PROJECT MANUAL AND BIDDING DOCUMENTS FOR THE

COUNTY OF CULPEPER, VIRGINIA

CULPEPER COUNTY COMMUNITY POOL PROJECT
16388 COMPETITION DRIVE
CULPEPER, VA 22701

RELEASE FOR REBID

MARCH 29, 2024

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CULPEPER COUNTY COMMUNITY POOL PROJECT
16388 COMPETITION DRIVE
CULPEPER, VIRGINA, 22701
IFB# PR-24-1803.1
IFB# PR-24-1803.2
RELEASE FOR REBID 03/29/24

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REBID NARRATIVE FOR BIDDERS

1. GENERAL SOW
    a. THE POOL HAS BEEN RE-DESIGNED AND DELETIONS/REVISIONS HAVE BEEN MADE TO THE BUILDING TO REDUCE COSTS; SEE #2 AND 3 BELOW.
    b. REVISIONS AND DATES:
        i. THE RELEASE FOR REBID DRAWING SET CONSISTS OF THE FOLLOWING
            1. THE ORIGINAL RELEASE FOR BID SET, DATED 01/03/24
            2. PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 01/29/24
            3. MEP PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 02/19/24
            4. RELEASE FOR REBID REVISIONS ON CERTAIN SHEETS, DATED 03/29/24
        ii. NOTE THAT NOT ALL SHEETS HAVE BEEN REVISED OR UPDATED.
        iii. THE PROJECT MANUAL HAS ALSO BEEN REVISED WITH SOME SPEC SECTIONS DELETED, SOME MODIFIED AND NEW SECTIONS ADDED.
        iv. ALSO SEE THE ARCH TOC SHEET FOR SIMILAR INFORMATION.
    c. REBID REVISION PROTOCOLS:
        i. THE DRAWINGS HAVE BEEN CLOUDED WHERE REVISIONS FOR REBID WERE MADE.
        ii. SPECIFICATIONS IN THE PROJECT MANUAL HAVE BEEN DELETED WITH ~~STRIKE-THRU~~ AND REVISIONS MADE IN *ITALICS.* NEW SPECIFICATION SECTIONS ARE DATED 03/29/24. DELETED SPECIFICATION SECTIONS ARE ALSO DATED 03/29/24. REVISED SPECIFICATION SECTIONS SHOW THE ORIGINAL 01/03/24 BID DATE AND THE NEW 03/29/24 REBID DATE.
        iii. SHEETS WITHIN THE DRAWING SET THAT HAVE TEXT-BASED SCHEDULES ALSO SHOW THE REBID REVISIONS IN A SIMILAR MANNER. IN ORDER TO ALIGN GRAPHICS WITH CHANGES IN THE TEXT-DRIVEN PROJECT MANUAL, REVISIONS ON TEXT WITHIN THE DRAWINGS ARE SHOWN IN STRIKE-THRU AND NEW TEXT IS SHOWN IN ITALICS. INDIVIDUAL TEXT REVISIONS ARE NOT CLOUDED.
    d. PREVIOUSLY, THE PROJECT WAS BID AS ONE PROJECT WITH THE POOL AND THE BUILDING AND GROUNDS BID TOGETHER. FOR THIS REBID, THE COUNTY HAS REQUESTED THAT THE WORK OF THE PROJECT BE SPLIT INTO TWO IFBs, ONE FOR THE POOL AND ONE FOR THE BUILDING AND GROUNDS AS NOTED BELOW. THE DRAWINGS HAVE NOT BEEN SEPARATED INTO TWO SEPARATE SETS. POOL BIDDERS SHOULD LOOK AT THE AP SERIES OF DRAWINGS AND THE ASSOCIATED POOL SPECIFICATION SECTIONS FOR INFORMATION ABOUT THE POOL CONSTRUCTION. BIDDERS FOR THE BUILDING AND GROUNDS SHOULD REVIEW THE BALANCE OF THE SET INCLUDING THE A SERIES DRAWINGS AND THE S, MEP AND C SERIES DRAWINGS
    e. ONE IFB WILL BE FOR THE POOL WORK EXCLUSIVELY, INCLUDING THE POOL ITSELF, THE PIPING, EQUIPMENT AND THE ASSOCIATED CONNECTIONS TO BE PROVIDED BY THE POOL SUBCONTRACTOR.
        i. IT IS ASSUMED THAT THE POOL CONTRACTOR WILL PROVIDE EXCAVATION FOR THE LEISURE/LAP POOL AND SPLASHPAD. THE EXCAVATION EXCESS MATERIALS SHALL BE NOTED BY QUANTITY AND AS A UNIT PRICE PER THE IFB AND SHALL ASSUME REMOVAL, TRANSPORTATION TO AND DISTRIBUTION AT AN APPROVED SITE.
        ii. THE AE TEAM ESTIMATES THAT THERE WILL BE AN APPROXIMATE TOTAL OF 415 CY OF EXCESS MATERIALS COMBINED FOR **BOTH** THE POOL AND BUILDING WORK. THIS IS NOT A GUARANTEE OF QUANTITIES AND IT IS THE BIDDERS RESPONSIBILITY TO PROVIDE THEIR OWN QUANTITY AMOUNT.

f. THE OTHER IFB WILL BE FOR THE BUILDING AND GROUNDS AND WILL INCLUDE THE FOLLOWING:
   i. THE BUILDING
   ii. EXCAVATION FOR THE BUILDING FOUNDATION, PAVILION FOUNDATIONS AND GRUBBING/EXCAVATION FOR THE HARDSCAPE AND ASSOCIATED CONSTRUCTION. DISTRIBUTION AND/OR REMOVAL OF THE EXCAVATION EXCESS MATERIALS SHALL BE NOTED BY QUANTITY AND AS A UNIT PRICE PER THE IFB AND SHALL ASSUME REMOVAL, TRANSPORTATION TO AND DISTRIBUTION AT AN APPROVED SITE.
   iii. THE AE TEAM ESTIMATES THAT THERE WILL BE AN APPROXIMATE TOTAL OF 415 CY OF EXCESS MATERIALS COMBINED FOR **BOTH** THE POOL AND BUILDING WORK. THIS IS NOT A GUARANTEE OF QUANTITIES AND IT IS THE BIDDERS RESPONSIBILITY TO PROVIDE THEIR OWN QUANTITY AMOUNT.
   iv. MINOR AMOUNTS OF EXCESS MATERIALS MAY BE DISTRIBUTED ON SITE, SUBJECT TO THE CIVIL ENGINEER'S AND COUNTY'S APPROVAL AND SUBJECT TO MATERIAL QUALITY/COMPATIBILITY AND TO MAINTAINING EXISTING GRADE POINTS.
   v. N/A
   vi. HARDSCAPE FROM THE EDGE OF THE POOL OUTWARD AND OTHER ASSOCIATED SITE HARDSCAPE. THIS INCLUDES BOTH THE POOL AND THE SPLASH PAD AREA. THE SPLASH PAD SHALL BE PROVIDED AS NOTED BELOW.
   vii. SITE UTILITIES FOR THE BUILDING
   viii. STORMWATER FACILITY/DRY POND; NOTE THAT THIS WORK ALSO APPLIES TO THE PARKING LOT ACROSS COMPETITION DRIVE, WHICH IS A SEPARATE PROJECT AND IFB. PER THE SPECIFICATIONS, THE COUNTY WILL DISCUSS THIS WORK WITH THE AWARDED CONTRACTOR(S) AND ALLOCATE A PORTION OF THAT STORMWATER COST TO EACH PROJECT.
   ix. THE SITE FENCING
   x. ELECTRICAL ROUGH-INS AND PLUMBING ROUGH-INS FOR THE POOL EQUIPMENT AS NOTED ON THE MEP DRAWINGS. FINAL CONNECTIONS TO THESE ROUGH-INS SHALL BE THE RESPONSIBILITY OF THE POOL CONTRACTOR, U.O.N. ALL LINE AND HIGH VOLTAGE WIRING SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR WITH ALL FINAL CONNECTION BY THE ELECTRICAL CONTRACTOR WITH SUPERVISION FURNISHED BY THE POOL CONTRACTOR. THE PLUMBING CONNECTION TO THE DOMESTIC WATER LINE SHALL BE BY THE POOL CONTRACTOR. THE PLUMBING SUBCONTRACTOR SHALL BRING THE DOMESTIC WATER TO THE POOL FILL MANIFOLD AND THE POOL CONTRACTOR SHALL CONNECT TO THE DOMESTIC WATER LINE AT THAT POINT. ALL OF THE FLOOR DRAINS AND SUMPS SHALL BE BY THE PLUMBING CONTRACTOR AND THIS CONTRACTOR.
   xi. POOL PIPING PENETRATIONS INTO THE FILTER ROOM PITS SHALL BE PROVIDED AS SLEEVES IN THE WALL BY THIS CONTRACTOR. PIPING PENETRATIONS SHALL BE BY POOL SUBCONTRACTOR AND INSTALLED PENETRATION SHALL BE SEALED BY THIS CONTRACTOR.
   xii. SPLASH PAD CONCRETE SLAB SHALL BE BY THIS CONTRACTOR WITH OVERSIGHT BY THE POOL CONTRACTOR, UNLESS OTHERWISE AGREED.

g. EXCLUSIONS

i. AS WITH THE PREVIOUS BID, THE COUNTY WILL PROVIDE THE LANDSCAPING UNDER SEPARATE CONTRACT WITH AN ENTITY OF THEIR CHOOSING SO THIS WORK IS NIC. BUILDING CONTRACTTOR SHALL PROVIDE ALL BASIC SITE GRADING TO ELEVATIONS SHOWN AND SHALL LEAVE SITE CLEAN AND ORDERLY FOR SUCCESSOR LANDSCAPE WORK BY OTHERS.
ii. THE COUNTY WILL PROVIDE THE POOL SAFETY EQUIPMENT SEPARATELY SO THIS EQUIPMENT, NOTED IN THE POOL SAFETY EQUIPMENT SCHEDULE, IS NIC. ANY INSTALLATION OF THESE ITEMS THAT REQUIRES CONSTRUCTION, AS OPPOSED TO SIMPLY ATTACHING ITEMS TO PRE-EXISTING ANCHORS, ETC. SHALL BE INCLUDED.
iii. MOST ADD ALTERNATES HAVE BEEN DELETED FROM THE REBID PROCESS.
iv. THE POOL HEATER AND ASSOCIATED COMPONENTS AND CONNECTIONS <u>IS NOT A PART OF THIS REBID PROCESS</u> BUT HAS BEEN LEFT ON THE DRAWINGS FOR INFORMATION IN CASE THE COUNTY CHOOSES TO ADD THAT WORK TO THE PROJECT AT A LATER DATE.

h. THE POOL SUBCONTRACTOR AND BUILDING SUBCONTRACTOR SHALL COORDINATE THE WORK WITHIN THEIR IFB SCOPE. THIS WILL REQUIRE PRE-CON MEETINGS PERIODICALLY TO CONFIRM RESPONSIBILITIES AND COORDINATION. THE COUNTY AND THE AE TEAM MAY ASSIST WITH THIS.
i. IT IS THE INTENTION OF THESE IFBs TO CALL FOR TWO SEPARATE PRICES FOR THE ABOVE NOTED WORK. HOWEVER, THE POOL CONTRACTOR AND/OR THE GENERAL CONTRACTOR MAY ACT AS THE 'PRIME' CONTRACTOR BUT THE PRICES FOR THE TWO SOWs MUST BE PROVIDED SEPARATELY.
j. THE STRUCTURAL DRAWINGS REFERENCE THE AP DRAWINGS FOR THE POOL CONSTRUCTION; THE STRUCTURAL DRAWINGS HAVE NOT BEEN UPDATED. PLEASE FOLLOW THE AP DRAWINGS FOR THE POOL SHELL CONSTRUCTION.
k. BID SUBSTITUTIONS
    i. IT IS THE INTENTION OF THE SPECIFICATIONS TO PROVIDE A STANDARD OF QUALITY AND PERFORMANCE THAT IS SATISFACTORY FOR THE PROJECT AND FOR THE COUNTY. THE BASIS OF DESIGN (BOD) IS NOTED ON THE DRAWINGS AND IN THE SPECIFICATIONS BUT THIS BOD IS NOT INTENDED TO LIMIT THE POSSIBILITY OF OTHER SUBSTITUTIONS, CONTINGENT ON MEETING THE REQUIREMENTS AND STANDARDS NOTED BELOW. IN ADDITION, OTHER APPROVED MANUFACTURERS HAVE BEEN NOTED AND LISTED TO ASSIST BIDDERS IN SOURCING COMPONENTS.
    ii. ANY BID SUBSTITUTIONS PROPOSED BY BIDDERS SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:
        1. THE PROPOSED SUBSTITUTION SHALL BE EQUAL TO OR BETTER IN EVERY RESPECT THAN THE SPECIFIED COMPONENT. IF IT IS NOT OF SUCH QUALITY AND PERFORMANCE, THE SUBSTITUTION SHALL NOT BE CONSIDERED UNLESS, AT THE SOLE DISCRETION OF THE COUNTY AND THE AE, THE COUNTY ELECTS TO WAIVE THESE QUALITY AND PERFORMANCE STANDARDS.
            a. ANY SUCH SUBSTITUTION SHALL CLEARLY NOTE ALL AREAS IN WHICH THE QUALITY AND PERFORMANCE DO NOT MEET THE LEVELS OF THE BOD.
        2. ANY PROPOSED SUBSTITUTION SHALL INCLUDE ALL THE NECESSARY SUPPORTING DOCUMENTATION TO PROVE COMPLIANCE WITH THE LEVELS OF THE BOD. THE BIDDER SHOULD ENSURE THAT THE INFORMATION PROVIDED IS SUFFICIENT. THE AE WILL NOT BE RESPONSIBLE FOR RESEARCHING ANY INFORMATION OR DATA NEEDED TO PROVE

COMPLIANCE WITH THE LEVELS OF THE BOD. ANY PROPOSED SUBSTITUTION THAT DOES NOT INCLUDE SUFFICIENT INFORMATION TO PROVE COMPLIANCE WILL, AT THE SOLE DISCRETION OF THE COUNTY AND THE AE, NOT BE REVIEWED OR CONSIDERED.

3. CONSIDERATION OF A SUBSTITUTION SHALL NOT BE DEEMED A GUARANTEE OF ACCEPTANCE OF THAT SUBSTITUTION. ANY PROPOSED SUBSTITUTIONS WILL BE REVIEWED EXPEDITIOUSLY BUT NO GUARANTEE IS MADE IN REGARD TO A SPECIFIC TIME-FRAME OR RESPONSE FOR REVIEWING SAID SUBSTITUTION.
4. APPROVAL OF A PROPOSED SUBSTITUTION SHALL BE AT THE SOLE DISCRETION OF THE COUNTY AND THE AE.

2. POOL REVISIONS
    a. THE POOL HAS BEEN REVISED TO A GUNNITE-TYPE POOL WITH SKIMMERS TO REDUCE COST. THE MYRTHA POOL OPTION HAS BEEN ELIMINATED AT THE COUNTY'S REQUEST.
    b. POOL REVISIONS INCLUDE:
        i. GUNNITE SHELL
        ii. USE OF INDIVIDUAL SKIMMERS INSTEAD OF CONTINUOUS GUTTER
        iii. SIMPLIFICATION OF THE POOL SECTION TO MAKE THE SHALLOW-TO-DEEP PROFILE A MONO-SLOPE
        iv. SIMPLIFICATION OF THE POOL PLAN TO ELIMINATE SOME OF THE PROJECTIONS AT THE JUNCTURE OF THE BEACH AREA AND THE LAP AREA
        v. REBAR REINFORCEMENT HAS BEEN CHANGED TO #4 BAR WHEREVER POSSIBLE TO ALLOW FIELD BENDING
        vi. FILTER ROOM PITS HAVE BEEN REVISED
    c. POOL SAFETY EQUIPMENT NOTED IN THE SCHEDULE ON SHEET AP102 SHALL BE PROVIDED BY THE COUNTY WITH INSTALLATION, AS NEEDED, BY THE POOL SUBCONTRACTOR.

3. BUILDING REVISIONS
    a. DELETE THE CONCESSION KITCHEN GRIDDLE, WIRING AND CIRCUIT FOR SAME, HOOD, FIRE SUPPRESSION SYSTEM, EXHAUST DUCTWORK, UPDRAFT FAN AND ROOF PENETRATION.
    b. DELETE THE MUA UNIT AND ALL ASSOCIATED DUCTWORK AND REGISTERS FOR THE CONCESSION KITCHEN.
    c. DELETE ALL OF THE BRADLEY TERREON LOCKER ROOM LAVATORIES AND FAUCETS AND SUBSTITUTE THE REVISED LAVATORIES, FAUCETS AND SOAP DISPENSORS. NOTE THAT THE FAMILY LOCKER ROOMS WILL HAVE ONLY A LAVATORY AND NO ADDITIONAL COUNTERTOP.
    d. DELETE ALL OF THE WALL TILE IN THE LOCKER ROOMS AND FAMILY LOCKER ROOMS
        i. ADD STAINLESS STEEL WALL CORNER PROTECTORS TO OUTSIDE GPDW CORNERS
        ii. CHANGE SUBSTRATE AT FORMER TILE LOCATIONS TO SPECIFED GPDW-3 FROM JH HARDIBACKER EXCEPT AT COVE BASE
        iii. WALL FINISH SHALL BE SPECIFIED EPOXY PAINT FINISH THROUGHOUT
    e. DELETE THE WALL AND CEILING TILE IN ALL OF THE LOCKER ROOM SHOWERS AND SUBSTITUTE THE SPECIFIED FRP PANELS OVER THE PREVIOUSLY SPECIFIED JH HARDIBACKER.
    f. DELETE 6 OF THE 14 LOCKERS ORIGINALLY SPECIFIED.

g. DELETE SOME OF THE INTERIOR HARDITRIM IN THE ENTRY SPACE; SEE THE DRAWINGS.
h. CHANGE THE EPOXY FLOORING AND INTEGRAL COVE BASE IN THE GENDERED AND FAMILY LOCKER ROOMS TO THE LESS EXPENSIVE, SOLID-COLOR VFERSION SPECIFIED.
i. DELETE THE EPOXY FLOORING AND COVE BASE FROM THE FOLLOWING AREAS AND SUBSTITUTE WITH SPECIFIED 2-COAT URETHANE CLEAR SEALER WITH SLIP-RESISTANT ADDITIVE AND VCB OVER HARD-TROWELED SLAB:
    i. ALL OFFICES
    ii. STAFF BATH
    iii. CLASSROOM
    iv. CONCESSION KITCHEN
    v. CONCESSION STORAGE
    vi. FILTER ROOM
    vii. STORAGE AND IT SPACES PREVIOUSLY SCHEDULED TO RECEIVE FLOOR PAINT FINISH PCF-1 AND VCB SHALL HAVE THE SAME FINISH OR THE CLEAR FINISH SCF-3; CONTRACTOR'S OPTION.
j. DELETE THE STANDING SEAM ROOF ON THE ENTRY; ALL ROOFS SHALL BE THE SPECIFIED SHINGLES. ADD ALTERNATES FOR STANDING SEAM ROOF AND SNOWGUARDS ARE DELETED.
k. THE HARDSCAPE DECK AROUND THE POOL HAS BEEN REDUCED; SEE THE SITE PLAN/PLANS.
l. THE FILTER ROOM PIT PLAN LAYOUT HAS BEEN REVISED SLIGHTLY TO ACCOMMODATE THE CHANGE TO SKIMMERS. THE STRUCTURAL DRAWINGS REGARDING REBAR AND WALL THICKNESSES HAVE NOT CHANGED AND THE STRUCTURAL PLAN HAS NOT BEEN UPDATED. PLEASE FOLLOW THE STRUCTURAL PLAN FOR WALL THICKNESS AND REINFORCING AND THE AP DRAWINGS FOR THE LOCATIONS AND DIMENSIONS OF THE PITS.

INVITATION FOR BIDS
(IFB)

Issue Date: April 4, 2024 **IFB #PR-24-1803.1**

Title: Culpeper County Community Pool Project

Issuing Department: Culpeper County
Purchasing Department
302 N. Main Street
Culpeper, Virginia 22701

Sealed Bids Will Be Received Until 2:00 P.M., April 30, 2024 For Furnishing The Services Described Herein. Bid opening will be in the Culpeper County Board of Supervisors meeting room at 302 N. Main Street, Culpeper VA 22701.

All Inquiries For Bid Information Should Be Directed To: Alan Culpeper, Director of Procurement, Telephone Number: (540) 727-3488 Fax: (540) 727-3486

BIDS CAN BE MAILED, OR HAND DELIVERED DIRECTLY TO ISSUING DEPARTMENT SHOWN ABOVE. RETURN COMPLETED: IFB COVER PAGE; EXHIBIT A: BID FORM, EXHIBIT B: CONTRACTOR DATA SHEET, EXHIBIT C: INSURANCE & AUTHORITY TO TRANSACT BUSINESS IN VIRGINIA FORM. THE COUNTY DOES NOT ACCEPT BID SUBMISSIONS THAT ARE FAXED OR SENT ELECTRONICALLY

Note: Culpeper County does not discriminate against faith-based organizations in accordance with the *Code of Virginia*, §§ 2.2-4343.1 or against a bidder or offeror because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by Federal, State, and County law relating to discrimination in employment or contracting.

In Compliance With This Invitation For Bids And To All The Conditions Imposed Herein And Hereby Incorporated By Reference, The Undersigned Offers And Agrees To Furnish The Goods/Services At The Price(s) Indicated In Exhibit A, Bid Form.

Name And Address Of Firm:

_____ Date: _____

_____ By: _____
Signature

_____ _____
Print Name

_____ _____
Title

Telephone Number: _____ e-mail: _____

E-Mail: _____ FIN: _____

RETURN THIS PAGE

INVITATION FOR BID

CULPEPER COUNTY COMMUNITY POOL

SECTION **PAGE**

CULPEPER COUNTY COMMUNITY POOL

1. PURPOSE

The purpose and intent of the Invitation for Bid (IFB) is to establish a firm fixed price contract to furnish all materials, labor, and equipment, for the completed construction and installation of the Culpeper County Community Pool Project, 16388 Competition Drive, Culpeper, Virginia 22701 in accordance with the terms, conditions and specifications contained herein. This solicitation is issued by the Culpeper County Procurement Department on behalf of the Culpeper County Board of Supervisors, herein referred to as "County". THIS SOLICITATION IS FOR THE LEISURE/LAP POOL AND SPLASHPAD WORK ONLY- ALSO SEE THE REBID NARRATIVE.

All contractors are responsible for any addendums issued for this project. **All notifications of any Addendums will only be posted on the Culpeper County Purchasing Website at https://web.culpepercounty.gov/rfps**

2. COMPETITION INTENDED

It is the County's intent that this Invitation for Bid (IFB) permit open competition. It shall be the bidder's responsibility to advise the Purchasing Agent in writing if any language, requirement, specification, etc., or any combination thereof, inadvertently restricts or limits the requirements stated in this IFB to a single source. Such notification must be received by the Purchasing Agent no later than five (5) business days prior to the date set for bids to be received.

3. WORKMANSHIP

Where not more specifically described in these specifications, workmanship shall conform to all of the methods and operations of best standards and accepted practices of the trade or trades involved, and shall include all items of fabrication, construction or installation regularly furnished or required for completion of the services. All work shall be executed by personnel skilled in their respective lines of work.

4. SCOPE OF WORK

The Scope of Work includes furnish all materials, labor, and equipment, for the completed construction and installation of Culpeper County Community Pool Project, POOL ONLY, 16388 Competition Drive, Culpeper, Virginia 22701 All construction shall conform to existing State and County building codes. It is the contractors' responsibility to be aware of all applicable standards and specifications as well as required methods of construction. **See Specification 01 10 00, §1.4 for description of the Scope of Work and the REBID NARRATIVE. Note that the pool has been revised to a gunnite or shotcrete based design; see specification section 13 11 00. Note also that the SOW is, as noted in THE AP series drawings, for the leisure/lap pool and the splashpad.**

ATTACHMENT A

PROJECT MANUAL CONTAINING A TABLE OF CONTENTS OF SPECIFICATIONS AND DRAWINGS, SPECIFICATIONS, PROJECT FORMS AND REPORTS, INCLUDING THE ORIGINAL RELEASE FOR BID SPECIFICATIONS DATED 01/03/24 AND RELEASE FOR REBID REVISIONS TO THOSE SPECIFICATIONS, DATED 03/29/24. THE PROJECT MANUAL HAS BEEN REVISED WITH SOME SPECIFICATION SECTIONS DELETED, SOME MODIFIED AND NEW SECTIONS ADDED.

ATTACHMENT B

DRAWINGS ARE AS FOLLOWS; NOTE THAT THE POOL WORK IS SHOWN AND NOTED ON THE AP SERIES SHEETS AND INCLUDES THE LEISUR/LAP POOL AND THE SPLASHPAD:

1. REVISIONS AND DATES:
    a. THE RELEASE FOR REBID DRAWING SET CONSISTS OF THE FOLLOWING
        i. THE ORIGINAL RELEASE FOR BID SET, DATED 01/03/24
        ii. PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 01/29/24
        iii. MEP PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 02/19/24
        iv. RELEASE FOR REBID REVISIONS ON CERTAIN SHEETS, DATED 03/29/24
2. NOTE THAT NOT ALL SHEETS HAVE BEEN REVISED OR UPDATED.
3. ALSO SEE THE ARCH TOC SHEET FOR SIMILAR INFORMATION.

5. Optional Pre-Bid and Site Inspections

Optional Pre-Bid meeting, and site visit is scheduled for Thursday, April 18, 2024 at 1:00 P.M. local time at the Culpeper County Sports Complex Fieldhouse, 16388 Competition Drive, Virginia 22701.

If the County closes its offices due to inclement weather on Thursday, April 18, 2024, the scheduled Mandatory Pre-Bid and Site Inspections will be held on Friday, April 19, 2024 at the same time and location as noted above.

The primary purpose of the site visit is to allow Bidders to become fully acquainted and familiar with the conditions as they exist and the operation to be carried out. Bidders shall

make such investigation as they may see fit so that they may fully understand the facility, difficulties, and restrictions about the execution of the work. This will be the only tour of the facility provided by County personnel.

Bidders shall be required to sign a register sign-in sheet as the representative of the named business/company. ~~Failure to attend any portion of the Mandatory Pre-Bid meeting, and failure to sign the sign-in sheet will disqualify Bidders from submitted bids~~. **NOTE: The Purchasing Agent will pick-up the register sign-in sheet after 15 minutes and respondent showing up after 10:15 A.M. will not be allowed to sign in on the register sign-in sheet.**

6. **Liquidated Damages** Under the resulting contract, liquidated damages shall be $100.00 per calendar day for

each day beyond the scheduled completion date shown on the resulting contract, which will be agreed upon between the County and Contractor receiving the award.

7. CONTRACT TERMS AND CONDITIONS

The extent and character of the services to be performed by the Contractor(s) shall be subject to the general control and approval of the Director of the Procurement or his authorized designee(s). The Contractor shall only comply with requests and/or orders issued by the contract administrator or his authorized designee(s) acting within their authority for the County.

Any change to the contract must be approved in writing by the Procurement Director of Culpeper County and the Contractor. Contract Administrators do not have the authority to order or authorize change orders, or in any way obligate funds on behalf of Culpeper County.

Contractor is cautioned not to accept or act upon verbal or written directives from individuals representing citizen volunteer and/or advisory groups or any other individuals or groups without written consent from the Procurement Director.

Any Contractor(s) performing services for the County of Culpeper are required and shall comply with all Occupational Safety and Health Administration (OSHA), State and County Safety and Occupational Health Standards and any other applicable rules and regulations. Also, any Contractor(s) shall be held responsible for the safety of their employees and any unsafe acts or conditions that may cause injury or damage to any persons or property within and around the work site area under this contract. The County has sole right to dismiss contractors and/or sub-contractors for non-compliance to the above rules and regulations and/or safety violation. The contractor must rectify all safety concerns prior to continuance of work.

The Contractor must have a current Class “A” contractor’s License.

8. SPECIAL TERMS AND CONDITIONS

A. The safety of the public is the primary concern for Culpeper County. The Contractor shall place temporary pedestrian traffic, control devices surrounding the work area to protect the public, which may include, but not limited to barricades, tarps, plastic, yellow caution tape, or other means necessary to protect the public, surrounding areas, equipment, and vehicles.

B. Permit(s) are required for this project from Culpeper County and VA DEQ. The County will provide the permits which are in process.

C. Area around work site shall be generally cleaned each day before leaving the site.

D. Contractor shall remove all debris from the site when complete. All material shall be disposed of in a legal and lawful manner off-site and at the contractor's expense.

E. The Contractor shall coordinate & schedule work so that sports complex operations are maintained during the work required. There is no restriction on working days or hours.

F. Placement of spoils, and any excess topsoil fill will be coordinated with the County's Park & Recreation Department, and placed at a predetermined location.

G. Contractor may utilize the area around the site for parking / dumpster / material staging as agreed to in advance by the County

H. The Contractor is permitted to use the nearby building for electrical & water.

I. The County is responsible for third-part inspection for this project.

J. The Contractor is not required to provide background checks on its employees for this project.

9. BONDS

Bids shall be accompanied by either a cashier's check or certified check or bidder's bond in the amount of 5 percent (5%) of the bid amount made payable to the County of Culpeper. Bonds shall be with a surety company acceptable to the County. A performance bond and a labor and material payment bond will be required in the amount of one hundred percent (100%) of the bid, including any additions and/or deductions and shall be provided by the successful bidder.

10. QUESTIONS

Any questions pertaining to the Scope of Work, or other solicitation documents must be received in writing by the Culpeper County Purchasing Office, before 10:00 A.M. on Tuesday, April 23, 2024 to:

Culpeper County Purchasing Department
Attn: Alan H. Culpeper, CPPO, VCO, VCM
155 West Davis Street, Suite 100
Culpeper, VA 22701
E-mail: aculpeper@culpepercounty.gov

11. GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS/OFFERORS

Revised 12/11/2018

Vendor: These general rules and conditions shall apply to all purchases and be a part of each solicitation and every contract awarded by the Procurement Department of Culpeper County, unless otherwise specified. The Procurement Department is responsible for the purchasing activity of Culpeper County. The term "County" as used herein refers to the contracting entity which is the signatory on the contract and may be either Culpeper County, or the Culpeper County Board of Supervisors, a political subdivision of the Commonwealth of Virginia, or both. Bidder/Offeror or their authorized representatives are expected to inform themselves fully as to the conditions, requirements, and specifications before submitting bids/proposals: failure to do so will be at the bidder's/offeror's own risk and except as provided by law, relief cannot be secured on the plea of error.

Subject to all Federal, State and local laws, policies, resolutions, regulations, rules, limitations and legislation, bids/proposals on all solicitations issued by the Procurement Department will bind bidders/ offerors to applicable conditions and requirements herein set forth unless otherwise specified in the solicitation.

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1. **AUTHORITY**-Except as delegated in the Culpeper County Purchasing Resolution, the Purchasing Agent has the sole responsibility and authority for negotiating, placing and when necessary, modifying every solicitation, contract and purchase order issued by the County. In the discharge of these responsibilities, the Purchasing Agent may be assisted by assigned buyers. Unless specifically delegated by the Purchasing Agent, no other County officer or employee is authorized to order supplies or services, enter into purchase negotiations or contracts, or in any way obligate the County for an indebtedness. Any purchase order or contract made which is contrary to these provisions and authorities shall be of no effect and void and the County shall not be bound thereby.

2. **COMPETITION INTENDED:** It is the County's intent that this solicitation permit competition. It shall be the Bidder's/Offeror's responsibility to advise the Purchasing Agent in writing if any language, requirement, specification, etc., or any combination thereof, stifles competition or inadvertently restricts or limits the requirements stated in this solicitation to a single source. The Purchasing Agent must receive such notification not later than five (5) business days prior to the deadline set for acceptance of the bids/proposals.

CONDITIONS OF BIDDING

3. **CLARIFICATION OF TERMS** - If any Bidder/ Offeror has questions about the specifications or other solicitation documents, the prospective Bidder/ Offeror shall contact the buyer in writing whose name appears on the face of the solicitation no later than five (5) business days prior to the date set for the opening of bids or receipt of proposals. Any revisions to the solicitation will be made only by addendum issued by the Buyer. Notifications regarding specifications may not be considered if received in less than five (5) business days of the date set for opening of bids/receipt of proposals.

4. **CHANGES / MODIFICATON TO SOLICIATIONS** – any and all changes, addendums, amendments, and/or supplements to any Invitation to Bid (IFB), or Request For Proposal (RFP) shall be posted on the Culpeper County website on the Purchasing Office's webpage under the tab titled. "Current Active Solicitation" found at the below address: web.culpepercounty.gov/rfps

Any and all changes, addendums, amendments, and/or supplements to the RFP/IFB shall be posted no later than the latest time on the last day by which submissions have to be received by the Purchasing Office. Offerors/Bidders are responsible for monitoring the Purchasing Office's webpage for the posting of any changes, addendums, amendments, and/or supplements.

5. **MANDATORY USE OF COUNTY FORM AND TERMS AND CONDITIONS**: Failure to submit a bid/proposal on the official County form provided for that purpose shall be a cause for rejection of the bid/proposal. Unauthorized modification of or additions to any portion of the Invitation to Bid or Request for Proposal may be cause for rejection of the bid/proposal. However, the County reserves the right to decide, on a case-by-case basis, in its sole discretion, whether to reject any bid or proposal which has been modified.

6. **LATE BIDS/PROPOSALS & MODIFICATION OF BIDS/PROPOSALS:** Any bid/proposal/modification received at the office designated in the solicitation after the exact time specified for receipt of the bid/proposal/modification is considered a late bid/proposal/modification.
The County is not responsible for delays in the delivery of the mail by the U.S. Postal Service, private carriers or the inter-office mail system. It is the sole responsibility of the Bidder/Offeror to ensure their bid/proposal reaches the Procurement Department by the designated date and hour.

a. The official time used in the receipt of bids/ proposals is that time on the automatic time stamp machine in the Procurement Department.

b. Late bids/proposals/modifications will be returned to the Bidder/Offeror UNOPENED, if solicitation number, acceptance date and Bidder/Offeror's return address is shown on the container.

c. <u>If the County closes its offices due to inclement weather scheduled bid openings or receipt of proposals will be extended to the next business day, same time.</u>

7. **WITHDRAWAL OF BIDS/PROPOSALS:**

A Bidder/Offeror for a contract other than for public construction may request withdrawal of his or her bid/proposal under the following circumstances:

a. Bids/Proposals may be withdrawn on written request from the Bidder/Offeror received at the address shown in the solicitation prior to the time of acceptance.

b. Requests for withdrawal of bids/proposals after opening of such bids/proposals but prior to award shall be transmitted to the Purchasing Agent, in writing, accompanied by full documentation supporting the request. If the request is based on a claim of error, documentation must show the basis of the error. Such documentation may take the form of supplier quotations, vendor work sheets, etc. If bid bonds were tendered with the bid, the County may exercise its right of collection. No Bid/Proposal may be withdrawn under this paragraph when the result would be the awarding of the contract on another bid/Proposal of the same bidder/offeror or of another bidder/offeror in which the Countyship of the withdrawing bidder/offeror is more than five percent. In the case of Invitation for Bid's, if a bid is withdrawn under the authority of this paragraph, the lowest remaining bid shall be deemed to be the low bid. No bidder/offeror who is permitted to withdraw a bid/proposal shall, for compensation, supply any material or labor to or perform any subcontract or other work agreement for the person or firm to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid/proposal was submitted.

8. **ERRORS IN BIDS/PROPOSALS** – When an error is made in extending total prices, the unit bid price will govern. Erasures in bids/proposals must be initialed by the bidder/offeror. Carelessness in quoting prices, or in preparation of bid/proposal otherwise, will not relieve the Bidder/Offeror. Bidders/Offerors are cautioned to recheck their bids/proposals for possible error. Errors discovered after public opening cannot be corrected and the bidder will be required to perform if his or her bid is accepted.

9. **IDENTIFICATION OF BID/PROPOSAL ENVELOPE:** The signed bid/proposal and requested copies should be returned in a separate envelope or package, sealed and identified with the following information:

ADDRESSED AS INDICATED ON COVER PAGE (ISSUING DEPARTMENT)
IFB/RFP NUMBER – PR-24-1803.1
TITLE – CULPEPER COUNTY COMMUNITY POOL PROJECT
BID/PROPOSAL DUE DATE AND TIME – 2:00 P.M., APRIL 30, 2024
VENDOR NAME AND COMPLETE MAILING ADDRESS (RETURN ADDRESS)

If a bid/proposal is not addressed with the information as shown above, the Bidder/Offeror takes the risk that the envelope may be inadvertently opened and the information compromised, which may cause the bid/proposal to be disqualified. Bids/Proposals may be hand delivered to the designated location in the office issuing the solicitation. Culpeper County will not accept facsimile and/or electronic bids/proposals No other correspondence or other proposals should be placed in the envelope.

10. **ACCEPTANCE OF BIDS/PROPOSALS:** Unless otherwise specified, all formal bids/proposals submitted shall be valid for a minimum period of one hundred twenty (120) calendar days following the date established for acceptance. At the end of the one hundred twenty (120) calendar days the bid/proposal may be withdrawn at the written request of the Bidder/Offeror. If the proposal is not withdrawn at that time it remains in effect until an award is made or the solicitation is canceled.

11. **CONDITIONAL BIDS:** Conditional bids are subject to rejection in whole or in part.

12. **BIDDERS PRESENT:** At the time fixed for the opening of responses to a bid, bid contents will be made public for the information of bidders and other interested parties who may be present either in person or by representative. All bids will be opened at the time and place specified and read publicly. At the time fixed for the receipt of responses for Request for Proposals, only the names of the offerors will be read and made available to the public.

13. **RESPONSE TO SOLICITATIONS**: In the event a vendor cannot submit a bid on a solicitation, the vendor is requested to return the solicitation cover sheet with an explanation as to why the vendor is unable to bid on these requirements. Because of the large number of firms listed on the County's Bidders List, it may be necessary to delete from this list the names of those persons, firms or corporations who fail to respond after having been invited to bid for three (3) successive solicitations. Such deletion will be made only after formal notification of the intent to remove the firm from the County's Bidder's List.

14. **BIDDER INTERESTED IN MORE THAN ONE BID:** If more than one bid is offered by any one party, either directly or by or in the name of his or her clerk, partner, or other persons, all such bids may be rejected. A party who has quoted prices on work, materials, or supplies to a bidder is not thereby disqualified from quoting prices to other bidders or firms submitting a bid directly for the work, materials or supplies.

15. **TAX EXEMPTION:** The County is exempt from the payment of any federal excise or any Virginia sales tax. The price bid must be net, exclusive of taxes. Tax exemption certificates will be furnished if requested by the Bidder/Offeror.

16. **DEBARMENT STATUS:** By submitting their bids/proposals, Bidders/Offerors certify that they are not currently debarred from submitting bids/proposals on contracts by the County, nor are they an agent of any person or entity that is currently debarred from submitting bids or proposals on contracts by the County or any agency, public entity/locality or authority of the Commonwealth of Virginia.

17. **ETHICS IN PUBLIC CONTRACTING**: The provisions contained in Sections 2.2-4367 through 2.2-4377 of the Virginia Public Procurement Act as set forth in the 1950 Code of Virginia, as amended, shall be applicable to all contracts solicited or entered into by the County. By submitting their bids/proposals, all Bidders/Offerors certify that their bids/proposals are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other Bidder, Offeror, supplier, manufacturer or subcontractor in connection with their bid/proposal, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

18. **NO CONTACT POLICY:** No Bidder/Offeror shall initiate or otherwise have contact related to the solicitation with any County representative or employee, other than the Procurement Department, after the date and time established for receipt of bids/proposals. Any contact initiated by a Bidder/Offeror with any County representative, other than the Procurement Department, concerning this solicitation is prohibited and may cause the disqualification of the Bidder/Offeror from this procurement process.

19. **VIRGINIA FREEDOM OF INFORMATION ACT**: All proceedings, records, contracts and other public records relating to procurement transactions shall be open to the inspection of any citizen, or any interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act except as provided below:

    a. Cost estimates relating to a proposed procurement transaction prepared by or for a public body shall not be open to public inspection.

    b. Any competitive sealed bidding bidder, upon request, shall be afforded the opportunity to inspect bid records within a reasonable time after the opening of bids but prior to award, except in the event that the County decides not to accept any of the bids and to reopen the contract. Otherwise, bid records shall be open to public inspection only after award of the contract. Any competitive negotiation offeror, upon request, shall be afforded the opportunity to inspect proposal records within a reasonable time after the evaluation and negotiations of proposals are completed but prior to award except in the even that the County decides not to accept any of the proposals and to reopen the contract. Otherwise, proposal records shall be open to the public inspection only after award of the contract except as provided in paragraph "c" below. Any inspection of procurement transaction records under this section shall be subject to reasonable restrictions to ensure the security and integrity of the records.

    Trade secrets or proprietary information submitted by a bidder, offeror or contractor in connection with a procurement transaction shall not be subject to public disclosure under the Virginia Freedom of Information Act; however, the bidder, offeror or contractor must invoke the protections of this section prior to or upon submission of the data or other materials, and must identify the data or other materials to be protected and state the reasons why protection is necessary.

c. Nothing contained in this section shall be construed to require the County, when procuring by "competitive negotiation" (Request for Proposal), to furnish a statement of reasons why a particular proposal was not deemed to be the most advantageous to the County.

20. **CONFLICT OF INTEREST:** Contractor certifies by signing bid to the County that no conflict of interest exists between Contractor and County that interferes with fair competition and no conflict of interest exists between Contractor and any other person or organization that constitutes a conflict of interest with respect to the contract with the County.

SPECIFICATIONS

21. **BRAND NAME OR EQUAL ITEMS:** Unless otherwise provided in the solicitation, the name of a certain brand, make or manufacturer does not restrict bidders to the specific brand, make or manufacturer named; it conveys the general style, type, character, and quality of the article desired, and any article which the County in its sole discretion determines to be the equal of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended, shall be accepted. The Bidder is responsible to clearly and specifically indicate the product being offered and to provide sufficient descriptive literature, catalog cuts and technical detail to enable the County to determine if the product offered meets the requirements of the solicitation. This is required even if offering the exact brand, make or manufacturer specified. Normally in competitive sealed bidding, only the information furnished with the bid will be considered in the evaluation. Failure to furnish adequate data for evaluation purposes may result in declaring a bid non-responsive. Unless the Bidder clearly indicates in its bid/proposal that the product offered is "equal" product, such bid/proposal will be considered to offer the brand name product referenced in the solicitation.

22. **FORMAL SPECIFICATIONS:** When a solicitation contains a specification which states no substitutes, no deviation therefrom will be permitted and the bidder will be required to furnish articles in conformity with that specification.

