUNTY, GEORGIA

1. INTRODUCTION

Fayette County is seeking bids from qualified contractors for the construction of a new pavilion at our Kenwood Park in Fayette County, Georgia. Work is to include all tasks associated with construction of the entire pavilion facility including but not limited to installing the concrete pad, sidewalk section and required footings, installing electrical outlets & lights in the pavilion from meter at the restroom, and construction of the new pavilion.

2. BACKGROUND

Kenwood Park is Fayette Counties newest park encompassing ±173-acre of land located in the northern section of Fayette County. This park currently has a nice track surrounding a football/soccer field, sand volleyball courts, colorful playground sets, tennis courts, basketball courts and a vast array of walking trails nestled within beautiful greenspace areas on the property. A master plan has been developed that entails a phased approach to expanding the amenities within this beautiful park. Currently planned Phase II improvements is to include a restroom, playground, pavilion, maintenance building, walking trails, exercise stations, a multiuse recreational field and expanded parking areas.

This Phase II project is to install a new pavilion that matches the existing pavilion in regards to design, size and material composition so as to keep a common theme. The existing pavilion shelter on site was manufactured by RCP Shelters, Inc. (LW-G2852-03). This pavilion will provide another opportunity for gatherings, planned events, etc. as a supplement to the existing pavilion that is heavily scheduled for use throughout the year. A youth & children's playground improvement has already been installed and a restroom to service the pavilion is in process of moving forward to construction. The community anxiously awaits the installation of these improvements which are anticipated to further increase the use of this park.

II. AGREEMENT

AGREEMENT

Name and Address of Contractor:

_____

_____

_____

_____

Contract No._____

Date of Contract:_____

KENWWOD PARK PAVILION

This Contract (the "Contract") is made and entered into by and between FAYETTE COUNTY, GA, a political subdivision of the State of Georgia (the "County") and _____ (hereinafter "Contractor"), organized and existing under the laws of the State of Georgia, with its principal offices in _____. This Contract is for the Kenwood Park Pavilion Facility Project (the "Project").

WITNESSETH

WHEREAS, Fayette County desires that the Contractor furnish construction services more particularly described in the contract documents specified below; and

WHEREAS, the Contractor represents their willingness and ability to provide these services;

NOW THEREFORE, the parties do mutually agree as follows:

THE "CONTRACT"

This Contract shall include the following contract documents ("Contract Documents"), including all modifications thereof:

1. General Terms and Conditions
2. Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1)
3. Bidder Responsibility & Responsiveness
   Previous Experience with Projects of Similar Scope & Cost
4. Agreement
5. Scope of Work
6. Exceptions To Specifications
   (Assumptions and Clarifications)
7. EXHIBIT A – Schedule of Values
8. Bidder's References
9. Company Information
10. Construction Schedule dated _____

The Contract Documents shall be complementary and are intended to include and imply all items required for the proper execution and completion of the Work. Any item of Work mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be provided as if shown and mentioned on both.

DEFINITIONS

Definitions applicable to this Contract are found in Item #1 of the General Terms and Conditions. The following additional definitions are applicable to this Contract:

(a) The term "Architect" as it appears in the Contract Documents shall mean Fayette County. The "Architect" shall also include the manufacturer of the pre-fab pavilion structure.

(b) The term "General Terms and Conditions" means the Fayette County, GA, General Terms and Conditions for All Construction Contracts.

STATEMENT OF WORK

(a) The Contractor shall furnish all labor, equipment, material and supervision to complete the Work shown in the Contract Documents listed for this Project, in accordance with this Contract.

(b) All prior negotiations and writings of every kind concerning the Work are considered null and void by this Contract, unless specifically included within the Contract Documents. Any changes in the provisions of this Contract, including changes in the Contract Documents, made following the execution of this Contract shall be made in writing by way of an executed Change Order, per the process set forth in the SCOPE OF WORK – GENERAL SPECIFICATIONS section.

AMOUNT OF CONTRACT

(a) The Contractor is to furnish all items required by the Contract Documents for proper completion of the Work. In full consideration for the performance of the Work and all other obligations of the Contractor hereunder, Fayette County, Ga agrees to pay the Contractor a sum of money equal to the total Schedule of Values + approved change orders. Allowances, although included in the total contract award, shall be used by the County for the purposes of approved Change Orders and or Change Directives. Any remaining allowance after completion of the project belongs to Fayette County.

(d) Payment Schedule. Contractor shall prepare and submit to Fayette County for their approval prior to the first application for payment a proposed schedule of values and payment schedule which, upon written approval by Fayette County, shall be the basis for the Contractor's monthly application for payment.

(f) Limitation of Markup. Contractor shall include in each subcontract a limitation on the markup which Subcontractors can include in Change Orders. The cumulative total of markup (subcontractor markup plus all lower-tier subcontractor markups) shall not exceed fifteen percent (15%) of the cost of the change.

III. SCOPE OF WORK

GENERAL SPECIFICATIONS

1. All work must be done in accordance with the applicable building codes:
    - International Building Code – 2012 Edition with Georgia State Amendments
    - International Residential Code- 2012 Edition w/Georgia State Amendments
    - International Fire Code (IFC) – 2012 Edition with Georgia State Amendments
    - International Mechanical Code – 2012 Edition with Georgia State Amendments
    - International Fuel Gas Code – 2012 Edition with Georgia State Amendments
    - International Plumbing Code – 2012 Edition with Georgia State Amendments
    - National Electrical code – 2014 Edition with Georgia State Amendments
    - International Energy Conservation Code – 2009 Edition with 2011 & 2012 Georgia State Supplements & Amendments
    - Georgia Accessibility Code for Buildings Facilities (GAC) Chapter 120-3-20 Access to Use Public Facilities by Handicapped Persons effective June 11, 2012

2. All work must be done in accordance with the contract documents, which includes the plans and specifications.

3. Pavilion structure to be installed shall be an RCP Shelters, Inc., LW-G2852-03 pavilion or equal to match the existing pavilion on site.

4. Contractor is responsible for the Pavilion design and footing design for this shelter. Footing design shall be based on the information provided in the attached soils report.

5. Pavilion lighting and outlet material, design & location are to be per attached plan location. Lights are to be vandal proof and equal in design to lights at the existing pavilion.

6. Additional Project Specifications may be included on the plan sheets.

7. The County's working hours are between 8:00am and 5:00pm. Any modification to those hours must be made in writing by the Contractor and accepted by Fayette County.

8. Should there be any conflict between the International Building Code with the Georgia State Amendments and the plan specifications, the plan specifications shall prevail. The contractor should notify the Owner immediately when such a conflict exists.

9. Unless special instructions are noted within the contract documents, the Contractor shall supervise, coordinate and direct all the work and shall be solely responsible for the construction means, methods, techniques, sequences and procedures used to complete the work per the contract documents. The Contractor shall be responsible to the Owner for any acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, or any other person or entity performing work for or on behalf of the Contractor or their subcontractors.

10. **Ownership and Use of Drawings and Specifications**
    Contractor is responsible for selecting a shelter manufacturer to develop all required shelter(pavilion) drawings for this project. Manufacturer produced drawings for this project are subject to all copyright laws associated with those drawings. The Contractor their subcontractor and/or supplier(s) shall not have any copyright claims to the project specifications. The copying of contract documents for the purpose of the project is permitted and acceptable as it pertains to specifically meeting the needs of this project. No authorization is given for the contractor, subcontractors and/or suppliers to publish any of the contract documents for any other purpose outside of this project.

    The Contractor and his hired affiliates are authorized within this contract to use and reproduce the plans and specifications as needed for purposes of the work. No copyright decal, stamp, wording, etc. shall be removed from any copies of the plans whether paper or electronic.

11. **Permits & Fees:** The Contractor shall be responsible for completing the Permit Application and securing the necessary building permit. With this being a County Project, no fees will be charged for plan review and permitting by the Building Department. With exception to the waiver of fees noted above, the Contractor is responsible for paying any other project fees that may be required. The contractor is responsible for coordinating with the governing agencies to assure that required inspections are performed by the respective agency. Contractor or their subs are responsible for any re-inspection fees that may be required by the Building Department for work not initially done in accordance with the permit. Because the project scope entails less than 1-acre of land disturbance and adds less than 5,000sf of impervious area, plan review sign-offs are not required by Environmental Management and other typical plan approving Departments.

12. **Erosion Control:** The Contractor is responsible to ensure that all temporary and permanent erosion control Best Management Practices (BMP's) are implemented and maintained throughout project construction, and that all silt from the project is contained within the project limits. Fayette County Engineering Staff or Environmental Management inspectors are authorized to visit the site to ensure adequate measures are in place and are being maintained. It is the Contractors responsibility to comply and address any noted erosion control deficiencies. No additional compensation is due contractor for correcting or adding additional erosion control measures per noted deficiencies.

13. **Owner's Right To Carry Out the Work.** It is Fayette County's intent to assign all work to a single General Contractor. If the contractor fails to or refuses to perform the Work per the Contract Documents, and subsequently fails to aggressively move forward to correct the deficiency within a 14-day period as noted in written correspondence to the Contractor from Fayette County, the Owner, Fayette County may move forward without further communication to take immediate measures to correct such deficiencies. Subsequently, the Owner may recover reasonable cost incurred for this work from payment that otherwise was due the Contractor had they performed the work. Payments deducted may also include expenses Fayette County incurred by having to get assistance from the Architect to address and correct the default.

14. Fayette County maintains the right to perform other construction or construction related operations with the County's own forces within any portion of the project or to award a separate contract for other work within the facility that may be needed during this project. Should this occur, the contractor is to coordinate with the County or any other County contractor as is reasonable to continue their efforts without impeding the efforts of other County directed contract work by others. If the Contractor can justify that this other work has impacted him financially and has extended his project schedule, Contractor may submit a Change Order request defining those cost and/or request for project time extension. Subsequently, if Fayette County can demonstrate that the Contractor has impeded the efforts of another County contractor by delaying work, failing to coordinate activities or by providing deficient construction efforts where there is overlapping work, the County can seek to recover those cost impacts from the Contractor.

15. **Project Safety:** Safety is given high priority on Fayette County projects. The Contractor and his team and any other person directly or indirectly associated with this project work shall comply with all applicable OSHA regulations, laws, statues, codes, ordinances and rules that are in place to assure safety measures are implemented and maintained throughout the project to prevent injury or loss to persons or property during this project. In the event safety measures are not being complied with, Fayette County will issue a Stop Work Order to the Contractor, and will not permit work to continue until such time as all noted safety violation(s) have been addressed and corrected. Fayette County shall hold the Contractor fully responsible for correcting any damage or loss to property caused by the Contractor or his project team either performing work or supplying material on behalf of the Contractor on this project. The Contractor alone is fully responsible for any schedule delays, fines, penalties, etc. caused because safety measures were not being enforced by the Contractor's project team. Contractor is not liable for damage or loss resulting from the acts or omissions of Fayette County or the Architect.

16. During working hours, the contractor is responsible for roping off the entire work area and placing the appropriate signage to notify pedestrian traffic of the hazards within the work zone area.

During non-working hours, the contractor is responsible for roping, flagging, placing signs, etc. as is reasonable and prudent to warn pedestrians of off limit hazardous areas.

17. **Project Schedule.** Fayette County requires the Contractor to have a project schedule and provide that schedule to Fayette County. The Contractor's schedule shall define the start and finish dates for the project, which the Contractor has determined is readily achievable by his project team to complete the work as contracted. Contract time is in calendar days unless otherwise specified. Once work has started, contractor shall continue to perform all needed work through completion of the project per the accepted schedule without extended delays or breaks. The Contractor is not responsible for delays that may extend his project schedule that are outside of his direct control such as weather, fire, change orders or change directives. The contractor shall update the schedule as required to reflect any owner accepted project finish date.

18. **Pre-Existing Conditions.** Contractor is responsible for taking photos of all pre-existing damage/issues with the building, sidewalk, landscaping, etc. around or within the vicinity of their work and staging areas. These pictures should be submitted to Fayette County prior to mobilizing to the project site.

19. Dumpsters placed on site for the work should not be placed on sidewalk without protecting the sidewalk from cracking. Contractor shall be responsible for repairing all damaged sidewalk due to the work. The contractor is to police the grounds daily and clean up all trash and debris which will be disposed of in the jobsite dumpster supplied by contractor.

20. Contractor shall be aware of the project limits and shall plan his work and that of his subcontractors to stay within those limits. Established project limits are to be clearly marked by the Contractor so that his subcontractors, employees and others working on the project are notified and made aware of those limits. Contractor shall be held responsible for repairing or replacing, to equal or better condition, any damage done to real property, systems, landscaping, machines, equipment, etc. outside the project limits.

21. The grounds around the planned pavilion contain a working sprinkler system that waters the existing grass and landscape bed areas. Fayette County does not have an as-built of this system. Fayette County will coordinate a date with contractor to mark the sprinkler head with a marking flag and to test the current condition and/or operation of the system. The contractor is responsible for any damage or repair to the system due to their work.

22. Contractor shall be responsible to provide and pay for all labor, materials, equipment, tools, construction equipment and machinery, utilities and any other facilities and services necessary to complete the work as contracted. The Contractor shall ensure that good order and discipline are maintained by all their employees and their project team while carrying out the work. The Contractor shall have only skilled and qualified workers performing work on this project.

23. The Contractor is responsible for providing their own porta-johns for the use of the Contractor & their construction team. Fayette County is a smoke-free County. No smoking will be permitted inside any County facility and within the Kenwood Park grounds.

24. The Contractor is fully responsible, before mobilizing his team, to know and fully understand the scope of work contained within the contract documents and to compare it with actual field conditions. Contractor shall take responsible measures to be familiar with the field conditions and measurements at the project site and understand how it may affect the work. Contractor shall immediately report any discovered errors or omissions, or plan discrepancies by means of an RFI (Request for Information) to the County.

25. **Product Substitution:** The Contractor shall not substitute a product or material without the Owner review and acceptance and the Owners consent.

26. Warranty. All materials and equipment furnished under this contract shall be new and of good quality unless the Contract Documents specify or permit otherwise. All work done by the contractor or his team shall be done per the Contract Documents and will be free of defects. Work, materials, or equipment that does not meet the requirements of the contract documents will be defective. A minimum 1-year labor and material warranty is required for this project.

27. Taxes. All taxes associated with the Contractors work shall be included within the Contractor's bid. Contractor is responsible for any new taxes or additional taxes that have gone into effect after their bid at no expense to the County.

28. Submittals. Contractor is responsible for providing and submitting all shop drawings, product data and samples called for in the contract documents. County shall review all submittals and return to contractor with any comments and/or an approval. It is the responsibility of the Contractor to provide the County with sufficient time to review each submittal and reply. Contractor is to maintain a log of all RFI submittals. Before forwarding to the County, submittals are to be approved by the Contractor and field verified that it works in the specified area. Work shall be done per the contract documents and the approved submittal.

29. Architect. The County does not have an Architect associated with this project. The County will assign staff to make site visits during construction of the work, as necessary to determine that work is being done per the Contract Documents. Fayette County can reject Work not done in accordance with the Contract Documents or require the Work be tested or inspected. The County will report in writing known deviations from the Contract documents in addition to defects and deficiencies in the work. The Owner will review Contractor Applications for Payment and certify the amounts due the contractor. Final decisions pertaining to aesthetic issues of concern will be made by the County. The County's decision is final if it fulfills the intent of the Contract documents.

30. Any subcontractor that has a direct contract with the Contractor is bound to the Contractor by the terms of the Contract Documents any obligations and responsibilities thereof. The subcontractor has the benefits of taking action against the Contractor as the Contractor has against the owner per the Contract Documents.

31. **Change Orders & Change Directives.** Fayette County may order changes in the general scope of the project without nullifying the contract. Changes made by the County may add to, delete from or revise the Contract Sum and the Contract Time. The process of Change Orders is to submit request in writing to the County. The County will review and provide a written response to the

contractor regarding final approval or denial. No Change Order work is to be started without written approval from the Owner. All parties are to mutually agree as to total cost and time associated with the Change Order Work before work is started. Change Directives are initiated by the Owner. If a Change Directive is issued, the contractor is entitled to be paid for the labor, material, equipment, overhead & profit unless a lump sum agreement is accepted. Once a final agreement regarding price for the Change Directive is made, a Change Order will be prepared and subsequently approved by the Owner. Minor initiated changes are acceptable if they do not affect project Contract cost or time, and meet the intent of the Contract Documents. Such minor changes are binding and shall be completed as quickly as possible by the Contractor. Hidden conditions that vary significantly materially beyond what is customary shall be sufficient grounds to develop a Change Order that the Owner & Contractor can mutually agree upon regarding adjustments to Contract Sum and Contract Time.

32. **Project Allowances have been included in the project Schedule of Values.** This baseline amount is not for a specific item, but is available to the Owner to cover cost for items that were not covered in the contract plans & documents but are required for the successful completion of the project. Allowances payments will only be authorized with an approved change order or change directive that involves additional cost.

33. A Schedule of Values (Exhibit A) has been provided to cover all labor and material work to be accomplished on this project. The Contractor is responsible for providing their estimate of cost associated with each item of Work. Contractor's Application(s) for Payment for completed work shall be based upon the EXHIBIT A - Schedule of Values. The Contractor shall submit all backup documentation (such as payrolls, receipted invoices, cash disbursements made, etc.) along with each Application for payment. Each Application for Payment should include work completed by the contractor and/or the contractor's team through the date on the payment request. An agreed upon format shall be developed between the Owner and Contractor. Fayette County will allow payment for material delivered and suitably stored on site for the Work. However, the contractor is fully responsible for any damage or theft associated with that material. Owner will have to see and contractor will have to provide written validation for material stored offsite that Contractor has included in their Application for Payment. With each Application for payment, Contractor warrants that the owner's title to all work within that period is valid at the time of payment and has no liens, claims, security interest or other encumbrance tied to it.

34. When the Contractor's Application for Payment is received, the County is allowed 1-week to review the application and confirm it's accuracy. Upon agreement of the amount due, the County will move application forward to get applicable signatures and process for payment. The County is to provide payment of the agreed upon Application for Payment within 30-days of the agreed upon amount due. If the County cannot substantiate the amount requested by the Contractor, the County will provide written notification to the Contractor of the reason(s) for denying all or any portion thereof of the current Application for Payment. Such issues as unacceptable work, claims, non-payment to subs, overbilling, damage to owner or owner's sub, balance unable to cover liquidated damages, or work that continues to not meet the Contract documents are justifiable reasons to reduce the Application for payment, and not release the balance due until such time as the issue(s) have been corrected.