23. **OMISSIONS & DISCREPANCIES:** Any items or parts of any equipment listed in this solicitation which are not fully described or are omitted from such specification, and which are clearly necessary for the completion of such equipment and its appurtenances, shall be considered a part of such equipment although not directly specified or called for in the specifications. The Bidder/Offeror shall abide by and comply with the true intent of the specifications and not take advantage of any unintentional error or omission, but shall fully complete every part as the true intent and meaning of the specifications and drawings. Whenever the mention is made of any articles, material or workmanship to be in accordance with laws, ordinances, building codes, underwriter's codes, A.S.T.M. regulations or similar expressions, the requirements of these laws, ordinances., etc., shall be construed as to the minimum requirements of these specifications.

24. **CONDITION OF ITEMS:** Unless otherwise specified in the solicitation, all items shall be new, in first class condition.

AWARD

25. **AWARD OR REJECTION OF BIDS:** The Purchasing Agent shall award the contract to the lowest responsive and responsible bidder complying with all provisions of the IFB, provided the bid price is reasonable and it is in the best interest of the County to accept it. Awards made in response to a RFP will be made to the highest qualified offeror whose proposal is determined, in writing, to be the most advantageous to the County taking into consideration the evaluation factors set forth in the RFP. The Purchasing Agent reserves the right to award a contract by individual items, in the aggregate, or in combination thereof, or to reject any or all bids/proposals and to waive any informality in bids/proposals received whenever such rejection or waiver is in the best interest of the County. Award may be made to as many bidders/offerors as deemed necessary to fulfill the anticipated requirements of the County. The Purchasing Agent also reserves the right to reject the bid if a bidder is deemed to be a non-responsible bidder.

26. **ANNOUNCEMENT OF AWARD:** Upon the award or announcement of the decision to award a contract as a result of this solicitation, the Procurement Department may post award results, which may be viewed on the Culpeper County Procurement Website at http://web.culpepercounty.gov/rfps

27. **QUALIFICATIONS OF BIDDERS OR OFFERORS:** The County may make such reasonable investigations as deemed proper and necessary to determine the ability of the Bidder/Offeror to perform the work/furnish the item(s) and the Bidder/Offeror shall furnish to the County all such information and data for this purpose as may be requested. The County reserves the right to inspect Bidder's/Offeror's physical facilities prior to award to satisfy questions regarding the Bidder's/Offeror's capabilities. The County further reserves the right to reject any bid or proposal if the evidence submitted by or investigations of, such Bidder/Offeror fails to satisfy the County that such Bidder/Offeror is properly qualified to carry out the obligations of the contract and to complete the work/furnish the item(s) contemplated therein.

28. **TIE BIDS**: In the case of a tie bid, the County may give preference to goods, services and construction produced in Culpeper County or provided by persons, firms or corporations having principal places of business in the County. If such choice is not available, preference shall then be given to goods and services produced in the Commonwealth pursuant to Section 2.2-4324 of the Code of Virginia. If no County or Commonwealth choice is available, the tie shall be decided by lot.

CONTRACT PROVISIONS

29. **APPLICABLE LAW AND COURTS**: Any contract resulting from this solicitation shall be governed in any respects by the laws of Virginia without any regard to conflict of laws analysis, and any litigation with respect thereto shall be brought in the Circuit Court of Culpeper County, Virginia. The parties waive any right of removal to federal court. The Contractor shall comply with applicable federal, state and local laws and regulations.

30. **IMMIGRATION REFORM AND CONTROL ACT OF 1986**: By submitting their bids, Bidders certify that they do not and will not during the performance of this contract employ unauthorized alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986, as presently amended.

31. **ANTI-TRUST**: By entering into a contract, the Contractor conveys, sells, assigns, and transfers to the County all rights, title and interest in and to all causes of the action it may now have or hereafter acquire under the antitrust law of the United States and Culpeper County, relating to the particular goods or services purchased or acquired by the County under said contract. Consistent and continued tie bidding could cause rejection of bids by the Purchasing Agent and/or investigation for Anti-Trust violations.

32. **PAYMENT TERMS**: Unless otherwise provided in the solicitation payment will be made thirty (30) days after receipt of a proper invoice, or thirty (30) days after receipt of all goods or acceptance of work, whichever is the latter.

    1. Invoices for items/services ordered, delivered/performed and accepted shall be submitted by the Contractor directly to the payment address shown on the purchase order/contract. All invoices shall show the contract number, purchase order number, and any federal employer identification number.

    2. Any payment terms requiring payment in less than 30 days will be regarded as requiring payment 30 days after invoice or delivery, whichever occurs last. This shall not affect offers of discounts for payment in less than 30 days, however.

    3. The date of payment shall be deemed the date of postmark in all cases where payment is made by mail.

    4. The County's fiscal year is July 1 - June 30. Contractors are advised to submit invoices, especially for goods and/or services provided in the month of JUNE, for the entire month i.e. June 1 - June 30, so that expenses are recognized in the appropriate fiscal year.

33. **PAYMENT TO SUBCONTRACTORS**: A contractor awarded a contract under this solicitation is hereby obligated:

    1. To pay the subcontractor(s) within seven (7) days of the contractor's receipt of payment from the County for the proportionate share of the payment received for work performed by the subcontractor(s) under the contract; or

    2. To notify the County and the subcontractor(s), in writing, of the contractor's intention to withhold payment and the reason.

    The contractor is obligated to pay the subcontractor(s) interest at the rate of one percent per month (unless otherwise provided under the terms of the contract) on all amounts owed by the contractor that remain unpaid seven (7) days following receipt of payment from the County, except for amounts withheld as stated in 2 above. The date of mailing of any payment by U.S. Mail is deemed to be payment to the addressee. These provisions apply to each sub-tier contractor performing under the primary contract. A contractor's obligation to pay an interest charge to a subcontractor may not by construed to be an obligation of the County.

34. **ASSIGNMENT OF CONTRACT**: A contract shall not be assignable by the Contractor in whole or in part without the written consent of the Purchasing Agent.

35. **DEFAULT**: In case of failure to deliver goods or services in accordance with the contract terms and conditions, the County, after due oral or written notice, may procure them from other sources and hold the Contractor responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to other remedies which the County may have.

36. **ANTI-DISCRIMINATION**: By submitting their bids/proposals, Bidders/Offerors certify to the County that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Act of 1975, as amended, where applicable, the Virginians With Disabilities Act, the Americans With Disabilities Act and Section 2.2-4311 of the *Virginia Public Procurement Act*. If the award is made to a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis or race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (Code of Virginia, Sec. 2.2-4343.1(E)).

    In every contract over $10,000, the provisions in A and B below apply:

A. During the performance of this contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

2. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.

3. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this Section.

B. The Contractor will include the provisions of A. above in every subcontract or purchase order over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

37. **INVOICES**: Invoices for items ordered, delivered and accepted shall be submitted by the Contractor directly to the payment address shown on the purchase order/contract. All invoices shall show the IFB/RFP number and/or purchase order number.

38. **CHANGES TO THE CONTRACT**: Changes can be made to the contract in any of the following ways:

A. The parties may agree to modify the scope of the contract. An increase or decrease in the price of the contract resulting from such modification shall be agreed to by the parties as a part of their written agreement to modify the scope of the contract.

B. The County may order changes within the general scope of the contract at any time by written notice to the Contractor. Changes within the scope of the contract include, but are not limited to, things such as services to be performed, the method of packing or shipment, and the place of delivery or installation. The Contractor shall comply with the notice upon receipt. The Contractor shall be compensated for any additional costs incurred as the result of such order and shall give the County a credit for any savings. Said compensation shall be determined by one of the following methods.

1. By mutual agreement between the parties in writing; or

2. By agreeing upon a unit price or using a unit price set forth in the contract, if the work to be done can be expressed in units, and the contractor accounts for the number of units of work performed, subject to the County's right to audit the Contractor's records and/or determine the correct number of units independently; or

3. By ordering the Contractor to proceed with the work and keep a record of all costs incurred and savings realized. A markup for overhead and profit may be allowed if provided by the contract. The same markup shall be used for determining a decrease in price as the result of savings realized. The Contractor shall present the County with all vouchers and records of expenses incurred and savings realized. The County shall have the right to audit the records of the Contractor as it deems necessary to determine costs or savings. Any claim for an adjustment in price under this provision must be asserted by written notice to the Procurement Department within thirty (30) days from the date of receipt of the written order from the Procurement Department. If the parties fail to agree on an amount of adjustment, the questions of an increase or decrease in the contract price or time for performance shall be resolved in accordance with the procedures for relieving disputes provided by the Disputes Clause of this contract. Neither the existence of a claim nor a dispute resolution process, litigation or any other provision of this contract shall excuse the Contractor from promptly complying with the changes ordered by the County or with the performance of the contract generally.

C. No modification for a fixed price contract may be increased by more than 25% or $50,000, whichever is greater without the advanced written approval of the Board of Supervisors or the , as applicable.

39. **INDEMNIFICATION**: Contractor shall indemnify, keep and save harmless the County, its agents, officials, employees and volunteers against claims of injuries, death, damage to property, patent claims, suits, liabilities, judgments, cost and expenses which may otherwise accrue against the County in consequence of the granting of a contract or which may otherwise result therefrom, if it shall be determined that the act was caused through negligence or error, or omission of the Contractor or his or her employees, or that of the subcontractor or his or her employees, if any; and the Contractor shall, at his or her own expense, appear, defend and pay all charges of attorneys and all costs and other expenses arising therefrom or incurred in connection therewith; and if any judgment shall be rendered against the County in any such action, the Contractor shall, at his or her own expenses, satisfy and discharge the same. Contractor expressly understands and agrees that any performance bond or insurance protection required by this contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify, keep and save harmless and defend the County as herein provided.

40. **DRUG-FREE WORKPLACE:** During the performance of this contract, the contractor agrees to (i) provide a drug-free workplace for the contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or

marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, "*drug-free workplace"* means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

41. **TERMINATION:** Subject to the provisions below, the contract may be terminated by the County upon thirty (30) days advance written notice to the other party. Any contract cancellation notice shall not relieve the contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.

A. Termination for Convenience**:** In the event that the contract is terminated upon request and for the convenience of the County, without the required thirty (30) days advance notice, then the County shall be responsible for payment of services up to the termination date.

B. Termination for Cause: Termination by the County for cause, default or negligence on the part of the contractor shall be excluded from the foregoing provision; termination costs, if any shall not apply. However, pursuant to paragraph 32 of these General Conditions, the County may hold the contractor responsible for any resulting additional purchase and administrative costs. The thirty (30) days advance notice requirement is waived in the event of Termination for Cause.

C. Termination Due to Unavailability of Funds in Succeeding Fiscal Years: When funds are not appropriated or otherwise made available to support continuation of performance in a subsequent fiscal year, the contract shall be canceled.

42. **USE OF CONTRACT BY OTHER POLITICAL JURISDICTIONS**: Bidders are advised that all resultant contracts will be extended, with the authorization of the Bidder, to Northern Virginia Metropolitan Washington Council of Governments jurisdictions and other jurisdictions and Political Sub-Departments of the Commonwealth of Virginia to permit their ordering of supplies and/or services at the prices and terms of the resulting contract. If any other jurisdiction decides to use the final contract, the Contractor must deal directly with that jurisdiction or political sub-Department concerning the placement or orders, issuance of the purchase order, contractual disputes, invoicing and payment. Culpeper County acts only as the "Contracting Agent" for these jurisdictions and political sub-Departments. Failure to extend a contract to any jurisdiction will have no effect on consideration of your bid/proposal.

It is the awarded vendor's responsibility to notify the jurisdictions and political sub-Department of the availability of the contract. Each participating jurisdiction and political sub-Department has the option of executing a separate contract with the awardees. Contracts entered into with them may contain general terms and conditions unique to those jurisdictions and political sub-Departments covering minority participation, non-discrimination. If, when preparing such a contract, the general terms and conditions of a jurisdiction are unacceptable to the awardees, the awardees may withdraw its extension of the award to that jurisdiction. Culpeper County shall not be held liable for any costs or damage incurred by another jurisdiction as a result of any award extended to that jurisdiction or political sub-Department by the awardees.

43. **AUDIT:** The Contractor hereby agrees to retain all books, records and other documents relative to this contract for five years after final payment, or until audited by the County, whichever is sooner. The agency, its authorized agents, and/or County auditors shall have full access to and right to examine any of said materials during said period.

44. **SEX OFFENDER REGISTRY NOTIFICATION:** As a condition of awarding a contract for the provision of services that require the contractor or his employees to have direct contact with students on school property during regular school hours or during school-sponsored activities or children/students at any County/School public location or facility, the County will require the contractor to provide certification that all persons who will provide such services have not been convicted of a felony or any offense involving the sexual molestation or physical or sexual abuse or rape of a child. This requirement does not apply to a contractor or his employees providing services to a school Department/public County facility in an emergency or exceptional situation, such as when student/child health or safety is endangered or when repairs are needed on an urgent basis to ensure the school facilities/public County facilities are safe and habitable, when it is reasonably anticipated that the contractor or his employees will have no direct contact with students/children.

45. COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND FEDERAL IMMIGRATION LAW: During the term of any contract, the Contractor does not, and shall not during the performance of the contract for goods and services in the Commonwealth of Virginia, knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

DELIVERY PROVISION

46. **SHIPPING INSTRUCTIONS-CONSIGNMENT:** Unless otherwise specified in the solicitation each case, crate, barrel, package, etc., delivered under the contract must be plainly stenciled or securely tagged, stating the Contractor's name, purchase order number, and delivery address as indicated in the order. Where shipping containers are to be used, each container must be marked with the purchase order number, name of the Contractor, the name of the item, the item number, and the quantity contained therein. Deliveries must be made within the hours of 8:00 a.m. – 4:00 p.m. Deliveries at any other time will not be accepted unless specific arrangements have been previously made with the designated individual at the delivery point. No deliveries will be accepted on Saturdays, Sundays and holidays unless previous arrangements have been made. It shall be the responsibility of the contractor to ensure compliance with these instructions for items that are drop-shipped.

47. **RESPONSIBILITY FOR SUPPLIES TENDERED:** The Contractor shall be responsible for the materials or supplies covered by the contract until they are delivered at the designated point, but the Contractor shall bear all risk on rejected materials or supplies after notice of rejection. Rejected materials or supplies must be removed by and at the expense of the contractor promptly after notification of rejection, unless public health and safety require immediate destruction or other disposal of rejected delivery. If rejected materials are not removed by the Contractor within ten (10) days after date of notification, the County may return the rejected materials or supplies to the Contractor at his or her risk and expense or dispose of them as its own property.

48. **INSPECTIONS:** The County reserves the right to conduct any test/inspection it may deem advisable to assure supplies and services conform to the specification. Inspection and acceptance of materials or supplies will be made after delivery at destinations herein specified unless otherwise stated. If inspection is made after delivery at destination herein specified, the County will bear the expense of inspection except for the value of samples used in case of rejection. Final inspection shall be conclusive except in regard to latent defects, fraud or such gross mistakes as to amount to fraud. Final inspection and acceptance or rejection of the materials or supplies will be made as promptly as practicable, but failure to inspect and accept or reject materials or supplies shall not impose liability on the County for such materials or supplies as are not in accordance with the specifications.

49. **COMPLIANCE:** Delivery must be made as ordered and in accordance with the solicitation or as directed by the Procurement Department when not in conflict with the bid/contract. The decision as to reasonable compliance with delivery terms shall be final. Burden of proof of delay in receipt of goods by the purchaser shall rest with the Contractor. Any request for extension of time of delivery from that specified must be approved by the Procurement Department, such extension applying only to the particular item or shipment affected. Should the Contractor be delayed by the County, there shall be added to the time of completion a time equal to the period of such delay caused by the County. However, the contractor shall not be entitled to claim damages of extra compensation for such delay or suspension. These conditions may vary for construction contracts.

50. **POINT OF DESTINATION:** All materials shipped to the County must be shipped F.O.B. DESTINATION unless otherwise stated in the contract. The materials must be delivered to the "Ship To" address indicated on the purchase order.

51. **REPLACEMENT:** Materials or components that have been rejected by the Procurement Department, in accordance with the terms of the contract, shall be replaced by the Contractor at no cost to the County.

52. **PACKING SLIPS OR DELIVERY TICKETS:** All shipments shall be accompanied by Packing Slips or Delivery Tickets and shall contain the following information for each item delivered:
    1. Purchase Order Number,
    2. Name of Article and Stock Number,
    3. Quantity Ordered,
    4. Quantity Shipped,
    5. Quantity Back Ordered,
    6. The Name of the Contractor.

    Contractors are cautioned that failure to comply with these conditions shall be considered sufficient reason for refusal to accept the goods.

BIDDER/CONTRACTOR REMEDIES

53. **PROTEST OF AWARD OR DECISION TO AWARD**: Any Bidder/Offeror who desires to protest the award or decision to award a contract, by Culpeper County, shall submit such protest in writing to the County Administrator, no later than ten (10) days after public notice of the award or announcement of the decision to award, whichever comes first. No protest shall lie for a claim that the selected bidder/Offeror is not a responsible Bidder/Offeror. The written protest shall include the basis for the protest and the relief sought. The County Administrator, shall issue a decision in writing within ten (10) days stating the reasons for the action taken. This decision shall be final unless the bidder/offeror appeals within ten (10) days of the written decision by instituting legal action as provided in Section 7-108 of the Culpeper County Purchasing Resolution. Nothing in this paragraph shall be construed to permit an offeror to challenge the validity of the terms or conditions of the solicitation.

54. **DISPUTES:** Contractual claims, whether for money or other relief, shall be submitted in writing to the County Administrator no later than sixty (60) days after final payment; however, written notice of the Contractor's intention to file such claim shall have been given at the time of the occurrence or beginning of the Work upon which the claim is based. Nothing herein shall preclude a contract from requiring submission of an invoice for final payment within a certain time after completion and acceptance of the work or acceptance

of the goods. Pendency of claims shall not delay payment of amount agreed due in the final payment. A written decision upon any such claims will be made by the County Board of Supervisors within sixty (60) days after submittal of the claim. The Contractor may not institute legal action prior to receipt of the Board of Supervisor's decision on the claim unless the applicable party fails to render such decision within sixty (60) days. The decision of the or Board of Supervisor's shall be final and conclusive unless the Contractor within six (6) months of the date of the final decision on a claim, initiates legal action as provided in Section 2.2-4364 of the Code of Virginia. Failure of the Board of Supervisors to render a decision within sixty (60) days shall not result in the Contractor being awarded the relief claimed nor shall it result in any other relief or penalty. Should the or Board of Supervisors fail to render a decision within sixty (60) days after submittal of the claim, the Contractor may institute legal action within six (6) months after such 60-day period shall have expired, or the claim shall be deemed finally resolved. No administrative appeals procedure pursuant to Section 2.2-4365 of the Code of Virginia has been established for contractual claims under this contract.

SPECIAL TERMS AND CONDITIONS

1. Material Safety Data Sheets (MSDS): Material safety Data sheets and descriptive literature shall be provided with the proposal for each chemical and/or compound offered. Failure on the part of the Offeror to submit such data sheets may be cause for declaring the proposal as nonresponsive.

2. Labeling of Hazardous Substances: If the items or products requested by this solicitation are "Hazardous substances" as defined by Article 1261 of Title 15 of the United States Code (U.S.C.) or "Pesticides" as defined in Article 136 of Title 7 of the United States code, then the Offeror, by submitting his proposal, certifies and warrants that the items or products to be delivered under this contract shall be properly labeled as required by the foregoing sections and that by delivering the items or products the Offeror does not violate any of the prohibitions of Title 15 U.S.C. Article 1263 or Title 7 U.S.C. Article 136.

3. Work Site Damages: Any damage to existing utilities, equipment or finished surfaces resulting from the performance of this contract shall be repaired to the County's satisfaction at the Contractor's expense.

4. Use of Premises and Removal of Debris*:*
   The Contractor shall:
   (1) Perform his contract in such a manner as not to interrupt or interfere with the operation of any existing activity on the premises or with the work of any Contractor;

   (2) Store his apparatus, materials, supplies, and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other Contractor; and

   (3) Place upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work.

   a. The Contractor expressly undertakes, either directly or through his subcontractor(s), to effect all cutting, filling, or patching of his work required to make the same conform to the drawings and specifications, and, except with the consent of the County, not to cut or otherwise alter the work of any other Contractor. The Contractor shall not damage or endanger any portion of the work or premises, including existing improvements, unless called for by the contract.

   b. The Contractor expressly undertakes, either directly or through his subcontractor(s), to clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the work shall present a neat, orderly, and workmanlike appearance. No such refuse, rubbish, scrap material, and debris shall be left within the completed work nor buried on the building site, but shall be removed from the site and properly disposed of in a licensed landfill or otherwise as required by law.

   c. The Contractor expressly undertakes, either directly or through his subcontractor(s), before final payment, to remove all surplus material, false work, temporary structures, including foundations thereof, plants of any description and debris of every nature resulting from his operations and to put the site in a neat, orderly condition; to thoroughly clean and leave reasonably dust free all finished surfaces including all equipment, piping, etc., on the interior of all buildings included in the contract; and to thoroughly clean all glass installed under the contract including the removal of all paint and mortar splatters and other defacements. If a Contractor fails to clean up at the completion of the work, the County may do so and charge for costs thereof to the Contractor.

   d. During and at completion of the work, the Contractor shall prevent site soil erosion, the runoff of silt and/or debris carrying water from the site, and the blowing of debris off the site in accordance with the applicable

requirements and standards of the Virginia Erosion and Sediment Control Handbook, latest edition, and of the contract documents.

e. The Contractor shall not operate or disturb the setting of any valves, switches or electrical equipment on the service lines to the building except by proper previous arrangement with the County. The Contractor shall give ample advance notice of the need for cut-offs which will be scheduled at the convenience of the County.

5. PROTECTION OF PERSON AND PROPERTY: The Contractor expressly undertakes, both directly and through its subcontractor(s), to take every precaution at all times for the protection of persons and property which may come on the building site or be affected by the Contractor's operation in connection with the work.

   a. The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work.

   b. The provisions of all rules and regulations governing safety as adopted by the Safety Codes Commission of the Commonwealth of Virginia, issued by the Department of Labor and Industry under Title 40.1 of the Code of Virginia shall apply to all work under this contract.

   c. The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect the County's property from injury or loss arising in connection with this contract. He shall make good any such damage, injury, or loss, except such as may be directly due to errors in the contract documents or caused by agents or employees of the County. He shall adequately protect adjacent property to prevent any damage to it or loss of use and enjoyment by its County's. He shall provide and maintain all passageways, guard fences, lights and other facilities for the protection required by public authority, local conditions, any of the contract documents or erected for the fulfillment of his obligations for the protection of person and property.

   d. In an emergency affecting the safety or life of persons or of the work, or of the adjoining property, the Contractor, without special instruction or authorization from the County, shall act, at his discretion, to prevent such threatened loss or injury. Also, should he, to prevent threatened loss or injury, be instructed or authorized to act by the County, he shall so act immediately, without appeal. Any additional compensation or extension of time claimed by the Contractor on account of any emergency work shall be determined as provided in the General Terms and Conditions.

PROPRIETARY INFORMATION:

Ownership of all data, materials, and documentation originated and prepared for the County pursuant to the REQUEST FOR PROPOSAL or INVITATION FOR BID shall belong exclusively to the County and be subject to public inspection in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by an Offeror shall not be subject to public disclosure under the Virginia Freedom of Information Act, however, the Offeror must invoke the protections of Section 2.2-4342F of the Code of Virginia, in writing, either before or at the time the data or other material is submitted. The written notice must specifically identify the data or materials to be protected and state the reasons why protection is necessary. The proprietary or trade secret material submitted must be identified by some distinct method such as highlighting or underlining and must indicate only the specific words, figures, or paragraphs that constitute trade secret or proprietary information.

NOTICE OF PROPRIETARY INFORMATION

Confidentiality References Protection in Accordance with the Code of Virginia, Section 2.2-4342F

Section Title	**Page Number**	Reason(s) for Withholding from Disclosure

NOTICE OF PROPRIETARY INFORMATION (CONTINUED):

INSTRUCTIONS: Identify the data or other materials to be protected and state the reasons by using the codes listed below. Indicate specific words, figures, or paragraphs that constitute trade secrets or proprietary materials.

A- This page contains information relating to "trade secrets', and "proprietary information" including processes. Operations, style of work, or apparatus, identify confidential statistical data, amount or source of any income... of any person (or) partnership. "See Virginia Public Procurement Act. Section 2.2-4342F. Unauthorized disclosure of such information would violate the Trade Secrets Act 18 U.S.C. 1905.

B- This page contains proprietary information including confidential, commercial or financial information which was provided to the Government on a voluntary basis and is of the type that would not customarily be released to the public. See Virginia Public Procurement Act, Section 2.2-4342F; 5 U.S.C. 552 (b)(4); 12 C.F.R. 309.5(c)(4).

C- This page contains proprietary information including confidential, commercial or financial information. This disclosure of such information would cause substantial harm to competitive position and impair the Government's ability to obtain necessary information from contractors in die future. 5 U.S.C. See Virginia Public Procurement Act. Section 2.2-4342F; 552 (b)(4); 12 C. F. R 309.5(c) (4).

RETURN THIS PAGE ONLY IF APPLICABLE

EXHIBIT A

Culpeper County, Virginia

Procurement Department
155 W. Davis Street, Suite 100
Culpeper, Virginia 22701

CULPEPER COUNTY COMMUNITY POOL

BID FORM

IFB# PR-24-1803.1

The bidder agrees to provide the services in compliance with the Scope of Work and terms and conditions at a fixed price: Labor and Equipment for the term of the contact as follows:
NOTICE TO BIDDERS: The following required service shall be provided according to the contract terms and conditions contained herein.

BASE SCOPE OF WORK

Furnish all materials, labor, and equipment, for the Base Scope of Work (SOW) for the leisure/lap pool and splashpad only as shown and noted on the AP series drawings and in the Specification 01 10 00 §1.4 and the REBID NARRATIVE

$_____

BASE SOW CONTRACT TIME

If this Bid is accepted, we hereby state the following duration of time by which substantial completion can be accomplished is _____days.

PROVIDE THE FOLLOWING SEPARATE UNIT PRICE: Within the base scope of work, provide the estimated quantity in CY of spoils to be removed, transported and distributed to an approved site and provide the unit cost per CY.

$_____ PER CY

PROVIDE THE FOLLOWING ADD-ALTERNATE PRICES AS NOTED AND DEFINED IN SPECIFICATION SECTION 01 10 00, §1.32, and on the AP drawings; Note that some Add-Alternates require Unit Price responses as part of the Add-Alternate:

1. Pool Add Alternate No. 1: The beach access "Twin Splash-Tumble Bucket" water feature within the main pool shall be bid as an alternate. No provisions for future installation shall be provided in the event the Owner elects to omit this feature.
    a. $ _____

2. Pool Add Alternate No. 2: The following elements shall be provided as unit price elements. The base bid shall include all associate piping for all identified units and all related "Safeswap" mounting hardware to be installed in the concrete water play zone under the base bid with the feature elements available for future purchase and installation. Helio No. 6, Bobble No. 1, Fumbling 5, and (2) Tube No. 1 shall all be priced as individual unit price elements for the Owner's consideration. (Pool Add-Alternate No. 2 - Provide unit price for each of the identified water features identified above.)
    a. $ _____ UNIT PRICE PER ITEM

RETURN ALL EXHIBIT A PAGES

EXHIBIT B

CONTRACTOR DATA SHEET

1. QUALIFICATIONS OF BIDDER: Bidders must have the capability and capacity in all respects to fully satisfy the contractual requirements as specified.

2. YEARS IN BUSINESS: Indicate the length of time you have been in business providing this type of service: _____Years _____months.

3. REFERENCES: Indicate below a listing of at least three (3) recent contracts in which you have provided this type of work of the size and scope specified within the last (5) five years.

   A. Customer/Owner Name/Entity:_____

   Project Address:_____

   _____

   Telephone: _____E-Mail:_____

   Contact Person: _____

   Brief Project Description (Note that the project should involve a building and pool of similar or larger size and complexity):_____

   _____

   _____

   _____

   Primary Subcontractors (including pool subcontractor(s)):
   Pool:_____

   MEP:_____

   Framing/Structural:_____

   Roofing:_____

   Other Pertinent Subcontractors:_____

RETURN THIS PAGE

B. Customer/Owner Name/Entity:_____

Project Address:_____

_____

Telephone: _____E-Mail:_____

Contact Person: _____

Brief Project Description (Note that the project should involve a building and pool of similar or larger size and complexity):_____

_____

_____

_____

Primary Subcontractors (including pool subcontractor(s)):
Pool:_____

MEP:_____

Framing/Structural:_____

Roofing:_____

Other Pertinent Subcontractors:_____

RETURN THIS PAGE

C. Customer/Owner Name/Entity:_____

Project Address:_____

_____

Telephone: _____E-Mail:_____

Contact Person: _____

Brief Project Description (Note that the project should involve a building and pool of similar or larger size and complexity):_____

_____

_____

_____

Primary Subcontractors (including pool subcontractor(s)):
Pool:_____

MEP:_____

Framing/Structural:_____

Roofing:_____

Other Pertinent Subcontractors:_____

RETURN THIS PAGE

EXHIBIT C
INSURANCE CHECKLIST

CULPEPER COUNTY COMMUNITY POOL

Items marked "X" are required to be provided if award is made to your firm.

Required	Coverage Required	Limits (figures denotes minimum)
X	1. **Worker's Compensation**	1. Statutory Limits of the Commonwealth of VA
	and Employers' Liability; Admitted in Virginia	Yes
	Employers' Liability	$100,000/$500,000/$100,000
	All States Endorsement	Statutory
	USL & H Endorsement	Statutory
	Voluntary Compensation Endorsement	
	Best's Guide Ration-A-VIII or better, or its equivalent	
X	2. **Commercial General Liability**	2. $1,000,000 CSL Each Occurrence
	General Aggregate	$2,000,000
	Products/Completed Operations	$2,000,000
	Personal and Advertising Injury	$1,000,000
	Fire Legal Liability	$50,000 Per Occurrence
	Best's Guide Rating-A-VIII or better, or its equivalent	
X	3. **Automobile Liability**	3. $1,000,000 Combined
	Owned, Hired, Borrowed & Non-owned	Single Limit Bodily
	Motor Carrier Act End.	Injury and Property
	Best's Guide Rating-A-VIII or Better, or its equivalent	Damage Each Occurrence
X	4. **County named as additional insured on Auto and General Liability Policies.** (This coverage is primary to all other coverage the County may possess and **must be shown on the certificate**.)	
X	5. 30 day written cancellation notice required, 15 day cancellation notice required for non-payment to Culpeper County– Ref. Code of Virginia Section 38.2-231**.** Also, the words "endeavor to" and "failure to mail such notice" clause shall be removed from the cancellation notice.	
X	6. The Certificate must state Bid No. PR-24-1803.1 and Bid Title: Culpeper Count Community Pool Project	
X	7. Contractor shall submit Certificate of Insurance within 5 business days from notification of award.	
X	8. The Certificate Holder should be listed as: Culpeper County, c/o Purchasing Department, 155 W. Davis Street, Suite 100, Culpeper, VA 22701.	

OFFEROR STATEMENT

We understand the Insurance Requirements of these specifications and will comply in full if awarded this contract.

_____
FIRM

_____
SIGNATURE

RETURN THIS PAGE

Culpeper County, Virginia

Procurement Department
101 S. West Street, Suite 300
Culpeper, Virginia 22701

PROOF OF AUTHORITY TO TRANSACT BUSINESS IN VIRGINIA

THIS FORM MUST BE SUBMITTED WITH BID/PROPOSAL. FAILURE TO INCLUDE THIS FORM SHALL RESULT IN REJECTION OF BID/PROPOSAL

Pursuant to Virginia Code § 2.2-4311.2, a bidder/offeror organized or authorized to transact business in the Commonwealth pursuant to Title 13.1 or Title 50 of the Code of Virginia shall include in its bid/proposal the identification number issued to it by the State Corporation Commission (SCC). Any bidder/offeror that is not required to be authorized to transact business in the Commonwealth as a foreign business entity under Title 13.1 or Title 50 of the Code of Virginia or as otherwise required by law shall include in its bid or proposal a statement describing why the offeror is not required to be so authorized. Any bidder/offeror described herein that fails to provide the required information shall not receive an award unless a waiver of this requirement and the administrative policies and procedures established to implement this section is granted by County Administrator.

If this bid/proposal for goods or services is accepted by the County of Culpeper, Virginia, the undersigned agrees that the requirement of the Code of Virginia § 2.2-4311.2 have been met.

Complete the following by checking the appropriate line that applies and providing the requested information.

A.____ Bidder/offeror is a Virginia business entity organized and authorized to transact business in Virginia by the SCC and such bidder's/offeror's Identification Number issued to it by the SCC is

_____.

B.____ Bidder/offeror is an out-of-state (foreign) business entity that is authorized to transact business in Virginia by the SCC and such bidder's/offeror's Identification Number issued to it by the SCC is

_____.

C.____ bidder/offeror does not have an Identification Number issued to it by the SCC and such bidder/offeror is not required to be authorized to transact business in Virginia by the SCC for the following reason(s):

Please attach additional sheets of pager if you need to explain why such bidder/offeror is not required to be authorized to transact business in Virginia.

_____ _____
Legal Name of Bidder/Offeror Legal Name of Company

_____
Authorized Signature

_____ Date:_____
Print or Type Name and Title

RETURN THIS PAGE

ATTACHMENT A

PROJECT MANUAL CONTAINING A TABLE OF CONTENTS OF SPECIFICATIONS AND DRAWINGS, SPECIFICATIONS, PROJECT FORMS AND REPORTS, INCLUDING THE ORIGINAL RELEASE FOR BID SPECIFICATIONS DATED 01/03/24 AND RELEASE FOR REBID REVISIONS TO THOSE SPECIFICATIONS, DATED 03/29/24. THE PROJECT MANUAL HAS BEEN REVISED WITH SOME SPECIFICATION SECTIONS DELETED, SOME MODIFIED AND NEW SECTIONS ADDED.

SEPARATE ATTACHMENT

ATTACHMENT B

DRAWINGS ARE AS FOLLOWS; NOTE THAT THE POOL WORK IS SHOWN AND NOTED ON THE AP SERIES SHEETS:

- REVISIONS AND DATES:
    - THE RELEASE FOR REBID DRAWING SET CONSISTS OF THE FOLLOWING
        - THE ORIGINAL RELEASE FOR BID SET, DATED 01/03/24
        - PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 01/29/24
        - MEP PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 02/19/24
        - RELEASE FOR REBID REVISIONS ON CERTAIN SHEETS, DATED 03/29/24
- NOTE THAT NOT ALL SHEETS HAVE BEEN REVISED OR UPDATED.
- ALSO SEE THE ARCH TOC SHEET FOR SIMILAR INFORMATION.

SEPARATE ATTACHMENT

INVITATION FOR BIDS
(IFB)

Issue Date: April 4, 2024 **IFB #PR-24-1803.2**

Title: Culpeper County Community Pool Project

Issuing Department: Culpeper County
Purchasing Department
302 N. Main Street
Culpeper, Virginia 22701

Sealed Bids Will Be Received Until 2:00 P.M., April 30, 2024 For Furnishing The Services Described Herein. Bid opening will be in the Culpeper County Board of Supervisors meeting room at 302 N. Main Street, Culpeper VA 22701.

All Inquiries For Bid Information Should Be Directed To: Alan Culpeper, Director of Procurement, Telephone Number: (540) 727-3488 Fax: (540) 727-3486

BIDS CAN BE MAILED, OR HAND DELIVERED DIRECTLY TO ISSUING DEPARTMENT SHOWN ABOVE. RETURN COMPLETED: IFB COVER PAGE; EXHIBIT A: BID FORM, EXHIBIT B: CONTRACTOR DATA SHEET, EXHIBIT C: INSURANCE & AUTHORITY TO TRANSACT BUSINESS IN VIRGINIA FORM. THE COUNTY DOES NOT ACCEPT BID SUBMISSIONS THAT ARE FAXED OR SENT ELECTRONICALLY

Note: Culpeper County does not discriminate against faith-based organizations in accordance with the *Code of Virginia*, §§ 2.2-4343.1 or against a bidder or offeror because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by Federal, State, and County law relating to discrimination in employment or contracting.

In Compliance With This Invitation For Bids And To All The Conditions Imposed Herein And Hereby Incorporated By Reference, The Undersigned Offers And Agrees To Furnish The Goods/Services At The Price(s) Indicated In Exhibit A, Bid Form.

Name And Address Of Firm:

_____ Date: _____

_____ By: _____
Signature

_____ _____
Print Name

_____ _____
Title

Telephone Number: _____ e-mail: _____

E-Mail: _____ FIN: _____

RETURN THIS PAGE

INVITATION FOR BID

CULPEPER COUNTY COMMUNITY POOL

SECTION **PAGE**

CULPEPER COUNTY COMMUNITY POOL

1. PURPOSE

The purpose and intent of the Invitation for Bid (IFB) is to establish a firm fixed price contract to furnish all materials, labor, and equipment, for the completed construction and installation of the Culpeper County Community Pool Project, 16388 Competition Drive, Culpeper, Virginia 22701 in accordance with the terms, conditions and specifications contained herein. This solicitation is issued by the Culpeper County Procurement Department on behalf of the Culpeper County Board of Supervisors, herein referred to as "County". THIS SOLICITATION IS FOR THE BUILDING AND GROUNDS WORK ONLY- ALSO SEE THE REBID NARRATIVE.

All contractors are responsible for any addendums issued for this project. **All notifications of any Addendums will only be posted on the Culpeper County Purchasing Website at https://web.culpepercounty.gov/rfps**

2. COMPETITION INTENDED

It is the County's intent that this Invitation for Bid (IFB) permit open competition. It shall be the bidder's responsibility to advise the Purchasing Agent in writing if any language, requirement, specification, etc., or any combination thereof, inadvertently restricts or limits the requirements stated in this IFB to a single source. Such notification must be received by the Purchasing Agent no later than five (5) business days prior to the date set for bids to be received.

3. WORKMANSHIP

Where not more specifically described in these specifications, workmanship shall conform to all of the methods and operations of best standards and accepted practices of the trade or trades involved, and shall include all items of fabrication, construction or installation regularly furnished or required for completion of the services. All work shall be executed by personnel skilled in their respective lines of work.

4. SCOPE OF WORK

The Scope of Work includes furnish all materials, labor, and equipment, for the completed construction and installation of Culpeper County Community Pool Project, POOL ONLY, 16388 Competition Drive, Culpeper, Virginia 22701 All construction shall conform to existing State and County building codes. It is the contractors' responsibility to be aware of all applicable standards and specifications as well as required methods of construction. **See Specification 01 10 00, §1.4 for description of the Scope of Work and the REBID NARRATIVE. Note that the pool is not a part of this IFB. Note also that the SOW is for the building and grounds work only as noted in the REBID NARRATIVE.**

ATTACHMENT A

PROJECT MANUAL CONTAINING A TABLE OF CONTENTS OF SPECIFICATIONS AND DRAWINGS, SPECIFICATIONS, PROJECT FORMS AND REPORTS, INCLUDING THE ORIGINAL RELEASE FOR BID SPECIFICATIONS DATED 01/03/24 AND RELEASE FOR REBID REVISIONS TO THOSE SPECIFICATIONS, DATED 03/29/24. THE PROJECT MANUAL HAS BEEN REVISED WITH SOME SPECIFICATION SECTIONS DELETED, SOME MODIFIED AND NEW SECTIONS ADDED.

ATTACHMENT B

DRAWINGS ARE AS FOLLOWS; NOTE THAT THE POOL WORK IS NOT A PART OF THIS IFB:

1. REVISIONS AND DATES:
    a. THE RELEASE FOR REBID DRAWING SET CONSISTS OF THE FOLLOWING
        i. THE ORIGINAL RELEASE FOR BID SET, DATED 01/03/24
        ii. PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 01/29/24
        iii. MEP PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 02/19/24
        iv. RELEASE FOR REBID REVISIONS ON CERTAIN SHEETS, DATED 03/29/24
2. NOTE THAT NOT ALL SHEETS HAVE BEEN REVISED OR UPDATED.
3. ALSO SEE THE ARCH TOC SHEET FOR SIMILAR INFORMATION.

5. Optional Pre-Bid and Site Inspections

Optional Pre-Bid meeting, and site visit is scheduled for Thursday, April 18, 2024 at 1:00 P.M. local time at the Culpeper County Sports Complex Fieldhouse, 16388 Competition Drive, Virginia 22701.

If the County closes its offices due to inclement weather on Thursday, April 18, 2024, the scheduled Mandatory Pre-Bid and Site Inspections will be held on Friday, April 19, 2024 at the same time and location as noted above.

The primary purpose of the site visit is to allow Bidders to become fully acquainted and familiar with the conditions as they exist and the operation to be carried out. Bidders shall make such investigation as they may see fit so that they may fully understand the facility,

difficulties, and restrictions about the execution of the work. This will be the only tour of the facility provided by County personnel.

Bidders shall be required to sign a register sign-in sheet as the representative of the named business/company. ~~Failure to attend any portion of the Mandatory Pre-Bid meeting, and failure to sign the sign-in sheet will disqualify Bidders from submitted bids~~. **NOTE: The Purchasing Agent will pick-up the register sign-in sheet after 15 minutes and respondent showing up after 10:15 A.M. will not be allowed to sign in on the register sign-in sheet.**

6. **Liquidated Damages** Under the resulting contract, liquidated damages shall be $100.00 per calendar day for

each day beyond the scheduled completion date shown on the resulting contract, which will be agreed upon between the County and Contractor receiving the award.

7. CONTRACT TERMS AND CONDITIONS

The extent and character of the services to be performed by the Contractor(s) shall be subject to the general control and approval of the Director of the Procurement or his authorized designee(s). The Contractor shall only comply with requests and/or orders issued by the contract administrator or his authorized designee(s) acting within their authority for the County.

Any change to the contract must be approved in writing by the Procurement Director of Culpeper County and the Contractor. Contract Administrators do not have the authority to order or authorize change orders, or in any way obligate funds on behalf of Culpeper County.

Contractor is cautioned not to accept or act upon verbal or written directives from individuals representing citizen volunteer and/or advisory groups or any other individuals or groups without written consent from the Procurement Director.

Any Contractor(s) performing services for the County of Culpeper are required and shall comply with all Occupational Safety and Health Administration (OSHA), State and County Safety and Occupational Health Standards and any other applicable rules and regulations. Also, any Contractor(s) shall be held responsible for the safety of their employees and any unsafe acts or conditions that may cause injury or damage to any persons or property within and around the work site area under this contract. The County has sole right to dismiss contractors and/or sub-contractors for non-compliance to the above rules and regulations and/or safety violation. The contractor must rectify all safety concerns prior to continuance of work.

The Contractor must have a current Class “A” contractor’s License.

8. SPECIAL TERMS AND CONDITIONS

A. The safety of the public is the primary concern for Culpeper County. The Contractor shall place temporary pedestrian traffic, control devices surrounding the work area to protect the public, which may include, but not limited to barricades, tarps, plastic, yellow caution tape, or other means necessary to protect the public, surrounding areas, equipment, and vehicles.

B. Permit(s) are required for this project from Culpeper County and VA DEQ. The County will provide the permits which are in process.

C. Area around work site shall be generally cleaned each day before leaving the site.

D. Contractor shall remove all debris from the site when complete. All material shall be disposed of in a legal and lawful manner off-site and at the contractor's expense.

E. The Contractor shall coordinate & schedule work so that sports complex operations are maintained during the work required. There is no restriction on working days or hours.

F. Placement of spoils, and any excess topsoil fill will be coordinated with the County's Park & Recreation Department, and placed at a predetermined location.

G. Contractor may utilize the area around the site for parking / dumpster / material staging as agreed to in advance by the County

H. The Contractor is permitted to use the nearby building for electrical & water.

I. The County is responsible for third-part inspection for this project.

J. The Contractor is not required to provide background checks on its employees for this project.

9. BONDS

Bids shall be accompanied by either a cashier's check or certified check or bidder's bond in the amount of 5 percent (5%) of the bid amount made payable to the County of Culpeper. Bonds shall be with a surety company acceptable to the County. A performance bond and a labor and material payment bond will be required in the amount of one hundred percent (100%) of the bid, including any additions and/or deductions and shall be provided by the successful bidder.

10. QUESTIONS

Any questions pertaining to the Scope of Work, or other solicitation documents must be received in writing by the Culpeper County Purchasing Office, before 10:00 A.M. on Tuesday, April 23, 2024 to:

Culpeper County Purchasing Department
Attn: Alan H. Culpeper, CPPO, VCO, VCM
155 West Davis Street, Suite 100
Culpeper, VA 22701
E-mail: aculpeper@culpepercounty.gov

11. GENERAL CONDITIONS AND INSTRUCTIONS TO BIDDERS/OFFERORS

Revised 12/11/2018

Vendor: These general rules and conditions shall apply to all purchases and be a part of each solicitation and every contract awarded by the Procurement Department of Culpeper County, unless otherwise specified. The Procurement Department is responsible for the purchasing activity of Culpeper County. The term "County" as used herein refers to the contracting entity which is the signatory on the contract and may be either Culpeper County, or the Culpeper County Board of Supervisors, a political subdivision of the Commonwealth of Virginia, or both. Bidder/Offeror or their authorized representatives are expected to inform themselves fully as to the conditions, requirements, and specifications before submitting bids/proposals: failure to do so will be at the bidder's/offeror's own risk and except as provided by law, relief cannot be secured on the plea of error.

Subject to all Federal, State and local laws, policies, resolutions, regulations, rules, limitations and legislation, bids/proposals on all solicitations issued by the Procurement Department will bind bidders/ offerors to applicable conditions and requirements herein set forth unless otherwise specified in the solicitation.

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1. **AUTHORITY**-Except as delegated in the Culpeper County Purchasing Resolution, the Purchasing Agent has the sole responsibility and authority for negotiating, placing and when necessary, modifying every solicitation, contract and purchase order issued by the County. In the discharge of these responsibilities, the Purchasing Agent may be assisted by assigned buyers. Unless specifically delegated by the Purchasing Agent, no other County officer or employee is authorized to order supplies or services, enter into purchase negotiations or contracts, or in any way obligate the County for an indebtedness. Any purchase order or contract made which is contrary to these provisions and authorities shall be of no effect and void and the County shall not be bound thereby.

2. **COMPETITION INTENDED:** It is the County's intent that this solicitation permit competition. It shall be the Bidder's/Offeror's responsibility to advise the Purchasing Agent in writing if any language, requirement, specification, etc., or any combination thereof, stifles competition or inadvertently restricts or limits the requirements stated in this solicitation to a single source. The Purchasing Agent must receive such notification not later than five (5) business days prior to the deadline set for acceptance of the bids/proposals.

CONDITIONS OF BIDDING

3. **CLARIFICATION OF TERMS** - If any Bidder/ Offeror has questions about the specifications or other solicitation documents, the prospective Bidder/ Offeror shall contact the buyer in writing whose name appears on the face of the solicitation no later than five (5) business days prior to the date set for the opening of bids or receipt of proposals. Any revisions to the solicitation will be made only by addendum issued by the Buyer. Notifications regarding specifications may not be considered if received in less than five (5) business days of the date set for opening of bids/receipt of proposals.

4. **CHANGES / MODIFICATON TO SOLICIATIONS** – any and all changes, addendums, amendments, and/or supplements to any Invitation to Bid (IFB), or Request For Proposal (RFP) shall be posted on the Culpeper County website on the Purchasing Office's webpage under the tab titled. "Current Active Solicitation" found at the below address: web.culpepercounty.gov/rfps

Any and all changes, addendums, amendments, and/or supplements to the RFP/IFB shall be posted no later than the latest time on the last day by which submissions have to be received by the Purchasing Office. Offerors/Bidders are responsible for monitoring the Purchasing Office's webpage for the posting of any changes, addendums, amendments, and/or supplements.

5. **MANDATORY USE OF COUNTY FORM AND TERMS AND CONDITIONS**: Failure to submit a bid/proposal on the official County form provided for that purpose shall be a cause for rejection of the bid/proposal. Unauthorized modification of or additions to any portion of the Invitation to Bid or Request for Proposal may be cause for rejection of the bid/proposal. However, the County reserves the right to decide, on a case-by-case basis, in its sole discretion, whether to reject any bid or proposal which has been modified.

6. **LATE BIDS/PROPOSALS & MODIFICATION OF BIDS/PROPOSALS:** Any bid/proposal/modification received at the office designated in the solicitation after the exact time specified for receipt of the bid/proposal/modification is considered a late bid/proposal/modification.
The County is not responsible for delays in the delivery of the mail by the U.S. Postal Service, private carriers or the inter-office mail system. It is the sole responsibility of the Bidder/Offeror to ensure their bid/proposal reaches the Procurement Department by the designated date and hour.

a. The official time used in the receipt of bids/ proposals is that time on the automatic time stamp machine in the Procurement Department.

b. Late bids/proposals/modifications will be returned to the Bidder/Offeror UNOPENED, if solicitation number, acceptance date and Bidder/Offeror's return address is shown on the container.

c. <u>If the County closes its offices due to inclement weather scheduled bid openings or receipt of proposals will be extended to the next business day, same time.</u>

7. **WITHDRAWAL OF BIDS/PROPOSALS:**

A Bidder/Offeror for a contract other than for public construction may request withdrawal of his or her bid/proposal under the following circumstances:

a. Bids/Proposals may be withdrawn on written request from the Bidder/Offeror received at the address shown in the solicitation prior to the time of acceptance.

b. Requests for withdrawal of bids/proposals after opening of such bids/proposals but prior to award shall be transmitted to the Purchasing Agent, in writing, accompanied by full documentation supporting the request. If the request is based on a claim of error, documentation must show the basis of the error. Such documentation may take the form of supplier quotations, vendor work sheets, etc. If bid bonds were tendered with the bid, the County may exercise its right of collection. No Bid/Proposal may be withdrawn under this paragraph when the result would be the awarding of the contract on another bid/Proposal of the same bidder/offeror or of another bidder/offeror in which the Countyship of the withdrawing bidder/offeror is more than five percent. In the case of Invitation for Bid's, if a bid is withdrawn under the authority of this paragraph, the lowest remaining bid shall be deemed to be the low bid. No bidder/offeror who is permitted to withdraw a bid/proposal shall, for compensation, supply any material or labor to or perform any subcontract or other work agreement for the person or firm to whom the contract is awarded or otherwise benefit, directly or indirectly, from the performance of the project for which the withdrawn bid/proposal was submitted.

8. **ERRORS IN BIDS/PROPOSALS** – When an error is made in extending total prices, the unit bid price will govern. Erasures in bids/proposals must be initialed by the bidder/offeror. Carelessness in quoting prices, or in preparation of bid/proposal otherwise, will not relieve the Bidder/Offeror. Bidders/Offerors are cautioned to recheck their bids/proposals for possible error. Errors discovered after public opening cannot be corrected and the bidder will be required to perform if his or her bid is accepted.

9. **IDENTIFICATION OF BID/PROPOSAL ENVELOPE:** The signed bid/proposal and requested copies should be returned in a separate envelope or package, sealed and identified with the following information:

ADDRESSED AS INDICATED ON COVER PAGE (ISSUING DEPARTMENT)
IFB/RFP NUMBER – PR-24-1803.2
TITLE – CULPEPER COUNTY COMMUNITY POOL PROJECT
BID/PROPOSAL DUE DATE AND TIME – 2:00 P.M., APRIL 30, 2024
VENDOR NAME AND COMPLETE MAILING ADDRESS (RETURN ADDRESS)

If a bid/proposal is not addressed with the information as shown above, the Bidder/Offeror takes the risk that the envelope may be inadvertently opened and the information compromised, which may cause the bid/proposal to be disqualified. Bids/Proposals may be hand delivered to the designated location in the office issuing the solicitation. Culpeper County will not accept facsimile and/or electronic bids/proposals No other correspondence or other proposals should be placed in the envelope.

10. **ACCEPTANCE OF BIDS/PROPOSALS:** Unless otherwise specified, all formal bids/proposals submitted shall be valid for a minimum period of one hundred twenty (120) calendar days following the date established for acceptance. At the end of the one hundred twenty (120) calendar days the bid/proposal may be withdrawn at the written request of the Bidder/Offeror. If the proposal is not withdrawn at that time it remains in effect until an award is made or the solicitation is canceled.

11. **CONDITIONAL BIDS:** Conditional bids are subject to rejection in whole or in part.

12. **BIDDERS PRESENT:** At the time fixed for the opening of responses to a bid, bid contents will be made public for the information of bidders and other interested parties who may be present either in person or by representative. All bids will be opened at the time and place specified and read publicly. At the time fixed for the receipt of responses for Request for Proposals, only the names of the offerors will be read and made available to the public.

13. **RESPONSE TO SOLICITATIONS**: In the event a vendor cannot submit a bid on a solicitation, the vendor is requested to return the solicitation cover sheet with an explanation as to why the vendor is unable to bid on these requirements. Because of the large number of firms listed on the County's Bidders List, it may be necessary to delete from this list the names of those persons, firms or corporations who fail to respond after having been invited to bid for three (3) successive solicitations. Such deletion will be made only after formal notification of the intent to remove the firm from the County's Bidder's List.

14. **BIDDER INTERESTED IN MORE THAN ONE BID:** If more than one bid is offered by any one party, either directly or by or in the name of his or her clerk, partner, or other persons, all such bids may be rejected. A party who has quoted prices on work, materials, or supplies to a bidder is not thereby disqualified from quoting prices to other bidders or firms submitting a bid directly for the work, materials or supplies.

15. **TAX EXEMPTION:** The County is exempt from the payment of any federal excise or any Virginia sales tax. The price bid must be net, exclusive of taxes. Tax exemption certificates will be furnished if requested by the Bidder/Offeror.

16. **DEBARMENT STATUS:** By submitting their bids/proposals, Bidders/Offerors certify that they are not currently debarred from submitting bids/proposals on contracts by the County, nor are they an agent of any person or entity that is currently debarred from submitting bids or proposals on contracts by the County or any agency, public entity/locality or authority of the Commonwealth of Virginia.

17. **ETHICS IN PUBLIC CONTRACTING**: The provisions contained in Sections 2.2-4367 through 2.2-4377 of the Virginia Public Procurement Act as set forth in the 1950 Code of Virginia, as amended, shall be applicable to all contracts solicited or entered into by the County. By submitting their bids/proposals, all Bidders/Offerors certify that their bids/proposals are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other Bidder, Offeror, supplier, manufacturer or subcontractor in connection with their bid/proposal, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

18. **NO CONTACT POLICY:** No Bidder/Offeror shall initiate or otherwise have contact related to the solicitation with any County representative or employee, other than the Procurement Department, after the date and time established for receipt of bids/proposals. Any contact initiated by a Bidder/Offeror with any County representative, other than the Procurement Department, concerning this solicitation is prohibited and may cause the disqualification of the Bidder/Offeror from this procurement process.

19. **VIRGINIA FREEDOM OF INFORMATION ACT**: All proceedings, records, contracts and other public records relating to procurement transactions shall be open to the inspection of any citizen, or any interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act except as provided below:

    a. Cost estimates relating to a proposed procurement transaction prepared by or for a public body shall not be open to public inspection.

    b. Any competitive sealed bidding bidder, upon request, shall be afforded the opportunity to inspect bid records within a reasonable time after the opening of bids but prior to award, except in the event that the County decides not to accept any of the bids and to reopen the contract. Otherwise, bid records shall be open to public inspection only after award of the contract. Any competitive negotiation offeror, upon request, shall be afforded the opportunity to inspect proposal records within a reasonable time after the evaluation and negotiations of proposals are completed but prior to award except in the even that the County decides not to accept any of the proposals and to reopen the contract. Otherwise, proposal records shall be open to the public inspection only after award of the contract except as provided in paragraph "c" below. Any inspection of procurement transaction records under this section shall be subject to reasonable restrictions to ensure the security and integrity of the records.

    Trade secrets or proprietary information submitted by a bidder, offeror or contractor in connection with a procurement transaction shall not be subject to public disclosure under the Virginia Freedom of Information Act; however, the bidder, offeror or contractor must invoke the protections of this section prior to or upon submission of the data or other materials, and must identify the data or other materials to be protected and state the reasons why protection is necessary.

c. Nothing contained in this section shall be construed to require the County, when procuring by "competitive negotiation" (Request for Proposal), to furnish a statement of reasons why a particular proposal was not deemed to be the most advantageous to the County.

20. **CONFLICT OF INTEREST:** Contractor certifies by signing bid to the County that no conflict of interest exists between Contractor and County that interferes with fair competition and no conflict of interest exists between Contractor and any other person or organization that constitutes a conflict of interest with respect to the contract with the County.

SPECIFICATIONS

21. **BRAND NAME OR EQUAL ITEMS:** Unless otherwise provided in the solicitation, the name of a certain brand, make or manufacturer does not restrict bidders to the specific brand, make or manufacturer named; it conveys the general style, type, character, and quality of the article desired, and any article which the County in its sole discretion determines to be the equal of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended, shall be accepted. The Bidder is responsible to clearly and specifically indicate the product being offered and to provide sufficient descriptive literature, catalog cuts and technical detail to enable the County to determine if the product offered meets the requirements of the solicitation. This is required even if offering the exact brand, make or manufacturer specified. Normally in competitive sealed bidding, only the information furnished with the bid will be considered in the evaluation. Failure to furnish adequate data for evaluation purposes may result in declaring a bid non-responsive. Unless the Bidder clearly indicates in its bid/proposal that the product offered is "equal" product, such bid/proposal will be considered to offer the brand name product referenced in the solicitation.

22. **FORMAL SPECIFICATIONS:** When a solicitation contains a specification which states no substitutes, no deviation therefrom will be permitted and the bidder will be required to furnish articles in conformity with that specification.

23. **OMISSIONS & DISCREPANCIES:** Any items or parts of any equipment listed in this solicitation which are not fully described or are omitted from such specification, and which are clearly necessary for the completion of such equipment and its appurtenances, shall be considered a part of such equipment although not directly specified or called for in the specifications. The Bidder/Offeror shall abide by and comply with the true intent of the specifications and not take advantage of any unintentional error or omission, but shall fully complete every part as the true intent and meaning of the specifications and drawings. Whenever the mention is made of any articles, material or workmanship to be in accordance with laws, ordinances, building codes, underwriter's codes, A.S.T.M. regulations or similar expressions, the requirements of these laws, ordinances., etc., shall be construed as to the minimum requirements of these specifications.

24. **CONDITION OF ITEMS:** Unless otherwise specified in the solicitation, all items shall be new, in first class condition.

AWARD

25. **AWARD OR REJECTION OF BIDS:** The Purchasing Agent shall award the contract to the lowest responsive and responsible bidder complying with all provisions of the IFB, provided the bid price is reasonable and it is in the best interest of the County to accept it. Awards made in response to a RFP will be made to the highest qualified offeror whose proposal is determined, in writing, to be the most advantageous to the County taking into consideration the evaluation factors set forth in the RFP. The Purchasing Agent reserves the right to award a contract by individual items, in the aggregate, or in combination thereof, or to reject any or all bids/proposals and to waive any informality in bids/proposals received whenever such rejection or waiver is in the best interest of the County. Award may be made to as many bidders/offerors as deemed necessary to fulfill the anticipated requirements of the County. The Purchasing Agent also reserves the right to reject the bid if a bidder is deemed to be a non-responsible bidder.

26. **ANNOUNCEMENT OF AWARD:** Upon the award or announcement of the decision to award a contract as a result of this solicitation, the Procurement Department may post award results, which may be viewed on the Culpeper County Procurement Website at http://web.culpepercounty.gov/rfps

27. **QUALIFICATIONS OF BIDDERS OR OFFERORS:** The County may make such reasonable investigations as deemed proper and necessary to determine the ability of the Bidder/Offeror to perform the work/furnish the item(s) and the Bidder/Offeror shall furnish to the County all such information and data for this purpose as may be requested. The County reserves the right to inspect Bidder's/Offeror's physical facilities prior to award to satisfy questions regarding the Bidder's/Offeror's capabilities. The County further reserves the right to reject any bid or proposal if the evidence submitted by or investigations of, such Bidder/Offeror fails to satisfy the County that such Bidder/Offeror is properly qualified to carry out the obligations of the contract and to complete the work/furnish the item(s) contemplated therein.

28. **TIE BIDS**: In the case of a tie bid, the County may give preference to goods, services and construction produced in Culpeper County or provided by persons, firms or corporations having principal places of business in the County. If such choice is not available, preference shall then be given to goods and services produced in the Commonwealth pursuant to Section 2.2-4324 of the Code of Virginia. If no County or Commonwealth choice is available, the tie shall be decided by lot.

CONTRACT PROVISIONS

29. **APPLICABLE LAW AND COURTS**: Any contract resulting from this solicitation shall be governed in any respects by the laws of Virginia without any regard to conflict of laws analysis, and any litigation with respect thereto shall be brought in the Circuit Court of Culpeper County, Virginia. The parties waive any right of removal to federal court. The Contractor shall comply with applicable federal, state and local laws and regulations.

30. **IMMIGRATION REFORM AND CONTROL ACT OF 1986**: By submitting their bids, Bidders certify that they do not and will not during the performance of this contract employ unauthorized alien workers or otherwise violate the provisions of the federal Immigration Reform and Control Act of 1986, as presently amended.

31. **ANTI-TRUST**: By entering into a contract, the Contractor conveys, sells, assigns, and transfers to the County all rights, title and interest in and to all causes of the action it may now have or hereafter acquire under the antitrust law of the United States and Culpeper County, relating to the particular goods or services purchased or acquired by the County under said contract. Consistent and continued tie bidding could cause rejection of bids by the Purchasing Agent and/or investigation for Anti-Trust violations.

32. **PAYMENT TERMS**: Unless otherwise provided in the solicitation payment will be made thirty (30) days after receipt of a proper invoice, or thirty (30) days after receipt of all goods or acceptance of work, whichever is the latter.

    1. Invoices for items/services ordered, delivered/performed and accepted shall be submitted by the Contractor directly to the payment address shown on the purchase order/contract. All invoices shall show the contract number, purchase order number, and any federal employer identification number.

    2. Any payment terms requiring payment in less than 30 days will be regarded as requiring payment 30 days after invoice or delivery, whichever occurs last. This shall not affect offers of discounts for payment in less than 30 days, however.

    3. The date of payment shall be deemed the date of postmark in all cases where payment is made by mail.

    4. The County's fiscal year is July 1 - June 30. Contractors are advised to submit invoices, especially for goods and/or services provided in the month of JUNE, for the entire month i.e. June 1 - June 30, so that expenses are recognized in the appropriate fiscal year.

33. **PAYMENT TO SUBCONTRACTORS**: A contractor awarded a contract under this solicitation is hereby obligated:

    1. To pay the subcontractor(s) within seven (7) days of the contractor's receipt of payment from the County for the proportionate share of the payment received for work performed by the subcontractor(s) under the contract; or

    2. To notify the County and the subcontractor(s), in writing, of the contractor's intention to withhold payment and the reason.

    The contractor is obligated to pay the subcontractor(s) interest at the rate of one percent per month (unless otherwise provided under the terms of the contract) on all amounts owed by the contractor that remain unpaid seven (7) days following receipt of payment from the County, except for amounts withheld as stated in 2 above. The date of mailing of any payment by U.S. Mail is deemed to be payment to the addressee. These provisions apply to each sub-tier contractor performing under the primary contract. A contractor's obligation to pay an interest charge to a subcontractor may not by construed to be an obligation of the County.

34. **ASSIGNMENT OF CONTRACT**: A contract shall not be assignable by the Contractor in whole or in part without the written consent of the Purchasing Agent.

35. **DEFAULT**: In case of failure to deliver goods or services in accordance with the contract terms and conditions, the County, after due oral or written notice, may procure them from other sources and hold the Contractor responsible for any resulting additional purchase and administrative costs. This remedy shall be in addition to other remedies which the County may have.

36. **ANTI-DISCRIMINATION**: By submitting their bids/proposals, Bidders/Offerors certify to the County that they will conform to the provisions of the Federal Civil Rights Act of 1964, as amended, as well as the Virginia Fair Employment Act of 1975, as amended, where applicable, the Virginians With Disabilities Act, the Americans With Disabilities Act and Section 2.2-4311 of the *Virginia Public Procurement Act*. If the award is made to a faith-based organization, the organization shall not discriminate against any recipient of goods, services, or disbursements made pursuant to the contract on the basis of the recipient's religion, religious belief, refusal to participate in a religious practice, or on the basis or race, age, color, gender or national origin and shall be subject to the same rules as other organizations that contract with public bodies to account for the use of the funds provided; however, if the faith-based organization segregates public funds into separate accounts, only the accounts and programs funded with public funds shall be subject to audit by the public body. (Code of Virginia, Sec. 2.2-4343.1(E)).

    In every contract over $10,000, the provisions in A and B below apply:

A. During the performance of this contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or any other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

2. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, will state that such Contractor is an equal opportunity employer.

3. Notices, advertisements and solicitations placed in accordance with federal law, rule or regulation shall be deemed sufficient for the purpose of meeting the requirements of this Section.

B. The Contractor will include the provisions of A. above in every subcontract or purchase order over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

37. **INVOICES**: Invoices for items ordered, delivered and accepted shall be submitted by the Contractor directly to the payment address shown on the purchase order/contract. All invoices shall show the IFB/RFP number and/or purchase order number.

38. **CHANGES TO THE CONTRACT**: Changes can be made to the contract in any of the following ways:

A. The parties may agree to modify the scope of the contract. An increase or decrease in the price of the contract resulting from such modification shall be agreed to by the parties as a part of their written agreement to modify the scope of the contract.

B. The County may order changes within the general scope of the contract at any time by written notice to the Contractor. Changes within the scope of the contract include, but are not limited to, things such as services to be performed, the method of packing or shipment, and the place of delivery or installation. The Contractor shall comply with the notice upon receipt. The Contractor shall be compensated for any additional costs incurred as the result of such order and shall give the County a credit for any savings. Said compensation shall be determined by one of the following methods.

1. By mutual agreement between the parties in writing; or

2. By agreeing upon a unit price or using a unit price set forth in the contract, if the work to be done can be expressed in units, and the contractor accounts for the number of units of work performed, subject to the County's right to audit the Contractor's records and/or determine the correct number of units independently; or

3. By ordering the Contractor to proceed with the work and keep a record of all costs incurred and savings realized. A markup for overhead and profit may be allowed if provided by the contract. The same markup shall be used for determining a decrease in price as the result of savings realized. The Contractor shall present the County with all vouchers and records of expenses incurred and savings realized. The County shall have the right to audit the records of the Contractor as it deems necessary to determine costs or savings. Any claim for an adjustment in price under this provision must be asserted by written notice to the Procurement Department within thirty (30) days from the date of receipt of the written order from the Procurement Department. If the parties fail to agree on an amount of adjustment, the questions of an increase or decrease in the contract price or time for performance shall be resolved in accordance with the procedures for relieving disputes provided by the Disputes Clause of this contract. Neither the existence of a claim nor a dispute resolution process, litigation or any other provision of this contract shall excuse the Contractor from promptly complying with the changes ordered by the County or with the performance of the contract generally.

C. No modification for a fixed price contract may be increased by more than 25% or $50,000, whichever is greater without the advanced written approval of the Board of Supervisors or the , as applicable.

39. **INDEMNIFICATION**: Contractor shall indemnify, keep and save harmless the County, its agents, officials, employees and volunteers against claims of injuries, death, damage to property, patent claims, suits, liabilities, judgments, cost and expenses which may otherwise accrue against the County in consequence of the granting of a contract or which may otherwise result therefrom, if it shall be determined that the act was caused through negligence or error, or omission of the Contractor or his or her employees, or that of the subcontractor or his or her employees, if any; and the Contractor shall, at his or her own expense, appear, defend and pay all charges of attorneys and all costs and other expenses arising therefrom or incurred in connection therewith; and if any judgment shall be rendered against the County in any such action, the Contractor shall, at his or her own expenses, satisfy and discharge the same. Contractor expressly understands and agrees that any performance bond or insurance protection required by this contract, or otherwise provided by the Contractor, shall in no way limit the responsibility to indemnify, keep and save harmless and defend the County as herein provided.

40. **DRUG-FREE WORKPLACE:** During the performance of this contract, the contractor agrees to (i) provide a drug-free workplace for the contractor's employees; (ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or

marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition; (iii) state in all solicitations or advertisements for employees placed by or on behalf of the contractor that the contractor maintains a drug-free workplace; and (iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, "*drug-free workplace"* means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with this chapter, the employees of whom are prohibited from engaging in the unlawful manufacture, sale, distribution, dispensation, possession or use of any controlled substance or marijuana during the performance of the contract.

41. **TERMINATION:** Subject to the provisions below, the contract may be terminated by the County upon thirty (30) days advance written notice to the other party. Any contract cancellation notice shall not relieve the contractor of the obligation to deliver and/or perform on all outstanding orders issued prior to the effective date of cancellation.

A. Termination for Convenience**:** In the event that the contract is terminated upon request and for the convenience of the County, without the required thirty (30) days advance notice, then the County shall be responsible for payment of services up to the termination date.

B. Termination for Cause: Termination by the County for cause, default or negligence on the part of the contractor shall be excluded from the foregoing provision; termination costs, if any shall not apply. However, pursuant to paragraph 32 of these General Conditions, the County may hold the contractor responsible for any resulting additional purchase and administrative costs. The thirty (30) days advance notice requirement is waived in the event of Termination for Cause.

C. Termination Due to Unavailability of Funds in Succeeding Fiscal Years: When funds are not appropriated or otherwise made available to support continuation of performance in a subsequent fiscal year, the contract shall be canceled.

42. **USE OF CONTRACT BY OTHER POLITICAL JURISDICTIONS**: Bidders are advised that all resultant contracts will be extended, with the authorization of the Bidder, to Northern Virginia Metropolitan Washington Council of Governments jurisdictions and other jurisdictions and Political Sub-Departments of the Commonwealth of Virginia to permit their ordering of supplies and/or services at the prices and terms of the resulting contract. If any other jurisdiction decides to use the final contract, the Contractor must deal directly with that jurisdiction or political sub-Department concerning the placement or orders, issuance of the purchase order, contractual disputes, invoicing and payment. Culpeper County acts only as the "Contracting Agent" for these jurisdictions and political sub-Departments. Failure to extend a contract to any jurisdiction will have no effect on consideration of your bid/proposal.

It is the awarded vendor's responsibility to notify the jurisdictions and political sub-Department of the availability of the contract. Each participating jurisdiction and political sub-Department has the option of executing a separate contract with the awardees. Contracts entered into with them may contain general terms and conditions unique to those jurisdictions and political sub-Departments covering minority participation, non-discrimination. If, when preparing such a contract, the general terms and conditions of a jurisdiction are unacceptable to the awardees, the awardees may withdraw its extension of the award to that jurisdiction. Culpeper County shall not be held liable for any costs or damage incurred by another jurisdiction as a result of any award extended to that jurisdiction or political sub-Department by the awardees.

43. **AUDIT:** The Contractor hereby agrees to retain all books, records and other documents relative to this contract for five years after final payment, or until audited by the County, whichever is sooner. The agency, its authorized agents, and/or County auditors shall have full access to and right to examine any of said materials during said period.

44. **SEX OFFENDER REGISTRY NOTIFICATION:** As a condition of awarding a contract for the provision of services that require the contractor or his employees to have direct contact with students on school property during regular school hours or during school-sponsored activities or children/students at any County/School public location or facility, the County will require the contractor to provide certification that all persons who will provide such services have not been convicted of a felony or any offense involving the sexual molestation or physical or sexual abuse or rape of a child. This requirement does not apply to a contractor or his employees providing services to a school Department/public County facility in an emergency or exceptional situation, such as when student/child health or safety is endangered or when repairs are needed on an urgent basis to ensure the school facilities/public County facilities are safe and habitable, when it is reasonably anticipated that the contractor or his employees will have no direct contact with students/children.

45. COMPLIANCE WITH FEDERAL, STATE, AND LOCAL LAWS AND FEDERAL IMMIGRATION LAW: During the term of any contract, the Contractor does not, and shall not during the performance of the contract for goods and services in the Commonwealth of Virginia, knowingly employ an unauthorized alien as defined in the federal Immigration Reform and Control Act of 1986.

DELIVERY PROVISION

46. **SHIPPING INSTRUCTIONS-CONSIGNMENT:** Unless otherwise specified in the solicitation each case, crate, barrel, package, etc., delivered under the contract must be plainly stenciled or securely tagged, stating the Contractor's name, purchase order number, and delivery address as indicated in the order. Where shipping containers are to be used, each container must be marked with the purchase order number, name of the Contractor, the name of the item, the item number, and the quantity contained therein. Deliveries must be made within the hours of 8:00 a.m. – 4:00 p.m. Deliveries at any other time will not be accepted unless specific arrangements have been previously made with the designated individual at the delivery point. No deliveries will be accepted on Saturdays, Sundays and holidays unless previous arrangements have been made. It shall be the responsibility of the contractor to ensure compliance with these instructions for items that are drop-shipped.

47. **RESPONSIBILITY FOR SUPPLIES TENDERED:** The Contractor shall be responsible for the materials or supplies covered by the contract until they are delivered at the designated point, but the Contractor shall bear all risk on rejected materials or supplies after notice of rejection. Rejected materials or supplies must be removed by and at the expense of the contractor promptly after notification of rejection, unless public health and safety require immediate destruction or other disposal of rejected delivery. If rejected materials are not removed by the Contractor within ten (10) days after date of notification, the County may return the rejected materials or supplies to the Contractor at his or her risk and expense or dispose of them as its own property.

48. **INSPECTIONS:** The County reserves the right to conduct any test/inspection it may deem advisable to assure supplies and services conform to the specification. Inspection and acceptance of materials or supplies will be made after delivery at destinations herein specified unless otherwise stated. If inspection is made after delivery at destination herein specified, the County will bear the expense of inspection except for the value of samples used in case of rejection. Final inspection shall be conclusive except in regard to latent defects, fraud or such gross mistakes as to amount to fraud. Final inspection and acceptance or rejection of the materials or supplies will be made as promptly as practicable, but failure to inspect and accept or reject materials or supplies shall not impose liability on the County for such materials or supplies as are not in accordance with the specifications.

49. **COMPLIANCE:** Delivery must be made as ordered and in accordance with the solicitation or as directed by the Procurement Department when not in conflict with the bid/contract. The decision as to reasonable compliance with delivery terms shall be final. Burden of proof of delay in receipt of goods by the purchaser shall rest with the Contractor. Any request for extension of time of delivery from that specified must be approved by the Procurement Department, such extension applying only to the particular item or shipment affected. Should the Contractor be delayed by the County, there shall be added to the time of completion a time equal to the period of such delay caused by the County. However, the contractor shall not be entitled to claim damages of extra compensation for such delay or suspension. These conditions may vary for construction contracts.

50. **POINT OF DESTINATION:** All materials shipped to the County must be shipped F.O.B. DESTINATION unless otherwise stated in the contract. The materials must be delivered to the "Ship To" address indicated on the purchase order.

51. **REPLACEMENT:** Materials or components that have been rejected by the Procurement Department, in accordance with the terms of the contract, shall be replaced by the Contractor at no cost to the County.

52. **PACKING SLIPS OR DELIVERY TICKETS:** All shipments shall be accompanied by Packing Slips or Delivery Tickets and shall contain the following information for each item delivered:
    1. Purchase Order Number,
    2. Name of Article and Stock Number,
    3. Quantity Ordered,
    4. Quantity Shipped,
    5. Quantity Back Ordered,
    6. The Name of the Contractor.

    Contractors are cautioned that failure to comply with these conditions shall be considered sufficient reason for refusal to accept the goods.

BIDDER/CONTRACTOR REMEDIES

53. **PROTEST OF AWARD OR DECISION TO AWARD**: Any Bidder/Offeror who desires to protest the award or decision to award a contract, by Culpeper County, shall submit such protest in writing to the County Administrator, no later than ten (10) days after public notice of the award or announcement of the decision to award, whichever comes first. No protest shall lie for a claim that the selected bidder/Offeror is not a responsible Bidder/Offeror. The written protest shall include the basis for the protest and the relief sought. The County Administrator, shall issue a decision in writing within ten (10) days stating the reasons for the action taken. This decision shall be final unless the bidder/offeror appeals within ten (10) days of the written decision by instituting legal action as provided in Section 7-108 of the Culpeper County Purchasing Resolution. Nothing in this paragraph shall be construed to permit an offeror to challenge the validity of the terms or conditions of the solicitation.

54. **DISPUTES:** Contractual claims, whether for money or other relief, shall be submitted in writing to the County Administrator no later than sixty (60) days after final payment; however, written notice of the Contractor's intention to file such claim shall have been given at the time of the occurrence or beginning of the Work upon which the claim is based. Nothing herein shall preclude a contract from requiring submission of an invoice for final payment within a certain time after completion and acceptance of the work or acceptance

of the goods. Pendency of claims shall not delay payment of amount agreed due in the final payment. A written decision upon any such claims will be made by the County Board of Supervisors within sixty (60) days after submittal of the claim. The Contractor may not institute legal action prior to receipt of the Board of Supervisor's decision on the claim unless the applicable party fails to render such decision within sixty (60) days. The decision of the or Board of Supervisor's shall be final and conclusive unless the Contractor within six (6) months of the date of the final decision on a claim, initiates legal action as provided in Section 2.2-4364 of the Code of Virginia. Failure of the Board of Supervisors to render a decision within sixty (60) days shall not result in the Contractor being awarded the relief claimed nor shall it result in any other relief or penalty. Should the or Board of Supervisors fail to render a decision within sixty (60) days after submittal of the claim, the Contractor may institute legal action within six (6) months after such 60-day period shall have expired, or the claim shall be deemed finally resolved. No administrative appeals procedure pursuant to Section 2.2-4365 of the Code of Virginia has been established for contractual claims under this contract.

SPECIAL TERMS AND CONDITIONS

1. Material Safety Data Sheets (MSDS): Material safety Data sheets and descriptive literature shall be provided with the proposal for each chemical and/or compound offered. Failure on the part of the Offeror to submit such data sheets may be cause for declaring the proposal as nonresponsive.

2. Labeling of Hazardous Substances: If the items or products requested by this solicitation are "Hazardous substances" as defined by Article 1261 of Title 15 of the United States Code (U.S.C.) or "Pesticides" as defined in Article 136 of Title 7 of the United States code, then the Offeror, by submitting his proposal, certifies and warrants that the items or products to be delivered under this contract shall be properly labeled as required by the foregoing sections and that by delivering the items or products the Offeror does not violate any of the prohibitions of Title 15 U.S.C. Article 1263 or Title 7 U.S.C. Article 136.

3. Work Site Damages: Any damage to existing utilities, equipment or finished surfaces resulting from the performance of this contract shall be repaired to the County's satisfaction at the Contractor's expense.

4. Use of Premises and Removal of Debris*:*
   The Contractor shall:
   (1) Perform his contract in such a manner as not to interrupt or interfere with the operation of any existing activity on the premises or with the work of any Contractor;

   (2) Store his apparatus, materials, supplies, and equipment in such orderly fashion at the site of the work as will not unduly interfere with the progress of his work or the work of any other Contractor; and

   (3) Place upon the work or any part thereof only such loads as are consistent with the safety of that portion of the work.

   a. The Contractor expressly undertakes, either directly or through his subcontractor(s), to effect all cutting, filling, or patching of his work required to make the same conform to the drawings and specifications, and, except with the consent of the County, not to cut or otherwise alter the work of any other Contractor. The Contractor shall not damage or endanger any portion of the work or premises, including existing improvements, unless called for by the contract.

   b. The Contractor expressly undertakes, either directly or through his subcontractor(s), to clean up frequently all refuse, rubbish, scrap materials, and debris caused by his operations, to the end that at all times the site of the work shall present a neat, orderly, and workmanlike appearance. No such refuse, rubbish, scrap material, and debris shall be left within the completed work nor buried on the building site, but shall be removed from the site and properly disposed of in a licensed landfill or otherwise as required by law.

   c. The Contractor expressly undertakes, either directly or through his subcontractor(s), before final payment, to remove all surplus material, false work, temporary structures, including foundations thereof, plants of any description and debris of every nature resulting from his operations and to put the site in a neat, orderly condition; to thoroughly clean and leave reasonably dust free all finished surfaces including all equipment, piping, etc., on the interior of all buildings included in the contract; and to thoroughly clean all glass installed under the contract including the removal of all paint and mortar splatters and other defacements. If a Contractor fails to clean up at the completion of the work, the County may do so and charge for costs thereof to the Contractor.

   d. During and at completion of the work, the Contractor shall prevent site soil erosion, the runoff of silt and/or debris carrying water from the site, and the blowing of debris off the site in accordance with the applicable

requirements and standards of the Virginia Erosion and Sediment Control Handbook, latest edition, and of the contract documents.

e. The Contractor shall not operate or disturb the setting of any valves, switches or electrical equipment on the service lines to the building except by proper previous arrangement with the County. The Contractor shall give ample advance notice of the need for cut-offs which will be scheduled at the convenience of the County.

5. PROTECTION OF PERSON AND PROPERTY: The Contractor expressly undertakes, both directly and through its subcontractor(s), to take every precaution at all times for the protection of persons and property which may come on the building site or be affected by the Contractor's operation in connection with the work.

   a. The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work.

   b. The provisions of all rules and regulations governing safety as adopted by the Safety Codes Commission of the Commonwealth of Virginia, issued by the Department of Labor and Industry under Title 40.1 of the Code of Virginia shall apply to all work under this contract.

   c. The Contractor shall continuously maintain adequate protection of all his work from damage and shall protect the County's property from injury or loss arising in connection with this contract. He shall make good any such damage, injury, or loss, except such as may be directly due to errors in the contract documents or caused by agents or employees of the County. He shall adequately protect adjacent property to prevent any damage to it or loss of use and enjoyment by its County's. He shall provide and maintain all passageways, guard fences, lights and other facilities for the protection required by public authority, local conditions, any of the contract documents or erected for the fulfillment of his obligations for the protection of person and property.

   d. In an emergency affecting the safety or life of persons or of the work, or of the adjoining property, the Contractor, without special instruction or authorization from the County, shall act, at his discretion, to prevent such threatened loss or injury. Also, should he, to prevent threatened loss or injury, be instructed or authorized to act by the County, he shall so act immediately, without appeal. Any additional compensation or extension of time claimed by the Contractor on account of any emergency work shall be determined as provided in the General Terms and Conditions.

PROPRIETARY INFORMATION:

Ownership of all data, materials, and documentation originated and prepared for the County pursuant to the REQUEST FOR PROPOSAL or INVITATION FOR BID shall belong exclusively to the County and be subject to public inspection in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by an Offeror shall not be subject to public disclosure under the Virginia Freedom of Information Act, however, the Offeror must invoke the protections of Section 2.2-4342F of the Code of Virginia, in writing, either before or at the time the data or other material is submitted. The written notice must specifically identify the data or materials to be protected and state the reasons why protection is necessary. The proprietary or trade secret material submitted must be identified by some distinct method such as highlighting or underlining and must indicate only the specific words, figures, or paragraphs that constitute trade secret or proprietary information.

NOTICE OF PROPRIETARY INFORMATION

Confidentiality References Protection in Accordance with the Code of Virginia, Section 2.2-4342F

Section Title	**Page Number**	Reason(s) for Withholding from Disclosure

NOTICE OF PROPRIETARY INFORMATION (CONTINUED):

INSTRUCTIONS: Identify the data or other materials to be protected and state the reasons by using the codes listed below. Indicate specific words, figures, or paragraphs that constitute trade secrets or proprietary materials.

A- This page contains information relating to "trade secrets', and "proprietary information" including processes. Operations, style of work, or apparatus, identify confidential statistical data, amount or source of any income... of any person (or) partnership. "See Virginia Public Procurement Act. Section 2.2-4342F. Unauthorized disclosure of such information would violate the Trade Secrets Act 18 U.S.C. 1905.

B- This page contains proprietary information including confidential, commercial or financial information which was provided to the Government on a voluntary basis and is of the type that would not customarily be released to the public. See Virginia Public Procurement Act, Section 2.2-4342F; 5 U.S.C. 552 (b)(4); 12 C.F.R. 309.5(c)(4).

C- This page contains proprietary information including confidential, commercial or financial information. This disclosure of such information would cause substantial harm to competitive position and impair the Government's ability to obtain necessary information from contractors in die future. 5 U.S.C. See Virginia Public Procurement Act. Section 2.2-4342F; 552 (b)(4); 12 C. F. R 309.5(c) (4).

RETURN THIS PAGE ONLY IF APPLICABLE

EXHIBIT A

Culpeper County, Virginia

Procurement Department
155 W. Davis Street, Suite 100
Culpeper, Virginia 22701

CULPEPER COUNTY COMMUNITY POOL

BID FORM

IFB# PR-24-1803.2

The bidder agrees to provide the services in compliance with the Scope of Work and terms and conditions at a fixed price: Labor and Equipment for the term of the contact as follows:
NOTICE TO BIDDERS: The following required service shall be provided according to the contract terms and conditions contained herein.

BASE SCOPE OF WORK

Furnish all materials, labor, and equipment, for the Base Scope of Work (SOW) for the building and grounds as shown and noted on the drawings and in the Specification 01 10 00 §1.4 and the REBID NARRATIVE

$_____

BASE SOW CONTRACT TIME

If this Bid is accepted, we hereby state the following duration of time by which substantial completion

can be accomplished is _____days.