35. The Contractor agrees to pay his subcontractors within seven days after Contractor receives payment from Fayette County. This applies for work that subs completed and submitted the required paperwork to the Contractor by the established cutoff date to be included within the Application for Payment for that period. Fayette County is not responsible for payment(s) to subcontractors for work completed on this project. Fayette County may decide to use or occupy space within the project before final acceptance of the work. Should this occur, the use of the space does not provide our acceptance of pending punch list items, unacceptable work or any other project work that was not completed in accordance with the Contract Documents.

36. **Substantial Completion:** A Certificate of Substantial Completion is issued when work is complete to a level where the space can be used for its intended purpose. However, this completed work must comply with the requirements of the Contract Documents. The Contractor shall provide the Owner with an exhaustive list of pending items of work when requesting a Certificate of Final Completion. The Owner shall review the Contractors' list, inspect the project and confirm that the item(s) of Work remaining on the list, will not impede or hinder the Owner from occupying or using the project work for its intended purpose. If the Owner agrees to accept the entire project or any portion thereof for occupancy, the date for the Certificate of Substantial Completion can be set and issued. The Owner & Contractor must establish and provide written acceptance of all project closeout responsibilities and the timeline for completing all pending work items. Project warranties become effective on the date of Substantial Completion unless noted otherwise on the Certificate.

37. **Final Payment:** The Contractor shall notify the Owner that all project work is complete and ready for final acceptance. Also, the Contractor shall give to the Owner a final Application for Payment which shall include the release of project retainage. If the Owner agrees that all project work is completed in accordance with the terms and conditions of the Contract Documents, the County will move Application forward for processing and final Payment. Once the Contractor delivers to owner all lien release waivers of all liens filed under this contract for labor, materials and/or equipment, final payment then becomes due. Other options in lieu of a lien release must be first accepted by Fayette County. Fayette County reserves the option to reduce Final Certificate of Payment by all pending lien values, plus reasonable attorney fees until such a time as liens have been settled. Once Final payment is made by the Owner and accepted by the Contractor (his subcontractor or supplier), all rights for future claims are forfeited except those that are unsettled when final Application for Payment is made or are acceptable owner claims per the contract documents.

38. **Correction of Work:** Work that was identified by the Owner as defective and not performed in accordance with the Contract Documents shall be corrected by the Contractor or his project team within a reasonable period of time after being notified. The owner may move to correct the defective work upon written notice to the contractor that a reasonable time has elapsed since they were initially notified that work was to be corrected. Work that is not immediately corrected shall be removed from any current Application for Payment until such time as work is completed per the contract documents. If defective or corrective work is identified after Substantial Completion, the cost associated with completing that work continues to be the responsibility of the contractor.

39. The Contractor is to provide a minimum 1-year material & labor warranty for work completed under this contract. Any other product warranties required within this contract shall be provided when the project is substantially completed.

EXHIBIT A – SCHEDULE OF VALUES

NO	ITEM	QUAN	UNIT	UNIT COST	TOTAL
1	FORMED & POURED IN PLACE CONCRETE SIDEWALK, SLAB & FOOTINGS – PAVILION (includes design cost, testing, reinforcing steel, etc.)	1	LS		
2	ELECTRICAL (include vandal resistant light fixtures, duplex outlets, conduits, wiring, circuit breakers, etc.)	1	LS		
3	Install PAVILION – RCP Shelter LW-G2852-03 or Equal (Include gutters & downspouts)	1	LS		
4	Grading, silt fence, etc.	1	LS		
5	Allowance	1	LS	$3,000.00	$3,000.00
	TOTAL				

State length of time in calendar days to complete project. - _____ days.

State or attach labor & materials warranties: _____

_____

Note: A 10% retainage will be withheld from each payment request until project has been signed by Fayette County as complete and accepted, in accordance with Georgia Code at O.C.G.A. 13-10-80 et. seq.

GENERAL TERMS AND CONDITIONS

1. **Definitions**: The term "contractor" as used herein and elsewhere in these specifications shall be used synonymously with the term "successful bidder." The term "county" shall mean Fayette County, Georgia.

2. **Bid is Offer to Contract**: Each bid constitutes an offer to become legally bound to a contract with the county, incorporating the invitation to bid and the bidder's bid. The binding offer includes compliance with all terms, conditions, special conditions, specifications, and requirements stated in the invitation to bid, except to the extent that a bidder takes written exception to such provisions. All such terms, conditions, special conditions, specifications, and requirements will form the basis of the contract. The bidder should take care to answer all questions and provide all requested information, and to note any exceptions in the bid submission. Failure to observe any of the instructions or conditions in this invitation to bid may result in rejection of the bid.

3. **Binding Offer**: Each bid shall constitute a firm offer that is binding for sixty (60) days from the date of the bid opening, unless the bidder takes exception to this provision in writing.

4. **Bidder's Questions**: The Fayette County Purchasing Department must receive questions about this invitation to bid in writing at least 72 hours before the scheduled bid opening, excluding Saturdays, Sundays, and holidays. The county will post answers to questions and/or other information concerning the invitation to bid in the form of an addendum on the county's website at www.fayettecountyga.gov. It is the responsibility of the prospective bidder to check the website for any addenda issued for this invitation to bid.

5. **References**: Include with your bid a list of three (3) jobs that your company has done that are of the same or similar nature to the work described in this invitation to bid, on the form provided. Include all information as requested on the form.

6. **Bid Submission:** Submit your bid, along with any addenda issued by the county, in a sealed opaque envelope with the following information written on the outside of the envelope:

    a. The bidder's company name,
    b. The bid number, which is **#1435-B**
    c. The bid name, which is **Kenwood Park Pavilion Construction**

    Mail or deliver one (1) original bid, signed in ink by a company official authorized to make a legal and binding offer, and three (3) copies, to:

    Fayette County Government
    Purchasing Department
    140 Stonewall Avenue West, Suite 101
    Fayetteville, GA 30214

    Attention: Contracts Administrator

    You may submit bids in person, by U.S. mail, or by a commercial carrier. Do not submit bids by facsimile, e-mail, or other electronic means. Once submitted, all bids become the property of Fayette County.

7. **Bid Preparation Costs**: The bidder shall bear all costs associated with preparing the bid.

8. **Late Bids:** Bids not received by the time and date of the scheduled bid opening will not be considered, unless the delay is a result of action or inaction by the county.

9. **Alternate Bids**: Do not submit alternate bids or options, unless requested or authorized by the county in the Invitation to Bid. If a responder submits more than one bid without being requested or authorized to do so, the county may disqualify the bids from that responder, at the county's option.

10. **Bid Corrections or Withdrawals:** The bidder may correct a mistake, or withdraw a bid, before the bid opening by sending written notification to the Director of Purchasing. Bids may be withdrawn after the bid opening only with written authorization from the Director of Purchasing.

11. **Defects or Irregularities in Bids:** The county reserves the right to waive any defect or irregularity in any bid received. In case of an error in extension of prices or totals in the bid, the unit prices shall govern.

12. **Prices Held Firm**: Prices quoted shall be firm for the period of the contract, unless otherwise specified in the bid. All prices for commodities, supplies, equipment, or other products shall be quoted FOB Destination, Fayette County or job site.

13. **Brand Name:** If items in this invitation for bid have been identified, described or referenced by a brand name or trade name description, such identification is intended to be descriptive, but not restrictive and is to indicate the quality and characteristics of products that may be offered. Alternative products may be considered for award if clearly identified in the bid. Items offered must meet required specifications and must be of a quality which will adequately serve the use and purpose for which intended.

14. **Bidder Substitutions:** Bidders offering substitutions or deviations from specifications stated in the invitation to bid, shall list such substitutions or deviations on the "Exceptions to Specifications" sheet provided, or on a separate sheet to be submitted with the bid. The absence of such list shall indicate that the bidder has taken no exception to the specifications. The evaluation of bids and the determination as to equality and acceptability of products or services offered shall be the responsibility of the county.

15. **Samples**: When the county requires samples as part of the bid and vendor selection process, bidders must provide requested samples within the time allotted, and at no cost to the county unless otherwise specified. Any goods provided under contract shall conform to the sample submitted. The county will return samples only at the bidder's request, and at the bidder's expense, if they are not destroyed by testing.

16. **Non-Collusion**: By responding to this invitation to bid, the bidder represents that the bid is not made in connection with any competing bidder, supplier, or service provider submitting a separate response to this invitation to bid, and is in all respects fair and without collusion or fraud.

17. **Arrears**: Bids will not be accepted from any person, firm, or corporation who is in arrears in any debt or obligation to Fayette County.

18. **Bid Evaluation:** Award will be made to the lowest responsive, responsible bidder, taking into consideration payment terms, vendor qualifications and experience, quality, references, any exceptions listed, and/or other factors deemed relevant in making the award. The county may make such investigation as it deems necessary to determine the ability of the bidder to perform, and the bidder shall furnish to the county all information and data for this purpose as the county

may request. The county reserves the right to reject any bid item, any bid, or all bids, and to re-advertise for bids.

19. **Discounts:** Cash discounts offered will be a consideration in awarding the bid, but only if they give the county at least 15 days from receipt of invoice to pay. For taking discounts, time will be computed from the date of acceptance at destination or the date a correct invoice is received, whichever is the later date. Payment is deemed made, for the purpose of earning the discount, on the date of the check. For payment of full invoice price, minimum terms of net 30 are preferred.

20. **Trade Secrets - Confidentiality**: A bid is a public record, except for material which qualifies as trade secret information. To keep this information confidential, a bidder must submit trade secret materials in a separate, sealed envelope marked "Trade Secret – Confidential and Proprietary Information – Do Not Disclose Except for the Purpose of Evaluating this Bid." Each page in the envelope should be stamped or otherwise marked designating it as trade secrets or confidential. Do not attempt to designate the entire bid as a trade secret, and do not attempt to designate pricing information as a trade secret, as doing so may result in your bid being disqualified. See O.C.G.A. 50-18-72 as amended by 2012 H.B. 397 for specific Georgia law on this subject.

21. **Trade Secrets – Internal Use:** In submitting a bid, the bidder agrees that the county may reveal any trade secret materials contained in the bid to all county staff and officials involved in the selection process, and to any outside consultant or other third parties who may assist in the selection process. The bidder agrees to hold harmless the county and each of its officers, employees, and agents from all costs, damages, and expenses incurred in connection with refusing to disclose any material which the bidder has designated as a trade secret.

22. **Contract Execution & Notice to Proceed**: After the Board of Commissioners makes an award, all required documents are received by the county, and the contract is fully executed with signature of both parties, the county will issue a written Notice to Proceed. The county shall not be liable for payment of any work done or any costs incurred by any bidder prior to the county issuing the Notice to Proceed.

23. **Insurance**: The successful bidder shall, without expense to the county, carry the following insurance, to be in effect throughout the term of the contract, in at least the amounts and limits as follows:

    a. **General Liability Insurance**: $1,000,000 combined single limit per occurrence, including bodily and personal injury, destruction of property, and contractual liability.

    b. **Automobile Liability Insurance**: $1,000,000 combined single limit each occurrence, including bodily injury and property damage liability..

    c. **Worker's Compensation & Employer's Liability Insurance**: Workers Compensation as required by Georgia statute.

    d. **Builder's "All Risk" Insurance**: In the event the contractor is performing construction services under the contract, contractor shall procure and maintain "all-risk" builder's insurance, providing coverage for the work performed under the contract, and the materials, equipment or other items incorporated therein, while the same are located at the construction site, stored off-site, or at the place of manufacture. The policy limit shall be at least 100% of the value of the contract, including any additional costs which are normally insured under such policy.

Before a contract with the successful bidder is executed, the successful bidder shall provide Certificates of Insurance for all required coverage. The certificate shall list an additional insured as follows:

Fayette County Board of Commissioners
140 Stonewall Avenue West
Fayetteville, GA 30214

24. **Unauthorized Performance:** The county will not compensate the contractor for work performed unless the work is authorized under the contract, as initially executed or as amended.

25. **Assignment of Contract:** Assignment of any contract resulting from this invitation to bid will not be authorized.

26. **Indemnification**: The successful bidder shall defend and indemnify the county and all its officers, agents and employees against any suits, actions, or other claims brought on account of any injuries or damages to any person, persons, or property resulting from any negligent act or fault of the successful bidder, or of any agent, employee, subcontractor or supplier in the performance of any contract which may be awarded. The successful bidder shall pay any judgment with cost which may be obtained against the county growing out of such injury or damages.

    The obligation of the CONTRACTOR under this paragraph shall not extend to the liability of the Architect, its agents or employees arising out of the preparation or approval of maps, DRAWINGS, opinions, reports, surveys, CHANGE ORDERS, designs or SPECIFICATIONS.

27. **Patent Indemnity:** The contractor guarantees to save the county, its agents, officers, or employees harmless from liability of any nature or kind for use of any copyrighted or uncopyrighted composition, secret process, patented or unpatented invention, articles or appliances furnished or used in the performance of the contract, for which the contractor is not the patentee, assignee or licensee.

28. **Severability**: The invalidity of one or more of the phrases, sentences, clauses or sections contained in the contract shall not affect the validity of the remaining portion of the contract. If any provision of the contract is held to be unenforceable, then both parties shall be relieved of all obligations arising under such provision to the extent that the provision is unenforceable. In such case, the contract shall be deemed amended to the extent necessary to make it enforceable while preserving its intent.

29. **Delivery Failures:** If the contractor fails to deliver contracted goods or services within the time specified in the contract, or fails to replace rejected items in a timely manner, the county shall have authority to make open-market purchases of comparable goods or services. The county shall have the right to invoice the contractor for any excess expenses incurred, or deduct such amount from monies owed the contractor. Such purchases shall be deducted from contracted quantities.

30. **Substitution of Contracted Items:** The contractor shall be obligated to deliver products awarded in this contract in accordance with terms and conditions specified herein. If a contractor is unable to deliver the products under the contract, it shall be the contractor's responsibility to obtain prior approval of the ordering agency to deliver an acceptable substitute at the same price quoted in the contractor's original bid. In the event any contractor consistently needs to substitute or refuses to substitute products, the County reserves the right to terminate the contract or invoke the "Delivery Failures" clause stated herein.

31. **Inspection and Acceptance of Deliveries**: The county reserves the right to inspect all goods

and products delivered. The county will decide whether to accept or reject items delivered. The inspection shall be conclusive except with respect to latent defects, fraud, or such gross mistakes as shall amount to fraud. Final inspection resulting in acceptance or rejection of the products will be made as soon as practicable, but failure to inspect shall not be construed as a waiver by the county to claim reimbursement or damages for such products which are later found to be in non-conformance with specifications. Should public necessity demand it, the county reserves the right to use or consume articles delivered which are substandard in quality, subject to an adjustment in price to be determined by the Purchasing Director.

32. **Termination for Cause**: The county may terminate the contract for cause by sending written notice to the contractor of the contractor's default in the performance of any term of this agreement. Termination shall be without prejudice to any of the county's rights or remedies by law.

33. **Termination for Convenience**: The county may terminate the contract for its convenience at any time with 30 days' written notice to the contractor. In the event of termination for convenience, the county will pay the contractor for services performed. The county will compensate partially completed performance based upon a signed statement of completion submitted by the contractor, which shall itemize each element of performance completed.

34. **Bid Bond**: You must include a bid bond equal to five percent (5%) of the total amount bid. Bid bonds shall be provided by a surety which appears on Georgia's list of approved sureties administered by the State Insurance Commissioner, or the U.S. Treasury's list of approved bond sureties (Circular 570).

35. **Performance and Payment Bonds**: Prior to execution of a contract, the successful bidder shall submit performance and payment bonds each equal to 100 percent of the contract value, provided by a surety which appears on Georgia's list of approved sureties administered by the State Insurance Commissioner, or the U.S. Treasury's list of approved bond sureties (Circular 570).

TECHNICAL SPECIFICATIONS

A. CONCRETE FORMWORK

GENERAL

DESIGN FORMWORK

1. Assume all responsibility for the design and engineering of the formwork, as well as its construction and removal.
2. Design formwork for the loads, lateral pressure, and allowable stresses outlined in Chapter 2, Guide to Formwork for Concrete", ACI 347, latest edition.

PRODUCTS

MATERIALS

3. Facing Materials shall be such as to provide the specified surface finish.
4. Form Coating shall be a field applied chemical concrete release agent capable of preventing bond between poured concrete and the form and shall contain no oil, or shall be factory applied non-absorptive liner. Coat form before reinforcement is placed.
5. Form Ties shall be broken back at 1-inch from surface of concrete. Tie Cones, 1-inch diameter by 1-inch long, shall be used on all exposed concrete.
6. Pre-molded Expansion Joint material (E.J.) shall conform to ASTM D1751, "Preformed Expansion Joint Fillers for Concrete Paving and Structural Concrete (non-extruding and resilient bituminous types)".

FABRICATION

7. Construct formwork so that concrete surfaces will conform to the tolerance limits specified in Table 4.3.1, "Tolerances for Formed Surfaces", ACI 301-89.
8. Provide positive means of adjustment (wedges or jacks) of shores and struts to compensate for anticipated deflections and settlement in the Formwork during concrete placing operations.

EXECUTION

ERECTION OF FORMS

9. Build forms tight to prevent loss of mortar from the concrete.
10. Provide clean-out openings at base of pier and wall forms to facilitate cleaning and observation immediately before concrete is placed.
11. Unless shown otherwise on drawings, corners of concrete members exposed to view after all other finish materials are in place shall be beveled by the use of chamfer strips (maximum ½-inch across the beveled face) placed in the forms. Submit sample for approval before proceeding.
12. Overlap and hold forms against hardened concrete of a previous placement to prevent offsets or loss of mortar at the construction joint and to maintain a true surface.

INSTALLATION OF EMBEDDED ITEMS

13. Install inserts and materials to be cast into concrete.
14. Set 1-inch deep 24-gage galvanized iron wall slots in all concrete surfaces adjacent to brick or block masonry. Slots shall be set vertical in concrete surfaces and spaced 16-inches on center horizontally. Provide masonry anchors spaced 16-inches on center vertically in each wall slot.
15. Separate parallel runs of conduit by not less than 1-inch. Do not displace reinforcing bars from positions. No conduit shall be greater than ½ slab thickness. Bury conduit in slabs.
16. Install Adjustable Wedge Inserts at 32-inches on center in concrete for shelf angles.

REMOVAL OF FORMS

17. Horizontal member forms used to support the weight of concrete of structural members shall remain in place until the concrete has gained not less than 2/3 of the specified 28-day strength, or a minimum of 7 days.
18. Vertical member forms and forms not supporting the weight of concrete shall not be removed in less than 24 hours.