PROVIDE THE FOLLOWING SEPARATE UNIT PRICE: Within the base scope of work, provide the estimated quantity in CY of spoils to be removed, transported and distributed to an approved site and provide the unit cost per CY.

$_____ PER CY

~~**PROVIDE THE FOLLOWING ADD ALTERNATE PRICES AS NOTED AND DEFINED**~~

~~**IN SPECIFICATION SECTION 01 10 00, §1.32 —**~~**NOT APPLICABLE**

RETURN ALL EXHIBIT A PAGES

EXHIBIT B

CONTRACTOR DATA SHEET

1. QUALIFICATIONS OF BIDDER: Bidders must have the capability and capacity in all respects to fully satisfy the contractual requirements as specified.

2. YEARS IN BUSINESS: Indicate the length of time you have been in business providing this type of service: _____Years _____months.

3. REFERENCES: Indicate below a listing of at least three (3) recent contracts in which you have provided this type of work of the size and scope specified within the last (5) five years.

   A. Customer/Owner Name/Entity:_____

   Project Address:_____

   _____

   Telephone: _____E-Mail:_____

   Contact Person: _____

   Brief Project Description (Note that the project should involve a building and pool of similar or larger size and complexity):_____

   _____

   _____

   _____

   Primary Subcontractors (including pool subcontractor(s)):
   Pool:_____

   MEP:_____

   Framing/Structural:_____

   Roofing:_____

   Other Pertinent Subcontractors:_____

RETURN THIS PAGE

B. Customer/Owner Name/Entity:_____

Project Address:_____

_____

Telephone: _____E-Mail:_____

Contact Person: _____

Brief Project Description (Note that the project should involve a building and pool of similar or larger size and complexity):_____

_____

_____

_____

Primary Subcontractors (including pool subcontractor(s)):
Pool:_____

MEP:_____

Framing/Structural:_____

Roofing:_____

Other Pertinent Subcontractors:_____

RETURN THIS PAGE

C. Customer/Owner Name/Entity:_____

Project Address:_____

_____

Telephone: _____E-Mail:_____

Contact Person: _____

Brief Project Description (Note that the project should involve a building and pool of similar or larger size and complexity):_____

_____

_____

_____

Primary Subcontractors (including pool subcontractor(s)):
Pool:_____

MEP:_____

Framing/Structural:_____

Roofing:_____

Other Pertinent Subcontractors:_____

RETURN THIS PAGE

EXHIBIT C
INSURANCE CHECKLIST

CULPEPER COUNTY COMMUNITY POOL

Items marked "X" are required to be provided if award is made to your firm.

Required	Coverage Required	Limits (figures denotes minimum)
X	1. **Worker's Compensation**	1. Statutory Limits of the Commonwealth of VA
	and Employers' Liability;	
	Admitted in Virginia	Yes
	Employers' Liability	$100,000/$500,000/$100,000
	All States Endorsement	Statutory
	USL & H Endorsement	Statutory
	Voluntary Compensation Endorsement	
	Best's Guide Ration-A-VIII or better, or its equivalent	
X	2. **Commercial General Liability**	2. $1,000,000 CSL Each Occurrence
	General Aggregate	$2,000,000
	Products/Completed Operations	$2,000,000
	Personal and Advertising Injury	$1,000,000
	Fire Legal Liability	$50,000 Per Occurrence
	Best's Guide Rating-A-VIII or better, or its equivalent	
X	3. **Automobile Liability**	3. $1,000,000 Combined
	Owned, Hired, Borrowed & Non-owned	Single Limit Bodily
	Motor Carrier Act End.	Injury and Property
	Best's Guide Rating-A-VIII or Better, or its equivalent	Damage Each Occurrence
X	4. **County named as additional insured on Auto and General Liability Policies.** (This coverage is primary to all other coverage the County may possess and **must be shown on the certificate**.)	
X	5. 30 day written cancellation notice required, 15 day cancellation notice required for non-payment to Culpeper County– Ref. Code of Virginia Section 38.2-231**.** Also, the words "endeavor to" and "failure to mail such notice" clause shall be removed from the cancellation notice.	
X	6. The Certificate must state Bid No. PR-24-1803.2 and Bid Title: Culpeper Count Community Pool Project	
X	7. Contractor shall submit Certificate of Insurance within 5 business days from notification of award.	
X	8. The Certificate Holder should be listed as: Culpeper County, c/o Purchasing Department, 155 W. Davis Street, Suite 100, Culpeper, VA 22701.	

OFFEROR STATEMENT

We understand the Insurance Requirements of these specifications and will comply in full if awarded this contract.

_____
FIRM

_____
SIGNATURE

RETURN THIS PAGE

Culpeper County, Virginia

Procurement Department
101 S. West Street, Suite 300
Culpeper, Virginia 22701

PROOF OF AUTHORITY TO TRANSACT BUSINESS IN VIRGINIA

THIS FORM MUST BE SUBMITTED WITH BID/PROPOSAL. FAILURE TO INCLUDE THIS FORM SHALL RESULT IN REJECTION OF BID/PROPOSAL

Pursuant to Virginia Code § 2.2-4311.2, a bidder/offeror organized or authorized to transact business in the Commonwealth pursuant to Title 13.1 or Title 50 of the Code of Virginia shall include in its bid/proposal the identification number issued to it by the State Corporation Commission (SCC). Any bidder/offeror that is not required to be authorized to transact business in the Commonwealth as a foreign business entity under Title 13.1 or Title 50 of the Code of Virginia or as otherwise required by law shall include in its bid or proposal a statement describing why the offeror is not required to be so authorized. Any bidder/offeror described herein that fails to provide the required information shall not receive an award unless a waiver of this requirement and the administrative policies and procedures established to implement this section is granted by County Administrator.

If this bid/proposal for goods or services is accepted by the County of Culpeper, Virginia, the undersigned agrees that the requirement of the Code of Virginia § 2.2-4311.2 have been met.

Complete the following by checking the appropriate line that applies and providing the requested information.

A.____ Bidder/offeror is a Virginia business entity organized and authorized to transact business in Virginia by the SCC and such bidder's/offeror's Identification Number issued to it by the SCC is

_____.

B.____ Bidder/offeror is an out-of-state (foreign) business entity that is authorized to transact business in Virginia by the SCC and such bidder's/offeror's Identification Number issued to it by the SCC is

_____.

C.____ bidder/offeror does not have an Identification Number issued to it by the SCC and such bidder/offeror is not required to be authorized to transact business in Virginia by the SCC for the following reason(s):

Please attach additional sheets of pager if you need to explain why such bidder/offeror is not required to be authorized to transact business in Virginia.

_____ _____
Legal Name of Bidder/Offeror Legal Name of Company

_____
Authorized Signature

_____ Date:_____
Print or Type Name and Title

RETURN THIS PAGE

ATTACHMENT A

PROJECT MANUAL CONTAINING A TABLE OF CONTENTS OF SPECIFICATIONS AND DRAWINGS, SPECIFICATIONS, PROJECT FORMS AND REPORTS, INCLUDING THE ORIGINAL RELEASE FOR BID SPECIFICATIONS DATED 01/03/24 AND RELEASE FOR REBID REVISIONS TO THOSE SPECIFICATIONS, DATED 03/29/24. THE PROJECT MANUAL HAS BEEN REVISED WITH SOME SPECIFICATION SECTIONS DELETED, SOME MODIFIED AND NEW SECTIONS ADDED.

SEPARATE ATTACHMENT

ATTACHMENT B

DRAWINGS ARE AS FOLLOWS; NOTE THAT THE POOL WORK IS NOT A PART OF THIS IFB:

- REVISIONS AND DATES:
    - THE RELEASE FOR REBID DRAWING SET CONSISTS OF THE FOLLOWING
        - THE ORIGINAL RELEASE FOR BID SET, DATED 01/03/24
        - PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 01/29/24
        - MEP PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 02/19/24
        - RELEASE FOR REBID REVISIONS ON CERTAIN SHEETS, DATED 03/29/24
- NOTE THAT NOT ALL SHEETS HAVE BEEN REVISED OR UPDATED.
- ALSO SEE THE ARCH TOC SHEET FOR SIMILAR INFORMATION.

SEPARATE ATTACHMENT

DGS-30-272
(Rev. 04/15)

PREBID QUESTION FORM

(Use separate Form for each question submitted.)

IFB# PR-24-1803

Date: _____

Project Title: CULPEPER COUNTY COMMUNITY POOL PROJECT

Project Code No.: IFB# PR-24-1803

The following question concerns Drawing Sheet (number)_____:

_____

_____

_____

_____

_____

_____

_____

The following question concerns Specifications Section (number)_____, page _____, paragraph _____:

_____

All responses to questions will be made by Addendum.

Question submitted by: _____
Name Organization

Bidders shall submit form to:

Culpeper County Purchasing Department
Attn: Alan H. Culpeper, CPPO, VCO, VCM
155 West Davis Street, Suite 100
Culpeper, VA 22701
E-mail: aculpeper@culpepercounty.gov

NOTICE TO PROCEED

DATE: _____,2024

TO:

Re: **INSTITUTION/AGENCY:** Culpeper County
PROJECT TITLE: Culpeper County Community Pool Project
PROJECT NO: IFB# PR-24-1803

In accordance with the Contract Agreement for Construction Services, you are notified that the Time for Completion under the above Agreement will commence to run on _____ , 20 ____. By that date, you are to start performing your obligations under the Contract Documents. In accordance with the Contract between Owner and Contractor, the Work shall be substantially completed within _____ calendar days from and after the said date, which is _____, 20____.

Before you may start any Work at the site, the County's insurance requirements and any required Certificates of Insurance shall be provided.

_____
(Owner)

By _____
(Authorized Signature)

_____
(Typed Name & Title)

cc: A/E

Culpeper County
Contract Agreement
for Construction Services
Contract Number To be Determined if Different than IFB#

CONTRACT COVER SHEET

SUBJECT: Culpeper County
Culpeper County Community Pool
16388 Competition Drive
Culpeper, Virginia 22701
IFB# PR-24-1803

BY AND BETWEEN:

Owner/County:
Culpeper County
Attn: Paul Howard, Director of Environmental Services
302 N. Main Street
Culpeper, Virginia 22701
Tele: 540-727-3409
Fax: 540-727-3436
Email: phoward@culpepercounty.gov

AND

Contractor:

Name: _____.
Attn:
Address:
City, St, Zip:
Email:

This Agreement is dated the last signatory signs below; and, is by and between the Board of Supervisors of Culpeper County, a political subdivision of the Commonwealth of Virginia (hereinafter referred to as the "County") and _____., a Corporation (hereinafter referred to as the "Contractor"),in good standing and duly licensed to do business in the Commonwealth of Virginia and registered with the Virginia State Corporation Commission (Registration Number _____). The Project is: Culpeper County Community Pool Project.

On behalf of the Owner, the Contract is administered by the Director of Parks & Recreation. Except as provided herein, this Agreement is prepared in accordance with the Culpeper County Purchasing Resolution and the Virginia Public Procurement Act, which are incorporated into this Agreement by reference and made a part hereto.

WITNESS:

WHEREAS, the County desires to obtain construction services for the pool only and for the buildings and grounds only (IFB-24-1803.1 1803.2) as more thoroughly described in the Specification 01 10 00, § 1.31, E., 1. and 2. And the REBID NARRATIVE for the Culpeper County Community Pool Project.

WHEREAS, the Contractor desires to provide construction services for the Culpeper County Community Pool Project located at 16388 Competition Drive, Culpeper, VA 22701.

NOW, THEREFORE, IN CONSIDERATION of the mutual promises stated in this Agreement, the County and Contractor agree as follows:

DEFINITIONS

As used in this Agreement, the terms are defined as follows:

1. "Owner" shall mean the County of Culpeper which adopts for the purposes of this Agreement and the Contract Documents the Culpeper County Purchasing Resolution and all other applicable laws, regulations or ordinances authorizing contract formation.

2. "Owner's Contract Administrator" is the department assigned to administer this Contract on behalf of the Owner. The Owner's Contract Administrator is the Culpeper County Department of Environmental Services and the Department of Parks and Recreation. The Contract Administrator may on behalf of the Owner, designate a Project Manager and Construction Manager, who shall have such authority to act on behalf of the Owner as may be established.

3. "Contractor" shall mean _____., who is responsible for the performance obligation of the Contractor under this Agreement and the Contract Documents.

4. "Contractor Representative." The Contractor shall designate an authorized representative who shall administer this Agreement and the Contract Documents on behalf of Contractors and be authorized to accept all notices, order, change orders, and act on behalf of the Contractor under the Contract Documents.

5. "Architect" shall mean Norman K. Smith, AIA, LEED AP , who is the authorized Architect assigned by the Owner under the terms of the Agreement and the Contract Documents. The Architect shall have no authority to bind the Owner to additional time or funds, unless such authority has been previously agreed to in writing by the Owner.

ARTICLE 1

CONTRACT DOCUMENTS:

1.1 The documents listed in Section 1.2 of this Article shall constitute the Contract Documents. The aforementioned Contract Documents shall represent the entire agreement and understanding between the parties. Any oral or written understanding not incorporated in the Contract Documents is not binding on either party. The Contract Documents shall be amended only by written instrument agreed upon and fully signed by both parties. The Contract Documents are presented and state below in descending order of priority with the first document listed being of the highest priority and governing over subsequently listed documents in case of ambiguity or perceived conflict. In the event of a perceived conflict, in good faith the most exacting performance standard should be undertaken.

1.2 The Contract Documents consist of:

A. This Culpeper County Contract Agreement for Construction Services, Contract #TBD, as executed by and between the County and Contractor (also referred to as "Agreement" as indicated on page one (1) of this document), and the following exhibits:

B. Project Manual, which includes County's Invitation for Bid Request Number IFB # **PR-24-1803**, dated 03/29/24 and issued on 04/04/24 and titled REBID

C. All Addenda, i.e., Addenda 1, and Addenda 2, issued by the County.

D. Plans/Drawings, including all elements related to Base Bid, and the noted Add-Alternates and title rebid 03/29/24

E. Contractor's Response to the Invitation for Bid, including the Bid Pricing Proposal Form, as completed, and submitted/dated by the Contractor on _____, 2024.

F. The County's General Conditions for Purchase Agreements

Where the terms and provisions of this Agreement vary from the terms and provisions of the other Contract Documents, the terms and provisions of this Agreement shall prevail over the other Contract Documents. In like manner, Exhibit A shall prevail over Exhibit B and so on and so forth.

These Contract Documents form the contract and agreement by and between the parties and are as fully a part of the Agreement as if attached to this Agreement or repeated herein. Such documents are incorporated herein by reference as fully a part of the Agreement as if attached to this Agreement or repeated herein.

Contract, payment, submittal, procedural and similar work requirements are also noted in the Specifications 00 00 00 and 01 10 00 and within various individual Specification sections. If the requirements of those Specifications are in conflict with the requirements of this Contract, the provisions of this contract shall apply except in regard to specific constructional issues.

ARTICLE 2

THE STATEMENT OF WORK:

2.1 The Contractor shall fully execute the Work, as described in the Contract Documents (with regard to work contemplated in and under the Base Bid, and the noted Add-Alternates and as is reasonably inferable therefrom as being required, to produce the indicated results from, and as contracted for under, the Contract Documents. The Contractor shall be responsible for, provide, and pay for all materials, tools, equipment, labor, personnel, supervision, fuel, insurance, and professional and non-professional services to provide construction services for the Culpeper County Community Pool Project The Contractor shall perform all other work and supply all other things necessary, to fully and properly perform in a workmanlike manner and complete the Work, as required for the Project. The Contractor shall fully execute the Work described in the Contract Documents (Base Bid and noted Add-Alternates and reasonably inferable from the Contract Documents as being necessary to produce the indicated results, except to the extent specifically indicated in the Contract Documents to be the responsibility of others. To the extent the Contractor is performing preconstruction services pursuant to the Contract Documents, such preconstruction services shall not be considered professional design services, and the Architect shall retain sole responsibility and liability for the design of the Project.

2.2 Generally, a summary of the Work includes construction services and materials for the construction of the following:

A. Note that there are two separate IFBs.
B. The project scope for the pool project is as shown and noted on the drawings and the specifications and generally includes:
    1. The seasonal pool structure(s) consisting of lap, leisure/water play/toddler areas, and splash pad (IFB-24-1803.1)
    2. The bath-house including lockers, restrooms, and shower facilities, food service, management office(s), controlled entry, pool filter and pump room(s) (IFB-24-1803.2)
    3. Associated support structures/work including pavilions, landscaping and signage, hardscape, the fence and gates, site utilities and grading with SWM facilities and curb/gutter and sidewalk work. (IFB-24-1803.2)

C. The County is also soliciting a separate bid for the parking lot project across Competition Drive from this project site. The County will bid the parking lot and pool project separately.
D. The SWM work shown on the civil drawings is applicable to, required for and assignable to both the parking project work and the pool project.
E. The pool project requires new concrete sidewalk on the north side of Competition Drive and will also require utility work on the north portion of Competition Drive and other utility work in close proximity to that area.
F. Therefore, because both projects are in close proximity to one another and the SWM work is applicable to both projects, this SOW narrative notes the extent and scope and specifically the demarcation line between for the SOW of both projects.
G. All of the SWM work shown and noted shall be within the SOW of the pool project and shall be the responsibility of the Contractor/Site Subcontractor for that project. After selection of the qualified low bidder for the pool project, the County will enter into discussions with that Contractor and will agree to a pro-rata dollar amount based on an area or other agreed upon calculation basis for the SWM work that is then assignable to the parking lot project. The County will then make arrangements to it's budgeting process to assign those monies to the pool project; the method of assignment shall be determined at the sole discretion of the County.
H. Please review the civil and any applicable architectural site/utility plans for a graphic demarcation line that indicates where the pool project SOW ends and the parking lot project begins. Specifically, the sidewalk to the north of Competition Drive and the curb and gutter work and utility work shall be assignable to the pool project and also any work in Competition Drive that is north of a demarcation line located 30" south of the noted water utility line work, except as otherwise noted below. Any work extending south of that demarcation line and including final road re-surfacing of the entire surface of Competition Drive shall be assignable to and the responsibility of the Contractor for the parking lot project. However, the pool project shall be responsible for temporary backfill, compaction and repair of the trench but not the final road re-surfacing.
I. The owner reserves the right to remove the landscape work from the project scope.

The WORK is more fully described in the Project Manual, Plans, and Drawings (Base Bid, and noted Add-Alternates.

2.3 The Owner and Contractor agree that the Owner has selected the Contractor for this Project because of the Contractor's special expertise in constructing similar projects. The Contractor warrants (a) that before executing this Agreement and before commencing construction for any phase of Work, the Contractor has carefully reviewed and shall carefully review the Project site, all Contract Documents, and (b) that all Work described in the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results has been included in the Contract Sum.

2.4 During the contract construction period, the successful Contractor shall have limited use of the site. Other portions of the site will be occupied.

ARTICLE 3

COMMENCEMENT, SUBSTANTIAL COMPLETION, AND FINAL COMPLETION:

3.1 The date of commencement shall be fixed in the Notice to Proceed issued by the County.

3.2 Time is of the essence.

3.3 CONTRACTOR shall commence work within ten (10) days of the "Notice of Proceed", unless otherwise promptly notified by the County in writing, and shall continue without interruption until "Substantial Completion" occurs within _____ consecutive calendar days from the date of the "Notice to Proceed".

3.4 "Substantial Completion" has been achieved or occurs when the County agrees that the work is sufficiently complete, in accordance with the Contract Documents, so that it can be utilized by the County for the purposes for which it was intended. Contractor shall achieve "Final Completion" no later than _____ (__) consecutive calendar days from the date of the "Notice to Proceed". "Final Completion" has been achieved or occurs when the County is satisfied, based upon observation of the work during construction and in addition to a final inspection that the work has been completed and is deemed acceptable subject to applicable provisions set forth in the Contract Documents.

3.5 Should the Contractor fail to complete the work and/or installation, or any part thereof, in the time specified in the Contract Documents, the Contractor shall reimburse the County for the additional expense and damage for each calendar day that "Substantial Completion" or "Final Completion" has not been achieved. The amount of such additional expense and damage incurred by reason of failure to achieve "Substantial Completion" is the per diem rate of One Hundred Dollars ($100.00) as liquidated damages. The amount of such additional expense and damage incurred by reason of failure to achieve "Final Completion" is the per diem rate of One Hundred Dollars ($100.00) as liquidated damages. It is understood and agreed by the Contractor that any liquidated damages payable in accordance with this Agreement are not a penalty and that such sums are reasonable under the circumstances existing as of the date of execution of this Agreement. The Contractor further acknowledges and agrees that liquidated damages may be owing even though no default has occurred or been declared.

3.6 Force Majeure: Neither the Contractor nor the County will be held responsible for failure to perform the duties and responsibilities imposed by the Contract Documents if such failure is directly attributable and due to fire, flood, earthquake, or other catastrophic acts of God.

ARTICLE 4

CONTRACT PRICE AND TERMS OF PAYMENT:

4.1 The County shall pay for the construction services out of appropriated funds and the County's performance under this Agreement and the Contract Documents is expressly subject to appropriation by the Board of Supervisors.

4.2 In return for the construction services identified in this Agreement and the Contract Documents, the County agrees to compensate the Contractor the total contract sum amount for all work and services required by this Agreement and the Contract Documents, which amount is _____ hereinafter referred to as "Contract Sum" or "Lump Sum", which includes the base bid sum as well as the additional sums in the noted add-alternates which are selected by the County.

4.3 The Contract Sum is a single amount which covers all costs of the Work (without providing a cost breakdown or unit price items), such as for building, site work, equipment, labor, material, overheads, miscellaneous costs and services. It also includes the Contractor's Fee (profit) for completing the items of work comprising the Project, including but not limited to all site work and site conditions, materials, equipment, and systems required by the Plans and Specifications without exception.

4.4 No costs of the Work shall be reimbursed to Contractor other than as provided for in the agreed Contract Sum which may only be modified as provided for herein.

4.5 Change Orders: The Contract Sum may be increased or decreased by additions to and/or reductions in the work only as affected by prior written change orders or contract amendment signed by both parties in advance unless otherwise directed by the County. Contractor agrees not to initiate any additional work not called for in the Contract Documents for which the Contractor intends to see or receive additional compensation without first notifying the County in writing and obtaining the County's prior approval by a properly executed change order or contract amendment.

4.6 Retainage will be held in the amount of five percent (5%) of the Contract Sum until "Final Completion" of the project and until the Project is accepted by the County. Any payment made by the County to the Contractor shall be less a five percent (5%) retainage to assure faithful performance of the work required under the Contract Documents. All amounts retained under this provision shall be included in the final payment upon "Final Completion".

4.7 Payments shall occur as follows:

A. No deposit nor advance sums shall be paid.

B. Payments are due net thirty (30) days after receipt by County of an accurate and properly submitted invoice to the County for materials and construction services as contemplated in Article 2. If a corrected invoice is promptly requested, then the number of days for payment to be made is tolled upon receipt of a corrected invoice; and,

C. All payments will be delivered as follows: The delivery date for each progress payment is the 15th day of each month. The period covered by each Application for Payment starts on the day following the end of the preceding period and ends 15 days before the date for each progress payment.

4.8 Requirements of the Code of Virginia (1950), as amended, Sections 2.2-4352 and 2.2-4354

A. Contractor is obligated to be liable for the entire amount owed to any subcontractor with which it contracts. Such contractor shall not be liable for amounts otherwise reducible due to the subcontractor's noncompliance with the terms of the Contract Documents. However, in the event that the Contractor withholds all or a part of the amount promised to the subcontractor under the Contract Documents, the Contractor shall notify the subcontractor, in writing, of his intention to withhold all or a part of the subcontractor's payment with the reason for nonpayment. Payment by the County to the Contractor shall not be a condition precedent to payment to any lower-tier subcontractor, regardless of the Contractor receiving payment for amounts owed to the Contractor by the County. Any provision in a contract contrary to Sec. 2.2-4352 of the Code of Virginia (1950), as amended, shall be unenforceable.

B. Pursuant to Va. Code Ann., Sec. 2.2-4354, the Contractor covenants and agrees that within seven (7) days after receipt of any amounts paid to the Contractor by the County for work that was performed by a subcontractor under the contract, the Contractor shall:

1. Pay any and all subcontractors for the proportionate share of the total payment received from the County attributable to the work performed by the subcontractors under that contract; or

2. Notify the County and subcontractors, in writing, of its intention to withhold all or a part of the subcontractors' payments with the reason for nonpayment.

C. The Contractor shall provide to the County its federal employer identification number or social security number, as applicable, before any payment is made to the Contractor under the Contract Documents.

D. The Contractor shall pay interest, which shall accrue at the rate of one percent (1%) per month unless otherwise provided under the terms of this Contract Documents, on all amounts owed by the Contractor to any subcontractors that remain unpaid after fifteen (15) days following receipt by the Contractor of payment from the County for work performed by the subcontractors under the contract, except for amounts withheld as allowed in Section 4.8(B) above; and

E. The Contractor shall include in its contracts with any and all subcontractors, the requirements of Section 4.8(A), (B), (C) and (D) above.

4.9 The parties hereby agree that any finance charge lawfully assessable against the COUNTY for failure to pay any payment(s) pursuant to the terms of the Agreement and the Contract Documents shall not exceed one percent (1%) per annum and shall only accrue from the latest date such payment was due under the applicable provisions of the Contract Documents.

4.10 With regard to Performance Bonds, as may be required, please refer to the Invitation for Bid (IFB) or Request for Proposal (RFP), as is appropriate, and the Culpeper County Purchasing Resolution.

ARTICLE 5

RIGHTS AND RESPONSIBILITIES OF CONTRACTOR:

5.1 The Contractor shall indemnify, defend and hold harmless the County and its public officials, employees, agents, and/or representatives from any and all claims, suits and actions for injury or damage sustained by any person or property from any act or omission by the Contractor and/or its subcontractors or employees, or anyone else for whom the Contractor is or may be responsible. This Article and Section 5.1 shall survive the termination of this Agreement and the Contract Documents.

5.2 Any damage to existing utilities, equipment or finished surfaces resulting from the performance of this contract shall be repaired to the County's satisfaction at the Contractor's expense.

5.3. The Contractor agrees to maintain as current all legally required business licenses, permits, and/or other certificates, as may be required by federal, state, and local law and to present a copy of such, as may be required by the County, upon reasonable notice.

5.4 The Contractor shall maintain the following minimum insurance coverage, naming the County as additional insured, during the course of this Agreement and the Contract Documents, and provide the County with certificates of insurance for said coverage upon execution of this Agreement:

	Coverage Required	Limits (figures denotes minimum)
X	1. **Worker's Compensation** and Employers' Liability; Admitted in Virginia	1. Statutory Limits of the Commonwealth of VA Yes
	Employers' Liability	$100,000/$500,000/$100,000
	All States Endorsement	Statutory
	USL & H Endorsement	Statutory
	Voluntary Compensation Endorsement	
	Best's Guide Ration-A-VIII or better, or its equivalent	
X	2. **Commercial General Liability** Occurrence	2. $1,000,000 CSL Each

		General Aggregate	$2,000,000
		Products/Completed Operations	$2,000,000
		Personal and Advertising Injury	$1,000,000
		Fire Legal Liability	$50,000 Per Occurrence
		Best's Guide Rating-A-VIII or better, or its equivalent	
X	3.	**Automobile Liability** Combined Owned, Hired, Borrowed & Non-owned Motor Carrier Act End. Best's Guide Rating-A-VIII or Better, or its equivalent	3. $1,000,000 Single Limit Bodily Injury and Property Damage Each Occurrence
X	4.	The County shall be named as additional insured on the above referenced. policies, including but not limited to the General and Automobile Liability policies. (This coverage is primary to all other coverage the County may possess and must be shown on the certificate.)	
X	5.	45-day written cancellation notice required, 30-day cancellation notice directly to Culpeper County is required for any non-payment of insurance premiums – Ref. Va. Code Ann., Sec. 38.2-231. Also, the words "endeavor to" and "failure to mail such notice" clause shall be removed from the cancellation notice.	
X	6.	The Certificate must state the contract number and title assigned by the County: County Contract Number: _____ Title: _____.	
X	7.	Contractor shall submit Certificate of Insurance within five (5) business days from notification of award.	
X	8.	The Certificate Holder an Additional Insured should be listed as: Culpeper County, Virginia, and its Board of Supervisors, 302 N. Main Street, Culpeper, Virginia 22701 -- c/o Purchasing Department, 155 W. Davis Street, Suite 100, Culpeper, Virginia 22701.	

5.5 Equal Opportunity Employment – During the performance of this Agreement, the Contractor agrees as follows:

A. The Contractor will not discriminate against any employee or applicant for employment because of race, religion, color, sex, national origin, age, disability, or other basis prohibited by state law relating to discrimination in employment, except where there is a bona fide occupational qualification reasonably necessary to the normal operation of the contractor. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices setting forth the provisions of this nondiscrimination clause.

B. The Contractor, in all solicitations or advertisements for employees placed by or on behalf of the contractor, will state that such Contractor is an equal opportunity employer.

C. If the Contractor employs more than five (5) employees, the Contractor shall:
Offer training on the Contractor's sexual harassment policy to all supervisors and employees providing services in the Commonwealth of Virginia, except such supervisors or employees that are required to complete sexual harassment training provided by the Department of Human Resource Management, and

(ii) post the Contractor's sexual harassment policy in:

(a) a conspicuous public place in each building located in the Commonwealth of Virginia that the Contractor owns or leases for business purposes, and

(b) the Contractor's employee handbook.

D. Notices, advertisements and solicitations placed in accordance with federal law, rules, or regulations shall be deemed sufficient for the purpose of meeting the requirements of this Section 5.5.

E. The Contractor will include the provisions of the foregoing paragraphs at Section 5.5(A), (B), (C), and (D) in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

5.6 During the performance of this Agreement, the Contractor agrees to:

(i) provide a drug-free workplace for the Contractor's employees.

(ii) post in conspicuous places, available to employees and applicants for employment, a statement notifying employees that the unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana is prohibited in the contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

(iii) state in all solicitations or advertisements for employees placed by or on behalf of the Contractor that the Contractor maintains a drug-free workplace; and

(iv) include the provisions of the foregoing clauses in every subcontract or purchase order of over $10,000, so that the provisions will be binding upon each subcontractor or vendor.

For the purposes of this section, "drug-free workplace" means a site for the performance of work done in connection with a specific contract awarded to a contractor in accordance with Chapter 43 (Virginia Public Procurement Act) under and within the Code of Virginia (1950), as amended, Title 2.2. (Administration of Government), Subtitle II. (Administration of State Government), Part B. (Transaction of Public Business), the employees of whom are prohibited from engaging in the unlawful manufacture, sale distribution, dispensation, possession, or use of any controlled substance or marijuana during the performance of the contract.

5.7 The Contractor acknowledges that the Culpeper County Purchasing Resolution is applicable to this Agreement and the Contract Documents.

5.8 Except as noted in the Contract Documents, neither this Agreement, nor any part hereof, may be assigned or subcontracted by the Contractor to any other party without the express written permission of the County.

5.9 The Contractor providing goods or services to the County under this Agreement and the Contract Documents represents and warrants to the County that it is:

A. Conforming to the provisions of the Civil Rights Act of 1964, as amended, the Virginia Fair Employment Contracting Act of 1975, as amended, and the Virginia Human Rights Act, as amended, where applicable.

B. Not employing unauthorized alien workers or otherwise violating the provisions of the Immigration Reform and Control Act of 1986, as amended, and Va. Code Ann., Sec. 2.2-4311.1.

C. Complying with federal, state, and local laws and regulations applicable to the performance of the services procured.

D. In full compliance with the Virginia Conflict of Interests Act at Secs. 2.2-3100 et seq.; and

E. Authorized to transact business in the Commonwealth of Virginia, pursuant to Va. Code Ann., Sec. 2.2-4311.2.

1. The Contractor, if organized as a stock or nonstock corporation, limited liability company, business trust, or limited partnership or registered as a registered limited liability partnership shall be authorized to transact business in the Commonwealth of Virginia as a domestic or foreign business entity if so required by Title 13.1 or Title 50, of the Code of Virginia (1950), as amended, or as otherwise may be required by law.

2. The Contractor, if subject to Section 5.9(E)(1), shall not allow its existence to lapse or its certificate of authority or registration to transact business in the Commonwealth of Virginia to be revoked or cancelled at any time during the term or renewal term(s) of the contract.

3. The County may void any contract with a business entity, including the Contractor, if the business entity fails to remain in compliance with the provisions of Va. Code Ann., Sec. 2.2-4311.2 and/or this Section 5.9(E).

5.10 In the event of a termination under Section 6.1 of this contract, including this Agreement and the Contract Documents, the Contractor acknowledges and agrees that it shall not be entitled to any compensation in excess of the value of the work performed. Under no circumstances shall the Contractor, or any subcontractor, be entitled to anticipatory or unearned profits, unabsorbed overhead, opportunity costs, or consequential, or other damages as a result of termination under this Section or Section 6.1. Payment to the Contractor of any and all sums already earned by the Contractor under the terms of Article 4 constitutes Contractor's exclusive remedy for a termination hereunder.

5.11 Records Retention, Confidentiality, and Production

A. Contractor agrees that it shall keep in its possession, electronically or hardcopy, all photographs, digital imagery, reports, information, or data given to the Contractor by the County as well any photographs, digital imagery, reports, studies, analysis, data tables, or calculations prepared by the Contractor under this Agreement and the Contract Documents for a period of at least six (6) years following the completion, termination, or cancellation, whichever is/occurs latest, of this contract.

B. Contractor agrees that it shall keep confidential all photographs, digital imagery, reports, information, or data given to the Contractor by the County as well any photographs, digital imagery, reports, studies, analysis, data tables, or calculations prepared by the Contractor under this Agreement and the Contract Documents. No release of any such data by the

Contractor shall be made to any individual or organization without the prior written approval of the County, which approval the County shall be under no obligation to grant.
C. Any reports, studies, photographs, negatives, drawings, or other documents prepared by Contractor in the performance of its obligations under this Agreement and/or the Contract Documents shall be remitted to the County by the Contractor upon completion, termination, or cancellation of the contract. Contractor shall not use, willingly allow or cause to have such materials used for any purpose other than performance of Contractor's obligations under this Agreement and the contract Documents without the prior written consent of the County. The County shall own the intellectual property rights to all materials produced under this Agreement and the Contract Documents.

5.12 This contract is for construction services to be performed at a certain County-owned property and site. The Contractor shall not employ any employee who is a registered sex-offender who is to be present at or perform any work and/or any construction services at any of the County-owned property and sites contemplated under this contract. The Contractor shall enforce the same restriction upon all subcontractors and their employees, and agents of Contractor. Prior to starting work and quarterly during performance of the work, the Contractor shall check the Virginia State Police Sex Offender Registry to verify sex-offender status of all employees and agents of the Contractor and sub-contractors who are employed by the Contractor or subcontractor, who are to be present at or perform any work and/or any construction services at any of the County-owned property and sites contemplated under this contract. The Contractor shall furnish the County with evidence verifying compliance with the services. Notwithstanding any other provision of this Agreement and the Contract Documents, materially false statements by the Contractor about the sex-offender status of its employees or agents shall be grounds for immediate termination of this Agreement and the Contract Documents.

5.13 Permits. The Contractor shall be responsible for obtaining all permits as indicated in the Specifications detailed in the IFB or RFP, as is appropriate, and Construction Plans and Drawings for this IFB or RFP, as is appropriate.

5.14 Inspections. All material and workmanship shall be subject to inspection, examination, and test by the County and its Project inspector at any and all times during construction. The Project inspector shall have authority to reject defective material and workmanship and require its correction. Rejected workmanship shall be satisfactorily corrected and rejected material shall be satisfactorily replaced with proper material without charge therefore, and the Contractor shall promptly segregate and remove the rejected material from the premises. If the Contractor fails to proceed at once with replacement of rejected material and/or the correction of defective workmanship, the County may, by contract or otherwise, replace such material and/or correct such workmanship and charge the cost to the Contractor, or may terminate the right of the Contractor to proceed, the Contractor and surety being liable for any damages.

5.15 Contractor's Title to Materials. No materials or supplies for the work shall be purchased by the Contractor or by any subcontractor subject to any security interest, installment or sales contract, or any other agreement or lien by which an interest is retained by the seller or is given to a secured party. The Contractor warrants that it has clear title to all materials and supplies which it uses in the work or for which it accepts payment in whole or in part.

5.16 Pipeline Locations and Miss Utility. The Contractor shall be responsible for (i) calling Miss Utility of Virginia at (800) 552-7001 and (ii) consulting with the County's Director of Environmental services -- all prior to digging at the work site.

5.17 Ethics in Public Contracting. The Contractor hereby certifies that is has familiarized itself with Article 6 of Title 2.2 of the Virginia Public Procurement Act, Va. Code Ann., Secs. 2.2-4367 through 2.2-4377, and that all amounts received by it, pursuant to this contract, are proper and in accordance therewith.

ARTICLE 6

RIGHTS AND RESPONSIBILITIES OF COUNTY:

6.1 The County may cancel this Agreement, the Contract Documents, and the project for any reason upon ten (10) days' written notice in compliance with the notice procedure set forth in Article 7, Section 7.1 to the parties named therein. Anything contained in the Agreement and/or Contract Documents to the contrary notwithstanding, a termination under this Section 6.1 shall not waive any right or claim to damages which County may have with respect to work performed or failed to be performed when it should have been by the Contractor. In either case, the County may pursue any cause of action which it may have by law or under this Agreement or the Contract Documents on account of such damages claimed by the County.

6.2 In case of default by the Contractor for failure to deliver or perform in accordance with the contract specifications or terms and conditions, the County may procure the articles or services from other sources and hold the defaulting Contractor responsible for any resulting additional purchase and administrative costs including, but not limited to, fees and charges of engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs. If the completion of the contract work results in increased costs to the County, a letter will be sent to the defaulted Contractor requiring payment for additional costs ("Repayment"). When Repayment is requested, the Contractor will be removed from future bidding until the Repayment has occurred, and the County reserves the right to debar Contractor from doing further business with the County. Failure of a Contractor's source to deliver is not considered to be an unavoidable cause upon which the Contractor may rely as to a delay in the work to be done under the terms of the Contract Documents, and the burden of proof rests with the Contractor to prove that any default was not related to Contractor's, or any subcontractor's or vendor's acts or failure to act.

6.3 Pursuant to Virginia Code Ann., Sec. 2.2-4343.1, in all invitations to bid, requests for proposals, contracts, and purchase orders, the County does not discriminate against faith-based organizations.

6.4 "Faith-based Organization" means a religious organization that is or applies to be a contractor to provide goods or services for programs funded by the block grant provided pursuant to the Personal Responsibility and Work Opportunity Reconciliation Act of 1996, P. L. 104-193.

6.5 If the Contractor is a faith-based organization, the Contractor shall give to each individual who applies for or receives goods, services, or disbursements provided pursuant to this Agreement the following notice:

NOTICE

Pursuant to Va. Code Ann., Sec. 2.2-4343.1, as an applicant for or recipient of goods, services, or disbursements provided pursuant to a contract between the County and a faith-based organization, you are hereby notified as follows:

Neither the County's selection of a charitable or faith-based provider of services, nor the expenditure of funds under this contract, is an endorsement of the provider's charitable or religious character, practices, or expression. No provider of services may discriminate against you on the basis of religion, a religious belief, or your refusal to actively participate in a religious practice. If you object to a particular provider because of its religious character, you may request assignment to a different provider. If you believe that your rights have been violated, please discuss the complaint with your provider or notify the County Administrator.

ARTICLE 7

MISCELLANEOUS:

7.1 The following persons shall be authorized contact persons for the parties, and notice given them, by certified return receipt requested mail to the addresses shown below, or as may be updated in writing, shall constitute valid notice under the requirements of this Agreement and the Contract Documents. It shall also be a mandatory requirement of this Agreement that duplicate of any and all notices issued shall also be issued and exchanged via electronic mail to the email addresses provided below, or as may be updated in writing:

TO THE COUNTY:

Alan Culpeper, Director of Purchasing
155 W. Davis Street, Suite 100
Culpeper, Virginia 22701
Email: aculpeper@culpepercounty.gov

AND TO:

Andrew Hardy, Director of Parks and Recreation
16388 Competition Drive
Culpeper, Virginia 22701
Email: ahardy@culpepercounty.gov_____

AND TO:

Culpeper County Attorney
306 N. Main Street, 2nd Floor
Culpeper, Virginia 22701
Email: legalsupport@culpepercounty.gov

AND TO:

Norman K. Smith, AIA, LEED AP,
Principal, Norman Smith Architecture
3637 Slate Mills Road
Sperryville, Virginia 22740
Email: nsmith@normansmitharchitecture.com

TO THE CONTRACTOR:

Attention:
Name:
Address Line 1:
City, State, Zip
Email: b

AND TO:

Attention:
Name:
Address Line:
City, State, Zip:
Email:

The parties may update and amend such addresses and email addresses by written notice to the opposite party at the given address(es).

7.2 The parties agree that this Agreement and the Contract Documents between the parties evidenced hereby shall be deemed made in the Commonwealth of Virginia, and shall be construed and interpreted solely in accordance with the laws of Virginia without consideration of any conflict of laws analysis or rules. The parties agree that proper venue, in the event of a claim and/or litigation concerning, or at all relating to, this Agreement, the Contract Documents, and/or the Project shall be, if at all permitted by law, in the Sixteenth Judicial District of Virginia sited in Culpeper County, Virginia (including and limited to: Culpeper County General District Court and Culpeper County Circuit Court). The parties agrees that any litigation involving the Contract Documents shall be brought only in such courts. All parties expressly waive the right, if any, to bring any action in, or remove any action to, federal court in the event of a claim and/or litigation concerning, or at all relating to, this Agreement, the Contract Documents, and/or the Project. Nothing under this Agreement or the Contract Documents shall be subject to arbitration or

mediation, and any references to arbitration or mediation are expressly deleted from the Contract Documents.

7.3 In the event that any provision of this Agreement or the Contract Documents is unenforceable, then the parties agree that all other provisions of this Agreement and the Contract Documents have full force and effect and shall not be affected thereby.

7.4 The Contractor certifies that:

A. The bid or offer:

(1) was made without prior participation, understanding, agreement, or connection with any corporation, firm or person submitting a bid/offer for the same materials, supplies, equipment, or services with respect to the allocation of the business afforded by or resulting from the acceptance of the bid or proposal,

(2) was in all respects fair and without collusion or fraud, and

(3) was or was intended to be competitive and free from any collusion with any person, firm or corporation;

B. The Contractor did not offer or receive any kickback from any other bidder or contractor, supplier, manufacturer, or subcontractor in connection with the bid/offer on this solicitation. A kickback is defined as an inducement for the award of a contract, subcontracts or order, in the form of any payment, loan, subscription, advance, deposit of money, services or anything of value in return for an agreement not to compete on a public contract;

C. The Contractor is not a party to nor has it participated in nor is it obligated or otherwise bound by agreement, arrangement or other understanding with any person, firm or corporation relating to the exchange of information concerning bids, prices, terms or conditions upon which the contract resulting from the acceptance of its bid proposal is to be performed;

D. The Contractor understands that collusive bidding is a violation of the Virginia Governmental Frauds Act and federal law, and can result in fines, prison sentences, and civil damages awards and agrees to abide by all conditions of these provisions; and

E. The Contractor or subcontractor has not and will not confer on any public employee having official responsibility for a procurement transaction any payment, loan, subscription, advance, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value is exchanged.