END OF SECTION

B. CONCRETE REINFORCEMENT

GENERAL

SUBMITTALS

1. Submit three copies and one sepia reproducible of shop drawings for the fabrication and placing of reinforcing steel for approval, after being checked and approved by the Contractor and before proceeding. Any changes by Contractor or Fabricator of Contract Document Details, Materials, Member Sizes, or Reinforcement shall be "flagged" on Shop Drawings accompanied by a Written Request for Authorization and Reason for Requested Change.
2. Placing plans shall show all dimensions, details, notes, locations, sizes, lengths and each bar mark together with accessories and material belonging to the reinforcing for the concrete.
3. Schedules shall show all information and be of the same form as those on the Contract Drawings.
4. Concrete wall reinforcing shall be shown in elevation.
5. Detail all reinforcing steel in accordance with the “ACI Detailing Manual”, ACI Publication SP-66 (94), unless otherwise indicated on the drawings.

PRODUCTS

MATERIALS

6. Reinforcement shall be fabricated from ASTM A615 "Deformed Billet-Steel Bars for Concrete Reinforcement", Grade 60.
7. Welded smooth wire fabric (WWF) shall conform to "Specifications for Welded Steel Wire Fabric for Concrete Reinforcement", ASTM A185, and shall be fabricated from plain wire conforming to "Specifications for Cold-Drawn Steel Wire for Concrete Reinforcement", ASTM A82.
8. Wire bar supports shall conform to the National Bureau of Standards PS7, "Wire Bar Supports for Reinforced Concrete Construction".

FABRICATION

9. All hooks shall be bent using the pin diameters and dimensions as "ACI Standard Hooks" in the "Manual of Standard Practice for Reinforced Concrete Construction", CRSI latest Edition, unless otherwise shown on the plans.
10. Reinforcing bars shall not be bent or straightened in a manner that will injure the materials.
11. Reinforcing bars shall conform to the dimensions shown on the plans and within the fabricating tolerances as shown in the "Manual of Standard Practices for Reinforced Concrete Construction", CRSI latest Edition.

EXECUTION

PLACEMENT/BAR REINFORCEMENT

12. Bar Reinforcement shall be placed in specified positions in the forms and held in place, before and during the placing of concrete by means of bar supports, to carry the reinforcing bars they support within the following tolerances from the positions shown on the drawings or specified herein:
    a. For clear concrete protection and for depth "d" in Flexural members, walls, and compression members where "d" is:
        1. 8 inches or less----------plus or minus 1/4"
        2. More than 8 inches but less than 24 inches----------plus or minus ½ ", but the cover shall not be reduced by more than one-half of the specified cover.
    b. For longitudinal location of bends and ends of bars:
        1. ±2 inches except at discontinuous ends of members where tolerance shall be ±1/2 inch.
    c. For spacing:
        1. ±2 inches except that total number of bars shall not be reduced.
13. Except as shown otherwise on structural drawings, concrete cover for Reinforcing Bars shall be as follows:
    a. Cast against and permanently exposed to earth----------3 inches
    b. Exposed to earth or weather----------2 inches
    c. Interior formed surfaces:
        1. Piers and Columns----------1-1/-2 inches
        2. Beams----------1-1/2 inches
        3. Walls----------3/4 inch
        4. Slabs & Joists----------3/4 inch
14. "Continuous" Bars, unless otherwise indicated on drawings, shall be lapped 36 diameters at splices. Provide Corner Bars at all corner conditions, including continuous wall footings and grade beams.
15. Splices not shown in contract documents shall be subject to approval.
16. Support all Reinforcing Bars.
17. Space Bar Supports a maximum of 4-feet on center with the first support not greater than 2-feet from the ends of the bars. Tie to prevent displacement during the concreting operations. Provide #4 support bars at 48-inches spacing where not supported by perpendicular reinforcement.
18. Reinforcement shall not be "field" bent after being embedded in hardened concrete except where specifically shown on the drawings.
19. Set and hold all vertical dowels in footings by templete.

WELDING REINFORCEMENT

20. The welding of reinforcing bars will be permitted only on approval on the shop drawings by the Architect.
21. The welding of reinforcing bars at intersections for support purposes, in lieu of tie wire, is prohibited.
22. The welding of reinforcing bars shall be performed in accordance with "Recommended Practices for Welding Reinforcing Steel, Metal Inserts and Connections for Reinforced Concrete Construction", AWS D 12.1-latest edition, as published by the American Welding Society.
23. Welders shall be qualified by tests as prescribed in the "Standard Qualification Procedures ", AWS B 3.0-latest edition, as published by the American Welding Society.

END OF SECTION

C. CAST-IN-PLACE CONCRETE

GENERAL

RESPONSIBILITY AND QUALIFICATIONS

1. Assume all responsibility for the work, design and engineering of the formwork and the safe support of property adjacent to the work.

2. Work shall be done by one qualified to install the concrete work in accordance with the drawings and specifications. Minimum requirement for qualification shall be five years' experience with satisfactory completion of at least five similar projects.

SUBMITTALS

3. Submit shop drawings for the fabrication and placing of reinforcing steel after being checked and approved by the Contractor and before proceeding. Submit no "Approved as Corrected" drawings for approval.

4. Design and submit mix design series with test data from laboratory or field experience (5 copies).

5. Concrete shall have 28 day compressive strength as follows:
   a. Warehouse Slabs-on-grade - 4,000 psi.
   b. Footings - 3,000 psi.
   c. All Other Concrete - 3,000 psi.
   d. Grout in Reinforced Masonry - 3,000 psi

6. Test reports shall show the requirements of ASTM Specifications.

7. Shop drawings shall be submitted in complete sets of a major area of work, with sheets consecutively numbered.

PRODUCTS

MATERIALS

1. Formwork: See Section 03100.
2. Reinforcement: See Section 03200.
3. Welded Fabric: See Section 03200.
4. Bar Supports: Section 03200.
5. Portland Cement: A domestic brand approved by the Architect for color and conforming to the requirements of ASTM C150, low alkali, Type I or Type III.
6. Fine Aggregate: Conform to ASTM C33 except that the fineness modules shall be not less than 2.1 nor more than 3.1 and the gradation shall be as specified herein below:

Sieve No.	#3	#4	#8	#16	#30	#50	#100
Total % Passing (By Weight)	100	95-100	80-100	45-95	20-65	8-30	1-8

7. Coarse Aggregate: Crushed stone or gravel and shall conform to ASTM C33.

Size of coarse aggregate shall be as specified herein below:

Size #67	(3/4 inch to #4)	Sections 4" thick and greater.
Size #7	(½ inch to #4)	Sections less than 4" thick

8. Water used in mixing concrete shall be clean and fit to drink.
9. Admixtures:
   a. Air Entraining Admixtures: Conform to the requirements of ASTM C260 and shall contain no chloride. Submit certification for approval.
   b. Retarding Admixtures: Contain no chloride, shall be free of organic acids or salts of organic acids, shall be compatible with the air entraining admixture to be used and shall conform to the requirements of ASTM C494, Type B. Submit certification for approval.
   c. Water-Reducing Admixtures: Contain no chloride, shall be free of organic acids, or salts of organic acids, shall be compatible with the air entraining admixture to be used and shall conform to the requirements of ASTM C494, Type A, water-reducing normal-setting admixture and, ASTM C494, Type D, water-reducing and retarding admixture. Submit certification for approval.
   d. Water-Reducing, High Range (WRHR) Admixtures: Shall contain no chloride, shall be free of organic acids or salts of organic acids, shall be compatible with the air entraining admixture to be used, and shall conform to the requirements of ASTM C494, Type F or G. Submit certification for approval.
   e. High, early strength accelerating, water-reducing admixture: contains no chloride, shall be free of organic acids, shall be compatible with air-entraining admixtures to be used and shall conform to the requirements of ASTM C494, Type C or F. Submit certification for approval.
   f. Provide technical field service during initial pours at no cost to the Owner by one experienced in the adjustment of concrete mixes for the particular admixtures being used.
10. Water proof Curing Paper: Conform to ASTM C171.
11. Curing Compound: Contain no wax or varnish. Conform to ASTM C309, Type I, and Filor by West Chemical Products, Inc., Kure-N-Seal by Sonneborn-Contech, Inc., Clear Bond by Guardian Chemical Corp., Mr. Klear Seal by Castle Chemical Company, or Sealtight CS-309.
12. Expansion Joint Material in the Building: Nonextruding and resilient non-bituminous type conforming to ASTM D1752, Type II.
13. Dovetail Anchor Slots for Brick and Block Against Concrete: 1" x 1" 24 gage galvanized steel with drip type corrugated 16 gage galvanized steel anchors, Hohmann and Barnard, Inc., No. 305 with No. 303 anchor, Richmond Screw Anchor Co., Inc., No. 051F with 020 anchor, or Hackman Building Products No. 100 with No. 108 anchors.

PROPORTIONING

14. Proportion ingredients for each class of concrete by weight when the slump is the maximum permitted to produce an average compressive strength at 28 days which exceeds the specified compressive strength in accordance with Chapter 5, Section 5.3 of the Building Code Requirements for Reinforced Concrete (ACI-318-95).
15. Air content of freshly mixed concrete as determined by the method of ASTM C 173 shall be 5%. A field tolerance of 1%$\pm$ is acceptable. All concrete shall be air entrained.
16. Water-reducing admixture shall be used in all concrete to reduce the total water requirement per cubic yard of concrete without loss of workability, and produce

an increased strength proportional to the water/cement ratio. During ambient temperatures of 75EF or below use normal setting, water-reducing admixture meeting ASTM C484, Type A. During ambient temperatures of 75EF and above use set-retarding, water-reducing admixture meeting ASTM C494, Type B and Type D. During ambient temperatures of 60EF and below use a high, early strength accelerating water-reducing admixture meeting ASTM C494, Type C and Type E.

17. The mixes shall be designed to secure concrete having the following consistency range in slump:

Type of Construction	Slump Range (Inch)
Reinforced Foundations	2-3
Elevated, Structural Slabs	2-4
Sidewalks, Driveways & Slabs-on-Grade	2-4

VERIFICATIONS OF MIX DESIGN

18. Verification of mix design series shall be made by the designated testing laboratory using the materials and mix design proposed for use by the Contractor.
19. Laboratory strength tests when both the air content and slump are the maximums permitted shall produce an average compressive strength at the designated test age not less than as required in Paragraph 1.02, SUBMITTALS.
20. During the progress of the work, if test data becomes available from the job to establish a standard deviation less than that used to verify the required average strength, the Architect may require an increase of the cement factor of the mix to increase the strength to that required by the established standard deviation.
21. If during the progress of the work test data becomes available from the job to establish a standard deviation less than that used to verify that required average strength, the Contractor may request a change in the mix design to reduce the average strength to that required by the established standard deviation. Change in the approved mix design requested by the Contractor during the progress of the work may be used prior to verification of the revised mix design if approved by the Architect.

BATCHING AND MIXING

22. Measure cement by weight on a scale separate from those used for other materials. Cement may be measured in bags of standard weight of 94 pounds; however, no fraction of a bag shall be used in any batch.
23. Measure aggregates by weight. Batch weights shall be based on saturated surface dry materials corrected for the actual moisture condition of the aggregate.
24. Measure water by volume or by weight by devices not subject to variation due to variable pressure in the water supply line. Measuring tanks shall be provided with means for checking their calibration.
25. Devices for measuring quantities of cement, aggregates, water and admixtures shall be accurate within 1% under operating condition.
26. Furnish delivery ticket for each batch of concrete before unloading at the site. Weights of fine and coarse aggregate, amount of cement, and total water as batches shall be printed on ticket by an automatic printing device or shall be recorded and initialed by an employee of the Contractor stationed at the batch plant. Delivery ticket shall, in addition, include the following:

a. Name of batch plant.
b. Serial number of ticket.
c. Date and truck number.
d. Name of contractor.
e. Job name and location.
f. Class of concrete and slump.
g. Cubic yards of concrete.
h. Time loaded.
i. Amount water added at job.
j. Initials of job superintendent.

27. Ready-mixed concrete shall be produced and delivered in accordance with the requirements of ASTM C94.

EXECUTION

RESHORING

1. Concrete elements shall not be permitted to deflect or accept load during form stripping.
2. After forms are removed, slabs, beams and girders over ten feet in span and cantilevers over four feet shall be reshored for the remainder of the 28-day period. Concrete elements shall not be permitted to deflect or accept load during reshoring operations.
3. Reshoring operations shall be performed so that existing concrete members are not subject to overloads, eccentric loading, or reverse bending.
4. Reshoring elements shall have the same capabilities as original shoring, and shall be wedged to provide solid bearing and support. Bracing shall be provided.

PLACING CONCRETE

5. Give the Architect 48 hours advance notice before placing concrete in any portion of the structure to permit inspection of the forms and reinforcement. Embedded items of whatever nature shall be in place prior to inspection. An authorization of the Architect shall be secured before concrete is placed.
6. Remove water and debris from forms before depositing concrete.
7. Clean reinforcement and forms coated with foreign material or with concrete from previous placing operations before depositing concrete.
8. Place concrete not later than 1-1/2 hours after mixing. Mix temperature shall not exceed 90EF at time of placing.
9. Construction joints shall be keyed and bulkheaded vertically and located at the center of span.
10. Internal type mechanical vibrators and hand spading shall be used to consolidate the concrete.
11. Concrete shall not be placed within twenty-five feet of workmen placing or securing reinforcement.
12. Place no concrete when the atmospheric temperature is below 35EF. After the concrete has been placed, if the temperature drops below 35EF, conform to paragraph 3.6, Curing and Protection.

FINISHING FORMED SURFACES

13. Rough form finish shall be confined to all concrete surfaces not exposed to public view. After removal of forms, tie holes and defects shall be patched. Fins exceeding 1/4" in height shall be chipped off or rubbed off. Otherwise, surfaces shall be left with the texture imported by the forms.
14. Smooth form finish shall be used for all concrete surfaces exposed to public

view. Form facing material shall produce a smooth, hard, uniform texture on the concrete. Form material with raised grain, torn surfaces, worn edges, patches, or dents which will impair the textures of the concrete surface shall not be used. Tie holes and defects shall be patched. All fins shall be removed.

REPAIR OF DEFECTS

15. Inspection by the Architect shall determine whether or not work is acceptable; and, if repairable, the method of repair to be used. Defects in materials and workmanship shall be subject to the above inspection at all times during the progress of the work regardless of previous inspections.
16. Condemned work shall consist of any concrete work which cannot be repaired. Condemned work shall be removed and replaced, at the Contractor's expense, with work that will conform to the contract documents.
17. Repair surface defects which are ½ inch or less in depth including tie holes by patching the same working day the forms are removed. Cut back defect at 90E to the surface to sound concrete and at least 1" without feather edges. After soaking with water, pack a stiff mortar in the defect. In exposed concrete the mortar mix shall be determined by trial method using a mixture of white and grey portland cement to produce the described color. After mortar has attained its initial set, the patch shall be scraped or rubbed flush with the concrete and match the color and texture of the adjoining surface.

SLABS

18. Edge forms and intermediate screed strips shall be set to produce the designated elevations and contours of the finished surface. As a minimum, maintain the concrete thicknesses shown on the drawings.
19. Insure that termite treatment shall have been completed before installing vapor barrier. Install vapor barrier with 6" laps sealed with the manufacturer's recommended sealing compound.
20. Place and consolidate concrete to produce a surface within tolerances. Test for grade (or level) and correct by removing excess or adding and compacting additional concrete. These operations must be performed before bleeding water has an opportunity to collect on the surface.
21. Where metal forms are used at joints, the edge of the form shall be flush with the surface of the concrete. Where saw-cut joints are specified herein, cutting shall be started as soon as the concrete has hardened to prevent aggregates being dislodged by the saw, and shall be completed before shrinkage stresses become sufficient to produce cracking.
22. Scratched finish shall be applied to surfaces intended to receive bonded applied cementitious applications. Depress slabs as specified for applied finish. All pitches to drains shall be made in the concrete slab and not the setting bed. Level to a Class C tolerance and roughen surface with stiff brushes or rakes before final set. Before the concrete has fully hardened remove laitance and loose aggregate from the surface.
23. Troweled finish shall be applied to floors intended as walking surfaces or to receive contact floor coverings. Surface shall first be float-finished as specified above. It shall next be power troweled, and finally hand troweled. Final troweling shall be complete when a ringing sound is produced as the trowel is moved over the surface. The finished surface shall be free of trowel marks, uniform in texture and appearance, and shall be planed to a Class A tolerance, except tolerance for concrete on metal deck shall be Class B. Any defects of sufficient magnitude to show through floor covering shall be removed by grinding or patching.
24. Tolerance for finish surfaces shall be determined by a straight edge placed anywhere on the surface in any direction and shall be true planes within the

following limitations:

a. Class A - 1/8 inch in 10 feet;
b. Class B - 1/4 inch in 10 feet;
c. Class C - 1/4 inch in 2 feet.

CURING AND PROTECTION

25. Immediately after placement, concrete shall be protected from premature drying, temperatures above or below the range recommended in ACI 305R-91 and 306R-88, and mechanical injury.
26. Cure all surfaces for a period of 7 days and until average compressive strength has reached 70% of specified strength. Curing shall be by ponding, moist curing with sand or absorptive mats kept continuously wet, continuous application of steam (not exceeding 105EF) or mist spray, waterproof curing paper or liquid membrane forming curing compound. Selection of curing method shall be compatible with the finish to be applied to the concrete surface.
27. Use curing compound directly from the container without dilution and apply not later than one hour after final finishing in one coat at a coverage not to exceed 200 S.F. per gallon for surfaces with a "floated" or "broom" finish, or 300 S.F. per gallon for surfaces with a "troweled" finish. Submit engineering testing laboratory certification for approval. Do not use curing compound on surfaces to receive mortar beds for tile work.
28. Cold weather protection shall be in accordance with recommended practices of ACI 306R-88. Whenever the mean daily outdoor temperature is less than 40EF, the temperature of the concrete shall be maintained between 50EF and 70EF for the curing period.
29. Hot weather protection shall be in accordance with ACI 305R-91. When the anticipated ambient air temperature exceeds 80EF during placing or finishing operations, a retarding admixture shall be used in the mix to retard the setting time of the concrete.