7.5 Other Prohibitions

A. No contractor or subcontractor shall demand or receive from any of his suppliers or his subcontractors, as an inducement for the award of a subcontract or order, any payment, loan, subscription, advance, deposit of money, services or anything, present or promised, unless consideration of substantially equal or greater value is exchanged.

B. No subcontractor or supplier shall make, or offer to make, kickbacks as described in this section.

C. No person shall demand or receive any payment, loan, subscription, advance, deposit of money, services or anything of value in return for an agreement not to compete on a public contract.

D. If a subcontractor or supplier makes a kickback or other prohibited payment as described in this Section 7.5, the amount thereof shall be conclusively presumed to have been included in the price of the subcontract or order and ultimately borne by the public body and shall be recoverable from both the maker and recipient. Recovery from one offending party shall not preclude recovery from other offending parties.

7.6 Contractor warrants to the County that:

1. The work performed pursuant to this Agreement and the Contract Documents shall conform to all professional principles generally accepted as standards of the industry in the Commonwealth of Virginia;
2. The Contractor's work performed shall be free of defects;
3. Any new materials and equipment furnished under this Agreement and the Contract Documents shall be of good quality and in working condition; and
4. The Contractor's work performed shall meet all of the requirements set forth in this Agreement and the Contract Documents.

7.7 Any failure of the County to demand rigid adherence to one or more of the terms and provisions as set forth in this Agreement or the Contract Documents, on one or more occasions, shall not be construed as a waiver nor deprive the County of the right to insist upon strict compliance with the terms of this Agreement and the Contract Documents. Any waiver of a term of this Agreement or the Contract Documents, in whole or in part, must be in writing and signed by the party granting the waiver to be effective.

7.8 The bankruptcy, takeover, merger, outright purchase of a majority of the voting capital stock by another organization, or other change in ownership or status of Contractor, or any assignment for the benefit of creditors shall fully obligate the newly formed organization, corporation or legal entity to fulfill all terms and conditions of this Agreement and the Contract Documents, and to perform or supply items in accordance with the specifications or descriptions contained herein. Should such newly formed organization, corporation or legal entity fail to fulfill all the terms and conditions of this Agreement and the Contract Documents or fail to perform or supply items in accordance with the specifications or descriptions contained herein to the satisfaction of the County, the County shall have the right unilaterally to terminate this Agreement and/or pursue any remedy for damages and otherwise which is available at law and in equity. The County reserves the right to enforce any subcontract directly against the subcontractor, Contractor or any newly formed organization, corporation or legal entity. Failure of any subcontractor to perform shall not relieve Contractor of its obligation to fulfill the terms and conditions of this Agreement as set forth herein.

7.9 Contractor and the County agree that the provisions of this Agreement and the Contract Documents are binding upon their parties, employees, agents, heirs, successors, and permitted assigns.

7.10 Contractual claims and disputes shall be conducted and resolved pursuant the Culpeper County Purchasing Resolution, as may be amended by the Board of Supervisors, from time to time.

7.11 Attorneys' Fees. In the event of any action brought by either party against the other to enforce any of the obligations hereunder or arising out of any dispute concerning the terms and conditions hereby created, each party shall pay their own attorney's fees, costs and expenses, except in a case of default by the Contractor, the Contractor shall be responsible for any resulting additional purchase and administrative costs including, but not limited to fees and charges of engineers, architects, attorneys, and other professionals and all court or other dispute resolution costs.

7.12 Audit. Contractor shall keep and require each of its subcontractors, if any, to keep, at no additional cost to County, full and detailed accounts of costs chargeable to County, during the project, and for six (6) years following completion. County shall be afforded full access to accounts, records, and supporting documents for review, audit, copy (such copies will be the property of the County), and verification of costs. Audit access to Contractor's records in lump sum or unit price areas when applicable shall be sufficient to satisfy County that all quantities meet the payments to its subcontractor and suppliers, Contractor shall remit promptly to County the amount of any adjustment resulting from audit.

7.13 Availability of Funds. It is understood and agreed between the parties herein that the County shall be bound hereunder only to the extent of the funds available or which may hereafter become available for the purpose of this contract.

7.14 Federal Aid Provisions. When the U.S. government pays all or any portion of the cost of a project, a contractor shall observe all federal laws, rules, and regulations made pursuant to such laws. The work shall be subject to inspection by the appropriate federal agency. Such inspection shall in no sense make the federal government a party of the contract and will in no way interfere with the rights of either party. Generally, contractors shall require all subcontractors to observe all federal laws, rules, and regulations made pursuant to such laws when the U.S. government pays all or any portion of the cost of a project. Any and all applicable reporting requirements under federal law or regulations shall be followed in accordance with the federal law, rules, and/or regulations.

A Duns number will be provided by the Contractor and registration with the Central Contractor Registration (CCR) shall be followed in accordance with applicable federal aid provisions.

7.15 When a project is funded in part or all by grants funds, the Contractor shall observe all rules and regulations according to the grants fund award documentation. Contractor has the responsibility to comply with all grant fund reporting requirements and any or all award documentation terms and conditions.

7.16 The Virginia Freedom of Information Act and Va. Code Ann., Sec. 2.2-4342

A. All information submitted to the County in response to an IFB or RFP constitutes public information and records, and pursuant to the Virginia Freedom of Information Act ("VFOIA") and Va. Code Ann., Sec. 2.2-4342 will be available to the public for inspection upon request with rare and limited exception as the law permits.

B. Cost estimates relating to a proposed procurement transaction prepared by or for the County shall not be open to public inspection.

C. Any competitive sealed bidding bidder, upon request, shall be afforded the opportunity to inspect bid records within a reasonable time after the opening of all bids but prior to award, except in the event that the public body decides not to accept any of the bids and to reopen the contract. Otherwise, bid records shall be open to public inspection only after award of the contract.

D. Any competitive negotiation offeror, upon request, shall be afforded the opportunity to inspect proposal records within a reasonable time after the evaluation and negotiations of proposals are completed but prior to award, except in the event that the public body decides not to accept any of the proposals and to reopen the contract. Otherwise, proposal records shall be open to public inspection only after award of the contract.

E. Any inspection of procurement transaction records shall be subject to reasonable restrictions to ensure the security and integrity of the records.

F. Trade secrets or proprietary information submitted by a bidder, offeror, or contractor in connection with a procurement transaction or prequalification application submitted pursuant to Va. Code Ann., Sec. 2.2-4317(B) shall not be subject to the Virginia Freedom of Information Act (§ 2.2-3700 et seq.); however, the bidder, offeror, or contractor shall:

(i) invoke the protections of this section prior to or upon submission of the data or other materials,

(ii) identify the data or other materials to be protected, and

(iii) state the reasons why protection is necessary.

A bidder, offeror, or contractor shall not designate as trade secrets or proprietary information:

(i) an entire bid, proposal, or prequalification application;

(ii) any portion of a bid, proposal, or prequalification application that does not contain trade secrets or proprietary information; or

(iii) line-item prices or total bid, proposal, or prequalification application prices.

7.17 Tax Exemption. The County of Culpeper as a public body politic and corporate of the Commonwealth of Virginia, is exempt from any Federal excise tax and Virginia sales and use tax for purchases made by the County.

ARTICLE 8

SPECIAL TERMS AND CONDITIONS:

8.1 Definitions

A. Application for Payment – The term "Application for Payment," or "Payment Application," as used in these Contract Documents, shall refer to the form acceptable to the County which is to be used by the Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

B. Change order – A document signed by the County and the Contractor authorizing an addition, deletion, or revision in the Work or an adjustment in the contract price or the contract times.

C. Claim – A demand or assertion by the County or Contractor seeking an adjustment of contract price or contract times, or both, or other relief with respect to the terms of the contract. A demand for money or services by a third party is not a claim.

D. Field Order – A written order issued by the County (or its Architect) which requires minor changes in the Work but which does not involve a change in the contract price or the contract times. This may also be referred to as an Architect's Supplemental Instructions (ASI) form.

E. Final Completion – Shall mean that one hundred percent (100%) of the Work contemplated by the contract documents and any supplemental changes or addenda thereto authorized by the County (to include punch-list items) is completed by the Contractor, the Work being both physically in place and fully operational, the County has issued a Certificate of Completion, and the Contractor has completely demobilized from the site.

F. Milestone – A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

G. Owner - The term "Owner," as used in these Contract Documents, shall refer to the County of Culpeper, Virginia (also referred to as the "County").

H. Progress Schedule – The term "Progress Schedule," or "Project Schedule," or "Construction Schedule," as used in these Contract Documents shall refer to a schedule, prepared and maintained by the Contractor, which describes the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

I. Project Site – The term "Project Site," or "Site," as used in these Contract Documents, shall refer to –Culpeper County Community Pool Project, 16388 Competition Drive, Culpepere, VA 22701.

J. Schedule of Submittals – The term "Schedule of Submittals," or "Submittal Schedule," or "Submittal Registry" as used in these Contract Documents, shall refer to a schedule, prepared and maintained by the Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

K. Schedule of Values - The term "Schedule of Values," as used in these Contract Documents, shall refer to a schedule, prepared and maintained by Contractor and approved by County's Architect, which allocates portions of the Contract Price to various portions of the work and is used as the basis for reviewing the Contractor's Applications for Payment.

L. Shop Drawings - All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

M. Specifications – That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards, and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

N. Subcontractor – An individual or entity having a direct contract with the Contractor or with any other Subcontractor for the performance of a part of the Work at the site.

O. Submittal – The term "Submittal,' as used in these Contract Documents, shall refer to information including product data, shop drawings, installation instructions, samples, and other pertinent documentation) describing in detail all materials and equipment to be furnished under the Contract. Submittals shall be submitted by the Contractor for County's Architect's review. Refer to the Specification 01 10 00, § 1.41, B.

P. Substantial Completion – The time at which the Work (or specified part thereof) has progressed to the point where, in the opinion of the County, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

Q. Supplier – A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

R. Unit Price Work – Work to be paid for on the basis of unit prices. Refer to the Specification 01 10 00, § 1.30, D.

S. Work – The term "Work" as used in these Contract Documents refers to the entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

T. Work Change Directive - A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by the County and recommended by the County's Architect ordering an addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

8.2 Wage Rates

To the extent permitted by law, no Federal wage rates other than minimum wages rates will be imposed.

8.3. Preliminary Matters

A. Starting the Work

1. Contractor shall start to perform the Work in accordance with the Notice to Proceed.

B. Before Starting Construction

1. Preliminary Schedules: Within ten (10) days after the Effective Date of the Agreement, Contractor shall submit to County's Architect for timely review the following:

a. A preliminary Construction (Progress) Schedule, indicating the times for starting and completing the various stages of the Work.

b. A preliminary Schedule of Submittals.

c. A preliminary Schedule of Values for all of the Work, which includes quantities and prices of items which, when added together, equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include and appropriate amount of overhead and profit applicable to each item of Work.

8.4 Contractor's Status

A. The Contractor represents and warrants:

1. That it is financially, that its financial condition is in all material respects the same as represented and certified at the time of bidding, and that it is experienced in and competent to perform the type of Work or to furnish the plant, materials, supplies, or equipment, to be so performed or furnished by it; and

2. That it is familiar with all Federal, State, County, and Local laws, ordinances, and regulations which may in any way affect the Work or those employed therein including, but not limited to, any special acts relating to the Work or to the project of which it is a part; and

3. That such temporary and permanent Work required by the Contract Documents as is to be done by it can be satisfactorily performed and constructed and used for the purpose for which it is intended and that such construction will not injure any person or damage any property; and

4. That is has carefully examined the Contract Documents and the Site of the Work and that, from its investigations, it has satisfied itself as to the nature and location of the Work, the character, quality and quantity of surface and subsurface materials and structures likely to be encountered, the character of equipment and other facilities needed for the performance of the Work, the general and local conditions, and all other materials which may in any way affect the Work or its performance.

5. The Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with each and every phase of the Work.

The Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury, or loss to all employees on the Work and any other persons who may be affected thereby.

B. Supervision and Superintendence.

1. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents.

2. Contractor shall have sole responsibility for the means, methods, techniques, sequences, and procedures of construction.

3. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent, as agreed upon by the County, who shall have full authority to act for the Contractor and who shall see that the Work is executed in accordance with the Contract Documents. Superintendent shall not be replaced without written notice to The County and County's Architect except under extraordinary circumstances.

4. The Contactor shall be responsible for the acts of its agents, superintendent, and employees during the life of the Contract.

C. Contractor's Employees

1. Contractor shall provide competent, suitable qualified personnel to survey and lay out the Work and perform construction and related activities as required by the Contract documents. It shall, at all times, maintain good discipline and order at the site.

D. Services, Materials, and Equipment

1. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment machinery, tools, appliances, fuel, power light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

2. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specification shall expressly run to the benefit of The County. If required by County's Architect, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

3. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instruction of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

E. Use of Site and Other Areas - Reserved (Specific to Project)

1. Limitation on Use of Site and Other Areas: Reserved (Specific to Project)

a. Contractor shall not have use of site on Sunday's.

2. Removal of Debris During Performance of the Work: Reserved (Specific to Project)

3. Cleaning: Reserved (Specific to Project)

4. Loading Structures: Reserved (Specific to Project)

5. The safety of the public and its employees is the primary concern for Culpeper County. The Contractor shall place temporary pedestrian traffic control devices surrounding the work area to protect individuals, including the public and County employees, which may include, but is not limited to: barricades, tarps, plastic yellow caution tape, cones, and other means as may be appropriate, prudent, and/or necessary to protect the individuals, surrounding areas, equipment, vehicles, etc.

F. Contractor's Responsibility and Liability for Injuries to Persons or Damage to Property

1. Contractor shall be solely responsible and liable for the safety and protection of the property, including but not limited to, the premises, its appurtenances and equipment and for the safety and protection of all persons entering on, in or about the Site including, but not limited to, the employees of the County, Architect, Contractor, subcontractors. The Contractor shall be solely responsible for all physical injuries, including death, to any such persons and for all damage to any such property occurring on account of the Work under this Contract, where or not due to the negligence, fault, or default of the Contractor, its officers, employees, or agents, or of a subcontractor, its officers, employees, or agents.

2. To the fullest extent permitted by the law of the State in which the work is performed the liability of the Contractor under this Contract shall be absolute and shall not be dependent upon any question of negligence on his part or on the part of its officers, agents, servants, or employees. Neither the approval by the County and County's Architect of the methods of doing the Work, nor the failure of the County and County's Architect to call attention to improper or inadequate methods or to require a change in methods, nor the neglect of the County and County's Architect to direct the Contractor to take any particular precautions or to refrain from doing any particular thing shall excuse the Contractor from its obligations hereunder in case of any such injury to person or damage to property.

3. The provisions of this paragraph are intended for the sole benefit and protection of the County and County's Architect and shall not create any cause of action in favor of any person, corporation or entity, other than the County and County's Architect.

G. Contractor's Duty of Indemnification

1. Contractor shall fully protect, defend, indemnify, and save harmless the County and the County's Architect, their officers and agents, against all liability, judgements, costs, damages and expenses, including reasonable attorneys' fees, upon any claims for injuries to, or death of, any persons or damage to any property occurring on account of the Work hereunder, whether such damages or injuries to be attributable to the negligence of the

Contractor, its officers, employees, agents, the County, County's Architect, or others, provided, however, that to the extent specifically precluded and disallowed by law, this clause shall not be deemed to provide indemnity against the sole negligence of the County.

2. Contractor shall fully protect, defend, indemnify, and save harmless the County and the County's Architect against all liability judgments, costs, damages, and expenses, including reasonable attorneys' fees, upon all claims relating to labor and material furnished in connection with the Work hereunder or on account of the failure, omission, or neglect of the Contractor or its Subcontractors, their officers, employees, or agents to do or perform any of the covenants, acts, matters, or other duties required by this Contract.

H. The provisions of this Section shall not be deemed to provide indemnity of the County's Architect for the liability of the County's Architect, its agents or employees, to the extent that the liability of the County's Architect, its agents or employees arises out of (a) or (b) below.

a. The preparation or approval of maps, drawings, opinions, reports, surveys, changes orders, designs, or specifications, or

b. The negligent giving or failure to give, directions or instructions required by contract or law of the County's Architect, its agents or employees as part of the Work, where such giving or failure to give directions or instructions by the County's Architect, is the primary and principal cause of the bodily injury or property damage.

I. Claims

See the Culpeper County Purchasing Resolution for addressing claims, contractual claims, and contractual disputes.

J. No Claims Against Individuals

1. No claim whatsoever shall be made by the Contractor against any trustee, beneficiary, officer, agent, public official, or employee of the County for, or on account of, anything done or omitted to be done in connection with the contract.

2. This Section shall also supply with equal force and effect to the directors, officers and employees of the County's Architect provided, however, that this Section shall not apply to partners or other persons who by law would be liable for the acts of the legal entity, whether the County or County's Architect, it being the intent of this Section that claims against the legal entity itself shall not be precluded.

K. Safety and Protection

1. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

a. All persons on the Site or who may be affected by the Work;

b. All the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and
c. Other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and underground facilities not designated for removal, relocation, or replacement in the course of completing the Work.

2. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection.

3. Contractor shall comply with the applicable requirements of The County's safety programs, if any.

4. Contractor shall inform The County and County's Architect of the specific requirements of Contractor's safety program with which The County's and County's Architect's employees and representative must comply while at the Site.

5. All damage, injury, or loss to any property referred caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of the County or County's Architect or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, supplier, or other individual or entity directly or indirectly employed by any of them).
6. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and County's Architect has issued a notice of final payment to the County and Contractor, indicating that the Work is complete and acceptable.

L. Emergencies

1. In emergencies affecting the safety of persons on the Work or property at the Site or adjacent thereto, the Contractor, without special instruction or authorization from the County's Architect or the County, shall act, at is discretion, to prevent threatened damage, injury, or loss. It shall give the County and County's Architect prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby. If the Contractor believes that additional Work done by it in an emergency which arose from causes beyond his control entitles it to an increase in the Contract price or an extension in the Contract time, it shall me claim as provided for in the Contract Documents.

M. Patents and Licensing Agreements

1. Contractor shall, protect, defend, indemnify, and save harmless the Owner and County's Architect from all liabilities, judgments, costs, damages, and expenses which may in any way come against either of them by reason of the use of any material, machinery, devices,

equipment, or processes furnished or used in the performance of the Work for which patents or licensing agreements exist or by reason of the use of designs furnished by the Contractor for which patents or licensing agreements exist.

2. In the even that any claim, suit, or action at law or in equity of any kind whatsoever is made or brought against the County involving any such patents or licensing agreements, the County shall the right to retain from the money due and to become due the Contractor a sufficient amount of money as shall be considered necessary by the County to protect itself against loss until such claim, suit, or action shall have been settled and evidence to that effect shall have been furnished to the satisfaction of the County.

N. Contractor to Check Contract Documents

1. Contractor shall verify all dimensions and quantities in the Contract Documents. Any discrepancies found between the Contract Documents and Site conditions or any errors or omissions found shall be immediately reported to the County's Architect, who shall promptly correct such error or omission in writing. Any Work done by the Contractor after its discovery of such discovery if such discrepancies, errors, or omissions shall be done at the Contractor's risk.

8.5 County's Status

A. Furnish Data

1. County shall furnish the data required of County as stipulated in the Contract Documents.

B. Limitations on County's Responsibilities

1. The County shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. County will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Compliance with Safety Program

1. While at the Site, County's employees and representative shall comply with the specific applicable requirements of Contractor's safety programs.

8.6 Architect's Status

A. Visits to Site

1. County's Architect will make visits to the Site at intervals appropriate to the various stages of construction as County's Architect deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, County's Architect, for the benefit of County, will determine in general, if the Work is proceeding in accordance with the Contract

Documents. County's Architect will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. County's Architect's efforts will be directed toward providing for County a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits and observations, County's Architect will keep County informed of the progress of the Work and will endeavor to guard County against defective Work.

B. Authorized Variations in Work

1. County's Architect may authorize, in writing as a Field Order, minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

C. Rejecting Defective Work

1. County's Architect will have authority, with approval from the County, to reject Work which County's Architect believes to be defective, or that County's Architect believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

D. Decisions on Requirements of Contract Documents and Acceptability of Work

1. County and County's Architect will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between County and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to County and County's Architect in writing within thirty (30) days of the event giving rise to the question.

2. County's Architect will, with reasonable promptness, render a written decision on the issue referred. If County or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made consistent with the Culpeper County Purchasing Resolution.

3. County's Architect's written decision on the issued referred, once accepted by the County, will be final and binding on County and Contractor, subject to the provisions of the Culpeper County Purchasing Resolution

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4. When functioning as interpreter and judge under this paragraph, the County's Architect will not show partiality to the County or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity

E. Limitations on the County's Architect's Authority and Responsibilities

1. Neither the County or the County's Architect's authority or responsibility under the Culpeper County Purchasing Resolution, or under any other provision of the Contract

Documents nor any decision made by the County's Architect in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by the County's Architect shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by the County's Architect to the Contractor, any subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

2. County or County's Architect will not supervise, direct, control, or have authority over or be responsible for Contract's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with laws and Regulations applicable to the performance of the Work. County and County's Architect will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

3. County and County's Architect will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the work.

4. County and County's Architect's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by the Contract Documents will only be to determine generally that their content complies with the requirement of, and in the case of certificates of inspection, tests, and approvals that the results certified indicate compliance with, the Contact Documents

F. Compliance with Safety Programs

1. While at the Site, County's Architect's and County's employees and representative shall comply with the specific applicable requirements of Contractor's safety programs.

8.7 Substitutes and "Or-Equals"

Generally, substitutions and/or "or-equals" are not permitted after the close of bids except where noted or allowed for in the Specification 01 10 00, § 1.40. and within the various individual Specification sections With that said, substitutions and/or "or-equals" may be considered on a per instance per project basis where it may be determined in the best interest of the County to consider any such requests for substitution. The County in its sole discretion reserves the authority to make a determination (i) that any requested substitution is equal of that specified, considering quality, workmanship, economy of operation, and suitability for the purpose intended and (ii) whether permitting any such substitution is in the best interest of the County to consider or approve/authorize.

8.8. Payment to Contractor

A. Schedule of Values

1. The Schedule of Values established herein Article 8 will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to County's Architect.

B. Progress Payments

1. Applications for Payments

a. At least twenty (20) days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to County/County's Architect for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that County has received the materials and equipment free and clear of all liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect County's interest therein, all of which must be satisfactory to County.

b. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

c. The amount of retainage with respect to progress payments will be as stipulated in this Agreement.

2. Review of Applications

a. County's Architect will, within ten (10) days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to County or return the Application to Contractor, indicating, in writing, the County's Architect's reasons for refusing to recommend payment . In the latter case, Contractor may make the necessary corrections and resubmit the Application.

b. County's Architect's recommendation of any payment requested in an Application for Payment will constitute a representation by County's Architect to County, based on County's Architect's observations of the executed Work as an experienced and qualified design professional, and on County's Architect's review of the Application for Payment and the accompanying data and schedules, that to the best of County's Architect's knowledge, information, and belief:

i. The Work has progressed to the point indicated;

ii. The quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests

called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work, and any other qualifications stated in the recommendation); and

iii. The conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is County's Architect's responsibility to observe the Work.

c. Neither County's Architect's review of Contractor's Work for the purposes of recommending payments nor County's Architect's recommendation of any payment, including final payment will impose responsibility on County's Architect:

i. To supervise, direct, or control the Work, or

ii. For the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

iii. For Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

iv. To make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

v. To determine that title to any of the Work, materials, equipment has passed to County free and clear of any liens.

d. County's Architect may refuse to recommend the whole, or any part of any application for payment, as may be appropriate and reasonable under the circumstances. The basis for any recommendation refusal, may include, but is not limited to:

i. Subsequently discovered evidence regarding Work performed;

ii. The results of inspections or tests regarding Work performed;

iii. The Work is defective, or completed Work has been damaged, requiring correction or replacement;

iv. The Contract Price has been reduced by Change Orders;

v. County has been required to correct defective Work or complete portions of the Work;

vi. Claims have been made against County on account of Contractor's performance or furnishing of the Work;

vii. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to County to secure the satisfaction and discharge of such liens'; or

viii. There are other items entitling County to a set-off against the amount recommended.

8.9 Change Orders & Unauthorized Work

A. No claims may be made by anyone that the scope of the project or the Contractor's services have been changed (requiring changes to the amount of the compensation to the Contractor or other adjustments to the Contract) unless such changes or adjustments have been made in accordance with this Agreement.

B. Extra work performed without prior, approved, written amendment (change order) will be considered unauthorized, and at the expense of the Contractor. Payment will not be made by the County.

C. No oral conversations, agreements, discussions, or suggestions which involve changes to the scope of the Contract made by anyone, including County employees, shall be honored or valid.

D. No written agreements or changes to the scope of the Contract made by anyone including County employees, other than the County Administrator or the Owner's Contract Administrative, shall be honored or valid.

8.10 Beneficial Occupancy and Substantial Completion

A. For purposes of this Contract, the following definitions shall apply:

1. Beneficial Occupancy: Use or occupancy of the Work, or designated parts thereof, by the Owner, even though all of the Contract Work, or designated part thereof, may not yet be substantially complete.
2. Substantial Completion: Completion by the Contractor of all the Work of the Contract, or designated part thereof, except for minor or incidental items, the existence of which will not affect or impede the Owner's full use of the Work, as determined by the Owner's Representative.

B. Beneficial Occupancy:

1. The Owner reserves the right to use or occupy all or parts of the Work at the Owner's sole discretion, and before the Work or part thereof is substantially complete. However, unless specifically scheduled otherwise in the Special Conditions, or by prior agreement, the Owner shall not be required to use or occupy the Work or any part thereof until all of it is substantially complete. Beneficial occupancy of the Work of part thereof by the Owner shall not relieve the Contractor from completing all the Work in accordance with the Contract Documents, or from other contractual obligations, and shall not prejudice the Owner in any way.
2. Equipment or operating systems will not be considered for use under beneficial occupancy, and will not be considered substantially complete, until all of the conditions and requirements (except the performance testing) have been successfully and completely met.

3. In the event the Owner takes beneficial occupancy of the Work or designated part thereof, the Owner's Representative shall prepare and issue to the Contractor a Notice of Beneficial Occupancy, clearly identifying the occupied Work, the Contract value of the occupied Work, the date of beneficial occupancy, the beginning and end dates of the warranty period for the occupied Work and the continuing responsibilities of the Owner and Contractor for operation, maintenance, utilities, security, insurance, etc. Generally, but not necessarily, the warranty period for equipment items will commence on the date of beneficial occupancy of that Work. Generally, but necessarily, the retainage amount

associated with equipment will not be reduced until the Work is substantially complete, as hereinafter described.

C. Substantial Completion:
When the Contractor has completed the Work, or designated parts thereof, to a point that, in the opinion of the Contractor the Work is substantially complete, the Contractor shall so notify the Owner's Representative in writing. However, unless specifically scheduled in the Special Conditions or agreed to in advance by the Owner, the Owner shall not be obligated to consider any part of the Work for substantial completion until all of the Work of the Contract is substantially complete.

1. As soon as reasonably practical after receiving such notification, the Owner's Representative will inspect the Work and thereafter advice the Contractor of any deficiencies or other impediments to determining the Work to be substantially complete. Note that any such inspection and listing of impediments to substantial completion shall not be construed to be a "final inspection" or "punch list," unless specifically identified as such by the Owner's Representative.

2. When the Owner's Representative determines that the Work is, in fact, substantially complete, a final inspection involving all interested parties will be scheduled and conducted by the Owner's Representative. The Owner's operation and maintenance personnel may participate in this inspection or may perform their inspections separately. Following the inspection(s), the Owner's Representative will provide the Contractor with a compiled list of defective, deficient, incomplete or otherwise unacceptable Work. This list is commonly referred to as a "punch list". The Owner's Representative will indicate on the punch list its opinion of the estimated cost of completing or correcting each of the items listed thereon.

3. After preparation of the punch list, the Owner's Representative will prepare and issue a Certificate of Substantial Completion. This document will clearly identify the parts of the Work which are substantially complete, the value of the substantially completed Work, including any fully executed change orders applicable thereto, the date of substantial completion, the beginning and end date of the warranty period, and the continuing responsibilities of the parties for operation, maintenance, utilities, security, insurance, etc. The punch list will be attached to the Certificate of Substantial Completion and be made a part thereof. (The value of substantially completed Work shall be determined from the bid items, or, if no applicable bid items exist, from the Contractor's approved lump sum breakdown.)

8.11 Intent of Contract Documents

A. The intent of the Contract Documents is to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional costs to the Owner.

B. The mention of any specific duty or liability of the Contractor in any part of the Contract Documents shall not be construed as a limitation or restriction upon any general liability or duty imposed upon the Contractor by the Contract Documents, said reference to any specific duty or liability being merely for purposes of explanation.

C. The locations, character, and many details of the Work are shown on the Contract Drawings. The Work shall be constructed in accordance with these Drawings, and such other drawings as may be furnished from time to time by the Architect and Engineer(s). Should a dimension or detail be omitted, the Contractor shall request an interpretation from the Architect and Engineer(s).

D. Any error or discrepancy in the Contract Documents discovered by the Contractor shall be brought to the attention of the Owner/Engineer by the Contractor before proceeding with the Work affected by such error or discrepancy so that the error or discrepancy can be rectified.

8.12 Published Standards and Specifications

References in the Contract Documents to published regulations, specifications, codes or standard of private and governmental technical societies and agencies shall mean the latest edition of the referenced publication. Where referred to in these contract Documents, published regulations, specifications, codes or standards shall be followed or complied with as if they were incorporated herein in their entirety, as applicable to the Work of this Contract and to the extent that they do not conflict with specific requirements contained in these Contract Documents.

8.13 Submittals

A. Submittals shall be provided by Contractor sufficiently in advance of the Work to permit proper review, including time for necessary revisions and resubmittals. Delay to the Work caused by late submissions shall be the responsibility of the Contractor making such late submission.

B. The Owner shall not be obligated to accept or pay for materials or equipment furnished in the absence of reviewed Submittals.

C. Submittals shall present complete and accurate information relative to all working dimensions, equipment weights, assembly, and sectional views; all the necessary details pertaining to coordinating the Work of the Contract; lists of spare parts and tools where such parts or tools are required; no-scale control diagrams for control wiring and control piping; and any other items of information that are required to demonstrate detail compliance with the Contract Documents and to coordinate the Work with other subcontractors.

D. If called for in the applicable Technical Specifications or if specifically requested by the Architect or Engineer, submittals for operating or process equipment (e.g., presses, pumps, compressors, etc.) shall be accompanied by a certification from the equipment manufacturer that the offered equipment meets or exceeds specified requirements at the specified operating conditions. Certified performance curves or test data shall also be submitted, as applicable/ For equipment, such as pumps, which is controlled or driven by equipment furnished by other manufacturers, such as variable frequency drives, the driven equipment (pump) manufacturer shall certify that the drive equipment technical information has been reviewed and the drive equipment is suitable for and compatible with the driven equipment, and vice versa.

E. Submittals are reviewed only for the purpose of determining whether or not items proposed to be furnished by the Contractor are in substantial conformity with the requirements of the Contract Documents. Notwithstanding the review of submittals, the Contractor is responsible for the accuracy and completeness of such information, for the satisfactory operation and performance of the furnished material or equipment and for its complete and proper installation.

F. After submittals are accepted by the Architect and/or Engineer, the items described in the accepted submittals shall be furnished exactly as described. In the event a manufacturer changes the design of an item subsequent to the acceptance of the submittal describing that item. Contractor shall revise the approved submittal to include all equipment revisions and resubmit for Engineer's review.

8.14 Layout and Coordination Drawings

The Contract Drawings do not necessarily contain all the details necessary to perform the Work. Where applicable or required, these details shall be provided by the Contractor in the form of layout or coordination drawings. In addition to submittals, the Contractor, and any applicable subcontractors, shall prepare and submit to the Engineer for review, coordination and layout drawings in sufficient detail to fully describe the Work to be performed. Such drawings would include, but not be limited, pipe laying schedules, pipe fabrication, support and restrain details, pipe, duct and conduit routings, equipment layout and mounting details, concrete placing schedules, reinforcing steel details, structural steel fabrication and erection details, etc.

8.15 Equipment Manufacturer's Manuals and Information

A. Equipment manuals shall be provided, as is reasonable.

B. All equipment, devices or materials furnished by the Contractor as a part of the Work of this Contract shall be accompanied by all information, instructions, and data necessary for the proper and complete care, operation, maintenance and repair of the equipment, device or material by the Owner's personnel. The required information, instructions and data shall be prepared and compiled by the manufacturer of the equipment, device or material and shall hereinafter be referred to collectively as "equipment manuals".

C. In addition to any specific requirements of other sections of the Contract Documents, equipment manuals shall be required for any and all items containing moving parts, electric or electronic wiring or components, pneumatic or hydraulic devices or components, or requiring regular or special maintenance, cleaning or lubrication.

D. Providing complete equipment manuals, as specified herein, for all equipment, devices or materials furnished under the Contract is part of the Work of this Contract and the Contractor is wholly responsible for obtaining acceptable equipment manuals from the equipment manufacturers and submitting them to the Owner. In order to be acceptable, each copy of each

equipment manuals from the equipment manufacturers and submitting them to the Owner. In order to be acceptable, each copy of each equipment manual must be complete, as specified herein, and must be clearly legible.

E. Over and above and in addition to any other retainages provided for in the Contract, ten percent (10%) of the value of equipment, devices or materials requiring equipment manuals shall be retained from payments otherwise due the Contractor until acceptable equipment manuals for the applicable items are received by the Owner. For the purpose of applying this retainage, equipment, device or material values shall be determined from actual invoices presented by the Contractor to the Owner, or, in the absence of actual invoices, by an estimate of fair and reasonable value determined by the Owner. The Contractor is advised to include this specification, entitled "Equipment Manufacturers' Manuals and Information," in all applicable purchase orders and to provide a similar retainage provision in all applicable purchase orders or purchase agreements.

8.16 Record Documents

Contractor shall maintain and keep records consistent with and mirroring the requirements of the Virginia Public Records Act, including the relevant administrative and local procurement schedules created and maintained by the Librarian of Virginia, as imposed upon Owner. Contractor shall maintain in a safe place at the Site at least one record copy of all Drawings, Specifications, Addenda, Change Orders, and other written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents, together with all approved samples and a counterpart of all approved submittals will be available to Engineer for reference. Upon completion of the Work, these record documents, samples, and submittals will be delivered to Owner.

8.17 Services of Manufacturer's Factory Representatives – Installation, Startup, and Training

A. The services of manufacturer's factory representatives shall be provided by the Contractor at the times and for the duration and purposes stated in the various equipment specifications sections and/or Special Conditions. The factory representatives provided shall be trained and fully qualified and capable of performing the services required. Factory representatives shall arrive at the site with all tools, instruments, equipment, documentation, or other materials necessary to perform the required services.

B. Time spent in travel to the site shall not be applied toward the required duration of service. Time spent at the site if not properly prepared or equipped to perform the required service shall not be applied toward meeting the specified durations. For installation, initial operation, testing, startup and adjustment services, the durations indicated in the Contract Document shall be considered minimums. Additional on-site time shall be provided at the Contractor's expense as necessary to assure that equipment is installed and operating correctly and in accordance with the specifications.

C. The Owner's personnel shall have the right to witness the activities of factory representatives during installation, testing, startup, and adjustment. Furthermore, the Owner reserves the right to video record, at its expense, the on-site activities of factory representatives, including training. Neither the Contractor nor the equipment supplier or manufacturer shall be entitled to any additional compensation as a result of the Owner's video recording. It is understood that video recording, if performed, will be strictly for the Owner's use in training its employees and that the video records will not be made available by the Owner to any other party or used for any other purpose.

D. Manufacturer's services for instruction and/or training of Owner's personnel shall be provided, as is reasonable. The specified durations for training shall be over and above the time spent at the site for any other purposes. As noted above, time spent in travel shall not be applied toward the required duration of service.

E. At least thirty (30) days prior to proposed training, the Contractor shall submit for the Owner's review and approval a training outline or lesson plan clearly indicating the subject matter duration of each segment and dept of detail proposed to be presented at the training session. No training shall be performed in the absence of a previously approved lesson plan or outline. Prior to scheduling training sessions, any and all equipment manuals, as specified elsewhere, shall be submitted to and approved Owner. No training shall be performed in the absence of previously approved equipment manuals. Training which is provided that does not follow approved lesson plans or outlines, or where manufacturer's representative is not properly prepared or qualified shall not be accepted by the Owner as meeting the training requirements.

F. Training, assumed to be formed twice to accommodate operating shifts, shall be scheduled at least thirty (30) days in advance so as to provide the Owner an opportunity to adjust work schedules to permit all interested personnel to attend. If applicable to the particular training to be provided, the Owner can make its training room facilities available

WITNESS the following signatures and seals in agreement with the above terms for

Contract # _____:

COUNTY OF CULPEPER

By:_____

Printed Name: Gary M. Deal
Title: Chairman of the Board
Address: 302 N. Main Street
City, St, Zip: Culpeper, VA 22701
Telephone: (540) 727-3427
Email: gdeal@culpepercounty.gov

By: _____

Name:
Title:
Address:
City, St, Zip:
Telephone:
Email:

Date: _____ Date: _____

Approved as to Form:

_____
County Attorney

Date:_____

COMMONWEALTH OF VIRGINIA
STANDARD LABOR AND MATERIAL PAYMENT BOND

IFB# PR-24-1803

03/29/24

BIDDERS: NOTE WHETHER THE BOND IS FOR 1803.1 OR 1803.2

KNOW ALL MEN BY THESE PRESENTS: That _____, the Contractor ("Principal") whose principal place of business is located _____ and _____ ("Surety") whose address for delivery of 'Notices' is located at _____ are held and firmly bound unto the County of Culpeper, Virginia , the Owner ("Obligee") in the amount of Dollars ($_____) for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated _____ entered into a contract with Obligee for which contract (the "Contract") is by reference expressly made a part hereof;

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly make payment to all claimants as hereinafter defined, for labor performed and material furnished in the prosecution of the Work provided for in the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect, subject, however, to the following conditions.

The Principal and Surety, jointly and severally, hereby agree with Obligee as follows:

1. A claimant is defined as one having a direct contract with the Principal or with a subcontractor of the Principal for labor, material, or both for use in the performance of the Contract. A "subcontractor" of the Principal, for the purposes of this bond only, includes not only those subcontractors having a direct contractual relationship with the Principal, but also any other contractor who undertakes to participate in the Work which the Principal is to perform under the aforesaid Contract, whether there are one or more intervening subcontractors contractually positioned between it and the Principal (for example, a subcontractor). "Labor" and "material" shall include, but not be limited to, public utility services and reasonable rentals of equipment, but only for periods when the equipment rented is actually used at the work site.

2. Any claimant who has a direct contractual relationship with the Principal and who has performed labor or furnished material in accordance with the Contract documents in furtherance of the Work provided in the Contract, who has not been paid in full therefor before the expiration of ninety (90) days after the day on which such claimant performed the last of such labor or furnished the last of such materials for which he claims payment, may bring an action on this bond to recover any amount due him for such labor or material, and may prosecute such action to final judgment and have execution on the judgment. The Obligee need not be a party to such action and shall not be liable for the payment of any costs, fees or expenses of any such suit.

3. Any claimant who has a direct contractual relationship with any subcontractor of the Principal but who has no contractual relationship, express or implied, with the Principal, may bring an action on this bond only if he has given written notice to the Principal within ninety (90) days from the day on which the claimant performed the last of the labor or furnished the last of the materials for which he claims payment, stating with substantial accuracy the amount claimed and the name of the person for whom the Work was performed or to whom the material was furnished. Notice to the Principal shall be served by registered or certified mail, postage prepaid, in an envelope addressed to the Principal at any place where his office is regularly maintained for the transaction of business. Claims for sums withheld as retainages with respect to labor performed or materials furnished shall not be subject to the time limitations stated in this paragraph 3.

4. No suit or action shall be commenced hereunder by any claimant.

   a. Unless brought within one year after the day on which the person bringing such action last performed labor or last furnished or supplied materials, it being understood, however, that if any limitation embodied in this bond is prohibited by any law controlling the construction hereof, the limitation embodied within this bond shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

   b. Other than in a Virginia court of competent jurisdiction, with venue as provided by statute, or in the United States District Court for the district in which the project, or any part thereof is situated.

5. The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder.

Signed and sealed this _____ day of ___

Contractor / Principal **(SEAL)**

_____ By: _____

Witness Typed Name:

Title:

Surety **(SEAL)**

By: _____

Attorney-in-Fact Typed Name:

AFFIDAVIT AND ACKNOWLEDGEMENT OF ATTORNEY-IN-FACT

COUNTY OF CULPEPER

I, the undersigned notary public, do certify that _____, whose name is signed to the foregoing labor and material payment bond in the sum of _____ and dated _____ and which names the County of Culpeper, Virgina, as Obligee, personally appeared before me today in the above jurisdiction and made oath that he/she is the attorney-in-fact of _____, a _____ corporation which is the Surety in the foregoing bond, that he/she is duly authorized to execute on the above Surety's behalf the foregoing bond pursuant

to the Power of Attorney noted above and attached hereto, and on behalf of the surety, he/she acknowledged the foregoing bond before me as the above Surety's act and deed

She/he has further certified that her/his Power of Attorney has not been revoked.
[Complete if Power is recorded: Clerk's Office: ___;
Deed Book/Page No. or Instrument No.: ___.]

Given under my hand this ___ day of ___.

_____
Notary Public (SEAL)

My name (printed) is:
My registration number is:
My commission expires:

COMMONWEALTH OF VIRGINIA
STANDARD PERFORMANCE BOND

IFB# PR-24-1803
03/29/24

BIDDERS: NOTE WHETHER THE BOND IS FOR 1803.1 OR 1803.2

KNOW ALL MEN BY THESE PRESENTS: That _____,

the Contractor ("Contractor" or "Principal") whose principal place of business is located at

_____ and _____ ("Surety") whose address for delivery of 'Notices' is located at

_____ are held and firmly bound unto the County of Culpeper, the Owner ("Obligee") in the amount of _____ Dollars ($ _____) for the payment whereof Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,

Principal has by written agreement dated _____ entered into a contract with Obligee for

_____ which contract (the "Contract") is by reference expressly made a part hereof;

NOW THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if the Principal shall promptly and faithfully perform said Contract in strict conformity with the plans, specifications and conditions of the Contract, then this obligation shall be null and void; otherwise it shall remain in full force and effect.