CONTRACTOR DUTIES IN TESTING

30. Contractor shall submit to the Architect the concrete materials and the concrete mix designs proposed for use with a written request for review. Submittal shall include the results of all testing performed to qualify the materials and to establish the mix designs. Place no concrete in the work until mix design has been reviewed.
31. Contractor shall sample, mould, initially cure, and transport to the laboratory the acceptance test specimens for testing. During the first 24 hours after moulding he shall provide means for maintaining the temperature immediately adjacent to the specimens within the range of 60EF to 80EF and prevent loss of moisture from the specimens. After the initial curing period the acceptance test specimens shall be transported in a damp condition to the laboratory in a manner to prevent damage to the specimens. Include information for reporting of test data.
32. Slump and air content shall be determined at the beginning of each day's pour and for each batch of concrete sampled for compressive strength tests. Make corrections to the mix if slump, unit weight, or air content are not within the specified slump, unit weight, or air content are not within the specified tolerances. Slump and air content shall be determined by ASTM C143 and ASTM C173 respectively.
33. Make sets of four acceptance cylinders for strength testing for each 50 yards of concrete or fraction thereof for each class and strength for each day's concreting which shall be moulded from concrete samples taken at random over the duration of the pour.
    a. Samples of concrete for strength testing shall be representative of the

concrete in-place in the structure and shall not be taken from the first one-third of the concrete of the ready-mix truck. **No water shall be added to the concrete after samples of concrete for strength testing have been secured**.

b. Acceptance test cylinders shall be molded and cured in accordance with ASTM C31 from concrete samples in accordance with ASTM C172.

c. Provide designated testing laboratory with all field data specified to be included on concrete test reports in paragraph 3.8.

34. Field sampling and testing shall be performed by ACI Certified Technicians.

LABORATORY DUTIES IN TESTING

35. Designated testing laboratory shall perform all operations of testing materials, concrete and verifying mix designs.

36. Concrete test reports shall include the following:
    a. Class and strength concrete.
    b. Slump.
    c. Air content.
    d. Temperature of concrete mix at time of placement.
    e. Date and time of moulding.
    f. Date and age of test specimens.
    g. Location of concrete in the structure.
    h. Delivery ticket serial numbers.

37. Furnish five (5) copies of all test reports to the Architect.

38. Designated testing laboratory shall be selected by the Architect and paid by the Contractor.

STRENGTH TESTING AND EVALUATION

39. For each set of acceptance test cylinders, one cylinder shall be broken at the age of 7 days for information and two cylinders shall be broken at the age of 28 days for acceptance. The remaining cylinder shall be held by the laboratory for 120 days for use as a verification cylinder if required. Test in accordance with ASTM C39-86.

40. Concrete shall be considered "Questionable Concrete" where any of the following test evaluations occur:
    a. Individual test strength is more than 500 psi below specified strength; or
    b. Average of any three consecutive strength tests are less than specified strength; or
    c. Individual test strength is less than specified strength and the concrete represented by the test is for concrete for a "critical" area of the structure. Critical areas of the structure Are those areas which, in the opinion of the Architect, are critical to the structural stability of the structure as a whole.

QUESTIONABLE CONCRETE

41. Core tests shall be made at no cost to the government, and as directed by the Architect. If core tests fail to demonstrate the test strength required by the contract documents, or if they are impractical to obtain, and structural analysis does not confirm the safety of the structure, the Architect may, at his discretion, condemn the work or require load tests or additional construction. Should structural analysis confirm the safety of the structure, the Architect may, at his discretion, accept the questionable concrete in accordance with the Article of the

General Conditions for the Acceptance of Defective Non-Conforming Work.

42. The Contractor shall pay all costs incurred in providing the additional testing or analysis to resolve the acceptability of questionable concrete.
43. The term "Building Official" in ACI Building Code 318-95 shall be deemed to mean, and does mean, the Architect.

CORE TESTS

44. Three representative cores shall be taken from each member or area of concrete for each test considered "questionable". Location of cores shall be as directed by the Architect to least impair the strength of the structure. Damaged cores shall be replaced.
45. Cores shall be obtained and tested in accordance with ASTM C42-87 except that if concrete in the structure will be dry under service conditions, the cores shall be air dried (temperature 60EF to 80EF, and relative humidity less than 60%) for 7 days before test and shall be tested dry. If the concrete in the structure will be more than superficially wet under service conditions, the cores shall be immersed in water for at least 48 hours and tested wet.
46. Concrete in the questionable area will be considered structurally acceptable if the average of the cores is equal to or greater than 90% of the specified strength and no single core is more than 500 psi below specified strength.

LOAD TESTS AND ADDITIONAL CONSTRUCTION

47. Load tests shall be applied and their results evaluated in accordance with Chapter 20 of ACI Building Code 318-95.
48. Work judged inadequate by results of a load test shall be reinforced with additional construction if so directed by the Architect or shall be replaced.
49. Additional construction and replaced work shall be at the Contractor's expense.

CONDUIT WORK

50. Electrical conduits shall be buried in concrete slabs. Low conduit shall be wired to the upper side of bottom reinforcing and top conduit shall be wired to the lower side of top steel.
51. Take care in spacing concrete around gangs or parallel conduit. Where such conduits occur, they shall be separated by at least one inch.

END OF SECTION

D. ROUGH CARPENTRY

GENERAL

SUBMITTALS

1. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

QUALITY ASSURANCE

2. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, with the experience and capability to conduct the testing indicated, as documented according to ASTM E 548.
3. Source Limitations for Engineered Wood Products: Obtain each type of engineered wood product through one source from a single manufacturer.
4. Source Limitations for Fire-Retardant-Treated Wood: Obtain each type of fire-retardant-treated wood product through one source from a single producer.

DELIVERY, STORAGE, AND HANDLING

5. Stack lumber, plywood, and other panels; place spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PRODUCTS

MANUFACTURERS

6. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
7. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

Laminated-Veneer Lumber:

1. Boise Cascade Corporation.
2. Georgia-Pacific Corporation.
3. Louisiana-Pacific Corporation.
4. Pacific Woodtech Corp.
5. Trus Joist MacMillan.
6. Union Camp Corp.; Building Products Division.
7. Willamette Industries, Inc.

Parallel-Strand Lumber and Fabricated Joists:

8. Trus Joist MacMillan.

Gypsum Sheathing Board:

9. American Gypsum Co.
10. G-P Gypsum Corporation.
11. National Gypsum Company.
12. United States Gypsum Co.
13. Tenneco Building Products.

Metal Framing Anchors:

14. Alpine Engineered Products, Inc.

15. Cleveland Steel Specialty Co.
16. Harlen Metal Products, Inc.
17. KC Metals Products, Inc.
18. Silver Metal Products, Inc.
19. Simpson Strong-Tie Company, Inc.
20. Southeastern Metals Manufacturing Co., Inc.
21. United Steel Products Company, Inc.

WOD PRODUCTS, GENERAL

8. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
   a. Factory mark each piece of lumber with grade stamp of grading agency.
   b. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece.
   c. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
   d. Provide dressed lumber, S4S, unless otherwise indicated.
   e. Provide dry lumber with 19 percent maximum moisture content at time of dressing for 2- inch nominal (38-mm actual) thickness or less, unless otherwise indicated.
9. 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.
   a. 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.
10. Wood Structural Panels:
   a. Plywood: Either DOC PS 1 or DOC PS 2, unless otherwise indicated.
   b. Oriented Strand Board: DOC PS 2.
   c. Thickness: As needed to comply with requirements specified but not less than thickness indicated.
   d. Comply with "Code Plus" provisions in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial."
   e. Factory mark panels according to indicated standard.

DIMENSION LUMBER

11. General: Provide dimension lumber of grades indicated according to the American Lumber Standards Committee National Grading Rule provisions of the grading agency indicated.

MISCELLANEOUS LUMBER

12. General: Provide lumber for support or attachment of other construction, including the following:
   a. Rooftop equipment bases and support curbs.
   b. Blocking.
   c. Cants.
   d. Nailers.
   e. Furring.

f. Grounds.

13. For items of dimension lumber size, provide Construction, Stud, or No. 2 grade lumber with 19 percent maximum moisture content and the following species:
    a. Mixed southern pine; SPIB.
    b. Hem-fir or Hem-fir (north); NLGA, WCLIB, or WWPA.
    c. Spruce-pine-fir (south) or Spruce-pine-fir; NELMA, NLGA, WCLIB, or WWPA.
    d. Eastern softwoods; NELMA.
    e. Northern species; NLGA.
    f. Western woods; WCLIB or WWPA.
14. For exposed boards, provide lumber with 19 percent maximum moisture content and any of the following species and grades:
    a. Eastern white pine, Idaho white, lodgepole, ponderosa, or sugar pine; Premium or 2 Common (Sterling) grade; NELMA, NLGA, WCLIB, or WWPA.
    b. Mixed southern pine, No. 1 grade; SPIB.
    c. Hem-fir or Hem-fir (north), Prime or D Finish grade; NLGA, WCLIB, or WWPA.
    d. Spruce-pine-fir (south) or Spruce-pine-fir, 1 Common grade; NELMA, NLGA, WCLIB, or WWPA.
    e. Western red cedar, A or B grade, as indicated; NLGA or WWPA.
15. For concealed boards, provide lumber with 19 percent maximum moisture content and the following species and grades:
    a. Mixed southern pine, No. 2 grade; SPIB.
    b. Hem-fir or Hem-fir (north), Construction or 2 Common grade; NLGA, WCLIB, or WWPA.
    c. Spruce-pine-fir (south) or Spruce-pine-fir, Construction or 2 Common grade; NELMA, NLGA, WCLIB, or WWPA.
    d. Eastern softwoods, No. 2 Common grade; NELMA.
    e. Northern species, No. 2 Common grade; NLGA.
    f. Western woods, Construction or No. 2 Common grade; WCLIB or WWPA.
16. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

ENGINEERED WOOD PRODUCTS

17. Laminated-Veneer Lumber: A composite of wood veneers with grain primarily parallel to member lengths, manufactured with an exterior-type adhesive complying with ASTM D 2559. Product has the following allowable design values as determined according to ASTM D 5456:
    a. Extreme Fiber Stress in Bending, Edgewise: 2850 psi (19.7 MPa), 2600 psi (17.9 MPa), or 2500 psi (17.2 MPa), as indicated.
    b. Modulus of Elasticity, Edgewise: 2,000,000 psi (13 800 MPa) or 1,800,000 psi (12 400 MPa) as indicated.
18. Parallel-Strand Lumber: A composite of wood strand elements with grain primarily parallel to member lengths, manufactured with an exterior-type adhesive complying with ASTM D 2559. Product has the following allowable design values as determined according to ASTM D 5456:
    a. Extreme Fiber Stress in Bending, Edgewise: 2900 psi (20 MPa) for 12-inch nominal- (286-mm actual-) depth members.
    b. Modulus of Elasticity, Edgewise: 2,000,000 psi (13 800 MPa).
19. Wood I-Joists: Prefabricated units complying with APA PRI-400; depths and performance ratings not less than those indicated.
    a. Web Material: Either oriented strand board or plywood, Exposure 1, Exterior grade.

b. Structural Capacities: Establish and monitor structural capacities according to ASTM D 5055.
c. Trademark: Factory mark I-joists with APA trademark indicating nominal joist depth, joist class, span ratings, mill identification, and I-joist compliance with APA standard.

20. Rim Boards: Performance-rated product complying with APA PRR-401.
    a. Material: Mat-formed panels or structural composite lumber, as required for structural performance.
    b. Thickness and Grade: 1-1/8-inch (28-mm) rim board.
    c. Trademark: Factory mark with APA trademark indicating thickness, grade, and compliance with APA standard.

SHEATHING AND FLOORING

21. Plywood Roof Sheathing: Exposure 1, Structural I sheathing.
    a. Span Rating: Not less than 48/24.
    b. Thickness: Not less than 5/8 inch (17 mm).
22. Plywood Flooring: Exposure 1, C.D plugged, ¾" thick, T & G edges.

PLYWOOD BACKING PANELS

23. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2 inch (12.7 mm) thick.

FASTENERS

24. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
    a. Where rough carpentry is exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
25. Nails, Brads, and Staples: ASTM F 1667.
26. Power-Driven Fasteners: CABO NER-272.
27. Wood Screws: ASME B18.6.1.
28. Screws for Fastening to Cold-Formed Metal Framing: ASTM C 954, except with wafer heads and reamer wings, length as recommended by screw manufacturer for material being fastened.
29. Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M).
30. 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.
31. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
    a. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
    b. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

METAL FRAMING ANCHORS

32. General: Provide framing anchors made from metal indicated, of structural capacity, type, and size indicated, and as follows:
    a. Research/Evaluation Reports: Provide products acceptable to authorities having jurisdiction and for which model code research/evaluation reports exist that show compliance of metal framing anchors, for application indicated, with building code in effect for Project.
    b. 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.
33. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (Z180) coating designation.
34. Joist Hangers: U-shaped joist hangers with 2-inch- (50-mm) long seat and 1-1/4-inch- (32-mm) wide nailing flanges at least 85 percent of joist depth.
    a. Thickness: 0.050 inch (1.3 mm) or 0.062 inch (1.6 mm) as required for load condition.
35. I-Joist Hangers: U-shaped joist hangers with 2-inch- (50-mm-) long seat and 1-1/4-inch- (32- mm-) wide nailing flanges full depth of joist. Nailing flanges provide lateral support at joist top chord.
    a. Thickness: 0.050 inch (1.3 mm) or 0.062 inch (1.6 mm) as required for load condition.
36. Top Flange Hangers: U-shaped joist hangers, full depth of joist, formed from metal strap with tabs bent to extend over and be fastened to supporting member.
    a. Strap Width: 1-1/2 inches (38 mm).
    b. Thickness: 0.050 inch (1.3 mm).
37. Bridging: Rigid, V-section, nailless type, 0.062 inch (1.6 mm) thick, length to suit joist size and spacing.
38. Post Bases: Adjustable-socket type for bolting in place with standoff plate to raise post 1 inch (25 mm) above base and with 2-inch- (50-mm-) minimum side cover, socket 0.062 inch (1.6 mm) thick, and standoff and adjustment plates 0.108 inch (2.8 mm) thick.
39. Joist Ties: Flat straps, with holes for fasteners, for tying joists together over supports.
    a. Width: 3/4 inch (19 mm) for span less than eight feet (8'-0") and 1-1/4 inches (32 mm) for span over eight feet (8'-0").
    b. Thickness: 0.050 inch (1.3 mm).
    c. Length: 16 inches (400 mm), 24 inches (600 mm) or As required for field condition.
40. Rafter Tie-Downs: Bent strap tie for fastening rafters or roof trusses to wall studs below, 1-1/2 inches (38 mm) wide by 0.050 inch (1.3 mm) thick. Tie fastens to side of rafter or truss, face of top plates, and side of stud below.
41. Rafter Tie-Downs (Hurricane or Seismic Ties): Bent strap tie for fastening rafters or roof trusses to wall studs below, 2-1/4 inches (57 mm) wide by 0.062 inch (1.6 mm) thick. Tie fits over top of rafter or truss and fastens to both sides of rafter or truss, face of top plates, and side of stud below.
42. Floor-to-Floor Ties: Flat straps, with holes for fasteners, for tying upper floor wall studs to band joists and lower floor studs, 1-1/4 inches (32 mm) wide by 0.050 inch (1.3 mm) thick by 36 inches (914 mm) long.
43. Hold-Downs: Brackets for bolting to wall studs and securing to foundation walls with anchor bolts or to other hold-downs with threaded rods and designed with first of two bolts placed seven bolt diameters from reinforced base.
    a. Bolt Diameter: **5/8 inch (15.8 mm)**.
    b. Width: **2-1/2 inches (64 mm)**.
    c. Body Thickness: **0.108 inch (2.8 mm)**.
    d. Base Reinforcement Thickness: **0.108 inch (2.8 mm)**.

44. Wall Bracing: Plywood shear wall panels. See Structural drawings locations and details.

MISCELLANEOUS MATERIALS

45. Building Paper: Asphalt-saturated organic felt complying with ASTM D 226, Type I (No. 15 asphalt felt), unperforated.

EXECUTION

INSTALLATION, GENERAL

46. 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 furring**,** nailers, blocking, and similar supports to comply with requirements for attaching other construction.
47. Do not use materials with defects that impair quality of rough carpentry or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
48. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
    a. CABO NER-272 for power-driven fasteners.
    b. Published requirements of metal framing anchor manufacturer.
    c. Table 23-II-B-1, "Nailing Schedule," and Table 23-II-B-2, "Wood Structural Panel Roof Sheathing Nailing Schedule," in the Uniform Building Code.
    d. Table 2305.2, "Fastening Schedule," in the BOCA National Building Code.
    e. Table 2306.1, "Fastening Schedule," in the Standard Building Code.
    f. Table 602.3(1), "Fastener Schedule for Structural Members," and Table 602.3(2), "Alternate Attachments," in the International One- and Two-Family Dwelling Code.
49. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; predrill as required.
50. Use finishing nails for exposed work, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.

WOOD BLOCKING, AND NAILER INSTALLATION

51. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
52. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated. Build anchor bolts into masonry during installation of masonry work. Where possible, secure anchor bolts to formwork before concrete placement.

WOOD FRAMING INSTALLATION, GENERAL

53. Framing Standard: Comply with AFPA's "Manual for Wood Frame Construction," unless otherwise indicated.
54. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
55. Do not splice structural members between supports.

56. Where built-up beams or girders of 2-inch nominal- (38-mm actual-) dimension lumber on edge are required, fasten together with 2 rows of 20d (100-mm) nails spaced not less than 32 inches (812 mm) o.c. Locate one row near top edge and other near bottom edge.
    a. For continuous members, locate end joints over supports.

WOOD STRUCTURAL PANEL INSTALLATION

57. General: Comply with applicable recommendations contained in APA Form No. E30K, "APA Design/Construction Guide: Residential & Commercial," for types of structural-use panels and applications indicated.
    a. Comply with "Code Plus" provisions in above-referenced guide.
58. Fastening Methods: Fasten panels as indicated below:
    a. Sheathing:
        1. Nail or staple to wood framing (Screw to cold-formed metal framing).
        2. Space panels 1/8 inch (3 mm) apart at edges and ends.
    b. Plywood Backing Panels: Nail or screw to supports.

BUILDING PAPER APPLICATION

59. Apply building paper horizontally with 2-inch (50-mm) overlap and 6-inch (150-mm) end lap; fasten to sheathing with galvanized staples or roofing nails. Cover upstanding flashing with 4- inch (102-mm) overlap.

END OF SECTION

E. METAL-PLATE-CONNECTED WOOD TRUSSES

GENERAL

SUMMARY

1. This Section includes wood roof trusses and truss accessories.

DEFINITIONS

2. Metal-Plate-Connected Wood Trusses: Planar structural units consisting of metal-plateconnected members fabricated from dimension lumber and cut and assembled before delivery to Project site.
3. Lumber grading agencies, and the abbreviations used to reference them, include the following:
    a. NELMA - Northeastern Lumber Manufacturers Association.
    b. NLGA - National Lumber Grades Authority.
    c. SPIB - Southern Pine Inspection Bureau.
    d. WCLIB - West Coast Lumber Inspection Bureau.
    e. WWPA - Western Wood Products Association.