Provided, that any alterations which may be made in the terms of the Contract, or in the Work to be done under it, or the giving by the Obligee of any extension of time for the performance of the Contract, or any other alterations, extensions or forbearance on the part of either or both of the Obligee or the Principal to the other shall not in any way release the Principal and the Surety, or either of them, their heirs, executors, administrators, successors or assigns from their liability hereunder, notice to the Surety of any such alterations, extension, or forbearance being hereby waived.

No action shall be brought on this bond unless brought within five years after completion of the Contract. Completion of the Contract is established when the final payment is made to the Contractor pursuant to the terms of the Contract. However, if a final certificate of occupancy or written final acceptance of the Project is issued prior to final payment, the five-year period to bring an action shall commence no later than 12 months from the date of the certificate of occupancy or written final acceptance of the Project. The Surety represents to the Principal and to the Obligee that it is legally authorized to do business in the Commonwealth of Virginia.

Signed and sealed this _____ day of _____

Contractor / Principal **(SEAL)**

_____ By:_____

Witness Typed Name:

Title:

Surety **(SEAL)**

By:_____

Attorney-in-Fact Typed Name:

AFFIDAVIT AND ACKNOWLEDGEMENT OF ATTORNEY-IN-FACT

COUNTY OF CULPEPER

I, the undersigned notary public, do certify that _____, whose name is signed to the foregoing performance bond in the sum of _____ and dated _____ and which names the County of Culpeper, as Obligee, personally appeared before me today in the above jurisdiction and made oath that he/she is the attorney-in-fact of _____, a _____ corporation which is the Surety in the foregoing bond, that he/she is duly authorized to execute on the above Surety's behalf the foregoing bond pursuant to the Power of Attorney noted above and attached hereto, and on behalf of the surety, he/she acknowledged the foregoing bond before me as the above Surety's act and deed.

She/he has further certified that her/his Power of Attorney has not been revoked.
[Complete if Power is recorded: Clerk's Office: ___;
Deed Book/Page No. or Instrument No.: ___.]

Given under my hand this ___ day of ___.

_____

Notary Public (SEAL)

My name (printed) is:
My registration number is:
My commission expires:

Terms and Conditions of the Performance Bond

1 The Contractor and the Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the prompt and faithful performance of the Contract, which is incorporated herein by reference.

2 If the Contractor promptly and faithfully performs the Contract in strict conformity with the plans, specifications and conditions of the Contract, the Surety and the Contractor shall have no obligations under this Bond.

3 In the event of the Contractor's Default, and subsequent notification to the Surety pursuant to Section 41 of the General Conditions of the Contract, the Surety shall, within fourteen (14) days of receipt of such notice, contact the Owner in writing, and arrange a meeting with the Owner to discuss methods of completing the Contract. See paragraph 4, below, for the options to be discussed. If the Surety fails to arrange a meeting or fails to attend such meeting, the Surety shall be deemed to be in default on this Bond and the Owner may, at its sole discretion, take what measures it deems necessary to protect the Owner's interests, without further notice to the Surety, and the Owner shall be entitled to enforce any remedy available to the Owner under the Contract or under Virginia law.

4 Within thirty (30) days after such meeting, during which time the Surety may investigate and otherwise analyze the project, and which period shall not toll any Contract time periods nor operate as a waiver of any of the Owner's rights, the Surety shall, at its own expense, notify the Owner in writing that it is taking one of the following actions, which shall be acceptable to the Owner, at the Owner's sole discretion:

4.1 By written takeover agreement with the Owner, the Surety itself shall undertake to perform and complete the Contract, which it may do through its licensed agents or through licensed independent contractors. If the Owner, at its sole discretion, consents, the Contractor may serve as the Surety's independent contractor (however, due to conflicts with the Virginia Public Procurement Act, the Owner may not directly contract with an otherwise qualified independent contractor produced by the Surety); or

4.2 The Surety may, if acceptable to the Owner and at the Owner's sole discretion, waive its right to perform and complete the Contract, and with reasonable promptness under the circumstances:

4.2.1 Pay to the Owner all amounts for which it may be liable to the Owner as surety on this Performance Bond, including the damages described in paragraph 6 below; or

4.2.2 Deny liability, in whole or in part, and provide written notice thereof to the Owner, citing reasons therefor.

5 If, after the meeting described in paragraph 4, above, the Surety does not proceed with reasonable promptness with one of the options provided in subparagraphs 4.1 or 4.2 (including its subparts), above, the Owner may send additional written notice to the Surety demanding that the Surety perform its obligations under the Bond. If the Surety does not proceed to perform its obligations under the Bond within fifteen (15) days after receipt of said notice, the Surety shall be deemed to be in default on this Bond. Thereafter, the Owner shall be entitled to enforce any remedy available to the Owner under the Bond, the Contract or Virginia law. If the Surety proceeds as provided in Subparagraph 4.2, and the Surety

and the Owner are unable to agree as to the amount for which the Surety may be liable to the Owner, or if the Surety has denied liability, in whole or in part, the Owner, without further notice, shall be entitled to enforce any remedy available to the Owner under the Bond, the Contract or Virginia law. In such event, the Owner may immediately proceed to complete the work in any manner authorized by law.

6 After the Owner has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under Subparagraph 4.1 or 4.2.1, above, then the responsibilities of the Surety to the Owner shall not be greater or less than those of the Contractor under the Contract, and the responsibilities of the Owner to the Surety shall not be greater than or less than those of the Owner under the Contract. To the limit of the amount of this Bond, plus the increased cost of any change orders under the Contract, provided the Owner commits the balance of the Contract Price to the prompt and faithful completion of the Contract, the Surety is obligated without duplication for:

6.1 The responsibilities of the Contractor for correction of defective work and completion of the Contract;

6.2 Additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 4; and

6.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor.

The Owner, at its sole discretion, may waive its claim to delay costs and/or liquidated damages.

7 The Surety shall not be liable to the Owner for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner, its officers, agencies, administrators, successors or assigns.

8 The Surety hereby waives notice of any changes, including changes of time, to the Contract or to related subcontracts, purchase orders and other obligations. The Surety understands and agrees that the penal amount of the bond shall be increased or decreased by any changes to time and amount incorporated into any Change Orders.

9 Any proceeding by the Owner, legal or equitable, under this Bond may be instituted in any Virginia state court of competent jurisdiction, as permitted under Section 8 of the General Conditions of the Contract and Virginia Code § 2.2-4337 and 2.2-4340, or by the Contractor or Surety, as permitted under the Contract or under Virginia law.

10 Notice to the Surety shall be mailed or delivered to the address shown on the Standard Performance Bond in the space for Surety address for delivery of Notices

11 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond when furnished to comply with statutory requirements.

12 DEFINITIONS

12.1 **Balance of the Contract Price**: The total amount payable by the Owner to the Contractor under the Contract after all proper adjustments have been made, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.

12.2 **Contract**: The agreement between the Owner and the Contractor identified on first page of the Standard Performance Bond, DGS-30-084, CO-10, including all Contract Documents and duly executed modifications and change orders thereto.

12.3 **Contractor Default**: Failure of the Contractor, as defined under Section 41 of the General Conditions to the Contract, which has neither been remedied, as permitted under Section 41 at the Owner's sole discretion, nor expressly waived by the Owner, to perform or otherwise to comply with the terms of the Contract.

13 Nothing in these General Conditions shall prevent a surety from becoming involved in the Contract prior to termination, upon notice from the Owner of the Contractor's failure to promptly and faithfully perform the Contract in strict conformity with the plans, specifications and conditions of the Contract.

COMMONWEALTH OF VIRGINIA STANDARD BID BOND

IFB# PR-24-1803

03/29/24

BIDDERS: NOTE WHETHER THE BOND IS FOR 1803.1 OR 1803.2

KNOW ALL MEN BY THESE PRESENTS: That _____, the Contractor ("Principal") whose principal place of business is located at _____ and _____ ("Surety") whose address for delivery of 'Notices' is located at _____ are held and firmly bound unto the County of Culpeper, Virginia, the Owner ("Obligee") in the amount of five percent (5%) of the Amount (Total Base Bid plus all Additive Bid Items) Bid by Principal, for the payment whereof, Principal and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, the Principal has submitted a bid for _____

NOW, THEREFORE, the conditions of this obligation are as follows. This Bid Bond shall guarantee that the Principal will not withdraw his bid during the period of thirty (30) days following the opening of bids; that if his bid is accepted, Principal will enter into a formal contract with the Owner in accordance with the Contract Agreement for Construction Services included as a part of the Invitation for Bids (IFB Documents); that Principal will submit a properly executed and authorized Standard Performance Bond and Standard Labor and Material Payment Bond on the forms included in the IFB documents; and that in the event of the withdrawal of said bid within said period, or failure to enter into said contract and give said bonds within ten (10) days after Principal has received notice of acceptance of his bid, Principal and Surety shall be jointly and severally liable to the Owner for the difference between the amount specified in said bid and such larger amount for which the Owner may contract with another party to perform the work covered by said bid, up to the amount of the bid guarantee. This amount represents the damage to the Owner of account of the default of the bidder in any particular thereof.

The Surety represents to the Principal and to the Obligee that it is legally authorized to do business in the Commonwealth of Virginia.

Signed and sealed this_____ day of _____

Contractor / Principal **(SEAL)**

_____ By:_____

Witness Typed Name:

Title:

Surety **(SEAL)**

By:_____

Attorney-in-Fact Typed Name:

AFFIDAVIT AND ACKNOWLEDGEMENT OF ATTORNEY-IN-FACT

COUNTY OF CULPEPER, VIRGINIA

I, the undersigned notary public, do certify that _____, whose name is signed to the foregoing bid bond in the amount of five percent (5%) of the Total Bid Amount and which names the County of Culpeper, Virginia, as Obligee, personally appeared before me today in the above jurisdiction and made oath that he/she is the attorney-in-fact of _____, a _____ corporation which is the Surety in the foregoing bond, that he/she is duly authorized to execute on the above Surety's behalf the foregoing bond pursuant to the Power of Attorney noted above and attached hereto, and on behalf of the surety, he/she acknowledged the foregoing bond before me as the above Surety's act and deed.

She/he has further certified that her/his Power of Attorney has not been revoked.
[Complete if Power is recorded: Clerk's Office: ___;
Deed Book/Page No. or Instrument No.: ___.]

Given under my hand this ___ day of ___.

_____
Notary Public (SEAL)

My name (printed) is:
My registration number is:
My commission expires:

AIA® Document G701™ – 2017

Change Order

PROJECT: *(name and address)*	**CONTRACT INFORMATION:** Contract For: Date:	**CHANGE ORDER INFORMATION:** Change Order Number: Date:
OWNER: *(name and address)*	**ARCHITECT:** *(name and address)*	**CONTRACTOR:** *(name and address)*

THE CONTRACT IS CHANGED AS FOLLOWS:
(Insert a detailed description of the change and, if applicable, attach or reference specific exhibits. Also include agreed upon adjustments attributable to executed Construction Change Directives.)

The original (Contract Sum) (Guaranteed Maximum Price) was	$ _____
The net change by previously authorized Change Orders	$ _____
The (Contract Sum) (Guaranteed Maximum Price) prior to this Change Order was	$ _____
The (Contract Sum) (Guaranteed Maximum Price) will be (increased) (decreased) (unchanged) by this Change Order in the amount of	$ _____
The new (Contract Sum) (Guaranteed Maximum Price), including this Change Order, will be	$ _____
The Contract Time will be (increased) (decreased) (unchanged) by	( ) days.
The new date of Substantial Completion will be	

NOTE: This Change Order does not include adjustments to the Contract Sum or Guaranteed Maximum Price, or the Contract Time, that have been authorized by Construction Change Directive until the cost and time have been agreed upon by both the Owner and Contractor, in which case a Change Order is executed to supersede the Construction Change Directive.

NOT VALID UNTIL SIGNED BY THE ARCHITECT, CONTRACTOR AND OWNER.

ARCHITECT *(Firm name)*	**CONTRACTOR** *(Firm name)*	**OWNER** *(Firm name)*
SIGNATURE	**SIGNATURE**	**SIGNATURE**
PRINTED NAME AND TITLE	**PRINTED NAME AND TITLE**	**PRINTED NAME AND TITLE**
DATE	**DATE**	**DATE**

AIA® Document G702® – 1992

Application and Certificate for Payment

TO OWNER:

PROJECT:

APPLICATION NO:
PERIOD TO:
CONTRACT FOR:
CONTRACT DATE:
PROJECT NOS: / /

Distribution to:
OWNER ☐
ARCHITECT ☐
CONTRACTOR ☐
FIELD ☐
OTHER ☐

FROM CONTRACTOR:

VIA ARCHITECT:

CONTRACTOR'S APPLICATION FOR PAYMENT

Application is made for payment, as shown below, in connection with the Contract.
AIA Document G703®, Continuation Sheet, is attached.

1. **ORIGINAL CONTRACT SUM** ..... $
2. **NET CHANGE BY CHANGE ORDERS** ..... $
3. **CONTRACT SUM TO DATE** *(Line 1 ±2)* ..... $
4. **TOTAL COMPLETED & STORED TO DATE** *(Column G on G703)* ..... $
5. **RETAINAGE:**
   a. _____% of Completed Work *(Columns D + E on G703)* $
   b. _____% of Stored Material *(Column F on G703)* $

   Total Retainage *(Lines 5a + 5b, or Total in Column I of G703)*..... $
6. **TOTAL EARNED LESS RETAINAGE** ..... $ *(Line 4 minus Line 5 Total)*
7. **LESS PREVIOUS CERTIFICATES FOR PAYMENT** ..... $ *(Line 6 from prior Certificate)*
8. **CURRENT PAYMENT DUE** ..... $
9. **BALANCE TO FINISH, INCLUDING RETAINAGE** *(Line 3 minus Line 6)* $

CHANGE ORDER SUMMARY	ADDITIONS	DEDUCTIONS
Total changes approved in previous months by Owner	$	$
Total approved this month	$	$
TOTAL	$	$
NET CHANGES by Change Order	$	

The undersigned Contractor certifies that to the best of the Contractor's knowledge, information and belief the Work covered by this Application for Payment has been completed in accordance with the Contract Documents, that all amounts have been paid by the Contractor for Work for which previous Certificates for Payment were issued and payments received from the Owner, and that current payment shown herein is now due.

CONTRACTOR:

By: _____ Date: _____

State of:
County of:
Subscribed and sworn to before me this day of

Notary Public:
My commission expires:

ARCHITECT'S CERTIFICATE FOR PAYMENT

In accordance with the Contract Documents, based on on-site observations and the data comprising this application, the Architect certifies to the Owner that to the best of the Architect's knowledge, information and belief the Work has progressed as indicated, the quality of the Work is in accordance with the Contract Documents, and the Contractor is entitled to payment of the AMOUNT CERTIFIED.

AMOUNT CERTIFIED ..... $

(Attach explanation if amount certified differs from the amount applied. Initial all figures on this Application and on the Continuation Sheet that are changed to conform with the amount certified.)

ARCHITECT:

By: _____ Date: _____

This Certificate is not negotiable. The AMOUNT CERTIFIED is payable only to the Contractor named herein. Issuance, payment and acceptance of payment are without prejudice to any rights of the Owner or Contractor under this Contract.

AIA® Document G703S® – 2017

Continuation Sheet, Contractor-Subcontractor Version

AIA Document G702®, Application and Certification for Payment, containing Subcontractor's signed certification is attached.
In tabulations below, amounts are stated to the nearest dollar.
Use Column I on Contracts where variable retainage for line items may apply.

APPLICATION NO:
APPLICATION DATE:
PERIOD TO:
ARCHITECT'S PROJECT NO:

A	B	C	D	E	F	G		H	I
			WORK COMPLETED						
ITEM NO.	DESCRIPTION OF WORK	SCHEDULED VALUE	FROM PREVIOUS APPLICATION *(D + E)*	THIS PERIOD	MATERIALS PRESENTLY STORED *(Not in D or E)*	TOTAL COMPLETED AND STORED TO DATE *(D + E + F)*	% *(G ÷ C)*	BALANCE TO FINISH *(C − G)*	RETAINAGE *(If variable rate)*
	GRAND TOTAL								

AIA® Document G704™ – 2017

Certificate of Substantial Completion

PROJECT: *(name and address)*	**CONTRACT INFORMATION:** Contract For: Date:	**CERTIFICATE INFORMATION:** Certificate Number: Date:
OWNER: *(name and address)*	**ARCHITECT:** *(name and address)*	**CONTRACTOR:** *(name and address)*

The Work identified below has been reviewed and found, to the Architect's best knowledge, information, and belief, to be substantially complete. Substantial Completion is the stage in the progress of the Work when the Work or designated portion is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use. The date of Substantial Completion of the Project or portion designated below is the date established by this Certificate.
(Identify the Work, or portion thereof, that is substantially complete.)

ARCHITECT *(Firm Name)*	SIGNATURE	PRINTED NAME AND TITLE	DATE OF SUBSTANTIAL COMPLETION

WARRANTIES

The date of Substantial Completion of the Project or portion designated above is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below:
(Identify warranties that do not commence on the date of Substantial Completion, if any, and indicate their date of commencement.)

WORK TO BE COMPLETED OR CORRECTED

A list of items to be completed or corrected is attached hereto, or transmitted as agreed upon by the parties, and identified as follows:
(Identify the list of Work to be completed or corrected.)

The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Unless otherwise agreed to in writing, the date of commencement of warranties for items on the attached list will be the date of issuance of the final Certificate of Payment or the date of final payment, whichever occurs first. The Contractor will complete or correct the Work on the list of items attached hereto within ( ) days from the above date of Substantial Completion.

Cost estimate of Work to be completed or corrected: $

The responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work, insurance, and other items identified below shall be as follows:
(Note: Owner's and Contractor's legal and insurance counsel should review insurance requirements and coverage.)

The Owner and Contractor hereby accept the responsibilities assigned to them in this Certificate of Substantial Completion:

CONTRACTOR *(Firm Name)*	SIGNATURE	PRINTED NAME AND TITLE	DATE
OWNER *(Firm Name)*	SIGNATURE	PRINTED NAME AND TITLE	DATE

COMMONWEALTH OF VIRGINIA
AFFIDAVIT OF PAYMENT OF CLAIMS
IFB# PR-24-1803

By:

This day _____ personally appeared before me, _____, a Notary Public in and for the City (County) of _____, _____ and, being by me first duly sworn, states that all subcontractors and suppliers of labor and materials have been paid all sums due them for work performed or materials furnished in the performance of the Contract between Culpeper County, Virginia, _____, Owner, and _____ , Contractor, dated _____,20 ___ , for the construction of _____ _____ _____ or arrangements have been made by the Contractor satisfactory to such subcontractors and suppliers with respect to payments of such sums as may be due them by the Contractor.

Typed Contractor Name

By:

Signature

Typed Name &Title of Person Signing

Subscribed and sworn to before me this _____ day of _____ , 20____. My commission expires on the _____ day of _____ , 20____ .

Notary Public

CERTIFICATE OF COMPLETION BY CONTRACTOR

Date:

TO: Alan H. Culpeper, Director of Purchasing
155 W. Davis Street, Suite 100
Culpeper, Virginia 22701
Email: aculpeper@culpepercounty.gov

Culpeper County
Attn: Andrew Hardy, Director of Parks and Recreation
16388 Competition Drive
Culpeper, Virginia 22701
Tele: 540-727-3412

Email: ahardy@culpepercounty.gov

PROJECT TITLE: Culpeper County Community Pool Project
PROJECT NO: IFB# PR-24-1803
INSTITUTION/AGENCY: Culpeper County
ADDRESS:

In accordance with the requirements of the Contract Agreement for Construction Services, the undersigned Contractor hereby states that the above named project has been fully completed in accordance with the requirements of the Contract Documents as modified by approved change orders.

All applicable tests, certificates and regulatory inspections required by the Virginia Uniform Statewide Building Code and the Contract Documents have been performed with respect to the completed project and the Owner has been provided with a copy of each report.

As-built marked up prints of the completed project have been provided to the Architect/Engineer as required by the Contract Documents.

The Owner has been provided with a copy of all warranties and guarantees, including the starting date(s) of all warranties and guarantees, written and unwritten, required by the Contract Documents.

All training, operating instructions and maintenance manuals required by the Contract Documents have been provided to the Owner.

(Typed Contractor Name)

By:

(Typed Name &Title of Person Signing)

cc: Agency
A/E

underhill ENGINEERING
geotechnical | geodesign | geoconstruction

GEOTECHNICAL ENGINEERING REPORT

Culpeper County Community Pool
16358 Competition Drive
Culpeper County, Virginia

Underhill Project No. 23029
August 4, 2023

434.771.0234 | underhillengineering.com
1001 East Market St. STE 100, Charlottesville, VA 22902-5381

underhill ENGINEERING
geotechnical | geodesign | geoconstruction

August 4, 2023

Mr. Norman Smith
Norman Smith Architecture
3637 Slate Mills Road
Sperryville, VA 22740

Geotechnical Engineering Report, Culpeper County Community Pool, 16358 Competition Drive, Culpeper County, Virginia, (Underhill Engineering Project No. 23029)

Dear Mr. Smith:

Underhill Engineering, LLC (Underhill) is pleased to present this Geotechnical Engineering Report for the project. The geotechnical engineering services for this project are provided in accordance with Underhill Engineering's proposal dated June 2, 2023, and accepted June 6, 2023.

Thank you for the opportunity to provide our services. If you have any questions or require additional information, please do not hesitate to contact the undersigned.

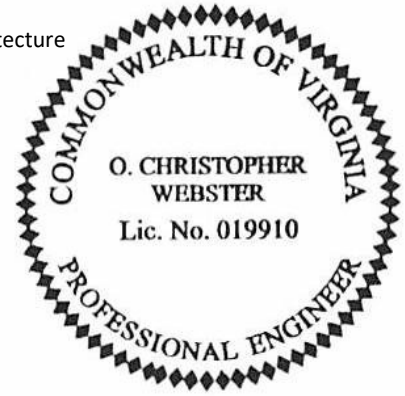
Sincerely,

UNDERHILL ENGINEERING, LLC

Susan E. Ray, P.E., G.I.T.
Susan E. Ray, PE, GIT
Geotechnical Engineer

O. Christopher Webster, PE, F ASCE
Principal

cc: Richard A. Zubyk, Jr. – Norman Smith Architecture



underhill ENGINEERING

Table of Contents

References, Figures, and Appendices

References

Figures

Appendix A

Appendix B

1.0 Executive Summary

This report presents the results of the subsurface exploration, soil laboratory testing, and geotechnical engineering analysis for the project site.

- Underhill's subsurface exploration, consisting of seven mechanically advanced test borings, revealed the Newark Supergroup Formation (commonly shale, siltstone, and minor sandstone) Residuum, overlain by Existing Fill soils.
- Existing Fill (Stratum F) is present to depths of 1 to 2.5 feet below the ground surface as revealed by the test borings.
    - Stratum F commonly consists of stiff to very stiff lean clay (CL) FILL.
    - Stratum F contains sand, gravel, and trace amounts of root fragments.
- Soil laboratory testing revealed the onsite soils to have a ***Low to Medium Potential*** for Moisture-Related Volume Change.
    - Recommendations for mitigation of these soils, including setting bottom of footings at least 2 feet below final grade, are provided herein.
- Groundwater was not encountered during drilling.
    - A long-term reading of the temporary Water Observation Well (W.O.W.) installed in Boring B-2 indicated groundwater at 11 feet below the ground surface (about EL 489).
    - Considering the potential for fluctuation of the water table over time, Underhill recommends that the Design Groundwater Level be considered at **EL 492**.
- Underhill's analysis indicates that shallow foundations are suitable for support of the proposed building for a net allowable bearing pressure of **2,000 PSF** when foundations bear in the following materials:
    - Competent Stratum F Existing Fill when excavated footing subgrades are evaluated by the Geotechnical Engineer using hand auger probes performed in footing excavations, or test pits performed next to the footing excavations.
    - Competent Residuum (Strata B and C) when excavated footing subgrades are evaluated by the Geotechnical Engineer.
    - New Compacted Structural Fill as recommended herein, as observed and tested by the Geotechnical Engineer.
- Floor slabs may be supported on Strata F and B when evaluated by the Geotechnical Engineer or on Compacted Structural Fill, observed and testing by the Geotechnical Engineer.

Underhill is providing this Executive Summary solely as an overview of our findings and recommendations. Any party that relies on this report must read the full report since the Executive Summary omits several details, including those that are important to the proper interpretation and application of the report.

2.0 Scope of Services

Underhill's March 8, 2023, proposal defines the scope of services for this project. The scope is limited to the Geotechnical Engineering Services as presented therein.

3.0 Site Information

3.1 Site Description

The project is located at the existing Culpeper Sports Complex at the Eastern View High School in Culpeper County, Virginia. The site is southeast of James Madison Highway (U.S. Route 29) and north of Greens Corner Road and is designated in the Culpeper County GIS as Parcel 37C. The project area is currently an open field bounded by a parking lot to the east and a road to the south. The ground surface is generally flat and slopes gently to the north. A Site Vicinity Map is included as Figure 1.

3.2 Proposed Construction

AREAS WILL BE LESS THAN THOSE NOTED 1

The proposed construction consists of the following:

- A 6,550-SF leisure pool.
- A 1,250-SF water play area.
- A 400-SF toddler pool.
- A 5,250-SF bathhouse with support areas (concessions, pool filter room, etc).

Proposed grades were not available as of this writing. Therefore, this proposal considers cuts and fills will be less than about 2 feet for the building areas, and cuts of up to 8 feet for the pool area.

Structural load data were not available as of this writing. Underhill has considered that the buildings will be supported by column and wall loads not exceeding 100 KIPS and 2 KLF, respectively, for this project.

Underhill understands that the building will be designed following the *2018 Virginia Construction Code, Part I of the Virginia Uniform Statewide Building Code (VUSBC) criteria*. The proposed scope of services considers that the designer will use a Seismic Site Class of D for the structures unless on-site conditions indicate otherwise.

4.0 Field Services

4.1 Subsurface Exploration Program

Underhill's geotechnical engineering study included a subsurface exploration program consisting of seven mechanically advanced test borings. The subsurface exploration program was performed to evaluate the subsurface conditions and develop generalized stratigraphy at the test hole locations. The evaluation of the soils' characteristics included visual and limited laboratory classification and evaluation of density or stiffness based on the results of the Standard Penetration Test (SPT) N values obtained.

Underhill's drilling subcontractor, Ayers and Ayers, Inc., drilled the test borings on June 19, 2023, under the observation of Underhill's personnel. The test boring logs are included in Appendix A. Soil samples retrieved from the subsurface exploration program will be held for 45 days unless the Client requests other disposition.

4.2 Location Control

The boring locations were located by Underhill by taping from existing features. Underhill obtained LAT/LNG coordinates at the boring locations, as indicated on the respective logs.

The elevations at the test boring locations were obtained from the 12/16/2022 topographic site plan prepared by Hinchey & Baines, PLC. A Boring Location Plan is included as Figure 2 following the text of this report.

TOPO PLAN WAS PREPARED BY PIEDMONT SURVEYORS AND AMENDED BY HB

2

The locations and elevations should be considered no more accurate than the methods and means used to obtain them.

4.3 Soil Laboratory Testing Assignments

Soil laboratory test results of selected samples retrieved from the subsurface exploration are presented in Appendix B. Natural water content values shown in the respective test boring logs.

4.4 Previous Geotechnical Data

Underhill's geotechnical services for the subject project included the review of the previous geotechnical report for the Culpeper County Field House conducted by Underhill on an adjacent site in 2021. The 2021 geotechnical report included 12 borings (to depths of 20 to 30 feet) and 12 test pits (excavated to depths between 2 and 10 feet). The previous subsurface exploration study revealed variable existing fill with construction debris on the south-eastern side of the Field House site, underlain by soil and weathered rock residuum. Neither the borings nor the test pits encountered groundwater.

Note that Underhill did not log the previous borings nor could review the samples retrieved from the previous subsurface exploration. Therefore, Underhill cannot attest to the accuracy of the classifications presented in the logs of the previous borings and test pits.

5.0 Site Geology, Subsurface Conditions, and Soil Laboratory Testing

5.1 Site Geology

Underhill's review of the available geologic data, including the state geological map of Virginia, indicates the site geology consists of the Triassic Newark Supergroup, which features shale and siltstone with minor sandstone beds. The formation is part of a Mesozoic Basin.

The site's overburden consists of Residuum (commonly silts, sands, and disintegrated rock) overlying the parent material. Residuum is formed from the in-place weathering of the underlying bedrock. The texture and composition of the Residuum often reflects the parent bedrock, noted as "relict structure" where the material has suffered little or no deformation.

The subsurface exploration revealed Existing Fill overlying the Residuum.

5.2 Generalized Subsurface Stratigraphy

Underhill developed the following generalized subsurface stratigraphy based on the results of the subsurface exploration program, the soil laboratory test results, and review of the local geology:

Topsoil

- Measurements at the ground surface at the boring locations revealed commonly 4 inches topsoil or less.

Stratum F (Existing Fill)

- Stratum F Existing Fill generally consists of stiff to very stiff lean clay (CL) FILL, containing varying amounts of sand and gravel and generally trace amounts of root fragments.
- The borings revealed Stratum F to depths of 1 to 2.5 feet below the ground surface.
- Standard Penetration Test (SPT) N values = 21 to 29.
- Natural Water Content value, W = 11.5% (one sample tested).

Stratum B (Residuum)

- The fine-grained component of Stratum B consists of generally stiff to hard sandy ELASTIC SILT (MH) and sandy SILT (ML).
- The coarse-grained component of Stratum B consists of medium dense SILTY SAND (SM).
- Borings B-1 through B-6 revealed Stratum B below Stratum F to between 4.5 and 7.5 feet below the surface.
- Boring B-7 encountered Stratum B interlayered with Disintegrated Rock (Stratum C) to 11.5 feet below the surface.
- SPT N values = 14 to 55.
- Natural Water Content values, W = 29.2 to 38.2% (six samples tested).

Stratum C (Disintegrated Rock)

- Stratum C consists of hard DISINTEGRATED ROCK.
- The borings revealed Stratum C below and interlayered with Stratum B to the maximum test boring depths of 8.6 to 15 feet below the surface.
- SPT N values = 69 to 50/0 (i.e., equivalent to N value ≥100).

Table 5-1: Summary of Disintegrated Rock and Refusal on Rock Grades

Boring Location	Disintegrated Rock (N≥60)		Hard Rock (Auger or Sampler Refusal, N≥50/1")	
	Depth (ft)	Elevation (ft)	Depth (ft)	Elevation (ft)
B-1	4.5	494.5	8.6	490.5
B-2	7.5	492.5	11	489
B-3	7.5	493.5	11	490
B-4	7	493	10	490
B-5	7	493	Below 14	Below 486
B-6	7	494	11.5	489.5
B-7	7	494	12	489

5.3 Groundwater

Groundwater was not encountered during drilling. The borings caved dry at depths of 6 to 9 feet, following removal of the augers.

A Water Observation Well (W.O.W.) was installed to 11.3 feet in Boring B-2. The W.O.W. measurement taken after drilling did not reveal groundwater. The long term W.O.W. measurement taken five weeks following the subsurface exploration revealed groundwater at a depth of 11 feet below the surface (about EL 489).

Fluctuations in the hydrostatic water table should be expected to occur over time, depending on variations in precipitation, surface runoff, pumping, flooding, evaporation, stream levels, and similar factors.

5.4 Laboratory Testing and Interpretation

Selected specimens were retrieved from the subsurface exploration program for soil laboratory testing. Soil laboratory testing assigned by Underhill consisted of the following:

- Seven Natural Water Content tests (ASTM D2216).
- Three Atterberg Limits (ASTM D4318).
- Three Mechanical Sieve Tests (ASTM D422/D6913).

Soil laboratory testing was performed to aid in the classification of the soils encountered in the subsurface exploration, and to provide index test values for use in the development of design recommendations. Laboratory testing was performed by Underhill's subconsultant laboratory, Schnabel, and reviewed and

interpreted by Underhill. Natural water content values of the specimens tested are presented in the respective logs. A summary of the soil laboratory test results is presented in Appendix B.

Soil laboratory index testing indicated the following for the specimens retrieved from Stratum F:

B-7 / 0.0 – 1.5 FT (Stratum F):

- Plasticity of the Whole Sample (PI multiplied by the Percent Passing the No. 40 Sieve): **15**.
- The natural water content value is about 10% dry of the Plastic Limit value.
- Moisture-related Volume Change Potential (shrink-swell) (Unified Facilities Criteria (UFC) DM-7): **Medium**.

Soil laboratory index testing indicated the following for the specimens retrieved from Stratum B:

B-5 / 2.0 – 3.5 FT (Stratum B):

- Plasticity of the Whole Sample (PI multiplied by the Percent Passing the No. 40 Sieve): **5**.
- The natural water content value is about 1% wet of the Plastic Limit value.
- Moisture-related Volume Change Potential (shrink-swell) (Unified Facilities Criteria (UFC) DM-7): **Low**.

B-6 / 4.0 – 5.5 FT (Stratum B):

- Plasticity of the Whole Sample (PI multiplied by the Percent Passing the No. 40 Sieve): **10**.
- The natural water content value is about 1% dry of the Plastic Limit value.
- Moisture-related Volume Change Potential (shrink-swell) (Unified Facilities Criteria (UFC) DM-7): **Low**.

6.0 Geotechnical Recommendations

6.1 Discussion

The test borings revealed existing fill soils (Stratum F) to depths of about 1 to 2.5 feet below the surface within the proposed building footprint. Review of samples retrieved from the subsurface exploration indicate that Stratum F existing fill contains trace amounts of root fragments.

Portions of the Stratum F fill soils within the proposed building footprint will be removed during normal topsoil stripping operations and excavation to the proposed subgrade elevation. However, where fill soils remain after stripping and excavation of footings, these soils should be evaluated by the Geotechnical Engineer using hand auger probes and/or by observation of test pits made during the earthwork and foundation construction. Depending on the results of the observations made during the earthwork and construction, Stratum F may be suitable for footing support, considering the anticipated light loading conditions.

The soil laboratory testing included Soil Index Testing and the Correlations of the Plasticity Index of the Whole Sample to Volume Change Potential (Unified Facilities Criteria (UFC) DM-7), which indicates on-site soils have a *Low to Medium for Shrink-Swell*. The Soil Index Correlations were used to develop the recommendations presented herein for the mitigation of shrink-swell. Specifically, project planning should consider that bottom of footings will need to be set at least 2 feet below surrounding final grade (i.e., below the zone of seasonal moisture variation) along with providing best management practices are presented herein.

A 2.0 DEPTH STILL PLACES FTG IN STRATUM F. IS THERE ADVANTAGE TO GOING DEEPER TO OBTAIN GREATER CAPACITY-IS NEXT STRATA THE SAME 2000 PSF? 3

Long-term reading of the temporary Water Observation Well (W.O.W.) installed on site indicated groundwater at 11 feet below the ground surface (about EL 489), about 3 feet below the anticipated depth of the base of the pool structure. However, considering the potential for fluctuation of the water table over time, Underhill recommends that the Design Groundwater Level be considered at **EL 492**, or the base of pool structure. To account for periodic rising of the groundwater level to this grade, perimeter subdrainage recommendations include a minimum **6-inch diameter slotted PVC pipe**. If the maximum depth of the pool is more than 8 feet below grade, a below-slab subdrainage layer should be included. Detailed recommendations for an under-slab drainage system can be provided upon request.

6.2 Earthwork

IS UE PROPOSING WATERPROOFING OF BOTTOM POOL SLAB OR DRAINAGE LAYER? IF LATTER, WHERE WOULD DISCHARGE BE? 4

6.2.1 Stripping and Grading

The Contractor should remove existing topsoil from subgrades for building support. Based on the measurements of existing topsoil, a stripping depth of 6 inches is recommended for project planning purposes. Shallow test pits may be performed across the site to provide additional data regarding stripping depths to assist with budgeting.

Before any fill placement or undercutting below design subgrade level, the Geotechnical Engineer should evaluate the soils for suitability. Evaluation techniques may include probing with a penetrometer, observing proofrolls of a loaded dump truck, drilling hand augers, observing test pits, or a combination of these

methods. The Contractor should excavate areas deemed unsuitable by the Geotechnical Engineer and replace these areas with additional compacted structural fill.

Undercut volumes should be measured using cross sectioning survey methods. Other methods of calculating volumes of undercut, such as counting trucks, are less accurate and generally result in additional expense. If truck counts are used, we recommend that the method of payment be in accordance with Section 109 of the Virginia Department of Transportation (VDOT) Road and Bridge Specifications.

WHAT IS LIKLIHOOD FOR FINDING SUBSURFACE STRUCTURES HERE? 5

Although not revealed by the subsurface exploration, excavation activities may encounter buried foundations and other associated debris. Where these materials are encountered, existing foundations should be completely removed from within the proposed building area. Existing utilities and drainage structures within the building area should be removed and replaced with new compacted structural fill.

6.2.2 Compacted Structural Fill

The portions of onsite soils that are generally free of deleterious materials may be re-used as compacted structural fill provided that they meet the specifications for Type I Compacted Structural Fill below. However, on-site cuts are anticipated to be limited. Also, soil laboratory testing indicated the on-site soils to have natural water content values from 11.5 to 38.2%. The optimum moisture content (OMC) values for these soil types are anticipated to be in the range of 22 to 28%, based on soil type. Use of these on-site soils as compacted structural fill will likely require that the wetter portions will need spreading, scarifying, and aeration before these soils can be dried back to a moisture content suitable for compaction. Therefore, project planning should consider the need for off-site borrow material where the floor grade is planned above existing grades.

PROBABLY NOTE REQD GIVEN PLANNED ELEVATIONS. IF OFF-SITE MATL IS REQUIRED, NEED TO ALLOW FOR THIS AS UNIT COST/OTHER IN BID DOCS AND CDs 6

Off-site borrow material used as Compacted Structural Fill for building support should meet the following criteria:

Type I Compacted Structural Fill consists of select borrow material meeting the following criteria:

- ASTM Classification: **CL, ML, SC, SM, SP, SW, GC, GM, GP, or GW.**
- Plasticity Index value: **15 or less.**
- Maximum Dry Density (ASTM D698): **minimum 100 PCF.**
- Maximum Particle Size: **3 inches.**
- Laboratory CBR value: **minimum 6.**
- Laboratory CBR swell value: **maximum 1 percent.**
- Maximum loose lift thickness: 8 inches.
- Compaction Criteria[1]: **95% of Maximum Dry Density** (ASTM D698, Standard Proctor).
- Water Content Range: -3% to +3% of optimum.

1. Where cohesionless soils with fewer than 5% fines are used, the compaction may be evaluated by Relative Density test methodology (ASTM D4253/D4254) in lieu of Proctor tests.

Type II Compacted Structural Fill consists of dense-graded aggregate meeting the following criteria:

- Classification: **VDOT No. 21A Dense-Graded Aggregate.**
- Maximum loose lift thickness: 8 inches.
- Compaction Criteria: **95% of Maximum Dry Density** (ASTM D698, Standard Proctor).

- Water Content Range: -3% to +3% of optimum.

Type III Compacted Structural Fill consists of VDOT No. 57 Crushed Stone.

The Contractor should bench compacted structural fill subgrades steeper than 4H:1V to allow placement of horizontal lifts, where applicable.

Compacted Structural Fill should extend laterally at least 5 feet beyond the building limits and be sloped as needed to meet existing grades. Slopes constructed of Compacted Structural Fill should not be designed and built steeper than 2.5H:1V.

Stormwater management structures, where proposed on the site, should be designed and constructed in accordance with current best practices. These best practices include the following:

- New fill slopes should not exceed 3H:1V.
- Where dispersive clays are present, fill slopes should not exceed 4H:1V.
- Embankment materials should meet ASTM Classification: **CL, ML, SC, SM, GC, or GM.**
- Core and Cut-off trench materials should meet ASTM Classification: **CH, MH, CL, or ML.**
- Compaction of structural fill placed for the embankment shell and core should meet the following criteria:
    - Shell Material: **95% of Maximum Dry Density** (ASTM D698, Standard Proctor) compacted with in situ natural water contents within 3% dry or wet of Optimum.
    - Core Material: **95% of Maximum Dry Density** (ASTM D698, Standard Proctor) compacted with in situ natural water contents between optimum and 5% wet of Optimum.
- Cut-off trenches extending to underlying competent rock or terminating at least 2 feet into continuous impervious substratum as evaluated by the Geotechnical Engineer.
- Concrete cradles should be provided for metal or concrete conduits and concrete encasements provided for plastic or PVC conduits, where the hydraulic head is 10 feet or greater
- Anti-seep collars <u>are not recommended</u> following current NRCS, FEMA, and VDOT guidelines; instead, a filter diaphragm should be provided around the conduit.
- Conduits should not be located near the abutments of sites where bedrock profiles are sharp to avoid excess differential settlement.
- The principal spillway conduit should consist of reinforced-concrete pipe with rubber gasket watertight joints, installed on a concrete cradle from the toe of the pipe to the riser for the entire length of the outfall pipe.
- The concrete cradle should be in accordance with the requirements of the VDOT Standards.

THAT DOES NOT APPLY HERE, CORRECT? 7

6.2.3 Disintegrated Rock and Hard Rock

Disintegrated Rock was encountered in the borings between about **EL 492.5** and **494.5** as indicated in Table 5-1 above. Standard Penetration Tests indicated the Disintegrated Rock to be very dense with N values ≥100/6 inches. Also, six borings encountered auger and/or sampler refusal on hard rock between about **EL 489 and 490.5**.

Project planning should anticipate these denser materials in deeper cut areas, such as in areas of proposed utilities. Underhill recommends that unit rock excavation prices be included in the contract documents. A sample definition of rock for excavation specifications is provided below:

DOES THIS ALSO APPLY TO DEEP END OF POOL? 8

> *For mass excavation, rock is defined as any material that cannot be dislodged by a Caterpillar Model No. D-8 heavy-duty tractor, or equivalent, equipped with a hydraulically operated, single-tooth power ripper without the use of hoe-ramming or blasting. For trench, footing and pit excavations, rock excavation shall be defined in terms of a Caterpillar Model No. 330 hydraulic excavator, or equivalent. This classification does not include material such as loose rock, concrete, cemented gravel, or other materials that can be removed by means other than hoe- ramming or blasting, but which for reasons of economy in excavating, the contractor chooses to remove by hoe-ramming or blasting. Rock does not include boulders less than one cubic yard in volume. Boulders larger than one cubic yard in volume will be considered rock for payment purposes.*

Where the rock cannot be removed with conventional excavation equipment, special means of excavation may be necessary. Removal of this rock may require the use of air-powered tools, rock splitters, large hoe rams, or rippers.

6.3 Foundations

6.3.1 Foundation Type and Bearing Material

Underhill considers shallow foundations consisting of conventional spread and strip footings to be suitable for support of the proposed buildings. Foundations should be founded in competent virgin materials, in competent Stratum F existing fill as evaluated by Underhill following excavation by the Contractor, or on compacted structural fill as observed and tested by Underhill. Specifically, footings should be founded in the following materials:

- Stiff Existing Fill Soils (Stratum F) free of deleterious materials when evaluated by the Geotechnical Engineer during construction based on observations of hand augers and/or test pits.
- Competent Residuum (Stratum B) as evaluated by the Geotechnical Engineer. IS STRATUM B STILL 2000 PSF? 9
- Hard Disintegrated Rock (Stratum C) as evaluated by the Geotechnical Engineer.
- New Compacted Structural Fill observed and tested by the Geotechnical Engineer.

Specific foundation design parameters are provided below.

6.3.2 Foundation Design Parameters

Table 6-1: Foundation Recommendations

Item	Description
Maximum Net Allowable Bearing Pressure	2,000 PSF
Footing Bearing Material	○ Stratum F (free of deleterious material as evaluated by Underhill) ○ Strata B/C Residuum ○ Compacted Structural Fill

Table 6-1: Foundation Recommendations	
Minimum Foundation Dimensions	○ Spread Footings: 24 inches ○ Strip Footings: 16 inches
Ultimate Passive Resistance (Equivalent Fluid Pressures)	288 PCF
Ultimate Coefficient of Sliding Friction	0.35
Minimum Embedment Below Finished Grade	○ Exterior: 2 feet ○ Interior: Nominal Depth Below Slab
Estimated Total Settlement from Structural Loads	Less than about 1 inch
Estimated Differential Settlement	About ½ of total settlement

1" MAX SETTLEMENT SEEMS HIGH 10

1. The maximum net allowable bearing pressure recommended considers a factor of safety of FS=3.0.
2. Values provided are for the maximum loads noted in Proposed Construction (Section 3.2).
3. Use of passive earth pressures require the sides of the excavation for the spread footing foundation to be vertical and the concrete placed neat against these vertical faces, or where footings are formed, the forms removed and compacted structural fill placed against the vertical footing face.
4. Minimum embedment needed to address frost protection /or seasonal water content variations. For sloping ground, maintain depth below the lowest adjacent exterior grade within 5 horizontal feet of the structure.
5. The recommended bearing pressure may be increased by 33 percent for wind and seismic loads only when used in conjunction with load combinations defined in IBC Section 1605.3.2, Alternate Basic Load Combinations for use with allowable stress design or other applicable code exceptions.
6. Steel reinforcement as specified for foundation walls should be placed and secured in accordance with ACI criteria.

6.3.3 Foundation Grades and Drainage

In addition to the design parameters presented in Section 6.3.2, the following recommendations are provided:

- The final ground surface grades surrounding the building should be sloped at a grade of at least 5% away from the foundations to provide positive drainage and reduce the potential for water ponding next to footings.
- Downspouts and gutters (or scuppers) should be provided to convey roof water well away from the foundations.
- Trees, which may grow large root systems, and which have a high demand for water should not be located within 25 feet of the building (i.e., only ornamental trees and shrubbery should be located near the structures, when plantings are desired).
- Footing subgrades needing undercut should be concreted at the elevation of undercut or backfilled to design bottom of footing grade with lean concrete or Controlled Low Strength Material (CLSM), known locally as “flowable fill.”
- Underhill’s Geotechnical Engineer should observe the footing subgrades for adequacy prior to placement of concrete by the contractor.
- Some footing excavations may encounter rock above the design bottom of footing grade. Where this condition occurs, rock should be excavated to at least 6 inches below the base of the foundations and replaced with new Compacted Structural Fill to provide a “cushion” and a uniform bearing surface for the building’s foundation.

Underhill should evaluate the footing subgrade soils for suitability prior placement of concrete by the Contractor. Evaluation techniques may include probing with a penetrometer or drilling hand augers. The Contractor should excavate areas deemed unsuitable by the Geotechnical Engineer and replace these areas with additional compacted structural fill.

6.4 Seismic Site Class and Site Coefficients

The Seismic Design Category is evaluated based on the review of the subsurface conditions within the uppermost 100 feet of the surface. The subsurface exploration of this site consisted of borings drilled to depths of up to 15 feet below the surface, which included borings terminating on rock. The subsurface properties below the boring depths are estimated based on the review of the subsurface data available, and with Underhill's experience with the local subsurface and geologic conditions in the vicinity of the subject site. A weighted average value of shear wave velocity, Standard Penetration Test resistance, or undrained shear strength values is obtained in accordance with Section 20.4 of ASCE 7 and the International Building Code (IBC).

Geophysical testing may be performed to evaluate whether a Site Class value higher than the value obtained based on the SPT/shear strength data. Underhill evaluated the Seismic Site Class and Seismic Site Coefficients for this project according to Virginia Uniform State-wide Building Code's (VUSBC) adoption of IBC Section 1613 (2018). Based on Underhill's review of the subsurface conditions, the structural design may use the following seismic criteria:

- Seismic Site Class: D
- Site Coefficient, Fa: 1.6
- Site Coefficient, Fv: 2.4

The Site Class was evaluated based on Standard Penetration Test N values and data obtained from Underhill's files of subsurface data from neighboring sites.

6.5 Floor Slab

The proposed floor slab should be supported as follows:

- The floor slab should be supported on competent Strata F, B, or C material as evaluated by the Geotechnical Engineer, or on Type II Compacted Structural Fill as described in Section 6.2.2.
- The slab on grade may be designed using a modulus of subgrade reaction value, **k= 100 PCI** (ACI 360-10).
- The Contractor should recompact floor slab subgrades immediately before placing moisture barrier materials to repair any disturbance that may occur due to construction.
- Utility excavations should be backfilled with Type I or Type II Compacted Structural Fill.
- A minimum 4-inch-thick layer of crushed stone or washed gravel capillary moisture barrier should underly the floor slab on grade.
    - Moisture barrier material should consist of VDOT No. 57 size aggregate.
    - The Contractor should compact the stone in place by making at least two passes by suitable vibratory compaction equipment.

- Stone depths beneath slabs exceeding 2 feet should be observed by the Engineer, as indicated by current code criteria.

- The moisture barrier should be overlain with a 10-mil vapor barrier.
- Welded-Wire-Reinforcement (WWR) (ASTM A1064), where specified as reinforcement for slab-on-grade concrete, should be provided in sheet form (i.e., not rolled) with appropriate lap splices (ACI 318-19 Section 25.5.3) and placed on sturdy chairs and/or bolsters to maintain uniform cover following Wire Reinforcement Institute (WRI) 600 / TF 702-R-08 guidelines (i.e., not pulled up, commonly known as "hooking").
- Control joints, where specified, should not exceed a spacing of 15 feet in each direction and isolation block-outs should be provided at columns.

6.6 Below Grade Walls

IF A LOW RETAINING WALL IS REQUIRED AT THE NE CORNER OF THE SITE TO SUPPORT THE POOL APRON, DOES UE HAVE RECOMMENDATIONS FOR THIS, OTHER THAN BELOW? 11

6.6.1 Reinforced Concrete Walls

Table 6-2 below provides the equivalent fluid unit weights and the associated surcharge pressure factors for design of below-grade walls considering the use of the backfill types as noted in the table. The table provides applicable design parameters for the active, at-rest, and passive conditions along with a recommended friction factor for sliding resistance:

Table 6-2: Below-Grade Wall Recommendations

Recommended Wall Backfill Materials:		
➢ VDOT No. *57* Crushed Stone		
➢ Washed VDOT No. 10 Screenings		
➢ Select Coarse-Grained Soil Backfill (meeting the following criteria):	○ Liquid Limit, LL < 40 ○ Plasticity Index, PI < 20 ○ Percent Passing No. 4 Sieve: 100% ○ Percent Passing No. 200 Sieve: 0–35% ○ Drainage Board/No. *57* stone chimney [1] (min. 18-inch-wide) provided between soil backfill and exterior wall face.	
Recommended Lateral Earth Pressures / Surcharge Values [2]		
Earth Pressure Condition	*Equivalent Fluid Unit Weight, γ_{EF} (PCF)*	*Surcharge Pressure Factor (k)*
Active	42	0.35
At-Rest	62	0.52
Passive	288	N/A
Frictional Resistance Factor, f (between the base of the foundation and subgrade)		0.35

1. Drainage Board and / or Chimney Drain may be omitted where adjacent backfill includes less than 15 percent fines (i.e., Percent Passing No. 200 Sieve < 15%).

Table 6-2: Below-Grade Wall Recommendations

2. The recommended lateral earth pressure values and associated surcharge values are conservative and are based on correlations with published data. Lower lateral earth pressure values may be considered when samples of proposed backfill are submitted to Underhill for review and testing.
3. The wall design should consider the equivalent fluid pressures by multiplying the equivalent fluid unit weight by the height of the wall, H in ft, using a triangular earth pressure distribution.
4. The design should obtain the surcharge pressure ordinate by multiplying the surface surcharge pressure, q, by the appropriate factor shown above.
5. The design parameters do not consider hydrostatic pressures since subdrainage is recommended.
6. The evaluation of sliding and overturning resistance should use a factor of safety of 2.0.
7. Sliding resistance may use a factor of safety of 1.5 when the design considers frictional resistance alone and ignores passive resistance.
8. The designer may desire to implement a key beneath the foundation to provide additional passive resistance.
9. Foundations for retaining walls be designed in accordance with the recommendations presented in Section 6.3.
10. Backfill should be placed in the zone extending from the base of the wall upwards at a projection of 45 degrees.

The pool wall designs should consider ultimate passive resistance based on the passive equivalent fluid unit weight for on-site soils as referenced above. The design should not consider passive resistance to act against the front face of the wall footing above a depth of 2 feet.

Cantilever retaining walls, where used, may resist sliding based on an ultimate frictional resistance factor, f, between the concrete base and the soil as referenced above and the ultimate passive resistance along the face of the footing and a key beneath the wall footing.

The Contractor should place VDOT No. 57 open graded aggregate backfill in maximum 16-inch-thick lifts and compact each lift using suitable vibratory equipment. VDOT No. 10 Screenings and soil backfill, where applicable, should be placed as Compacted Structural Fill. Only light hand-operated equipment should be used to compact backfill against walls. The Structural Engineer should approve the size of compaction equipment.

Subdrainage is recommended behind walls to assist in the control of groundwater.

- Where soil is used as wall backfill, a vertical drainage layer should be installed between the exterior face of the wall and the soil backfill as follows:
    - Option 1 - Geocomposite Drainage Panels The Drainage Composite (Tencate Miradrain G100N or approved equivalent) should be installed following the manufacturer's specifications including binding the edges of the panels with drainage geotextile to limit the potential for soil intrusion into the drainage system.
    - Option 2 – VDOT No. 57 Crushed Stone Chimney Drain As an alternative to Option 1, a minimum 18-inch-wide horizontal layer of VDOT No. 57 Crushed Stone may be placed between the exposed wall face and the soil backfill, alternating placement of crushed stone and the adjacent soil backfill lifts as backfilling progresses.
- The vertical drainage layer should completely cover the waterproofing materials to protect the waterproofing system and to provide coverage from the base of the foundation along the entire wall and extend one foot above the waterproofing material.

The below-grade wall subdrainage should consist of a perimeter subdrain. Subdrainage for site retaining walls should consist of a perimeter subdrain or a series of weepholes as described below.

- Perimeter subdrains should be located next to the footing, or where footing concrete is cast neat against the excavation, on top of the footing, next to the pool wall.
- Subdrains should consist of the following:
    - Minimum 6-inch I.D. slotted PVC pipe is recommended for the perimeter subdrainage system to address the anticipated fluctuations in the water table.
    - The subdrain pipe should be surrounded by washed VDOT No. 57 crushed stone backfill with at least 4 inches of VDOT No. 57 stone below the pipe and between the pipe and the wall.
    - Note: Drainage pipe wrapped with drainage "socks" are not recommended due to documented clogging of fines with this system.
- A non-woven drainage geotextile (Tencate Mirafi 140N or approved equal) should wrap around the crushed stone drainage media to reduce the potential for infiltration of fines into the subdrainage system.
- Subdrains should drain by gravity to an outlet or storm sewer.
- The Contractor should exercise care when placing and backfilling subdrainage pipe to avoid damage to the subdrainage system during installation.

I THINK THAT WAI NEEDS TO BE AWARE OF THIS AND CONSIDER IMPACTS ON POOL WALL DETAILING

12

7.0 Construction Considerations

7.1 Site Grading and Earthwork

The on-site soils are susceptible to moisture changes, will be easily disturbed, and difficult to compact under wet weather conditions. Drying and reworking of the soils are likely to be difficult and may not be possible during wet winter months. Therefore, it will be important that the earthwork phases of this project be performed during the warmer, drier times of the year to limit the potential for disturbance of on-site soils and reduce the amount of fill imported to the site.

Traffic on stripped or undercut subgrades should be limited to reduce disturbance of underlying soils. The Contractor should provide site drainage to maintain subgrades free of water and to avoid saturation and disturbance of the subgrade soils before lacing compacted structural fill or moisture barrier material. This will be important during all phases of the construction work. The Contractor should be responsible for reworking of subgrades and compacted structural fill that were initially considered suitable but were later disturbed by equipment and/or weather.

Earthwork activities may encounter groundwater during excavation to grade, especially during times of heavy precipitation. Therefore, the Contractor may need to provide temporary dewatering such as trenching and/or pumping from sumps to control the surface and /or groundwater.

Excavations should be, at a minimum, performed in accordance with OSHA 29 CFR, Part 1926, Subpart P, "Excavations" and its appendices, and in accordance with any applicable local, and/or state regulations.

THIS HAS TO DO WITH BENCHING, H x V RATIOS, SHORING SUPPORT, ETC., CORRECT? 13

7.2 Shallow Foundations

The Contractor should exercise care during excavation for shallow foundations so that as little disturbance as possible occurs at the foundation level. The Contractor should carefully clean loose or soft soils from the bottom of the excavation before placing concrete. Underhill's Engineer should observe actual foundation subgrades during construction to evaluate whether subgrade soils meet the requirements as recommended in this report.

Footing subgrades needing undercut may be concreted at the elevation of undercut or backfilled with Controlled Low Strength Material (CLSM), locally known as "flowable fill." Concrete placement should take place the same day as excavation of the foundations.

7.3 Engineering Services During Construction

The engineering recommendations provided in this report are based on the information obtained from the subsurface exploration and laboratory testing. However, conditions on the site may vary between the discrete locations observed at the time of the subsurface exploration. The nature and extent of variations between borings may not become evident until during construction. To account for this variability, Underhill should provide professional observation and testing of subsurface conditions revealed during construction as an extension of our design phase engineering services. These services will also help in evaluating the Contractor's conformance with the plans and specifications.

8.0 General Specification Recommendations

The Project Construction Documents should include an allowance for possible additional costs that may be required to construct the foundations, as recommended in this report. Costs may be incurred for a variety of reasons including variation of soil between borings, unsuitable soils, need for additional borrow fill material, wet on-site soils, obstructions, rock excavation, temporary dewatering, etc. Add/deduct unit prices in the construction contract are recommended so adjustments can be made for the actual work performed for the following:

- Scarifying and drying wet and/or loose subgrade soils.
- Undercutting unsuitable soils and replacement with compacted structural fill.

The project documents should indicate the Contractor's responsibility for providing adequate site drainage during construction. Inadequate drainage can lead to disturbance of soils by construction traffic and increased volume of undercut. The project documents should also delegate the Contractor responsible for reworking of subgrades and compacted fill initially considered suitable, but later disturbed by equipment and/or weather.

This report may be made available to prospective bidders for informational purposes. The project specifications are recommended contain the following statement:

> *Underhill Engineering, LLC has prepared this geotechnical engineering report for this project. This report is for informational purposes only and is not part of the contract documents. The opinions expressed represent the Geotechnical Engineer's interpretation of the subsurface conditions, tests, and the results of analyses conducted. Should the data contained in this report not be adequate for the Contractor's purposes, the Contractor may make, before bidding, independent exploration, tests, and analyses. This report may be examined by bidders at the office of the Owner, or copies may be obtained from the Owner at nominal charge.*

Additional data and reports prepared by others that could have an impact upon the Contractor's bid should also be made available to prospective bidders for informational purposes.

9.0 Limitations

The analyses and recommendations submitted in this report are based on the information revealed by the subsurface exploration. This report attempts to provide for normal contingencies, but the possibility remains that unexpected conditions may be encountered during construction.

Underhill has prepared this study to aid in the evaluation of the site. It is intended for use concerning this specific project and should not be used for other purposes. The recommendations provided within are based on information on the site and proposed construction as described in this report. Changes regarding existing conditions or changes in loads, locations, or grades should be brought to Underhill's attention so that recommendations can be modified as needed. Underhill would appreciate an opportunity to review the plans and specifications as they pertain to the recommendations contained in this report, and to submit comments to you based on this review.

THANK YOU AND WE WILL DO THAT 14

The Geotechnical Engineer of Record (GER) should be retained to provide the Special Inspections testing including the Geotechnical-Related Construction Phase Services (CPS) as an extension of the Design Phase Services (DPS). If the Client elects to proceed without the GER providing Geotechnical-Related CPS, then Underhill's Services will be deemed "complete" upon completion of the DPS. Note that if the GER is not retained to provide the observation, testing, and geotechnical-related review of the Work, or any other CPS related to the Project's Geotechnical Aspects, then the Owner and its Third Parties assume all responsibility for interpretation of the Project's Geotechnical Aspects during the Construction Phase of the Project.

CONTRUCTION PHASE SERVICES WERE NOT INCLUDED IN THE NSA/UE CONTRACT. WE WILL ADVISE THE CLIENT THAT IT IS RECOMMENDED TO RETAIN UE FOR THESE SERVICES AND HAVE NO OBJECTION TO DOING SO 15

Construction site safety is the sole responsibility of the contractor who controls the means, methods, and sequencing of construction operations. Under no circumstances shall the information provided in this or future reports be interpreted to mean Underhill is assuming responsibility for construction site safety, or the contractor's activities; such responsibility shall neither be implied nor inferred.

Underhill has endeavored to complete the services identified herein in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions as this project. No other representation, express or implied, is included or intended, and no warranty or guarantee is included or intended in this report, or other instrument of service.

References

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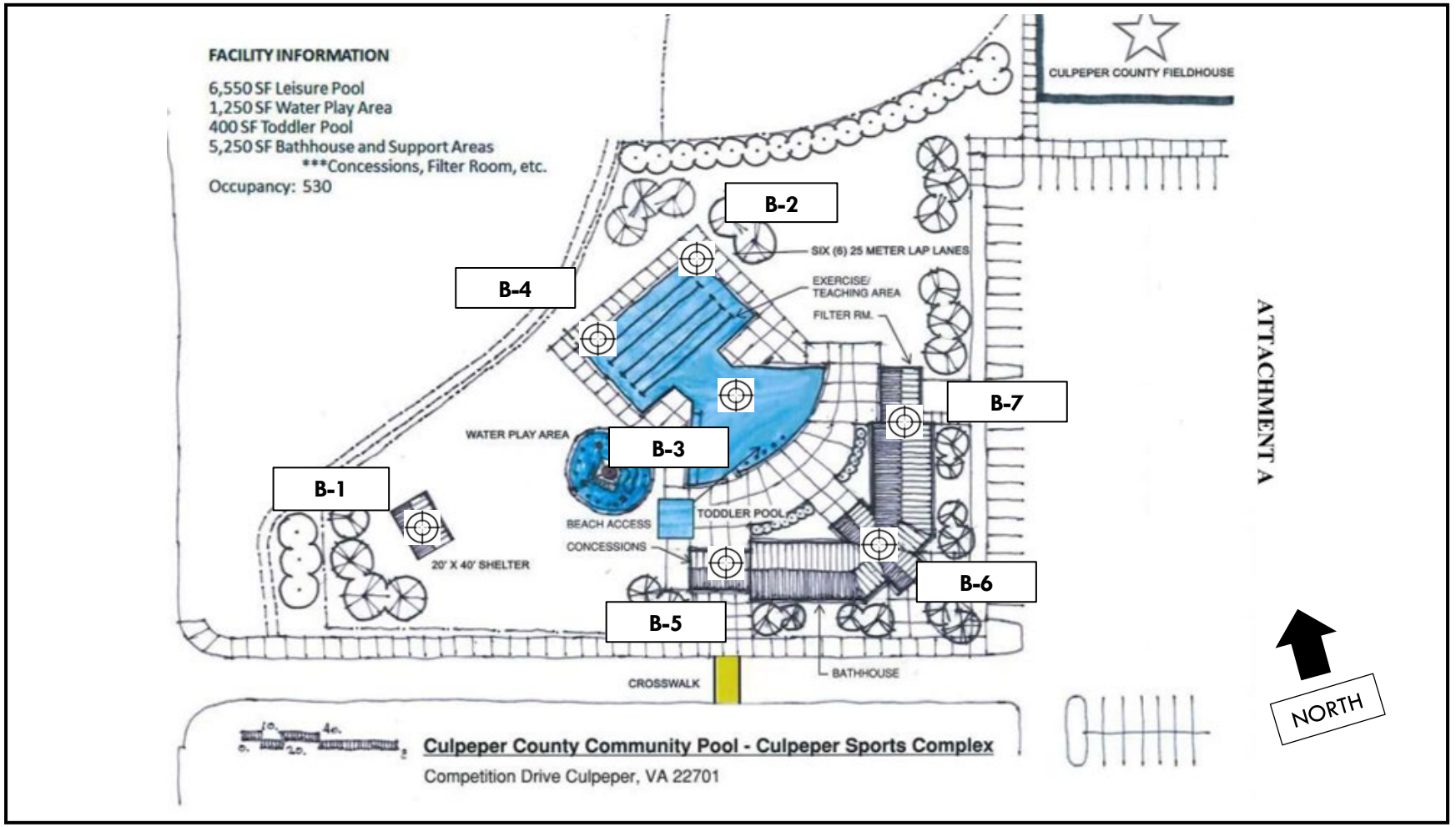
Figure 1: Site Vicinity Map

Image from Google Earth

No Scale

NORTH

Figure 2: Boring Location Plan



APPROXIMATE TEST BORING LOCATION Scale: No Scale Note: Base drawing provided by Client

Appendix A: Subsurface Exploration Procedures

Test Borings – Hollow Stem Augers (HSA)

The borings are advanced by turning a continuous flight auger with a center opening of 2¼ or 4¼ inches. A plug device blocks off the center opening while the augers are advanced. Cuttings are brought to the surface by the auger flights. Sampling is performed through the center opening in the hollow stem auger by standard methods after removal of the plug. Usually, no water is introduced into the boring using this procedure.

Test Borings – Mud-Rotary Drilling (MRD)

The boring is advanced with a drill string consisting of a 3-7/8-inch diameter tri-cone roller bit attached to A-sized drill rods. The boring is advanced within 2 feet of the surface using a dry tri-cone roller-bit drilling technique. Below this depth, the driller advances the boring using the mud rotary drilling (MRD) technique. Casing is set at the depths indicated in the respective logs and a bentonite drilling fluid is pumped through the drill rods to flush cuttings to the surface. The borehole remains full of drilling fluid to maintain the sides of the borehole. Loss of circulation, where encountered, is noted in the respective logs. The driller removes the drill string, removes the roller bit, attaches a split spoon sampler, and re-inserts the drill string in the borehole to conduct the Standard Penetration Test (SPT). Water level data are indicated in the logs. Short-term water level readings may be influenced by the drilling fluid introduced using the Mud Rotary Drilling technique.

Standard Penetration Test Results

The numbers in the Sampling Data column of the boring logs represent Standard Penetration Test (SPT) results. Each number represents the blows needed to drive a 2-inch O.D., 1⅜-inch I.D. split-spoon sampler 6 inches, using a 140-pound hammer falling 30 inches. The sampler is typically driven a total of 18 or 24 inches. The first 6 inches are considered a seating interval. The total of the number of blows for the second and third 6-inch intervals is the SPT "N-value." Note also that driving of the split-spoon sampler is terminal when a blow count of 50 over 6-inches or less is reached. The SPT is conducted according to ASTM D1586.

Many correlations with SPT N-values are used in the development of our Geotechnical Engineering recommendations. These correlations are usually based on SPT N-values obtained using a Safety Hammer. The SPTs for this project were performed using an Automatic Trip Hammer (ATH). The energy applied to the split-spoon sampler using the ATH is about 30 percent greater than that applied using a Safety Hammer. The hammer blows shown on the boring logs are uncorrected for high energy. However, these SPT N values are corrected for the higher energy purposes for analysis.

Soil Classification Criteria

The group symbols on the logs represent the Unified Soil Classification System Group Symbols (ASTM D2487) based on the visual observation and limited laboratory testing of the samples. Criteria for visual identification of soil samples are included in this appendix. Some variation can be expected between samples visually classified and samples classified in the laboratory.

Disintegrated rock is defined as residual material with SPT N values between 60 blows per foot and refusal. Refusal is defined as an N value of 50 blows for a penetration of one inch or less.

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Pocket Penetrometer Results

The values following "PP=" in the sampling data column of the logs represent pocket penetrometer readings. Pocket penetrometer readings provide an estimate of the unconfined compressive strength of fine-grained soils.

Test Pits and Hand Auger Borings

Test Pits are excavator-dug test holes, commonly performed by others under Underhill's observations. Hand Auger Borings are hand-excavated boreholes performed by Underhill's representative using a 3.5 to 4-inch I.D. open-bucket auger. These test holes are logged as excavated and Geostick Penetrometer (GP), Dynamic Cone Penetrometer (DCP), and/or Pocket Penetrometer (PP) readings obtained as the test hole is advanced. An N-value is recorded for the DCP readings and these DCP N values are correlated with SPT N-values based on available published data. GP readings provided a relative indication of the soil's density or consistency similar to the effort and resistance obtained from pushing a ½ inch rebar into the soil.

Water Observation Wells

Temporary water observation wells (W.O.W's), when installed, are constructed using hand-slotted or screened, PVC pipe in the bore hole. The pipe is capped and the area surrounding the pipe backfilled with cuttings from the boring.

Piezometers

Piezometers are similar to temporary water observation wells but are constructed using screened PVC pipe in the bore hole. The screened portion of the pipe is surrounded by clean sand and a plug of bentonite pellets installed above the sand. The remaining portion of the well is backfilled with cuttings from the boring or backfilled with cement-bentonite grout.

Boring & Test Pit Log Key

	Rock Core (NQ)	**WOH**	Weight of Hammer
	Standard Penetration Split Spoon Sampler (SPT)	**WOR**	Weight of Rods
	Stabilized Groundwater		Groundwater at time of drilling
	Shelby Tube	WC	Water Content
WOW	Water Observation Well	PP	Pocket Penetrometer
GP	Geostick Penetrometer	DCP	Dynamic Cone Penetrometer

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Appendix A: Key to Logging and Soil Classification

Particle Size and Proportion

Descriptions are assigned to each soil sample or stratum based on estimates of the particle size of each component of the soil and the percentage of each component in the soil.

Particle Size Descriptive Terms		Proportion Descriptive Terms		
Soil Component	Particle Size	Component	Term	Percentage
Boulder	> 12 inches	Major	Uppercase Letters (e.g., SAND, SILT)	> 50%
Cobble	3 - 12 inches			
Gravel-Coarse	¾ - 3 inch			
-Fine	#4 - ¾ inch	Secondary	Adjective (e.g., sandy, clayey)	20% - 50%
Sand-Coarse	#10 - #4			
-Medium	#40 - #10			
-Fine	#200 - #10	Minor	With	15% - 20%
Silt	< #200		Trace	< 15%
Clay	< #200		Contains	presence of

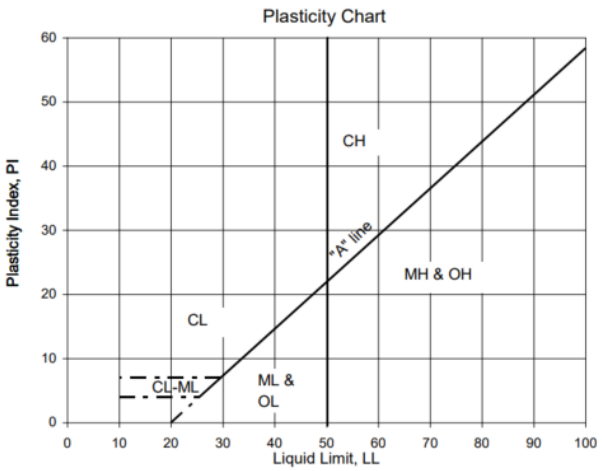
Density or Consistency

The Standard Penetration Test values (N-values) are used when soil test borings are performed, to describe the density of coarse-grained soils (gravel, sand) or the consistency of fine-grained soils (silt, clay). Sandy silts of low plasticity may be assigned a density instead of a consistency.

DENSITY		CONSISTENCY	
Term	N-value	Term	N-Value
Very Loose	0-4	Very Soft	0-2
Loose	5-10	Soft	3-4
Medium Dense	11-30	Medium Stiff	5-8
Dense	31-50	Stiff	9-16
Very Dense	>51	Very Stiff	17-32
		Hard	>33

Notes:
1. The N-value is the number of blows of a 140-lb. hammer (falling 30 inches) required to drive a standard split-spoon sampler (2.0 in. O.D., 1-3/8 in. I.D.) 12 inches into the soil after properly seating the sampler six inches.
2. When encountered, gravel may increase the N-value of the SPT and may not accurately represent the in-situ density or consistency of the soil sampled.

Appendix A: Unified Soil Classification System (ASTM D-2487)

Major Divisions			Group Symbols	Typical Names	Laboratory Classification Criteria		
Coarse-grained soils (More than half of material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (little or no fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 Sieve), coarse-grained soils are classified as follows: Less than 5 per cent: GW, GP, SW, SP More than 12 per cent: GM, GC, SM, SC 5 to 12 per cent: Borderline cases requiring dual symbols	$C_U = D60/D10$ greater than 4; $C_C = (D30)^2/(D10 \times D60)$ between 1 and 3	
			GP	Poorly graded gravels, gravel-sand mixtures, little or no fines		Not meeting all gradation requirements for GW	
		Gravels with fines (Appreciable amount of fines)	GM	Silty gravels, gravel-sand-silt mixtures		Atterberg limits below "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
			GC	Clayey gravels, gravel-sand-clay mixtures		Atterberg limits below "A" line or PI greater than 7	
	Sands (More than half of coarse fraction is smaller than No.4 sieve size)	Clean sands (little or no fines)	SW	Well-graded sands, gravelly sands, little or no fines		$C_U = D60/D10$ greater than 6; $C_C = (D30)^2/(D10 \times D60)$ between 1 and 3	
			SP	Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW	
		Sands with fines (Appreciable amount of fines)	SM	Silty sands, sand-silt mixtures		Atterberg limits above "A" line or PI less than 4	Above "A" line with PI between 4 and 7 are borderline cases requiring use of dual symbols
			SC	Clayey sands, sand-clay mixtures		Atterberg limits above "A" line or PI greater than 7	
Fine-grained soils (More than half material is smaller than No. 200 sieve	Silts and clays (Liquid limit less than 50)		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity			
			CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays			
			OL	Organic silts and organic silty clays of low plasticity			
	Silts and clays (Liquid limit greater than 50)		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts			
			CH	Inorganic clays of high plasticity, fat clays			
			OH	Organic clays of medium to high plasticity			
	Highly organic soils		Pt	Peat and other highly organic soils			

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Boring Number : B-1
Project Number : 23029
Project : Culpeper County Community Pool
Location : Culpeper County, VA

X Coordinate : 38.473639
Y Coordinate : -79.945912
Elevation : 499.0 FT
Boring Depth : 8.6 FT
Start Date : 6/19/2023
End Date : 6/19/2023

Drilling Contractor : Ayers & Ayers
Foreman : M. White
Drill Rig Type : CME-45
Drilling Method : 2-1/4 HSA
Hammer Type: Safety Hammer
Logged by : S. Ray

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Remarks
Encountered	6/19/2023	---	Dry	---
Completion	6/19/2023	10:01 AM	Dry	---
Casing Pulled	6/19/2023	10:03 AM	Dry	Caved at 6 FT
Long-Term	---	---	---	---

DEPTH (FT)	LITHOLOGY: STRATUM	LITHOLOGY: LITHOLOGIC SYMBOL	LITHOLOGY: GEOLOGIC DESCRIPTION OF SOIL AND ROCK STRATA	LITHOLOGY: USCS	LITHOLOGY: ELEVATION	TEST DATA: SAMPLE NUMBER	TEST DATA: SAMPLE TYPE	TEST DATA: SAMPLING DATA	TEST DATA: SPT VALUE	TEST DATA: TESTS	REMARKS
0.0			Topsoil		499.0						
0.3	F		Fine sandy lean clay FILL, trace root fragments, dry - tan and red	CL	498.7	S-1		13+13+13	26		FILL
2.0	B		Fine sandy SILT, trace mica and pyrrhotite, moist - brown and black	ML	497.0	S-2		10+10+24	34	W=29.2%	Relict structure at 2 FT
						S-3		15+50/6"	50+		
4.5	C		DISINTEGRATED ROCK, trace mica and pyrrhotite, moist - brown and black		494.5						RESIDUUM
			do, - brown, gray-green, and tan			S-4		50/4"	50+		Augers grinding at 7.5 FT
			do, - brown			S-5		50/1"	50+		Sampler refusal
8.6			Boring Terminated at 8.6 FT		490.4						

Notes : 1. Boring elevations referenced from undated topographic map from Culpeper County Parks and Recreation.
2. Boring backfilled upon completion.

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Boring Number : B-2
Project Number : 23029
Project : Culpeper County Community Pool
Location : Culpeper County, VA

X Coordinate : 38.473857
Y Coordinate : -77.945274
Elevation : 500.0 FT
Boring Depth : 11.3 FT
Start Date : 6/19/2023
End Date : 6/19/2023

Drilling Contractor : Ayers & Ayers
Foreman : M. White
Drill Rig Type : CME-45
Drilling Method : 2-1/4 HSA
Hammer Type: Safety Hammer
Logged by : S. Ray

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Remarks
Encountered	6/19/2023	---	Dry	---
Completion	6/19/2023	11:06 AM	Dry	---
Casing Pulled	6/19/2023	11:11 AM	Dry	WOW to 11.3 FT
Long-Term	7/26/2023	8:20 AM	11 FT	WOW to 11.3 FT

DEPTH (FT)	LITHOLOGY: STRATUM	LITHOLOGY: LITHOLOGIC SYMBOL	LITHOLOGY: GEOLOGIC DESCRIPTION OF SOIL AND ROCK STRATA	LITHOLOGY: USCS	LITHOLOGY: ELEVATION	TEST DATA: SAMPLE NUMBER	TEST DATA: SAMPLE TYPE	TEST DATA: SAMPLING DATA	TEST DATA: SPT VALUE	TEST DATA: TESTS	REMARKS
0.0			Topsoil		500.0						
0.2	F		Fine sandy lean clay FILL, trace root fragments, dry - tan do, trace gravel	CL	499.8	S-1		9+13+15	28		FILL
2.4	B		Fine sandy ELASTIC SILT, trace mica, pyrrhotite, and root fragments, moist - orange and black	MH	497.6	S-2 S-3		7+6+8 5+9+11	14 20	W=31.5% PP=3.5tsf	Relict structure at 2.4 FT RESIDUUM
7.5	C		DISINTEGRATED ROCK, trace mica and pyrrhotite, moist - orange and tan do, - brown		492.5	S-4 S-5 S-6		15+50/4" 50/3" 50/3"	50+ 50+ 50+		Augers grinding at 10.5 FT Auger refusal at 11 FT
11.3			Boring Terminated at 11.3 FT		498.7						

Notes : 1. Boring elevations referenced from undated topographic map from Culpeper County Parks and Recreation.
2. Boring backfilled upon completion.

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Boring Number : B-3
Project Number : 23029
Project : Culpeper County Community Pool
Location : Culpeper County, VA

X Coordinate : 38.473657
Y Coordinate : -77.945280
Elevation : 501.0 FT
Boring Depth : 11 FT
Start Date : 6/19/2023
End Date : 6/19/2023

Drilling Contractor : Ayers & Ayers
Foreman : M. White
Drill Rig Type : CME-45
Drilling Method : 2-1/4 HSA
Hammer Type: Safety Hammer
Logged by : S. Ray

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Remarks
Encountered	6/19/2023	---	Dry	---
Completion	6/19/2023	11:38 AM	Dry	---
Casing Pulled	6/19/2023	11:42 AM	Dry	Caved at 8.5 FT
Long-Term	---	---	---	---

DEPTH (FT)	STRATUM	LITHOLOGIC SYMBOL	GEOLOGIC DESCRIPTION OF SOIL AND ROCK STRATA	USCS	ELEVATION	SAMPLE NUMBER	SAMPLE TYPE	SAMPLING DATA	SPT VALUE	TESTS	REMARKS
0.0	F		Fine sandy lean clay FILL, trace root fragments, dry - tan	CL	501.0	S-1		9+11+10	21		FILL
1.0	B		Fine sandy SILT, trace root fragments, moist - tan and brown	ML	500.0						Relict structure at 1 FT
			do, trace mica and pyrrhotite, - dark brown			S-2		22+12+16	28	PP=2.0tsf	
						S-3		5+10+12	22	W=30.0%	
											RESIDUUM
7.5	C		DISINTEGRATED ROCK, trace mica and pyrrhotite, moist - brown and black		493.5	S-4		18+50/4"	50+		
						S-5		42+50/3"	50+		
						S-6		50/0"	50+		Auger and sampler refusal at 11 FT
11.0			Boring Terminated at 11.0 FT		490.0						

Notes : 1. Boring elevations referenced from undated topographic map from Culpeper County Parks and Recreation.
2. Boring backfilled upon completion.

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Boring Number : B-4
Project Number : 23029
Project : Culpeper County Community Pool
Location : Culpeper County, VA

X Coordinate : 38.473811
Y Coordinate : -77.945502
Elevation : 500.0 FT
Boring Depth : 10 FT
Start Date : 6/19/2023
End Date : 6/19/2023

Drilling Contractor : Ayers & Ayers
Foreman : M. White
Drill Rig Type : CME-45
Drilling Method : 2-1/4 HSA
Hammer Type: Safety Hammer
Logged by : S. Ray

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Remarks
Encountered	6/19/2023	---	Dry	---
Completion	6/19/2023	10:31 AM	Dry	---
Casing Pulled	6/19/2023	10:35 AM	Dry	
Long-Term	---	---	---	---

DEPTH (FT)	STRATUM	LITHOLOGIC SYMBOL	GEOLOGIC DESCRIPTION OF SOIL AND ROCK STRATA	USCS	ELEVATION	SAMPLE NUMBER	SAMPLE TYPE	SAMPLING DATA	SPT VALUE	TESTS	REMARKS
0.0			Topsoil		500.0						
0.3	F		Fine sandy lean clay FILL, trace root fragments, dry - brown	CL	499.7	S-1		8+11+18	29		FILL
2.0	B		Fine sandy ELASTIC SILT, trace pyrrhotite, moist - orange, red, and black	MH	498.0	S-2		9+11+11	22	W=30.0%	Relict structure at 2 FT
			do, trace mica, - orange, brown, and tan			S-3		4+9+16	25	PP=2.0tsf	RESIDUUM
7.0	C		DISINTEGRATED ROCK, trace mica and pyrrhotite, moist - brown and black		493.0	S-4		37+50/5"	50+		
						S-5		50/6"	50+		Augers grinding at 9.5 FT
10.0			Boring Terminated at 10.0 FT		490.0	S-6		50/0"	50+		Auger and sampler refusal at 10 FT

Notes : 1. Boring elevations referenced from undated topographic map from Culpeper County Parks and Recreation.
2. Boring backfilled upon completion.

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Boring Number : B-5
Project Number : 23029
Project : Culpeper County Community Pool
Location : Culpeper County, VA

X Coordinate : 38.474810
Y Coordinate : -77.945463
Elevation : 500.0 FT
Boring Depth : 15 FT
Start Date : 6/19/2023
End Date : 6/19/2023

Drilling Contractor : Ayers & Ayers
Foreman : M. White
Drill Rig Type : CME-45
Drilling Method : 2-1/4 HSA
Hammer Type: Safety Hammer
Logged by : S. Ray

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Remarks
Encountered	6/19/2023	---	Dry	---
Completion	6/19/2023	9:34 AM	Dry	---
Casing Pulled	6/19/2023	9:38 AM	Dry	Caved at 8.5 FT
Long-Term	---	---	---	---

DEPTH (FT)	LITHOLOGY: STRATUM	LITHOLOGY: LITHOLOGIC SYMBOL	LITHOLOGY: GEOLOGIC DESCRIPTION OF SOIL AND ROCK STRATA	LITHOLOGY: USCS	LITHOLOGY: ELEVATION	TEST DATA: SAMPLE NUMBER	TEST DATA: SAMPLE TYPE	TEST DATA: SAMPLING DATA	TEST DATA: SPT VALUE	TEST DATA: TESTS	REMARKS
0.0			Topsoil		500.0						
0.3	F		Fine sandy lean clay FILL, trace root fragments, dry - tan	CL	499.7	S-1		9+13+10	23		FILL
2.0	B		Fine sandy SILT, trace mica and pyrrhotite, moist - brown, tan, and red	ML	498.0	S-2		6+7+8	15	W=38.2%	Relict structure at 2 FT
						S-3		8+8+20	28	PP=2.5tsf	
7.0	C		DISINTEGRATED ROCK, dry - brown		493.0	S-4		40+50/2"	50+		RESIDUUM
			do, trace pyrrhotite			S-5		28+22+47	69		
						S-6		50/3"	50+		
14.3			Boring Terminated at 14.3 FT		485.7						

Notes : 1. Boring elevations referenced from undated topographic map from Culpeper County Parks and Recreation.
2. Water Observation Well installed to 14 FT.