PERFORMANCE REQUIREMENTS

4. Structural Performance: Provide metal-plate-connected wood trusses capable of withstanding design loads within limits and under conditions indicated. No increase in allowable stress for sizing of galvanized plates in metal plate connections will be allowed on this project.
    a. Design Loads: As indicated.
    b. Maximum Deflection Under Design Loads:
        a. Roof Trusses: Vertical deflection of 1/360 of span.
        b. Roof Trusses: Horizontal deflection at reactions of 1/2 inches (32 mm).

SUBMITTALS

5. Shop Drawings: Show location, pitch, span, camber, configuration, and spacing for each type of truss required; species, sizes, and stress grades of lumber; splice details; type, size, material, finish, design values, orientation, and location of metal connector plates; and bearing details.
    a. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
6. Product Certificates: For metal-plate-connected wood trusses, signed by officer of truss fabricating firm.
7. Qualification Data: For metal-plate manufacturer and fabricator.
8. 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 American Lumber Standards Committee Board of Review.
9. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:

a. Preservative-treated wood.
b. Fire-retardant-treated wood.
c. Metal-plate connectors.
d. Metal framing anchors.

QUALITY ASSURANCE

10. Metal Connector-Plate Manufacturer Qualifications: A manufacturer that is a member of TPI and that complies with TPI quality-control procedures for manufacture of connector plates published in TPI 1.
    a. Manufacturer's responsibilities include providing professional engineering services needed to assume engineering responsibility.
    b. Engineering Responsibility: Preparation of Shop Drawings and comprehensive engineering analysis by a qualified professional engineer.
11. Fabricator Qualifications: Shop that participates in a recognized quality-assurance program that involves inspection by SPIB, Timber Products Inspection, TPI, or other independent testing and inspecting agency acceptable to Architect and authorities having jurisdiction.
12. Source Limitations for Connector Plates: Obtain metal connector plates through one source from a single manufacturer.
13. Source Limitations for Fire-Retardant-Treated Wood: Obtain each type of fire-retardant-treated wood product through one source from a single producer.
14. Comply with applicable requirements and recommendations of the following publications:
    a. TP1 1, "National Design Standard for Metal Plate Connected Wood Truss Construction."
    b. TPI DSB, "Recommended Design Specification for Temporary Bracing of Metal Plate Connected Wood Trusses."
    c. TPI HIB, "Commentary and Recommendations for Handling, Installing & Bracing Metal Plate Connected Wood Trusses."
15. Wood Structural Design Standard: Comply with applicable requirements in AFPA's "National Design Specifications for Wood Construction" and its "Supplement."

DELIVERY, STORAGE, AND HANDLING

16. Comply with TPI recommendations to avoid damage and lateral bending. Provide for air circulation around stacks and under coverings.
17. Inspect trusses showing discoloration, corrosion, or other evidence of deterioration. Discard and replace trusses that are damaged or defective.

COORDINATION

18. Time delivery and erection of trusses to avoid extended on-site storage and to avoid delaying progress of other trades whose work must follow erection of trusses.

PRODUCTS

MANUFACTURERS

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

20. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    Metal Connector Plates:
    a. Alpine Engineered Products, Inc.
    b. CompuTrus, Inc.
    c. Eagle Metal Products.
    d. Jager Industries, Inc.
    e. Mitek Industries, Inc.
    f. Robbins Engineering, Inc.
    g. TEE-LOK Corporation.
    h. Truswal Systems Corporation.
    Metal Framing Anchors:
    i. Alpine Engineered Products, Inc.
    j. Cleveland Steel Specialty Co.
    k. Harlen Metal Products, Inc.
    l. KC Metals Products, Inc.
    m. Silver Metal Products, Inc.
    n. Simpson Strong-Tie Company, Inc.
    o. Southeastern Metals Manufacturing Co., Inc.
    p. United Steel Products Company, Inc.

DIMENSION LUMBER

21. Lumber: DOC PS 20 and applicable rules of lumber grading agencies certified by the American Lumber Standards Committee Board of Review.
    a. Factory mark each piece of lumber with grade stamp of grading agency.
    b. For exposed lumber indicated to receive natural or stained finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.
    c. Provide dressed lumber, S4S, manufactured to actual sizes required by DOC PS 20 for moisture content specified.
    d. Provide dry lumber with 19 percent maximum moisture content at time of dressing.
    e. Provide dry lumber with 15 percent maximum moisture content at time of dressing.
22. Grade and Species: Provide dimension lumber of any species for truss chord and web members, graded visually or mechanically, and capable of supporting required loads without exceeding allowable design values according to AFPA's "National Design Specifications for Wood Construction" and its "Supplement."
23. Grade and Species: Provide visually graded dimension lumber for truss chord and web members, of the following grade and species:
    a. Grade for Chord Members: No. 1 or No. 2 as required.
    b. Grade for Web Members: No. 2, Stud or No. 3, as required.
    c. Species: Southern pine; SPIB.
    d. Species: Mixed southern pine; SPIB.

METAL CONNECTOR PLATES

24. General: Fabricate connector plates to comply with TPI 1 from metal complying with requirements indicated below:
25. Hot-Dip Galvanized Steel Sheet: ASTM A 653/A 653M, G60 (Z180) coating designation; Designation SS, Grade 33, and not less than 0.036 inch (0.9 mm) thick.
26. Electrolytic Zinc-Coated Steel Sheet: ASTM A 591/A 591M, 80Z (24G) coating designation; ASTM A 570/A 570M, Structural Steel (SS), Grade 33, and not less than 0.047 inch (1.2 mm) thick.

27. Aluminum-Zinc Alloy-Coated Steel Sheet: ASTM A 792/A 792M, AZ50 (AZ150) coating designation; Structural Steel (SS), Grade 33, and not less than 0.036 inch (0.9 mm) thick.
28. No stress increase shall be allowed for plate sizing or selection (plate factor shall be 1.0).

FASTENERS

29. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
    a. Where trusses are exposed to weather, in ground contact, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
30. Nails, Wire, Brads, and Staples: FS FF-N-105.
31. Power-Driven Fasteners: CABO NER-272.
32. Wood Screws: ASME B18.6.1.
33. Lag Bolts: ASME B18.2.1. (ASME B18.2.3.8M).
34. 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.
35. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
    a. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
    b. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2 (ASTM F 738M and ASTM F 836M, Grade A1 or A4).

METAL FRAMING ANCHORS

36. General: Provide framing anchors made from metal indicated, of structural capacity, type, and size indicated, and as follows:
    a. Research/Evaluation Reports: Provide products acceptable to authorities having jurisdiction and for which model code research/evaluation reports exist that show compliance of metal framing anchors, for application indicated, with building code in effect for Project.
    b. 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.
37. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 (Z180) coating designation.
38. Truss Tie-Downs: Bent strap tie for fastening roof trusses to wall below, 1-1/2 inches (38 mm) wide by 0.050 inch (1.3 mm) thick. For use at standard trusses with 40’-0” clear span or less.
39. Truss Tie-Downs (Hurricane or Seismic Ties): Bent strap tie for fastening roof trusses to wall studs below, 2-1/4 inches (57 mm) wide by 0.062 inch (1.6 mm) thick. Tie fits over top of truss and fastens to both sides of truss, face of top plates, and side of stud below. For use at standard trusses with over 40’-0” clear spans.
40. Truss Tie-Downs (Hurricane or Seismic Ties): Bent strap tie for fastening roof trusses to wall studs below, 2-1/2 inches (63 mm) wide by 0.062 inch (1.6 mm)

thick. Tie fits over top of truss and fastens to both sides of truss, inside face of top plates, and both sides of stud below. For use at double trusses and girder trusses.

41. Roof Truss Clips: Angle clips for bracing bottom chord of roof trusses at non-load-bearing walls, 1-1/4 inches (32 mm) wide by 0.050 inch (1.3 mm) thick. Clip is fastened to truss through slotted holes to allow for truss deflection.

MISCELLANEOUS MATERIALS

42. Galvanizing Repair Paint: SSPC-Paint 20 or DOD-P-21035, with dry film containing a minimum of 94 percent zinc dust by weight.

FABRICATION

43. Cut truss members to accurate lengths, angles, and sizes to produce close-fitting joints.
44. Fabricate metal connector plates to sizes, configurations, thicknesses, and anchorage details required to withstand design loads for types of joint designs indicated.
45. 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.
    a. Fabricate wood trusses within manufacturing tolerances in TPI 1.
46. Connect truss members by metal connector plates located and securely embedded simultaneously in both sides of wood members by air or hydraulic press.

EXECUTION

INSTALLATION

47. Install wood trusses only after supporting construction is in place and is braced and secured.
48. Before installing, splice trusses delivered to Project site in more than one piece.
49. 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.
50. Install and brace trusses according to TPI recommendations and as indicated.
51. Install trusses plumb, square, and true to line and securely fasten to supporting construction.
52. Space trusses as indicated; adjust and align trusses in location before permanently fastening.
53. Anchor trusses securely at bearing points; use metal framing anchors. Install fasteners through each fastener hole in metal framing anchor according to manufacturer's fastening schedules and written instructions.
54. Securely connect each truss ply required for forming built-up girder trusses.
    a. Anchor trusses to girder trusses per truss manufacturer.
55. 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.
    a. Install and fasten strongback bracing vertically against vertical web of parallel-chord floor trusses at centers indicated.
56. Install wood trusses within installation tolerances in TPI 1.
57. Do not cut or remove truss members.
58. Replace wood trusses that are damaged or do not meet requirements.

a. Do not alter trusses in field.

REPAIRS AND PROTECTION

59. Repair damaged galvanized coatings on exposed surfaces with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.
60. Protective Coating: Clean and prepare exposed surfaces of metal connector plates. Brush apply primer, when part of coating system, and one coat of protective coating.
    a. Apply materials to provide minimum dry film thickness recommended by coating system manufacturer.

END OF SECTION

F. JOINT SEALANTS

GENERAL

SUMMARY

1. This Section includes sealants for the following applications:
   a. Exterior joints in the following vertical surfaces and nontraffic horizontal surfaces:
      1. Joints between masonry and adjoining metals.
      2. Control and expansion joints.
      3. Other joints as indicated.
   b. Interior joints in the following vertical surfaces and horizontal nontraffic surfaces:
      1. Perimeter joints of exterior openings where indicated.
      2. Other joints as indicated.

PERFORMANCE REQUIREMENTS

2. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.

SUBMITTALS

3. Product Data: For each joint-sealant product indicated.
4. Product Certificates: Signed by manufacturers of joint sealants certifying that products furnished comply with requirements and are suitable for the use indicated.

QUALITY ASSURANCE

5. Installer Qualifications: An experienced installer who has specialized in installing joint sealants similar in material, design, and extent to those indicated for this Project and whose work has resulted in joint-sealant installations with a record of successful in-service performance.
6. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
7. Preconstruction Compatibility and Adhesion Testing: Submit to joint sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
   a. Testing will not be required if joint sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.

DELIVERY, STORAGE, AND HANDLING

8. Deliver materials to Project site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration date, pot life, curing time, and mixing instructions for multicomponent materials.
9. Store and handle materials in compliance with manufacturer's written instructions to prevent their deterioration or damage due to moisture, high or low temperatures, contaminants, or other causes.

PROJECT CONDITIONS

10. Environmental Limitations: Do not proceed with installation of joint sealants under the following conditions:
    A. When ambient and substrate temperature conditions are outside limits permitted by joint sealant manufacturer.
    B. When joint substrates are wet.
11. Joint-Width Conditions: Do not proceed with installation of joint sealants where joint widths are less than those allowed by joint sealant manufacturer for applications indicated.
12. Joint-Substrate Conditions: Do not proceed with installation of joint sealants until contaminants capable of interfering with adhesion are removed from joint substrates.

WARRANTY

13. General Warranty: Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
14. Special Installer's Warranty: Written warranty, signed by Installer agreeing to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
    A. Warranty Period: Minimum five (5) years from date of Architect’s Final Certificate.
15. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
    A. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
    B. Disintegration of joint substrates from natural causes exceeding design specifications.
    C. Mechanical damage caused by individuals, tools, or other outside agents.
    D. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PRODUCTS

PRODUCTS AND MANUFACTURERS

16. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the products specified in the sealant schedules in 3.04.

MATERIALS, GENERAL

17. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer based on testing and field experience.
18. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range for this characteristic.

ELASTOMERIC JOINT SEALANTS

19. Elastomeric Sealant Standard: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant in the Elastomeric Joint-Sealant Schedule at the end of Part 3, including those referencing ASTM C 920 classifications for type, grade, class, and uses.
20. Additional Movement Capability: Where additional movement capability is specified in the Elastomeric Joint-Sealant Schedule, provide products with the capability, when tested for adhesion and cohesion under maximum cyclic movement per ASTM C 719, to withstand the specified percentage change in the joint width existing at the time of installation and remain in compliance with other requirements of ASTM C 920 for uses indicated.
21. Stain-Test-Response Characteristics: Where elastomeric sealants are specified in the Elastomeric Joint-Sealant Schedule to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

JOINT-SEALANT BACKING

22. General: Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
23. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

MISCELLANEOUS MATERIALS

24. Primer: Material recommended by joint sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
25. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants with joint substrates.
26. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

EXECUTION

EXAMINATION

27. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
28. Proceed with installation only after unsatisfactory conditions have been corrected.

PREPARATION

29. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint sealant manufacturer's written instructions and the following requirements:
    A. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent,

protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

B. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Porous joint surfaces include the following:
   1. Concrete.
   2. Masonry.

C. Remove latence and form-release agents from concrete.

D. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.
   1. Metal.

30. Joint Priming: Prime joint substrates where recommended in writing by joint sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
31. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

INSTALLATION OF JOINT SEALANTS

32. General: Comply with joint sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
33. Sealant Installation Standard: Comply with recommendations of ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
34. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
    a. Do not leave gaps between ends of sealant backings.
    b. Do not stretch, twist, puncture, or tear sealant backings.
    c. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
35. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and back of joints.
36. Install sealants by proven techniques to comply with the following and at the same time backings are installed:
    a. Place sealants so they directly contact and fully wet joint substrates.
    b. Completely fill recesses provided for each joint configuration.
    c. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
37. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
    A. Remove excess sealants from surfaces adjacent to joint.
    B. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
    C. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless

otherwise indicated.

SCHEDULE OF JOINT SEALERS

38. General: Unless otherwise indicated, joints around perimeter of frames, where indicated to be sealed, are to be sealed using sealer specified for the substrate adjacent to the frame.
39. Exterior Joints in Masonry Walls, Around Frames, and for which no other sealer is indicated:
    A. Use one of the following sealants:
        1. One-part nonsag urethane sealant.
    B. Backer: Backer rod.
    C. Joint shape: Flush joint configuration at frames concave configuration to match mortar joints in masonry walls.
40. Interior Joints for Which No Other Sealers Indicated:
    A. Use one of the following sealants:
        1. Acrylic-emulsion latex sealant.
    B. Use bond-breaker tape.
    C. Joint shape: Concave joint configuration.
41. Interior Floor Joints:
    A. Use one of the following sealants:
        1. Two-part pourable urethane sealant.
    B. Backer: Backer rod.
    C. Joint shape: Flush joint configuration.
42. Joints around Pipes, Ducts, and Conduit Penetrating Exterior Walls and Roofs:
    A. Use one of the following sealants:
        1. Same as used for adjacent substrates.
43. Joints in Interior Wet Areas:
    A. Use one of the following sealants;
        1. Mildew-resistant silicone sealant.
    B. Use bond-breaker tape.
    C. Joint-shape: Flush joint configuration.
44. Concealed Movement Joints in Sheet Metal Work:
    A. Use one of the following sealants:
        1. Noncurring butyl sealant.
        2. Butyl polyisobutylene sealant.
    B. Use bond-breaker tape.
    C. Joint shape: Flush joint configuration.

CLEANING

45. Clean off excess sealants or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

PROTECTION

46. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from the original work.

ELASTOMERIC JOINT-SEALANT SCHEDULE

47. Elastomeric Sealants - General: Chemically curing elastomeric sealants of type indicated, complying with ASTM C 920, including specific Type, Grade, Class, Uses indicated, as well as all other requirements specified.
    A. For M-type substrates: Comply with requirements for Use M.
    B. For G-type substrates: Comply with requirements for Use G.
    C. For A-type substrates: Comply with requirements for Use A.
    D. For O-type substrates: Comply with requirements for Use M (minimum) and Use O for the particular substrates.
48. Mildew-Resistant Silicone Sealant: One-part, Type S, Grade NS, Class 25, Use NT, formulated with fungicide, for interior use on nonporous substrates.
    A. Products:
        1. “Dow Corning 786"; Dow Corning Corporation.
        2. “Sanitary 1700 Sealant”; GE Silicones.
        3. “863 No. 345 White”; Pecora Corporation.
        4. “Rhodorsil 6B, White”; Rhone-Poulenc Inc.
        5. “Omniplus White”; Sonneborn Building Products Division/ChemRex, Inc.
        6. “Proglaze white”; Tremco, Inc.
49. Multipart Pourable Urthane Sealant: Type M, Grade P, Class 25, Use T.
    A. Products:
        1. “Urexpan NR-200"; Pecora Corporation.
        2. “Silkaflex 2c SL”; Sika Corporation.
        3. “Sonolastic SL 2"; Sonneborn Building Products Division / ChemRex, Inc.
        4. “THC-900"; Tremco, Inc.
        5. “Pourthane”; W.R. Meadows, Inc.
50. One-Part Nonsag Urethane Sealant: Type S, Grade NS, Class 25, Use NT.
    A. Products:
        1. “Chem-Calk 900"; Bostik Inc.
        2. “Dynatrol I”; Pecora Corporation.
        3. Silkaflex la”; Sika Corporation
        4. “Sonolastic NP 1"; Sonneborn Building Products Division / ChemRex, Inc.
        5. “Dymonic”; Tremco, Inc.

LATEX SEALANTS

51. Acrylic-Latex Emulsion Sealant: One-part, nonsag, mildew-resistant, paintable; complying with ASTM C 834.
    A. Products:
        1. “Chem-Calk 900"; Bostik Inc.
        2. “AC-20 + Silicone”; Pecora Corporation.
        3. “Sonolac”; Sonneborn Building Products Division/ChemRex, Inc.

NONCURING SEALERS

52. Noncuring Butyl Sealant: Nondrying, nonhardening, nonskinning, nonstaining, gunnable, synthetic rubber sealant.
    A. Products:
        1. “BA-98"; Pecora Corporation.
        2. “Tremco Acoustical Sealant”; Tremco, Inc.
        3. “Curtainwall Sealant”; Tremco, Inc.
53. Butyl Polyisobutylene Sealant: Noncuring, nondrying, solvent-release; complying with 809.2, as described in AAMA 800.

END OF SECTION.

G. PAINTING (PROFESSIONAL LINE PRODUCTS)

GENERAL

SUMMARY

1. This Section includes surface preparation and field painting of exposed exterior and interior items and surfaces.

SUBMITTALS

2. Product Data: For each product indicated.
3. Samples: For each type of finish-coat material indicated.

QUALITY ASSURANCE

4. Benchmark Samples (Mockups): Provide a full-coat benchmark finish sample for each type of coating and substrate required. Comply with procedures specified in PDCA P5.
   a. Wall Surfaces: Provide samples on at least 100 sq. ft. (9 sq. m).
   b. Small Areas and Items: Architect will designate items or areas required.
   c. Final approval of colors will be from benchmark samples.

PROJECT CONDITIONS

5. Store materials not in use in tightly covered containers in a well-ventilated area at a minimum ambient temperature of 45 deg F (7 deg C). Maintain storage containers in a clean condition, free of foreign materials and residue.
6. Apply waterborne paints only when temperatures of surfaces to be painted and surrounding air are between 50 and 90 deg F (10 and 32 deg C).
7. Apply solvent-thinned paints only when temperatures of surfaces to be painted and surrounding air are between 45 and 95 deg F (7 and 35 deg C).
8. Do not apply paint in snow, rain, fog, or mist; or when relative humidity exceeds 85 percent; or at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

EXTRA MATERIALS

9. Furnish extra paint materials from the same production run as the materials applied and in the quantities described below. Package with protective covering for storage and identify with labels describing contents. Deliver extra materials to Owner.
   1. Quantity: not less than 1 gal. (3.8 L) of each material and color applied.

PRODUCTS

MANUFACTURERS

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products listed in other Part 2 articles.

2. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
    a. Benjamin Moore & Co. (Benjamin Moore).
    b. Coronado Paint Company (Coronado).
    c. ICI Paint Stores, Inc. (Dulux Paint).
    d. Kelly-Moore Paint Co. (Kelly-Moore).
    e. M. A. Bruder & Sons, Inc. (M. A. B. Paint).
    f. PPG Industries, Inc. (Pittsburgh Paints).
    g. Sherwin-Williams Co. (Sherwin-Williams).
    h. Porter Paint Company (Porter Paints)

PAINT MATERIALS, GENERAL

3. Material Compatibility: Provide block fillers, primers, and finish-coat materials that are compatible with one another and with the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.
4. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified that are factory formulated and recommended by manufacturer for application indicated. Paint-material containers not displaying manufacturer's product identification will not be acceptable.
5. Colors: Match samples.

PREPARATORY COATS

6. Concrete Unit Masonry Block Filler: High-performance latex block filler of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.
7. Exterior Primer: Exterior alkyd or latex-based primer of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.
    a. Ferrous-Metal and Aluminum Substrates: Rust-inhibitive metal primer.
    b. Zinc-Coated Metal Substrates: Galvanized metal primer.
    c. Where manufacturer does not recommend a separate primer formulation on substrate indicated, use paint specified for finish coat.
8. Interior Primer: Interior latex-based or alkyd primer of finish coat manufacturer and recommended in writing by manufacturer for use with finish coat and on substrate indicated.
    a. Ferrous-Metal Substrates: Quick drying, rust-inhibitive metal primer.
    b. Zinc-Coated Metal Substrates: Galvanized metal primer.
    c. Where manufacturer does not recommend a separate primer formulation on substrate indicated, use paint specified for finish coat.

EXTERIOR FINISH COATS

9. Exterior Flat Acrylic Paint:
    a. Benjamin Moore; Moorcraft Super Spec Flat Latex House Paint No. 171.
    b. Coronado; 8-Line Supreme Acrylic Latex Flat.
    c. Dulux Paint; 2200-XXXX Dulux Professional Exterior 100 Percent Acrylic Flat Finish.
    d. Kelly-Moore; 1205 Color Shield Exterior Flat Acrylic House Paint.
    e. M. A. B. Paint; Fresh Kote Latex House Paint 409 Line.
    f. Pittsburgh Paints; 6-600 Series SpeedHide Exterior House Paint Flat Latex.
    g. Sherwin-Williams; A-100 Exterior Latex Flat House & Trim Paint A6 Series.

h. Porter Paints; Acri-Pro 100 Flat Exterior Acrylic Paint No. 929: Applied at a dry film thickness of not less than 1.4 mils (0.035 mm).

10. Exterior Semigloss Acrylic Enamel:
    a. Benjamin Moore; Moorcraft Super Spec Latex House & Trim Paint No. 170.
    b. Coronado; 12-Line Supreme Acrylic Semi-Gloss.
    c. Dulux Paint; 2406-XXXX Dulux Professional Exterior 100 Percent Acrylic Semi-Gloss Finish.
    d. Kelly-Moore; 1250 Acry-Lustre Exterior Semi-Gloss Acrylic Finish.
    e. M. A. B. Paint; Sea Shore/Four Seasons Acrylic Latex Trim Enamel 024 Line.
    f. Pittsburgh Paints; 6-900 Series SpeedHide Exterior House & Trim Semi-Gloss Acrylic Latex Paint.
    g. Sherwin-Williams; A-100 Latex Gloss A8 Series.
    h. Porter Paints; Acri-Pro 100 Semi-Gloss Exterior Acrylic Paint No. 6029: Applied at a dry film thickness of not less than 1.2 mils (0.031 mm).

INTERIOR FINISH COATS

11. Interior Satin Acrylic Paint:
    a. Benjamin Moore; Moorecraft Super Spec Latex Flat No. 275.
    b. Coronado; 28 Line Super Kote 5000 Latex Flat Paint.
    c. Dulux Paint; 1200-XXXX Dulux Professional Velvet Matte Interior Flat Latex Wall & Trim Finish.
    d. Kelly-Moore; 450 Pro-Wall Interior Flat Latex Wall Paint.
    e. M. A. B. Paint; Fresh Kote Latex Flat 402 Line.
    f. Pittsburgh Paints; 6-70 Line SpeedHide Interior Wall Flat-Latex Paint.
    g. Sherwin-Williams; ProMar 200 Interior Latex Flat Wall Paint B30W200 Series.
    h. Porter Paints; Pro-Master 2000 Flat Interior Latex Wall Paint No. 6109: Applied at a dry film thickness of not less than 1.3 mils (0.033 mm).
12. Interior Semigloss Acrylic Enamel:
    a. Benjamin Moore; Moorcraft Super Spec Latex Semi-Gloss Enamel No. 276.
    b. Coronado; 32-Line Super Kote 5000 Latex Semi-Gloss Enamel.
    c. Dulux Paint; 1406-XXXX Dulux Professional Acrylic Semi-Gloss Interior Wall & Trim Enamel.
    d. Kelly-Moore; 1649 Acrylic-Latex Semi-Gloss Enamel.
    e. Kelly-Moore; 1685 Dura-Poxy Semi-Gloss Acrylic Enamel.
    f. M. A. B. Paint; Fresh Kote Latex Semi-Gloss 410 Line.
    g. Pittsburgh Paints; 6-500 Series SpeedHide Interior Semi-Gloss Latex.
    h. Sherwin-Williams; ProMar 200 Interior Latex Semi-Gloss Enamel B31W200 Series.
    i. Porter Paints; Pro-Master 2000 Semi-gloss Interior Latex Wall & Trim Paint No. 6139: Applied at a dry film thickness of not less than 1.5 mils (0.038 mm).

INTERIOR WOOD STAINS AND VARNISHES

13. Clear Sanding Sealer: Fast-drying alkyd based.Benjamin Moore does not recommend using product below under polyurethane coatings.
    a. Benjamin Moore; Moore's Interior Wood Finishes Quick-Dry Sanding Sealer No. 413.
    b. Coronado; 81-10 Dual Seal.
    c. Dulux Paint; 1902-0000 WoodPride Interior Satin Polyurethane Varnish.
    d. Kelly-Moore; 2164 E Z Sand Alkyd Q. D. Sealer.

e. M. A. B. Paint; Minit Dri Sanding Sealer 037-005 Line.
f. Pittsburgh Paints; 6-10 SpeedHide Quick-Drying Interior Sanding Wood Sealer and Finish.
g. Sherwin-Williams; Wood Classics Fast Dry Sanding Sealer B26V43.
h. Porter Paints; Wood Guardian Fast drying Sanding Sealer No. 671.

14. Interior Alkyd- or Polyurethane-Based Clear Satin Varnish:
    a. Benjamin Moore; Benwood Interior Wood Finishes Polyurethane Finishes Low Lustre No. 435.
    b. Coronado; 67-100 Polyurethane Liquid Plastic Satin Varnish.
    c. Dulux Paint; 1902-0000 WoodPride Interior Satin Polyurethane Varnish.
    d. Kelly-Moore; 2050 Kel--Aqua Stain Base.
    e. M. A. B. Paint; Rich Lux Water Based Satin Polyurethane.
    f. Pittsburgh Paints; 77-7 Rez Varnish, Interior Satin Oil Clear.
    g. Sherwin-Williams; Wood Classics Fast Dry Oil Varnish, Satin A66-300 Series.
    h. Porter Paints; Wood Guardian Satin Urethane Varnish No. 857.

EXECUTION

APPLICATION

15. Comply with procedures specified in PDCA P4 for inspection and acceptance of surfaces to be painted.
16. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
17. Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of size or weight of the item, provide surface-applied protection before surface preparation and painting.
    a. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.
18. Surface Preparation: Clean and prepare surfaces to be painted according to manufacturer's written instructions for each particular substrate condition and as specified.
    a. Provide barrier coats over incompatible primers or remove and reprime.
    b. Cementitious Materials: Remove efflorescence, chalk, dust, dirt, grease, oils, and release agents. Roughen as required to remove glaze. If hardeners or sealers have been used to improve curing, use mechanical methods of surface preparation.
    c. Wood: Clean surfaces of dirt, oil, and other foreign substances with scrapers, mineral spirits, and sandpaper, as required. Sand surfaces exposed to view smooth and dust off.
        1. Scrape and clean small, dry, seasoned knots, and apply a thin coat of white shellac or other recommended knot sealer before applying primer. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood filler. Sand smooth when dried.
        2. Prime, stain, or seal wood to be painted immediately on delivery. Prime edges, ends, faces, undersides, and back sides of wood, including cabinets, counters, cases, and paneling.
        3. If transparent finish is required, backprime with spar varnish.
        4. Backprime paneling on interior partitions where masonry, plaster, or other wet wall construction occurs on back side.

5. Seal tops, bottoms, and cutouts of unprimed wood doors with a heavy coat of varnish or sealer immediately on delivery.

d. Ferrous Metals: Clean ungalvanized ferrous-metal surfaces that have not been shop coated; remove oil, grease, dirt, loose mill scale, and other foreign substances. Use solvent or mechanical cleaning methods that comply with SSPC's recommendations.

1. Touch up bare areas and shop-applied prime coats that have been damaged. Wire-brush, clean with solvents recommended by paint manufacturer, and touch up with same primer as the shop coat.

19. Material Preparation:
    a. Maintain containers used in mixing and applying paint in a clean condition, free of foreign materials and residue.
    b. Stir material before application to produce a mixture of uniform density. Stir as required during application. Do not stir surface film into material. If necessary, remove surface film and strain material before using.
20. Exposed Surfaces: Include areas visible when permanent or built-in fixtures, grilles, convector covers, covers for finned-tube radiation, and similar components are in place. Extend coatings in these areas, as required, to maintain system integrity and provide desired protection.
    a. Paint surfaces behind movable equipment and furniture the same as similar exposed surfaces. Before final installation of equipment, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
    b. Paint interior surfaces of ducts with a flat, nonspecular black paint where visible through registers or grilles.
    c. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.
    d. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.
    e. Finish interior of wall and base cabinets and similar field-finished casework to match exterior.
21. Sand lightly between each succeeding enamel or varnish coat.
22. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.
    a. Omit primer over metal surfaces that have been shop primed and touchup painted.
    b. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance.
23. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
24. Minimum Coating Thickness: Apply paint materials no thinner than manufacturer's recommended spreading rate. Provide total dry film thickness of the entire system as recommended by manufacturer.
25. Mechanical and Electrical Work: Painting of mechanical and electrical work is limited to items exposed in equipment rooms and occupied spaces.
26. Block Fillers: Apply block fillers to concrete masonry block at a rate to ensure complete coverage with pores filled.
27. Prime Coats: Before applying finish coats, apply a prime coat, as recommended by manufacturer, to material that is required to be painted or finished and that has not been prime coated by others. Recoat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn-through or other defects due to insufficient sealing.
28. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to

provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

29. Transparent (Clear) Finishes: Use multiple coats to produce a glass-smooth surface film of even luster. Provide a finish free of laps, runs, cloudiness, color irregularity, brush marks, orange peel, nail holes, or other surface imperfections.
30. Stipple Enamel Finish: Roll and redistribute paint to an even and fine texture. Leave no evidence of rolling, such as laps, irregularity in texture, skid marks, or other surface imperfections.

CLEANING AND PROTECTING

31. At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from Project site.
32. Protect work of other trades, whether being painted or not, against damage from painting. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Architect.
33. Provide "Wet Paint" signs to protect newly painted finishes. After completing painting operations, remove temporary protective wrappings provided by others to protect their work.
    a. After work of other trades is complete, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

EXTERIOR PAINT SCHEDULE

34. Ferrous Metal:
    a. Acrylic Finish: Two finish coats over a rust-inhibitive primer.
        1. Primer: Exterior ferrous-metal primer (not required on shop-primed items).
        2. Finish Coats: Exterior semigloss acrylic enamel.
    b. Alkyd-Enamel Finish: [One finish coat] [Two finish coats] [<Insert number> finish coats] over a rust-inhibitive primer.
        1. Primer: Exterior ferrous-metal primer (not required on shop-primed items).
        2. Finish Coats: Exterior full-gloss alkyd enamel.

INTERIOR PAINT SCHEDULE

35. Concrete Unit Masonry:
    a. Acrylic Finish: Two finish coats over a block filler.
        1. Block Filler: Concrete unit masonry block filler.
        2. Finish Coats: Interior flat acrylic paint.
36. Gypsum Board:If more than one type of gloss is required for finish coats on gypsum board, e.g., flat on ceilings and semigloss on walls, indicate locations of each on Drawings, in finish schedules, or by inserts below.
    a. Acrylic Finish: Two finish coats over a primer.
        1. Primer: Interior gypsum board primer.
        2. Finish Coats: Interior flat acrylic paint.
37. Wood and Hardboard:
    a. Acrylic-Enamel Finish: Two finish coats over a primer.
        1. Primer: Interior wood primer for acrylic-enamel and semigloss alkyd-enamel finishes.
        2. Finish Coats: Interior low-luster acrylic enamel.
38. Ferrous Metal:Most architectural coatings withstand surface temperatures to approximately 200 deg F (93 deg C) without problems. For hot-water and steam

piping systems that are expected to exceed 200 deg F (93 deg C), insert a suitable acrylic or alkyd organic coating or a suitable epoxy coating.

a. Acrylic Finish: Two finish coats over a primer.
   1. Primer: Interior ferrous-metal primer (Not required at shop primed metal).
   2. Finish Coats: Interior semigloss acrylic enamel.

INTERIOR STAIN AND NATURAL-FINISH WOODWORK SCHEDULE

39. Stain-Varnish Finish: Two finish coats of varnish over a sealer coat and interior wood stain. Wipe wood filler before applying stain.
    a. Filler Coat: Open-grain wood filler.
    b. Stain Coat: Interior wood stain.
    c. Sealer Coat: Clear sanding sealer.
    d. Finish Coats: Interior alkyd- or polyurethane-based clear satin.

END OF SECTION.

H. GENERAL ELECTRICAL

GENERAL:

Contractor shall provide the following:

1. Labor.
2. Supplies.
3. Materials.
4. Shop Drawings.
5. Permits and inspection fees.
6. Certificate of final inspection and approval.
7. One year guarantee.

Contractor shall perform the following:

8. Installation of all electrical equipment.
9. Coordination with other trades of electrical equipment installation.
10. Material protection during construction.
11. Test of entire system in presence of owner or his representative and correct any deficiencies discovered.
12. Coordination of electrical service and metering with local power company.
13. Coordination of telephone service with local telecommunications company.

Governing codes shall be the following:

14. State of Georgia Amendments to the NEC 2006.
15. National Electrical Code (NEC) 2006.
16. Utility Company regulations.
17. Americans with Disabilities Act.
18. Current applicable building code.
19. Local building codes and ordinances.
20. Standard Building Code (SBC) 2004.
21. The National Manufacturer's Association Standards (NEMA).
22. Underwriter's Laboratories Incorporated Standards (UL).
23. American National Standard Institute (ANSI).
24. The manufacturer's recommendation.

Materials will be:

25. New.
26. U.L. Listed.

Specifications for restrooms and site lighting are as indicated on the drawings. Requirements for Maintenance Building are as described within this section.

RACEWAYS

Use and type:

1. Service Entrance – rigid steel.
2. Feeders – rigid steel except above 8'-0" and indoor then EMT.
3. Branch circuit, telephone, or communication – EMT or "MC" cable.
4. In earth or concrete – schedule 40 PVC.
5. Recessed lighting fixtures – flexible steel conduit (short but maximum 72").
6. Outdoor final connection to equipment or in wet locations – liquid-tight flexible steel conduit (maximum 36").
7. All raceways, unless specifically indicated to be exposed, shall be concealed in walls, ceiling, or floors. Support all conduit and boxes in accordance w2ith the N.E.C. and any local code or regulation.
8. Paint all exposed raceways color as directed by the architect.

Conduit Bushings:

9. Provide insulated conduit bushing at each end of every conduit run.

WIRES AND CABLES, 600 VOLT

Color Coding:	208Y/ 120V
Phase A	Black
Phase B	Blue
Phase C	Red
Neutral	White
Ground	Green

Insulation: THHN, THWN, XHHW 75 degree C.

Fixture wire, 600 volt, 200 degree C. #14 AWG minimum, stranded, tinned copper with silicone rubber insulation and an overall jacket of glass braid, and rated at NEC type "SF-2".

Type MC cabling may be utilized for branch circuit wiring if acceptable to local jurisdiction having authority.

NOT USED.

Voltage drop will not exceed 2% for feeder and 3% for branch circuits.

BOXES

Attach securely to building construction or support from same.

Masonry boxes shall be RACO or Steel City.

Exposed boxes shall be cast type similar to Crouse Hinds type FS.

All others shall be stamped steel.

Floor Boxes:

1. Provide stamped floor boxes with adjustable feature and brass cover plate. Provide number of gangs and devices indicated on drawings.

WIRING DEVICES

Receptacles: (color as directed by architect)

1. Duplex – 20Amp, 125VAC grounded.
2. Single – 20Amp, 125VAC grounded.
3. Receptacles on dedicated circuits shall utilize 20 amp, 125VAC, grounded type.

Wall Switches: (color as directed by architect)

4. Single Pole – 20Amp, 120/277V, single throw, quiet type, grounded.
5. Double Pole – 20Amp, 120/277V, single throw, quiet type, grounded.
6. Three Way – 20Amp, 120/277V, single throw, quiet type, grounded.
7. Four Way – 20Amp, 120/277V, single throw, quiet type, grounded.

Coverplates: provide finish and color directed by architect.

ELECTRICAL SERVICE

General

1. As shown on the drawings.

PANELBOARDS

Panelboard shall have, but not be limited to the following:

1. Three phase, 4 wire, or single phase, 3 wire, copper busses.
2. Ground bus with set screw connection.
3. Solid neutral, 100% rated with set screw connection.
4. Baked-on enamel trim.
5. Switch rated bolt-on breakers.
6. Typewritten directory.

7. Plaque, black with 1” high white letter to indicate panel name.
8. Square D, Siemens, or G.E.

GROUNDING

Service Entrance

1. As shown on the drawings.

Feeders and branch circuits:

2. Provide a green insulated ground conductor, sized per the NEC, in each raceway and with all cabling.

LIGHTING FIXTURES

Coordinate fixture trims with ceiling in/on which it is being installed.

Provide low temperature, high efficiency electronic ballasts in fluorescent fixtures.

Provide thermal overload protection in both fluorescent and incandescent fixtures.

Match voltage of fixture to circuit to which fixture is shown connected.

Narrative description in lighting fixture schedule take precedence over catalog number.

All recessed fixtures installed in fire rated ceiling shall be provided with gypsum board enclosure, constructed and installed per UL requirements, around a portion of fixture located above suspended ceiling to maintain fire rating of ceiling.

EXISTING CONDITIONS

Visit site and become familiar with existing conditions in and around the building.

TELEPHONE SERVICE

Coordinate telephone service requirements with local telephone company prior to any work. Telephone company requirements shall override and/or add to requirements indicated on the drawings. Verify all outlets with owner prior to installation.

In grid ceiling, furnish and install a single gang box with a 1” conduit into ceiling cavity; end of conduit to have an insulated bushing.

In hard ceiling, furnish and install a single gang box with a 1” conduit to the telephone backboard.

SAFETY SWITCH

Safety switches shall be heavy duty type, 600 volt, with number poles required. Fused safety switches shall be quick-make, quick-break mechanism, visible blades with rejection type fuse clip and NEMA class “RK” fuse; the switches shall be NEMA 1 enclosure for indoor, NEMA 3R for outdoor. All switches shall be lockable.

FIRE RATED SEALS

Provide fire rated seal per UL requirements, for each penetration of fire rated wall or each conduit or sleeve penetrating a fire rated floor or ceiling to maintain fire rating of floor, wall, or ceiling.

END OF SECTION

Subsurface Exploration and Geotechnical Engineering Evaluation
Kenwood Park- Phase A- Pavilion
Fayette County, Georgia
Greencastle Project No. 5540

GREENCASTLE ENGINEERING, INC.
P.O. BOX 2114
PEACHTREE CITY, GEORGIA 30269
(678) 360-6909

January 22, 2016

Tetra Tech
2110 Powers Ferry Road, S.E., Suite 202
Atlanta, Georgia 30339

Attention: Ms. Lauren R. Springer, P.E.

Subject: **Subsurface Exploration & Geotechnical Engineering Evaluation**
Kenwood Park- Phase A- Pavilion
Fayette County, Georgia
Greencastle Project No. 5540

Ladies and Gentlemen:

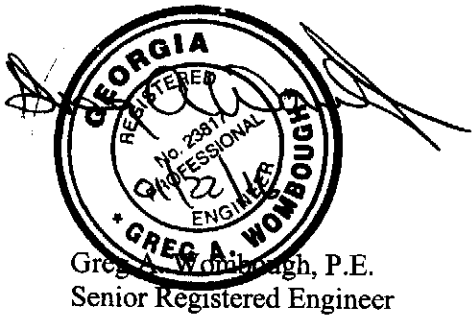
Greencastle Engineering, Inc. (Greencastle) is pleased to provide this report of a subsurface exploration and geotechnical engineering evaluation for the referenced project. This exploration was conducted in general accordance with Greencastle Proposal Number 15-088.

The purpose of the exploration was to obtain subsurface data to determine if mass rock, groundwater or unsuitable soils will impact site development costs and to provide recommendations for site development, foundations and slabs. This report presents our understanding of the project, the subsurface conditions encountered, and our recommendations for general earthwork procedures, foundations, and slabs.

Greencastle appreciates the opportunity to be of service to you on this project. If you have any questions concerning this report, please contact us.

Respectfully submitted,

Greencastle Engineering, Inc.



Greg A. Wombough, P.E.
Senior Registered Engineer
GA. Reg. No. 23817

TABLE OF CONTENTS

APPENDIX

REPORT OVERVIEW

The following summary provides an overview of our findings. Design recommendations are presented in the report text.

1. One soil test boring was performed at the site, as proposed. The soil test boring encountered fill soils and residual soils to the planned termination depth of 15 feet.

2. No partially weathered rock or mass rock was encountered in the soil test boring to the termination depth of 15 feet.

3. Excavations in the fill and residual soils can be accomplished using conventional heavy earthmoving equipment such as dozers and large tracked excavators.

4. Groundwater was not encountered in the soil test boring at 24 hours after the completion of drilling.

5. The fill and residual soils encountered are suitable for use as structural fill.

6. The proposed structure can be supported on shallow foundations bearing on the existing fill soils, residual soils or new structural fill. A net allowable soil bearing pressure of 2,500 pounds per square foot (psf) may be used for the design of the foundations for the building.

PROJECT INFORMATION

We understand that a small pavilion will be constructed in the existing park. The park is located to the east of Highway 279, just north of its intersection with Helmer Road in Fayette County, Georgia. We anticipate that the building will be wood or structural steel framed. No structural loadings have been provided but we anticipate column loads on the order of 100 kips or less and wall loads on the order of 3 kips per linear foot or less. The property is undeveloped and grassed. We anticipate that cuts and fills of 5 feet or less will be required to achieve finished grades.

EXPLORATION AND TESTING PROCEDURES

The site was explored by a combination of a visual site reconnaissance and the performance of one soil test boring, designated as B-1. Boring B-1 was performed in the pavilion footprint.

The boring was located on site near the requested location by pacing and estimating directions from the existing site features shown on the survey. The boring location is shown on the *Boring Location Plan* in the Appendix. The location should be considered approximate. The boring location was marked in the field and we recommend it be surveyed for more accurate horizontal and vertical location and for future use.

The soil test boring was advanced by twisting continuous hollow stem auger flights into the

ground with a CME 550 drill rig. At selected intervals, Standard Penetration Testing (SPT) was performed in general accordance with ASTM D-1586 and soil samples were collected for visual classification. The results of the SPT, when properly evaluated, provide an indication of the relative consistency of the soil being sampled, the potential for difficult excavation, and the soil's ability to support loads. After the boring was completed, it was checked for the presence of groundwater and it was then backfilled with the auger cuttings. A more detailed description of the drilling and sampling process is included in the Appendix.

Soil samples recovered during the drilling process were returned to our office where they were classified by a member of our engineering staff. Detailed descriptions of the materials encountered at each boring location, along with results of the SPT are shown on the Soil Boring Log in the Appendix of this report.

SITE AND SUBSURFACE CONDITIONS

Site Conditions

The property is located in the southwestern portion of the existing municipal park. An entrance roadway lies to the west of the property and undeveloped lad lies to the north, east and south. The area where the proposed pavilion will be situated is currently grassed.

Area Geology

The site is located in Georgia's Piedmont Physiographic Province. The residual soils in the Piedmont are the result of the chemical and physical weathering of the underlying parent metamorphic and igneous rock. A common soil profile usually consists of fine grained clayey silts and silty clays near the surface, where weathering is more advanced. With depth, less clayey, coarser grained soils such as sandy silts and silty sands with varying mica content are encountered. Separating the completely weathered soil overburden from the unaltered parent rock is a transition zone of very high consistency weathered rock locally referred to as Partially Weathered Rock (PWR). Partially weathered rock is arbitrarily defined as residual soils with Standard Penetration Resistances in excess of 100 blows per foot (50 blows per 6 inches).

Fill soils have been placed by man in conjunction with previous construction activity. Fill can be composed of different soil types from various sources and can also contain debris from building construction, organics, topsoil, trash, etc. The engineering properties of fill depend primarily on its composition, density, and moisture content. We recommend that any documentation that is available on previous site development and existing fill placement be forwarded to us for review.

Subsurface Conditions

The soil test boring encountered fill soils and Piedmont residual soils. The soil test boring initially encountered 3 feet of fill soils. The fill soils consisted of firm red and brown clayey silt. The Standard Penetration Test (SPT) value (N-values) is 7 blows per foot (bpf) in the fill soils

Beneath the fill soils, the soil test boring encountered firm to stiff residual soils. The residual soils consisted of silty sands and sandy silts. The SPT values in the residual soils ranged from 12 to 16 bpf.

No partially weathered rock or mass rock was encountered in the soil test borings to the termination depth of 15 feet

Groundwater was not encountered in the soil test boring at 24 hours after completion of the drilling. It should be expected that the groundwater levels will fluctuate due to several factors, such as variations in precipitation and site development activities. Therefore, groundwater may be encountered at different elevations in the future.

LIMITATIONS OF CONCLUSIONS AND RECOMMENDATIONS

This evaluation of the geotechnical aspects of the proposed design and construction has been based on our understanding of the project and the data obtained during this study. The general subsurface conditions used in our evaluation were based on interpolation of the subsurface data in the soil test boring. Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions will differ beyond the soil test boring, that conditions are not as anticipated by the designers, or that the construction process has modified the soil conditions.

The recommendations contained in this report have been developed on the basis of the previously described project characteristics and subsurface conditions. If project criteria change, we should be permitted to determine if the recommendations should be modified. The findings of such a review will be presented in a supplemental report. Even after completion of a subsurface study, the nature and extent of variation between soil test borings may not become evident until the course of construction. If such variations then become evident, it will be necessary to reevaluate the recommendations of this report after on-site observations of the conditions.

These professional services have been performed, the findings derived, and recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all warranties either expressed or implied. This company is not responsible for the conclusions, opinions or recommendations of others based on these data.

CONCLUSIONS AND RECOMMENDATIONS

The following conclusions and recommendations are based on the data gathered during this exploration, our understanding of the proposed construction, our experience with similar site and subsurface conditions and generally accepted principles and practices of geotechnical engineering. Should the proposed construction change significantly from that described in this report, we request that we be advised so that we may amend these recommendations accordingly. This report, and the conclusions and recommendations provided herein, are provided exclusively

for the use of Tetra Tech and their design professionals and is intended solely for design of the referenced project.

Earthwork Recommendations

The majority of the soils encountered at the site are sandy and silty, moisture-sensitive, and will erode readily if exposed. When exposed to excessive moisture, the workability and strength of these type soils deteriorates significantly and construction delays may result. Surface water management will be an important component of construction. We recommend that construction grades be maintained throughout this project in such a manner to establish positive drainage away from working surfaces and subgrades. Vehicular traffic should be avoided or minimized where possible.

The initial step in site preparation should be the stripping of vegetation.

After the stripping of vegetation, subgrade soils should be evaluated within at-grade areas and areas to receive fill. This evaluation should include proofrolling the subgrade with a fully loaded tandem axle dump truck (20 tons) during a period of dry weather and under the observation of the geotechnical engineer. Any areas which "pump" or "rut" excessively under the weight of the proofrolling vehicle should be further evaluated and may require undercutting or other remediation. Proofrolling can occasionally detect pits where stumps or other debris may have been buried, or other areas where weak surface conditions exist.

After subgrade evaluations are complete, the site can be brought to final grades by excavation or structural fill placement. Excavations within the residual soils can be accomplished using conventional heavy earthmoving equipment such as dozers and large tracked excavators.

We recommend that all soils used as structural fill be classified as SM, SC, CL, and ML according to the Unified Soil Classification system. Structural fill should be compacted to at least 95 percent of the soil's standard Proctor maximum dry density, as determined by ASTM standard D-698. The upper foot of fill which will support pavements or slabs should be compacted to at least 98 percent of the soil's standard Proctor maximum dry density for improved support. In areas which are at or above the finished grade, and which will support pavements or slabs, the upper 8 inches immediately below these systems should be scarified and recompacted to the 98 percent criteria. Structural fill should be free of organic material, have a plasticity index (PI) less than 20, and contain rock sizes no larger than 4 inches.

Moisture control of the soils reused as structural fill may be necessary, primarily depending on the weather conditions at the time of construction.

In sloped areas, structural fill should extend horizontally beyond the outer edge of the building foundations at least 10 feet or a distance equal to the height of the fill to be placed, whichever is greater, prior to sloping. In paved areas, fill slopes should extend at least five feet beyond the edge of pavement prior to sloping.

Density testing should be performed by a soils technician to determine the degree of compaction and verify compliance with the project specifications. In structural areas, at least one field density test should be made per 3,000 square feet of fill area for each two-foot lift. Testing frequency should be increased in confined areas. Areas which do not meet the compaction specifications should be recompacted to achieve compliance. In confined areas, such as utility trenches, the use of portable compaction equipment and thin lifts of 3 to 4 inches may be required to adequately achieve the compaction requirements.

Foundation Recommendations

The proposed structure can be supported on shallow foundations bearing on the residual soils existing fill soils or new structural fill. A net allowable soil bearing pressure of 2,500 pounds per square foot (psf) may be used for design of the foundations for the proposed building.

Foundations should be designed with minimum foundation widths of 24 inches and 18 inches for individual column and strip footings, respectively, to preclude the possibility of localized soil bearing failures. All exterior foundations should bear at least 12 inches below external grades to prevent frost damage.

All foundation excavations should be evaluated by a geotechnical engineer, who will verify that the design bearing pressure is available intermediate of the boring locations, and that foundations are not immediately underlain by undesired conditions. If the engineer finds localized conditions unsatisfactory to support the recommended soil bearing pressure below an individual foundation, they should be undercut.

Where undercutting of the foundations is needed, the undercut excavation should be backfilled with structural fill, compacted aggregate, or concrete. The structural fill should be compacted to a density equal to at least 95 percent of the soils standard Proctor maximum dry density. If structural fill is used to backfill the undercut areas, the excavations should be widened horizontally a distance equal to one-half the depth of undercutting prior to fill placement. The aggregate may either be well compacted ASTM C-33 designation No. 57 clean graded aggregate or crusher run aggregate compacted to at least 95 percent of the standard Proctor (ASTM D-698) maximum dry density. Clean graded aggregate (No. 57) may be desirable since it can be placed immediately after undercutting is complete with minimal compaction effort and is not as sensitive to climatic conditions as other backfill options.

Exposure to the environment may weaken the soils at the foundation bearing level if the foundation excavations remain open for long periods of time. Therefore, we recommend that, once a foundation excavation is extended to final grade, it should be constructed as soon as possible to minimize the potential damage to bearing soils. The foundation bearing area should be level or benched and free of loose soil, ponded water, and debris. Foundation concrete should not be placed on soils that have been disturbed by seepage. If the bearing soils are softened by surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight or if rainfall becomes imminent while the bearing soils are exposed, we

recommend that a two to four inch thick "mud mat" of "lean" (2,000 psi minimum compressive strength) concrete be placed on the bearing soils before the placement of reinforcing steel for protection.

Seismic Site Class

Based on the boring data of this exploration and the anticipated finished floor elevations, the seismic site class per the International Building Code (IBC) 2012 for the subject site is site class D. The site soils are not anticipated to be susceptible to liquefaction.

Floor Slab Recommendations

The floor slab may be soil supported on the in-place residual soils, existing fill soils or new structural fill. No groundwater was encountered in the soil test borings, therefore, an underslab crushed stone drainage layer is considered optional. We recommend that a vapor barrier be included beneath all soil supported floor slab areas that are to receive moisture sensitive coverings.

Slab subgrade soils are often disturbed after final grading due to ongoing construction activities and weather conditions and as a result lose their support capabilities. We recommend that slab subgrades that have been disturbed be proofrolled immediately prior to construction of the slab. Proofrolling consists of traversing the subgrade with a fully loaded tandem axle dump truck (20 tons) during a period of dry weather and under the observation of the geotechnical engineer. Additionally, any excavations through the subgrade soils (such as utility trenches) should be properly backfilled with structural fill. Recompaction of subgrade surfaces and compaction of backfill should be checked with a sufficient number of density tests to determine if adequate compaction is being achieved.

Lateral Earth Pressures

Based on the results of our exploration performed for this project and the testing of similar soils on other projects, the following earth pressure coefficients are recommended for the residual soils at the site, either undisturbed in-place or reused as structural fill.

At-Rest Earth Pressure Coefficient,	$K_o = 0.53$
Active Earth Pressure Coefficient,	$K_a = 0.36$
Passive Earth Pressure Coefficient,	$K_p = 2.77$
Friction Coefficient,	$f_s = 0.33$

These coefficients were estimated for the residual soils at the site based on an assumed angle of internal friction of approximately 28°, which was derived from empirical data compared to the SPT resistance values and our experiences with similar projects with similar soil conditions. Triaxial shear testing, which was beyond the scope of this exploration, would be required to determine the

actual strength properties of the soils at this site.

If lateral movement and/or rotation are restrained, the at-rest lateral earth pressure should be used. If lateral movement and/or rotation are permitted, the active lateral earth pressure may be used. Typically, a top rotation of about 1 inch per 10 feet of vertical height is sufficient to develop active conditions in soils similar to those encountered at the site.

Lateral resistance can be developed by passive earth pressure and friction between sides and bottom of a foundation and the surrounding soils. It should be noted that the passive earth pressure coefficient (K_p) is generally used to evaluate the ultimate lateral resistance. A considerable amount of deflection is normally required to fully mobilize the passive resistance. However, approximately half of the passive resistance can be developed with minimal deflection. Therefore, we recommend that a minimum safety factor of 2 should be applied to the recommended ultimate passive resistance given above to limit the amount of lateral deflection required to mobilize the passive resistance.

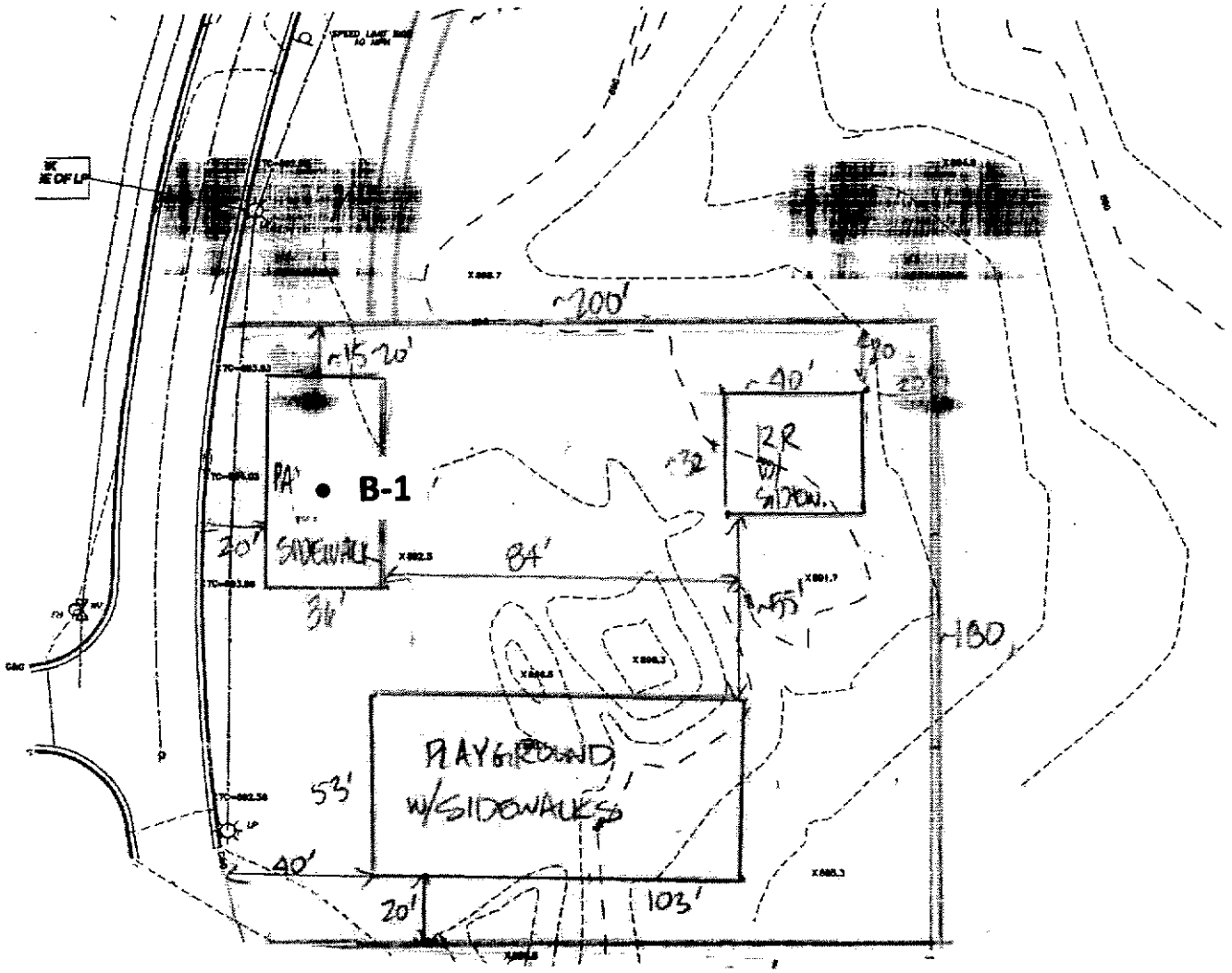
The aforementioned earth pressure coefficients are based upon the Rankine Theory with assumptions of a vertical surface, a level backfill, and neglecting friction. Greencastle should be consulted to properly adjust these values if a sloping soil backfill and/or inclined surface is designed.

For design purposes, we recommend that a unit weight of 105 pcf be used for the compacted backfill in conjunction with the above recommended earth pressure coefficients. The proposed foundations should also be designed to resist lateral pressures arising from any surcharge loading and earthquake loading. In addition, transient loads imposed by construction equipment during backfilling should be taken into consideration during design and construction. Any heavy grading equipment that could impose temporary excessive lateral pressures should not be allowed within about 5 feet (horizontally) of the foundations until the concrete is properly cured.

Temporary and Permanent Slopes

Permanent and temporary slopes may be used to accommodate grade changes. If temporary slopes are used, they should be constructed no steeper than 1.5H:1V for slopes less than 15 feet high. All OSHA guidelines should be followed for temporary slopes. Permanent slopes should be constructed no steeper than 2H:1V if they are less than 15 feet in height. We recommend that a slope stability analysis be performed on all slopes taller than 15 feet. These recommendations are based on experience with similar conditions and no detailed slope stability analyses have been performed. Buildings should be set back at least 10 feet from the top of slopes and a minimum of 5-foot setback from the top of slopes is considered sufficient for pavement areas. All finished slopes should be suitably protected from erosion.

APPENDIX



Legend :

● **Approximate Soil Test Boring Location**

Greencastle Engineering, Inc.
P.O. Box 2114
Peachtree City, Georgia 30269

Boring Location Plan
Kenwood Park- Pavilion
Fayette County, Georgia
Greencastle Project No. 5540

SOIL TEST BORING PROCEDURES (ASTM D 1586)

The soil test borings were advanced by twisting continuous auger flights into the ground. At selected intervals, soil samples were obtained by driving a standard 1.4 inch I.D., 2.0 inch O.D., split tube sampler into the ground. The sampler was initially seated six inches to penetrate any loose cuttings created in the boring process. The sampler is then driven an additional 12 inches by blows of a 140 pound "hammer" falling 30 inches. The number of blows required to drive the sampler the final foot is designated the Standard Penetration Resistance.

The samples recovered were sealed and were transported to the office where they were classified by an engineer.

CORRELATION OF STANDARD PENETRATION RESISTANCE WITH RELATIVE CONSISTENCY

Sand and Gravel

Standard Penetration Resistance Blows / Foot	Relative Consistency
0 - 4	Very Loose
5 - 10	Loose
11 - 20	Firm
21- 29	Very Firm
30 - 50	Dense
Over 50	Very Dense

Silt and Clay

Standard Penetration Resistance Blows / Foot	Relative Consistency
0 - 1	Very Soft
2 - 4	Soft
5 - 8	Firm
9 - 15	Stiff
16 - 30	Very Stiff
31 - 50	Hard
Over 50	Very Hard

Soil Test Boring Log
Kenwood Park
Fayette County, Georgia
Greencastle Project No. 5540

Soil Test Boring No.	Description	SPT Values	
		Depth	Blows per 6 inches (N)
B-1	**(0 -3') Fill-** Firm red and brown clayey SILT	0- 1 ½ '	3-3-4
	(3' – 10') Residuum: Firm tan, brown and red silty fine to medium SAND	3 ½' - 5'	6-7-5
		8 ½' – 10'	7-8-8
	(10' – 15') Stiff red, tan and brown sandy SILT	13 ½' – 15'	9-6-8
	Soil Test Boring terminated at 15 feet.		
	No groundwater encountered in the soil test boring		

Line Table		
Line #	Length	Direction
L1	14.00	N90° 00' 00.00"E
L3	20.94	N67° 37' 11.51"E
L5	10.17	N90° 00' 00.00"E
L6	32.04	S30° 00' 00.00"E
L7	43.20	S00° 00' 00.00"E
L8	10.10	S16° 12' 43.01"E
L9	4.30	S00° 00' 00.00"E

Curve Table			
Curve #	Length	Radius	Delta
C1	15.62	40.000	022.3801
C2	15.62	40.000	022.3801
C3	82.53	504.333	009.3758
C4	34.45	42.000	046.9927
C6	21.99	42.000	030.0000
C8	11.32	40.000	016.2119
C10	11.32	40.000	016.2119

MEG
N 1278793.058
E 2213669.509
ASPHALT PARKING LOT
DETECTABLE WARNING
1 / C-502
CONCRETE CURB TYPE 2
5 / C-501
5' CONCRETE SIDEWALK
4 / C-501
891.52
891.60
892.18
892.24
SPEED LIMIT SIGN 10 MPH
2" PVC WATER MAIN
FUTURE WATER MAIN CONNECTION
OPEN CUT EXISTING PAVEMENT
1 / C-503
SITE BENCHMARK
PKN SET IN BASE OF LP
ELEV = 893.30
FUTURE SEPTIC FIELD
UINDERGROUND POWER
WATER LINE
ASPHALT ROAD
C&G
X TC=889.6
X TC=891.30
X TC=890.6
X 891.3
X TC=892.98
X TC=893.93
X TC=894.03
X TC=893.59
X TC=892.58
X 888.7
X 884.9
X 891.7
X 896.3
X 896.5
X 893.1
X 892.2
X 885.3
N 1278631.897
E 2213656.499
N 1278601.897
E 2213656.499
PAVILION
FFE=895.25
895.25
N 1278571.897
E 2213656.499
N 1278571.897
E 2213620.499
N 1278601.897
E 2213664.499
893.95
893.88
894.90
892.25
N 1278615.897
E 2213730.499
N 1278631.897
E 2213780.499
RESTROOM
FFE-892.25
N 1278599.897
E 2213780.499
894.25
N 1278544.897
E 2213640.499
N 1278554.897
E 2213670.499
N 1278544.897
E 2213743.499
PLAYGROUND
FFE=894.25
N 1278491.897
E 2213743.499
28'
52'
63.5'
40.0'
32.0'
55.0'
53.0'
103.0'
40.0'
5.0'
5.5'
10.0'
12.0'
2.0%
4.8%
4.2%
1.4%
4:1
3:1
LEGEND
SOD
DIRT
CONCRETE
MEG
3 / C-501
4 / C-501
MATCH EXISTING GRADE
0 10' 20' 40'
SCALE: 1" = 20'

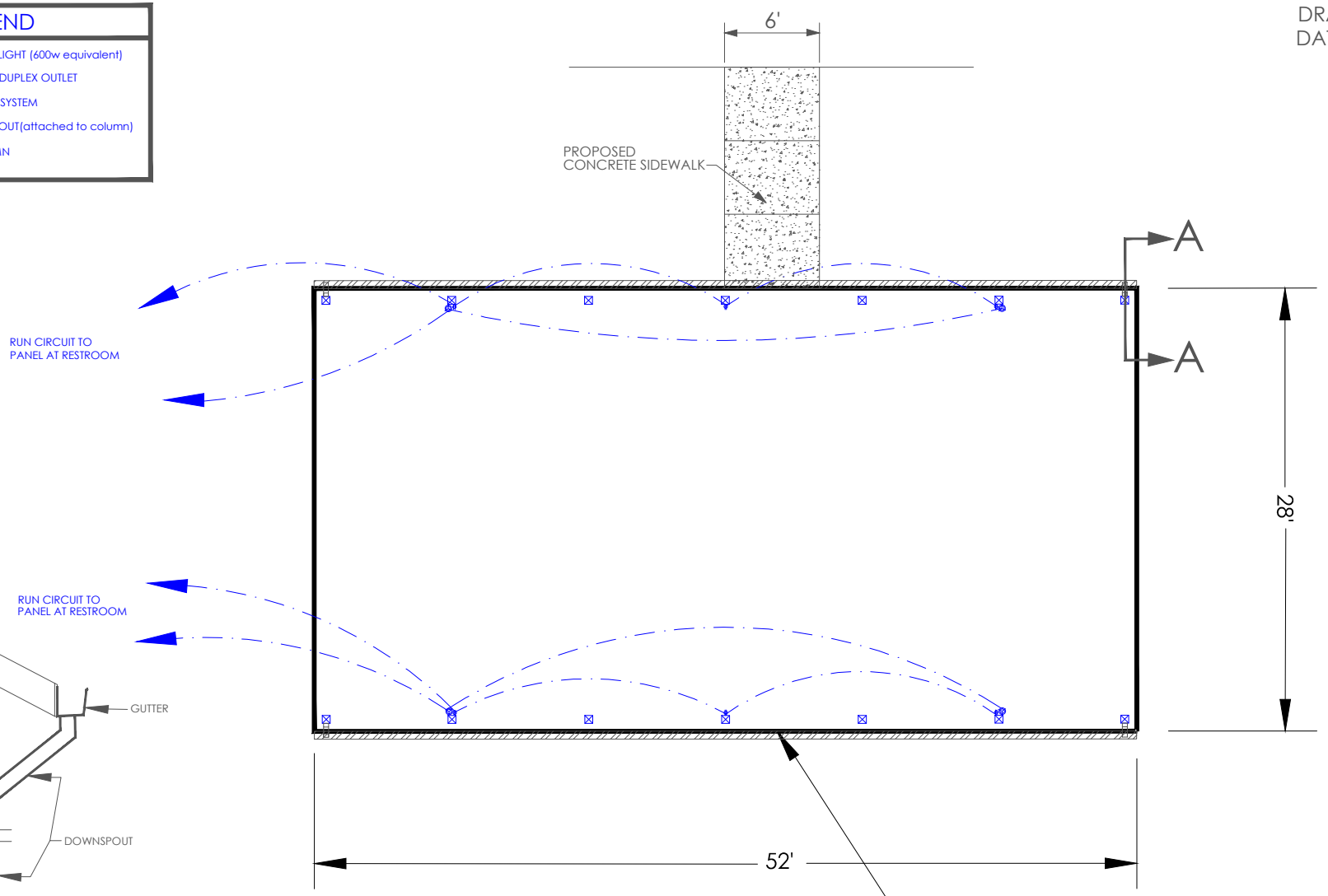
PROPOSED DEVELOPMENT PLAN

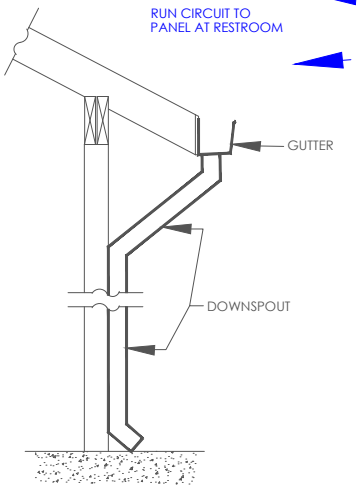
SCALE: 1" = 20'

DRAWN BY: CHC
DATE: 12-21-2017

LEGEND

- VANDALPROOF LIGHT (600w equivalent)
- WEATHERPROOF DUPLEX OUTLET
- 6" METAL GUTTER SYSTEM
- GUTTER DOWNSPOUT(attached to column)
- PAVILION COLUMN





SECTION A-A
NTS

PAVILION

SCALE: 1" = 10'

52' x 28' PICNIC PAVILION.
RCP SHELTERS OR
APPROVED EQUAL.
SLAB AND FOUNDATION
DESIGN BY PAVILION MANUFACTURER

Invitation to Bid #1435-B: Kenwood Park Pavilion Construction

COMPANY INFORMATION

COMPANY

Company Name: _____

Physical Address: _____

_____

Mailing Address (if different):_____

_____

AUTHORIZED REPRESENTATIVE

Signature: _____

Printed or Typed Name: _____

Title: _____

Email Address: _____

Phone Number: _____ Fax Number: _____

PROJECT CONTACT PERSON

Name: _____

Title: _____

Office Number: _____ Cellular Number: _____

Contractor Affidavit under O.C.G.A. § 13-10-91(b)(1)

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. § 13-10-91, stating affirmatively that the individual, firm or corporation which is engaged in the physical performance of services on behalf of Fayette County, Georgia has registered with, is authorized to use and uses the federal work authorization program commonly known as E-Verify, or any subsequent replacement program, in accordance with the applicable provisions and deadlines established in O.C.G.A. § 13-10-91. Furthermore, the undersigned contractor will continue to use the federal work authorization program throughout the contract period and the undersigned contractor will contract for the physical performance of services in satisfaction of such contract only with subcontractors who present an affidavit to the contractor with the information required by O.C.G.A. § 13-10-91(b). Contractor hereby attests that its federal work authorization user identification number and date of authorization are as follows:

_____
Federal Work Authorization User Identification Number

_____
Date of Authorization

_____
Name of Contractor
1435-B: KENWOOD PARK PAVILION CONSTRUCTION
Name of Project
FAYETTE COUNTY, GEORGIA
Name of Public Employer

I hereby declare under penalty of perjury that the foregoing is true and correct.

Executed on _____, ____, 201__ in (city) _____, (state) _____

_____
Signature of Authorized Officer or Agent

_____
Printed Name and Title of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME
ON THIS THE _____ DAY OF _____, 201 ____.

_____
NOTARY PUBLIC

My Commission Expires:

_____

Invitaiton to Bid #1435-B: Kenwood Park Pavilion Construction

EXCEPTIONS TO SPECIFICATIONS

Please list below any exceptions or clarifications to the specifications of this bid. Explain any exceptions in full.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

COMPANY NAME: _____

REFERENCES

RFP #1435-B: KENWOOD PARK PAVILION CONSTRUCTION

Please list three (3) references for current or recent customers who can verify the quality of service your company provides. Projects of similar size and scope are preferable.

1. Government/Company Name _____

City & State _____

Work or Service Provided_____

Approximate Completion Date _____

Contact Person and Title _____

Phone _____ Email _____

2. Government/Company Name _____

City & State _____

Work or Service Provided_____

Approximate Completion Date _____

Contact Person and Title _____

Phone _____ Email _____

3. Government/Company Name _____

City & State _____

Work or Service Provided_____

Approximate Completion Date _____

Contact Person and Title _____

Phone _____ Email _____

COMPANY NAME_____

Survey – Communication of Opportunity to Quote, Bid, or Propose

(Please return this form with your response)

Solicitation Number: 1435-B

Solicitation Name: Kenwood Park Pavilion Construction

In order to serve you better, the Fayette County Purchasing Department is conducting a survey to determine the most effective ways to communicate with you and other vendors. Thank you for your assistance in collecting this information.

My company learned of this opportunity to do business with Fayette County, Georgia through:

a) _____ Direct notification from the county (email, U.S. Mail, or other means)

b) _____ Fayette County Website

c) _____ Fayette News

d) _____ Local Government Access Marketplace (www.glga.org)

e) _____ Cable Channel 23

f) _____ Greater Georgia Black Chamber of Commerce

g) _____ Georgia Procurement Registry

h) _____ Other: _____

Company Name: _____