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Boring Number : B-6
Project Number : 23029
Project : Culpeper County Community Pool
Location : Culpeper County, VA

X Coordinate : 38.473480
Y Coordinate : -77.945204
Elevation : 501.0 FT
Boring Depth : 11.5 FT
Start Date : 6/19/2023
End Date : 6/19/2023

Drilling Contractor : Ayers & Ayers
Foreman : M. White
Drill Rig Type : CME-45
Drilling Method : 2-1/4 HSA
Hammer Type: Safety Hammer
Logged by : S. Ray

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Remarks
Encountered	6/19/2023	---	Dry	---
Completion	6/19/2023	8:55 AM	Dry	---
Casing Pulled	6/19/2023	9:03 AM	Dry	Caved at 8 FT
Long-Term	---	---	---	---

DEPTH (FT)	LITHOLOGY: STRATUM	LITHOLOGY: LITHOLOGIC SYMBOL	LITHOLOGY: GEOLOGIC DESCRIPTION OF SOIL AND ROCK STRATA	LITHOLOGY: USCS	LITHOLOGY: ELEVATION	TEST DATA: SAMPLE NUMBER	TEST DATA: SAMPLE TYPE	TEST DATA: SAMPLING DATA	TEST DATA: SPT VALUE	TEST DATA: TESTS	REMARKS
0.0			Topsoil		501.0						
0.3	F		Fine sandy lean clay FILL, trace root fragments, dry - brown	CL	500.7	S-1		11+14+13	27		FILL
2.5	B		Fine to coarse SILTY SAND, moist - brown do, trace pyrrhotite	SM	498.5	S-2		14+12+18	30		Relict structure at 2.5 FT
						S-3		9+10+17	27	W=29.8%	
7.0	C		DISINTEGRATED ROCK, moist - brown and tan		494.0	S-4		50/5"	50+		RESIDUUM
						S-5		50/4"	50+		
11.5			Boring Terminated at 11.5 FT		489.5	S-6		50/0"	50+		Augers grinding at 11 FT Auger and sampler refusal at 11.5 FT

Notes : 1. Boring elevations referenced from undated topographic map from Culpeper County Parks and Recreation.
2. Boring backfilled upon completion.

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Boring Number : B-7
Project Number : 23029
Project : Culpeper County Community Pool
Location : Culpeper County, VA

X Coordinate : 38.473598
Y Coordinate : -77.945098
Elevation : 501.0 FT
Boring Depth : 12 FT
Start Date : 6/19/2023
End Date : 6/19/2023

Drilling Contractor : Ayers & Ayers
Foreman : M. White
Drill Rig Type : CME-45
Drilling Method : 2-1/4 HSA
Hammer Type: Safety Hammer
Logged by : S. Ray

GROUNDWATER OBSERVATIONS

	Date	Time	Depth	Remarks
Encountered	6/19/2023	---	---	---
Completion	6/19/2023	12:10 PM	Dry	---
Casing Pulled	6/19/2023	12:14 PM	Dry	Caved at 9 FT
Long-Term	---	---	---	---

DEPTH (FT)	STRATUM	LITHOLOGIC SYMBOL	GEOLOGIC DESCRIPTION OF SOIL AND ROCK STRATA	USCS	ELEVATION	SAMPLE NUMBER	SAMPLE TYPE	SAMPLING DATA	SPT VALUE	TESTS	REMARKS
0.0			Topsoil		501.0						
0.1	F		Lean clay with sand FILL, trace root fragments, dry - tan and yellow	CL	500.9	S-1		10+12+10	22	W=11.5%	FILL
2.0	B		Fine sandy SILT, trace mica and pyrrhotite, moist - brown, tan, and orange do, - brown and tan	ML	499.0	S-2		9+7+9	16		Relict structure at 2 FT
						S-3		4+17+38	55		RESIDUUM
7.0	C		DISINTEGRATED ROCK, trace mica and pyrrhotite, moist - brown and black		494.0	S-4		50/3"	50+		
9.0	B		Fine sandy SILT, trace mica and pyrrhotite, mosit - brown and black	ML	492.0	S-5		8+18+29	47		
11.5	C		DISINTEGRATED ROCK, moist - brown		489.5	S-6		50/0"	50+		Auger and sampler refusal at 12 FT
12.0			Boring Terminated at 12.0 FT		489.0						

Notes : 1. Boring elevations referenced from undated topographic map from Culpeper County Parks and Recreation.
2. Boring backfilled upon completion.

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Appendix B: Soil Laboratory Test Results

Test Boring No.	Depth (ft)	Sample Type	Stratum	USCS Description	Natural Moisture Content (%)	Sieve Results			Atterberg Limits		
						Percent Retained #4 Sieve	Percent Passing #40 Sieve	Percent Passing #200 Sieve	Liquid Limit	Plastic Limit	Plasticity Index
B-5	2.0 - 3.5	JAR	B	Sandy SILT, ML	38.2	0.6	82.2	66.7	43	37	6
B-6	4.0 - 5.5	JAR	B	SILTY SAND, SM	29.8	1.7	63.4	36.6	47	31	16
B-7	0.0 - 1.5	JAR	F	LEAN CLAY with sand, CL	11.5	0.4	89.6	81.7	38	21	17

Notes: 1. Soil tests in general accordance with ASTM standards.
2. Soil classifications are in general accordance with ASTM D2487 (as applicable), based on testing indicated.
3. Key to abbreviations: NP=Non-Plastic; -- indicates no test performed

Norman Smith

From: Susan Ray <susan.ray@underhillengineering.com>
Sent: Thursday, August 10, 2023 11:46 AM
To: nsmith@normansmitharchitecture.com; Kate Tryon
Cc: 'Rich Zubyk'; Chris Webster
Subject: RE: Culpeper County Community Pool: Geotechnical Report-NSA comments for your response
Attachments: 23029 Report 8-4-23-nsa comments numbered-080723.pdf

Hello Norman,

I have numbered your comments (and attached the PDF file for reference) and will address them in order here.

1. Noted
2. Noted
3. As noted in the second paragraph of Section 6.1, Stratum F may be suitable for footing support provided that the footing subgrades are observed by Underhill prior to concrete placement. For the building borings, only B-6 showed Fill below the anticipated footing elevation and only by a couple of inches after factoring in topsoil stripping. It would probably be advantageous (and most cost efficient) to bear the footings in Stratum B. Stratum B is considered sufficient for a 2,000 PSF bearing capacity. If you can provide specific structural loads, we may be able to refine the bearing capacity.
4. This would be a pool manufacturer question, they probably specify the type of waterproofing necessary. The discharge point would most likely be designed to intersect with the closest or most convenient stormwater drain.
5. There is always a chance of encountering unanticipated subsurface structures in areas with fill. We did not encounter any during drilling and we are not currently aware of any structures in the project area historically. Were there any encountered during the Field House construction? That seems to have been previously developed around the same time as this project area.
6. Noted
7. Correct.
8. Most likely in at least a few areas. The pool borings (B-2, B-3, and B-4) encountered Disintegrated Rock between 7 and 7.5 feet below the surface and Hard Rock (the unrippable by a D-8) between 10 and 11 feet below the surface. The Disintegrated Rock with blow counts of >50/3.0" will probably be able to be excavated with conventional equipment.
9. Yes, Stratum B soils are considered to have a Maximum Net Allowable Bearing Capacity of 2,000 PSF.
10. If you can provide us with specific structural load information, we can refine the settlement values. This analysis considered column and wall loads of up to 100 Kips and 2 KLF, respectively.
11. The recommendations for site walls in this section would apply. The designer would need to consider the lateral pressure and surcharge of the pool water where applicable.
12. Noted
13. Correct
14. Noted
15. We would be happy to provide you with Construction Phase Services, just let us know if you'd like a proposal.

Please let me know if you have any additional questions.

Susan

From: Norman Smith <nsmith@normansmitharchitecture.com>
Sent: Tuesday, August 8, 2023 3:32 PM
To: Kate Tryon <kate.tryon@underhillengineering.com>
Cc: 'Rich Zubyk' <rzubyk@normansmitharchitecture.com>; Susan Ray <susan.ray@underhillengineering.com>; Chris Webster <chris.webster@underhillengineering.com>
Subject: RE: Culpeper County Community Pool: Geotechnical Report-NSA comments for your response

Kate, Susan and Chris,

I have reviewed this report and have several comments which I have placed in text boxes in the attached pdf. Most comments are fairly basic but please review and respond at your earliest convenience.

Thank you,

Norman Smith, AIA, LEED AP

NORMAN SMITH ARCHITECTURE
Washington, DC Office:
1341 H Street, NE
Washington, DC 20002-4406
T 202.462.5886, x 240

Virginia Office
3637 Slate Mills Road
Sperryville, VA 22740-2410
T 202.462.5886 x240 or
540.547.4839

nsmith@normansmitharchitecture.com
www.normansmitharchitecture.com

From: Kate Tryon <kate.tryon@underhillengineering.com>
Sent: Friday, August 4, 2023 1:28 PM
To: 'Norman Smith' <nsmith@normansmitharchitecture.com>
Cc: Rich Zubyk <rzubyk@normansmitharchitecture.com>; Susan Ray <susan.ray@underhillengineering.com>; Chris Webster <chris.webster@underhillengineering.com>
Subject: Culpeper County Community Pool: Geotechnical Report

Norman,

Attached is the Geotechnical Report for Culpeper Pool. Please let us know if you have any questions.

Have a great weekend!

Kate

Kate Tryon
Business Administrator

underhill ENGINEERING
geotechnical | geodesign | geoconstruction
1001 East Market St. STE 100
Charlottesville, VA 22902-5381
Office: 434.771.0234
Mobile: 540.840.8501

SECTION 00 00 00 PROCUREMENT AND CONTRACTING REQUIREMENTS

PART 1 – GENERAL

1.1 AVAILABLE INFORMATION

A. Existing conditions information/underpinning
   1. Existing site conditions are based on in-person site surveys. All site conditions shown and noted are approximate and shall be VIF.

B. Survey information included on the drawings.
   1. Provided by Piedmont Land Surveyors and Hinchey and Baines, PLC

C. Environmental assessment
   1. NA

D. Geotechnical data
   1. Provided by Underhill Engineering, date 08/04/23 and made a part of the Project Manual and including a follow-up email from NSA to UE.

1.2 PROJECT FORMS

A. As provided by and/or agreed upon by the owner or as otherwise noted in this specification.

B. If not otherwise agreed upon, noted, or specified, they shall include:
   1. AIA G701 Change Order Form
   2. AIA G702/703 Application for Payment Form and Continuation Sheet
   3. AIA G704 Certificate of Substantial Completion
   4. AIA G705 Certificate of Insurance or Other Form Approved by The Owner
   5. AIA G706 Contractor's Affidavit of Payment of Debts and Claims
   6. AIA G706A Contractor's Affidavit of Release of Liens or Other Lien Release Form Approved by The Owner
   7. AIA G710 Architect's Supplemental Instructions
   8. AIA G716 RFI Form or Other Form Approved by The Owner
   9. AIA A101 Standard Form of Agreement Between Owner and Contractor for A Stipulated Sum (When the Cos Basis Is A Stipulated Sum)
   10. AIA A312 Performance Bond and Payment Bond If Required by The Owner
   11. AIA A401 Standard Form of Agreement Between Contractor and Subcontractor. Note that this is a suggested and preferred form but is not a requirement unless the owner has a contractual relationship with the subcontractor and the owner chooses to use this form.
   12. ASI FORM; By Architect
   13. AIA Document A305 Contractor's Qualification Statement.

1.3 CONDITIONS OF THE CONTRACT

A. DEFINITIONS
   1. Owner: Culpeper County
   2. Owner's Representative: the duly authorized person(s) selected by the Owner to represent the Culpeper County Department of Parks and Recreation; Andrew Hardy
   3. Address: 16388 Competition Drive, Culpeper, Va
   4. Unless otherwise noted and/or agreed, the "owner's representative" shall act for the "owner" in matters pertaining to these specifications.
   5. The terms General Contractor and Contractor and GC shall be interchangeable and shall refer to: to be selected.
   6. The term "Architect" shall refer to; Norman Smith, NORMAN SMITH ARCHITECTURE.
   7. The term "Structural Engineer" shall refer to; David Hall, DRH Engineers, PLC
   8. The term "MEP Engineer" shall refer to; Jason Damico, Valley Engineering
   9. The term "Civil Engineer" shall refer to; Marvin Hinchey, Hinchey and Baines PLC
   10. The term "Landscape Architect" shall refer to; Craig George, Valley Engineering
   11. CFCI: Contractor Furnished and Contractor Installed. The contractor shall furnish and install all items indicated as "CFCI".

12. OFCI: Owner Furnished and Contractor Installed. So designated items shall be furnished by the owner and installed by the contractor. The contractor shall furnish and install all concealed blocking for the OFCI items as required.
13. OFOI: Owner Furnished and Owner Installed. So designated items shall be furnished and installed by the owner. The owner may use an independent contractor to accomplish this work. The contractor shall coordinate his work with OFOI work and the owner shall likewise coordinate such work with the work of the contractor.
14. INCLUDING: Including But Not Limited To.
15. PROVIDE: Furnish and install, complete, in place and ready for operation and use.
16. NA: Not Applicable
17. NIC: Not In Contract.
18. UON: Unless Otherwise Noted.
19. TBS: To Be Selected.
20. AHJ: Authority Having Jurisdiction
21. BASE CONSTRUCTION COST: the cost for construction based on the drawings and specifications, including allowances, and not including unit prices, unless otherwise specifically noted. The term base construction cost may apply to a guaranteed maximum price, a fixed price or other forms of pricing as determined, defined, and agreed to in writing by the owner and contractor.
22. REP: Representative
23. PM: Project Manager
24. RFI: Request For Information/Interpretation
25. ASI: Architect's Supplemental Information/Instruction
26. SOW: Scope Of Work
27. BOD: Basis Of Design
28. TOS: Top Of Slab
29. BOS: Bottom Of Slab
30. TOSI: Top Of Sidewalk
31. PDS/MDSS: Product/Material Data Safety Sheets
32. SER: Structural Engineer of Record
33. AER: Architect of Record
34. CER: Civil Engineer of Record
35. MEPER: Mechanical/Plumbing/Electrical Engineer(S) Of Record
36. IFB: Invitation For Bids
37. See the drawings for additional abbreviations.

B. GENERAL CONDITIONS
1. The most recent AIA A201 general conditions are hereby incorporated by reference unless specifically amended or revised below or included as part of the Owner's contract or unless excluded by the owner. In the event of a conflict between the AIA General Conditions and other general specifications, the Owner's requirements shall pertain except for matters and provisions concerning construction where these specifications shall take precedence over provisions of the contract between Owner and Contractor(s)/ Subcontractor(s) unless otherwise specifically agreed and noted in writing.

C. SUPPLEMENTAL CONDITIONS
1. Health and Safety requirements: As directed by the Owner.
2. Purchase and assigned contract requirements: As directed by the Owner.
3. Non-segregated facilities requirements: As directed by the Owner.
4. Equal Employment Opportunity requirements: As directed by the Owner.
5. Anti-Pollution measures: As directed by the Owner.
6. Security requirements: As directed by the Owner.
7. INSURANCE
    a. The contractor and each subcontractor shall procure, maintain, and pay for insurance in accordance with Article 11 of the General Conditions and as herein noted or as otherwise directed by the Owner and/or the Owner's Insurance Carrier. Requirements of the Owner and/or the Owner's

Insurance Carrier noted in the IFB shall take precedence over any requirements herein. The Owner reserves the right to amend and/or add to the insurance requirements noted in this section.

b. No contractor or subcontractor shall commence work under this contract until the required insurance has been obtained.

c. The contractor and each subcontractor shall maintain all required insurance during the life of the contract, and for no less than two years thereafter and no less than two years after the date of final completion, unless otherwise agreed in writing between the owner and contractor.

d. Minimum limits of coverage shall be as follows, unless otherwise required by the Owner:
   1) Comprehensive General Liability, including Premises and Operations, Contractor's Protective Liability, Products Liability including completed coverage, Contractual Liability and 'Builder's Risk' if not otherwise covered under the above description, for this contract:
      a) General Liability and Auto with minimum $TBD per occurrence.
      b) Waiver Of Subrogation Endorsement shall be provided (where available and where applicable), as required by the Owner, for General Liability.
      c) $TBD General Aggregate
      d) $TBD PRODUCTS AND COMPLETED OPERATIONS AGGREGRATE.
   2) General Liability policies shall not drop or remove the "additional insured" for completed operations after the project or a portion of the project is completed. Such continuation of the additional insured" shall be as directed by the Owner.
   3) All wording in policies shall state that the General Contractor's policy is "Primary and Non-Contributory".
   4) There shall be an Umbrella Liability policy over the underlying General Liability and Auto policy(s) of $TBD.

e. General Contractor and each subcontractor shall provide a Harmless Agreement, stating that the General Contractor and each subcontractor hold the Owner, and/or the Owner's representatives harmless for any acts other than the Owner's direct negligence.

f. The policies of the General Contractor and subcontractors shall show the Owner and/or another entity as directed by the Owner and Owner's representative(s) as "additional insured" …"as their interests may appear" on General Liability as well as any other "liability" policies stipulated in the contract (i.e.: crane, elevator, etc.) and any other "liability" policies agreed to by the Owner and Contractor.

g. The policies of the General Contractor and subcontractors shall show proof of Auto Liability with "additional insured" wording.

h. Workmen's Compensation, including Employer's Liability.

i. If the Contractor's Comprehensive General Liability Insurance does not include the following coverages, it shall be endorsed to cover them:
   1) Care, Custody and Control
   2) Elevator Liability (if construction elevators are used on-site).
   3) Crane Liability (if cranes are used on-site).

j. The Contractor's machinery, tools, equipment and vehicles will not be covered by the Owners Property Insurance and are the responsibility of the Contractor unless otherwise agreed.

k. The Contractor shall furnish a complete Certificate of Insurance, AIA Document G705 (or owner approved equivalent such as an Acord form) proving compliance with the above requirements regarding insurance and proving that the insurer shall give the Owner a minimum of ten (10) days

written notice in the event of cancellation of any of the insurance policies as certified.

l. The Contractor and subcontractors shall also provide additional documentation regarding insurance as required by the Owner.

8. Changes to Insurance

d. The Owner, in Its sole discretion and without revising any other requirements within this or other sections, may choose to waive some or all of the coverages noted in Section 7.

END OF SECTION 00 00 00

SECTION 01 10 00 - SUPPLEMENTARY CONDITIONS

FOR CONVENIENCE AND BREVITY, THIS SPECIFICATION SECTION INCORPORATES MISCELLANEOUS DIVISION 1 SPECIFICATION SECTIONS UNDER THIS ONE UMBRELLA SECTION NUMBER.

PART 1 - GENERAL

1.1 EXTENT

A. These Specifications and Drawings describe the scope of work for the Culpeper County Community Pool

B. The Construction Documents for this project currently include and may include in the future:

1. PROJECT MANUAL CONTAINING A TABLE OF CONTENTS OF SPECIFICATIONS AND DRAWINGS, SPECIFICATIONS, PROJECT FORMS AND REPORTS, INCLUDING THE ORIGINAL RELEASE FOR BID SPECIFICATIONS DATED 01/03/24 AND RELEASE FOR REBID REVISIONS TO THOSE SPECIFICATIONS, DATED 03/29/24. THE PROJECT MANUAL HAS BEEN REVISED WITH SOME SPECIFICATION SECTIONS DELETED, SOME MODIFIED AND NEW SECTIONS ADDED.
2. DRAWINGS ARE AS FOLLOWS:
    a. REVISIONS AND DATES:
        1) THE RELEASE FOR REBID DRAWING SET CONSISTS OF THE FOLLOWING
            a) THE ORIGINAL RELEASE FOR BID SET, DATED 01/03/24
            b) PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 01/29/24
            c) MEP PERMIT REVIEW COMMENT RESPONSES ON CERTAIN SHEETS, DATED 02/19/24
            d) RELEASE FOR REBID REVISIONS ON CERTAIN SHEETS, DATED 03/29/24
    b. NOTE THAT NOT ALL SHEETS HAVE BEEN REVISED OR UPDATED.
    c. ALSO SEE THE ARCH TOC SHEET FOR SIMILAR INFORMATION.
3. Modifications, Addenda, Requests for Information (RFI), Architect's Supplemental Instructions (ASI) and Change Orders
4. Other documents as noted in the AIA A201 General Conditions, if utilized, the Culpeper County Construction Contract, the IFB and any other documents incorporated and/or referenced in the contract(s) between Owner and Contractor(s) and Owner and Subcontractor(s).

1.2 DEFINITIONS

A. Owner
1. The term "Owner" as used herein shall refer to: Culpeper County
2. The term "Owner's Representative" as used herein shall refer to: Andrew Hardy
3. Unless otherwise noted and/or agreed, the "Owner's Representative" shall act for the "Owner" in matters pertaining to these Specifications.

B. The terms "General Contractor" and "Contractor" and "GC" as used herein shall be interchangeable and shall refer to: TO BE SELECTED
1. If no General Contractor is involved in the project, all the requirements relating to the Contractor's performance and work shall apply to the applicable Subcontractors.

C. The term "Architect" shall refer to; Norman Smith, NORMAN SMITH ARCHITECTURE.

D. The term "Structural Engineer" shall refer to; David Hall, DRH Engineers, PLC

E. The term "MEP Engineer" shall refer to; Jason Damico, Valley Engineering

F. The term "Civil Engineer" shall refer to; Marvin Hinchey, Hinchey and Baines PLC

G. The term "Landscape Architect" shall refer to; Craig George, Valley Engineering

H. CFCI: Contractor Furnished and Contractor Installed. The Contractor shall furnish and install all items indicated as “CFCI”. Unless otherwise noted, all of the work shall be CFCI.
I. OFCI: Owner Furnished and Contractor Installed. So designated items shall be furnished by the Owner and installed by the Contractor. The Contractor shall furnish and install all concealed blocking for the OFCI items as required.
J. OFOI: Owner Furnished and Owner Installed. So designated items shall be furnished and installed by the Owner. The Owner may use an independent contractor to accomplish this work. The Contractor shall coordinate his work with OFOI work and the Owner shall likewise coordinate such work with the work of the Contractor.
K. The term “including” shall mean “including but not limited to”.
L. The term “provide” shall mean “furnish and install, complete, in place and ready for operation and use”.
M. NIC: Not in Contract.
N. UON: Unless Otherwise Noted.
O. TBS: To Be Selected.
P. TBD; To Be Decided
Q. AHJ: Authority Having Jurisdiction
R. Base Construction Cost: the cost for construction based on the drawings and Specifications, including Allowances and not including Unit Prices, unless otherwise specifically noted. The term Base Construction Cost may apply to a Guaranteed Maximum Price, a Fixed Price or other forms of pricing as determined, defined and agreed to in writing by the Owner and Contractor.
S. REP: REPRESENTATIVE
T. PM: PROJECT MANAGER
U. RFI: REQUEST FOR INFORMATION/INTERPRETATION
V. ASI: ARCHITECT’S SUPPLEMENTAL INFORMATION/INSTRUCTION
W. SOW: SCOPE OF WORK
X. BOD: BASIS OF DESIGN
Y. TOS: TOP OF SLAB
Z. BOS: BOTTOM OF SLAB
AA. TOSI: TOP OF SIDEWALK
BB. RFI: Request For Information
CC. ASI: Architect’s Supplemental Instructions
DD. PDS/MDS: Product/Material Data Sheets
EE. SER: Structural Engineer of Record
FF. AER: Architect of Record
GG. CER: Civil Engineer of Record
HH. MPEER: Mechanical/Plumbing/Electrical Engineer(s) of Record
II. IFB: Invitation For Bid
JJ. See the Drawings for additional abbreviations

1.3 APPLICABILITY OF THESE SPECIFICATIONS

A. For convenience and brevity, this specification section incorporates miscellaneous Division 1 specification sections under this one umbrella section number.

B. The requirements of this Spec section 01 10 00 shall be incorporated into the requirements of the MPE, Civil, Landscape and Structural specifications contained on the Drawings, unless otherwise specifically agreed in writing by the Architect and/or the Owner. If there is a variance between requirements noted in those other specifications, the stricter requirements shall pertain.
C. Division1 specifications may also be included in whole or in part on the drawings. If there is a variance between the two specifications, the stricter requirements shall pertain.
D. These specifications in Divisions 00 and 01 are provided as a convenience to the owner and may be amended/modified or deleted by the owner by written agreement between the owner and the contractor and/or subcontractors.

E. If there is no general contractor involved in the project, these specifications shall apply to all applicable subcontractors unless otherwise specifically agreed in writing between the owner and subcontractor. If the owner acts as the general contractor, these specifications and the requirements contained within them may be amended or waived except for those requirements pertaining to structural stability and life safety, unless otherwise agreed to in writing by the architect prior to the change.

F. The specifications in Divisions 00 and 01 are intended to establish basic requirements for all of the architectural portions of the projects and for process, paperwork and quality requirements for the entire project. Division and trade/discipline specific short-form specifications are provided on the individual drawings and the conditions and requirements in Divisions 00 and 01 shall apply to all those other short-form specifications and scope(s) of work provided for the contractor and/or subcontractors unless otherwise agreed in writing by the owner.

G. UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES, the general requirements contained in this specification shall apply to all work and to all drawings and sections of the specifications in the construction documents and shall extend to any changes, extras, Change Orders, modifications, Addenda, Requests for Information or additions agreed to during the course of the work. If these general requirements disagree with those of the contract between owner and contractor, the provisions of the latter shall take precedence unless otherwise specifically noted except for matters and provisions concerning construction where these specifications shall take precedence over provisions of the contract between Owner and Contractor(s)/ Subcontractor(s) unless otherwise specifically agreed and noted in writing.

1.4 SCOPE OF WORK/SOW ***REVISED FOR 03/29/24 REBID***

A. The project scope for the pool project is as shown and noted on the drawings and the specifications and *HAS BEEN REVISED AND SEPARATED FOR REBID TO* include:
   1. The seasonal pool structure(s) consisting of lap, leisure/water play/toddler areas, and splash pad *UNDER IFB PR-24-1803*
   2. The bath-house including lockers, restrooms, and shower facilities, food service, management office(s), controlled entry, pool filter and pump room(s)
   3. Associated support structures/work including pavilions, landscaping and signage, hardscape, the fence and gates, site utilities and grading with SWM facilities and curb/gutter and sidewalk work. *UNDER IFB PR-24-1804*
   4. *NOTE THAT THE COUNTY IS REQUESTING SEPARATE BIDS FOR EACH IFB.*

B. The County is also soliciting a separate bid for the parking lot project across Competition Drive from this project site. The County will bid the parking lot and pool project separately.

C. The SWM work shown on the civil drawings is applicable to, required for and assignable to both the parking project work and the pool project.

D. The pool project requires new concrete sidewalk on the north side of Competition Drive and will also require utility work on the north portion of Competition Drive and other utility work in close proximity to that area.

E. Therefore, because both projects are in close proximity to one another and the SWM work is applicable to both projects, this SOW narrative notes the extent and scope and specifically the demarcation line between for the SOW of both projects.

F. All of the SWM work shown and noted shall be within the SOW of the pool project and shall be the responsibility of the Contractor/Site Subcontractor for that project. After selection of the qualified low bidder for the pool project, the County will enter into discussions with that Contractor and will agree to a pro-rata dollar amount based on an area or other agreed upon calculation basis for the SWM work that is then assignable to the parking lot project. The County will then make arrangements to it's budgeting process to assign those monies to the pool project; the method of assignment shall be determined at the sole discretion of the County.

G. Please review the civil and any applicable architectural site/utility plans for a graphic demarcation line that indicates where the pool project SOW ends and the parking lot project begins. Specifically, the sidewalk to the north of Competition Drive and the curb and gutter work and utility work shall be assignable to the pool project and also any work in Competition Drive that is north of a demarcation line located 30" south of the noted water utility line work, except as otherwise noted below. Any work extending south of that demarcation line and including final road re-surfacing of the entire surface of Competition Drive shall be assignable to and the responsibility of the Contractor for the parking lot project. However, the pool project shall be responsible for temporary backfill, compaction and repair of the trench but not the final road re-surfacing.

H. The owner reserves the right to remove the landscape work from the project scope.

I. Also see the IFB and other information regarding the adjacent parking lot work

J. The Contractor under this agreement shall provide all labor, materials and equipment and pay for all freightage, taxes and handling of materials required for the full and complete performance of the work herein specified and shown on the accompanying Drawings except as otherwise noted herein or in the Contract Documents.

K. Under this agreement, all work shall be made 100% complete, fully functional and operational and ready for use by the Owner without any additional work or effort by the Owner.

L. Contractor shall furnish all mechanical, electrical, plumbing and other hook-ups CFCI items and OFCI items unless specifically noted otherwise; Owner shall provide Contractor with manufacturer's cut sheets indicating required hook-ups and connections for all OFCI appliances, plumbing fixtures and lighting fixtures and shall provide item-specific connecting devices for any such items; connecting devices, accessories, etc. which are a standard component of any installation and are normally provided as part of the work of installation shall be provided by the Subcontractor. Contractor shall be responsible for providing hook-ups and coordination for OFCI items upon notification by the Owner.

M. Connecting devices, accessories, etc. which are a standard component of any installation and are normally provided as part of the work of installation shall be provided by the Contractor, whether or not they are specifically noted. Contractor shall be responsible for providing hook-ups and coordination for OFOI items upon notification by the Owner or as otherwise noted.

N. All work noted "NIC" (Not in Contract) on the drawings will be accomplished, at the Owner's option, under separate contract.

1.5 ***REBID NARRATIVE FOR BIDDERS: THIS INFORMATION APPLIES TO THE 03/29/24 REBID AND IS NOTED ON A SEPARATE ATTACMENT IN THE PROJECT MANUAL AND ALSO IS NOTED ON THE ARCH COVER SHEET***

1.6 WORK BY THE OWNER

A. The Owner reserves the right to remove any portion of the work described by the construction documents from the contract between the Owner and Contractor and to provide any such portions of said work using the Owner's own forces or other Subcontractors operating under separate contract.

B. The Owner's removal of portions of the work shall not relieve the Contractor of the responsibility to provide a fully functional and completed project in accordance with the construction documents and the Contractor shall fully coordinate the work of its personnel and that of its Subcontractors with any work provided by the owner.

1.7 DRAWINGS AND SPECIFICATIONS

A. Information contained in these Drawings is based on limited site measurements. The information contained herein may require adjustments or modifications to conform with existing conditions.

1. Contractor shall verify all dimensions concerning existing and new work and shall notify Architect of discrepancies between the Drawings and actual conditions or

discrepancies in the plans, dimensions, existing conditions or Specifications before proceeding with either fabrication or installation of the work.

B. Due to the small scale of this plan and the instability of the print paper, THESE DRAWINGS SHALL NOT BE SCALED and all the dimensions shall be verified in field. The Contractor shall field measure any existing conditions prior to beginning of work and periodically during construction progress to verify all dimensions. Any deviation from dimensions indicated on the drawing shall be approved by the Architect prior to construction.

C. Should the Drawings disagree in themselves, large scale drawings shall take precedence over small scale drawings, specific notes or details over typical notes or details and dimensions over scaled measurements.

D. Should the Drawings and Specifications disagree, the requirements in either the Drawings or the Specifications which note the greater quality, quantity or more stringent characteristics and requirements for the work shall take precedence, unless otherwise agreed in writing by the Architect prior to fabrication and/or installation of the work.

1.8 COORDINATION

A. The Contractor and Subcontractors shall verify dimensions shown on the Drawings before laying out the work.

B. The Contractor shall be responsible for coordinating the work of the individual trades and Subcontractors. The Contractor shall take all measures necessary to insure that:
   1. The work of the various Subcontractors is performed in conformance with the design intent of the Drawings,
   2. All such work is accommodated and installed in a workmanlike fashion in conformance with the requirements of the Drawings and Specifications and in full compliance with all applicable Codes, regulations and standards.

C. The Architect and/or Owner reserve the right to require the Contractor to remove and replace without additional cost, any and all Subcontractor work whose installation has:
   1. changed the design of the project,
   2. changed the work of other Subcontractors or caused their work to change the design of the Project,
   3. changed the scope and/or extent of work of other Subcontractors,
   4. Created conditions either directly or indirectly which are at variance with either the design intent or the specific requirements of the Drawings and Specifications,
   5. in any other manner negatively affected the design, construction, schedule and other parameters and requirements of the Project.

D. A lack of coordination between Subcontractors and/or between Subcontractors and the Contractor or his representative that results in work having to be removed, modified, or otherwise adjusted, shall not be cause for a Change Order or for an increase in the Contract Time or for any other additional costs.

E. Sub-contractors shall coordinate their work with all adjacent work and shall cooperate with all other trades and Subcontractors so as to facilitate the general progress of the Work. Each trade shall afford all other trades every reasonable opportunity for the installation of their work.

F. Where the work of a subcontractor(s) will be installed in close proximity to, or will interfere with the work of other trades, the Subcontractor(s) shall work out space conditions with the Contractor to insure satisfactory installation(s) prior to beginning the work of their trade. All new studs, furring and framing members shall be placed so as to avoid and/or minimize interference with locations of casework, piping, ductwork, recessed lighting fixtures and similar items.

G. Contractor shall be responsible for establishing grade point elevations, datum lines, benchmarks and all similar parametric dimensions in order to accurately establish the building lines, setbacks, height and other characteristics in full conformance with the requirements set forth herein and in the Drawings. Contractor shall be responsible for maintaining all said parametric dimensions throughout the process of the project and shall take all necessary precautions to protect the devices and items that indicate these dimensions.

1.9 SURVEYS AND ESTABLISHMENT OF BUILDING CONTROL LINES

A. As part of the work noted above, Contractor shall provide the services of a surveyor, registered and certified to practice in the jurisdiction in which the Project is being constructed, to field-verify all dimensions, vertical and horizontal control lines, and similar parametric dimensions shown and noted on the Drawings, and as necessary to fully, completely and definitely establish all faces, heights, setbacks and other characteristics of the Project.

B. Surveyor shall set pins, plates, stakes, etc. as necessary, to indicate all pertinent control points, etc. and shall coordinate with the Contractor to ensure that these devices are protected against damage, dislocation, etc.

C. If any such pins, plates, stakes, etc. are disturbed during the processes of construction, the Contractor, without additional cost, shall provide the services of the Surveyor to re-establish all such devices in their correct positions.

D. If the surveyor, during the course of his work, discovers any variance between the dimensions shown and noted on the Drawings and field conditions, the surveyor shall immediately notify the Contractor and Architect of any such discrepancies in writing and shall assist the parties in identifying and resolving those discrepancies. If a discrepancy has been discovered, the surveyor shall not proceed with any remaining portions of his work without first immediately notifying the Contractor and Architect and securing their approval in writing to continue with his work.

E. The Contractor and/or the representative of the Contractor on site, shall fully review the work of the surveyor and shall cross-check the work of the surveyor with the work, dimensions and other pertinent information shown and noted on the Drawings. If the Contractor and/or the representative of the Contractor on site, during the course of his or the surveyor's work, discovers any variance between the dimensions shown and noted on the Drawings and field conditions, the Contractor and/or the representative of the Contractor on site shall immediately notify the Contractor and Architect of any such discrepancies in writing and shall assist the parties in identifying and resolving those discrepancies. If a discrepancy has been discovered, the Contractor and/or the representative of the Contractor on site shall not proceed with any remaining portions of the work without first immediately notifying the Contractor and Architect and securing their approval in writing to continue with the work.

F. Upon completion of the surveyor's initial work and upon completion of each subsequent phase of the work, the surveyor shall provide a written certification to the Contractor and Owner indicating that the building has been laid out and all control lines and points established correctly and in conformance with the Contract Documents. If any discrepancies have been observed and those discrepancies have been agreed to by the Owner and the Architect in conformance with the requirements noted above, any such discrepancies shall be included and noted in the certification.

1.10 SITE INVESTIGATION

A. Where shown and noted on the Drawings and as necessary to fully investigate, establish and verify the subsurface condition and locations of adjacent structures including but not limited to foundations, footings, piping, etc., the Contractor shall provide test pits in the locations shown and noted on the Drawings and in all other locations, as necessary to fully investigate the conditions.
   1. Not applicable

B. All such pits shall be prepared, excavated, protected and provided in accordance with all applicable safety regulations in and in conformance with the applicable provisions contained within these Specifications.

C. All means necessary shall be taken and provided to protect adjacent structures in accordance with all applicable safety regulations in and in conformance with the applicable provisions contained within these Specifications.

D. The Contractor shall record the investigations photographically and shall prepare a written report to the Architect and Owner describing the conditions found at each test

pit. The report shall include copies in paper, digital or similar format, of the photographic recordation.

1.11 PROTECTION OF THE WORK

A. Work shall be protected in accordance with the Contract between Owner and Contractor; if not so noted, the following steps shall be taken by the appropriate Subcontractor(s) unless otherwise agreed in writing:
   1. In-place structural elements shall be protected against damage with temporary barricades or similar protective elements.
   2. Finished exterior wall surfaces shall be protected against damage using temporary protective coverings.
   3. Interior finishes shall be protected against damage using temporary protective coverings.
   4. In-place plumbing, lighting and other similar fixtures and devices shall be covered with coatings, mats, films or similar items to protect the items against scratches, dirt, etc.
   5. Existing adjacent construction, whether a part of the Project or on adjacent property(s) shall be fully protected against minor and major damage, using sheeting and shoring, barricades, protective fences and any other items necessary.
   6. All openings, stairwells, etc. shall be protected with appropriate barricades to prevent bodily injury.
   7. All benchmarks, elevation points and similar identifying marks establishing building parameters shall be clearly marked and protected against dislocation and damage.
   8. Erosion control fences and other site and environmental protective devices required by the AHJ shall be erected and maintained in accordance with the requirements of the AHJ, the Drawings and in order to prevent erosion of top and subsoil.

B. Contractor shall provide security fence(s), as necessary, to fully protect and secure the entire Project site from unauthorized entry of vehicles or persons. Such fences shall be installed and located in conformance with the requirements of the AHJ and the Contractor shall be responsible for obtaining all such permits required by the AHJ. The fence(s) and any access gates shall be equipped with locking devices and all gates and similar openings shall be kept locked and secured during all hours when construction operations are not occurring. Additionally, all gates and similar openings shall be secured and locked upon the request of the Owner at other than the above times, to prevent unauthorized entry.

C. Unless otherwise agreed in writing between Owner and Contractor, when the work or actions of a Subcontractor results in damage to adjacent, completed or in-place work provided by others, the Subcontractor causing such damage shall be responsible for repairing any such damage without additional cost to the Owner

D. The work shall be protected in accordance with all applicable requirements of OSHA and amendments and/or similar requirements of the AHJ.

E. All temporary power connections shall be established and maintained in accordance with all applicable requirements of OSHA and amendments and/or similar requirements of the AHJ.

F. Temporary sidewalk protection and covers and other protective devices for public ways shall be constructed and maintained by the Contractor. The Contractor shall be responsible for obtaining and updating the AHJ required permits for any such devices. The devices shall, include:
   1. Sidewalk walkways containing lighting in vandal-proof fixtures in accordance with the requirements of the AHJ,
   2. Fences to close and secure public sidewalks and walkways,
      a. Fences shall be secured with temporary mounting devices of sufficient weight and/or attachment to prevent the moving and removal of the fence and to prevent unauthorized persons from entering the site.

b. Fences shall be the minimum height required by the AHJ and shall in no case be less than 7' in height; fences shall have angled tops or other devices to prevent persons from scaling the fence(s)
c. Fences to close and secure portions of the public street and curb

1.12 SIGNAGE AND POSTING OF INFORMATION

A. The Contractor shall be responsible for erecting, posting and maintaining the following information on the site as noted below:
1. All building permits, including general, trade and other permits, shall be posted in accordance with the requirements of the AHJ and shall, in all cases be visible at all times from a public right-of-way. All such items shall be protected from the deleterious effects of weather.
2. Signage in conformance with OSHA, AHJ and other applicable agency requirements shall be posted in conformance with the applicable agency's requirements.
3. " NO TRESPASSING" and "HARD HAT AREA" signs shall be posted on all security fences and shall be posted so that a minimum of (3) signs of each is visible from any point of view of the Project from either a public way or adjacent private property and shall in all cases, be spaced no further than 10' apart.
4. The Contractor shall coordinate with the Owner in posting, installing and maintaining the Owner's project marketing sign.
5. The Contractor shall coordinate with the Architect in posting, installing and maintaining the Architect's project marketing sign.
6. The Contractor shall post and maintain a sign including the following information:
a. The Contractor's business name, address and phone number
b. An emergency number with the following information; "In the event of an emergency, call (telephone number)", in a type size that is sufficient to be read from the major public right-of way, but in all cases, in letters a minimum of 6" in height.

1.13 REMOVAL OF DEBRIS

A. Work shall be in accordance with the Contract between Owner and Contractor; if not so noted, debris resulting from construction operations shall be promptly removed from the site by the Subcontractor(s) creating the debris.
B. Debris shall not be stored on-site for a prolonged period of time and in no case shall debris be stored on site for more than 15 working days unless the Owner has granted prior approval to do so.
C. Debris removal shall be by an approved means, including individual truck, periodic dumpster hauls or other means. Trucks shall be provided with wheel-wash facilities and all other means required by the AHJ to minimize the impact of their work on the surrounding streets and environment. Truck scheduling shall be coordinated and supervised by the Contractor's Superintendent to minimize the impact on the surrounding streets and environment. In no case shall the Contractor block public streets, alleys or other vehicular and pedestrian access routes without first obtaining the required permits from the AHJ.
D. Street scrubber equipment shall be utilized, as necessary, to maintain and scrub the street surface clear of construction debris and dirt on a regular basis during the working day and at the end of each day.

1.14 TESTS AND INSPECTIONS

A. The Contractor and Subcontractors shall pay for all tests and inspections required by law, the Drawings and Specifications and the Contract Documents unless otherwise specified or unless otherwise agreed in writing between the Contractor and the Owner.
B. The Contractor and Subcontractors shall not be responsible for any testing for hazardous materials, including lead, radon and asbestos unless otherwise noted in the Specifications or unless otherwise agreed in writing.

1.15 INSPECTIONS BY AUTHORITY HAVING JURISDICTION (AHJ)

A. Work shall be in accordance with the Contract between Owner and Contractor; if not so noted, all trade inspections by the AHJ, including footing, steel reinforcement, structural steel, electrical, plumbing, mechanical, elevator, etc. shall be obtained by the pertinent Subcontractor(s) and/or the Contractor.

1.16 THIRD PARTY INSPECTIONS

A. When Third Party inspections are used to supplement or in lieu of inspections by the AHJ, the following requirements shall be met:
   1. The inspections shall be paid for by the Contractor, unless otherwise agreed in writing by the Owner.
   2. The inspections shall replicate and include all inspections required by the AHJ
   3. The inspection service shall be a licensed company authorized to provide services in the jurisdiction in which the Project is located. The inspection service inspectors and/or supervisors shall be Professional Engineers and/or Architects, licensed to practice in the jurisdiction in which the Project is located. The Owner and Architect reserve the right to review the credentials and experience of the inspection service and reserve the right to approve or disapprove the selection of any inspection service company.

1.17 INDEPENDENT INSPECTIONS

A. Unless otherwise noted and agreed in writing, the Superintendent shall be responsible for scheduling inspections by the independent inspectors and shall provide adequate notification to all parties to allow all such inspections to be provided in a timely manner and with adequate lead time for the inspectors to inspect the work, materials and installation and provide the required certifications.

B. Work shall be in accordance with the Contract between Owner and Contractor; if not so noted, the Contractor shall retain the services of an Independent third-party inspection service company to perform the inspections listed below and any other inspection deemed necessary by the Owner and/or the AHJ. The inspection service shall be a licensed company authorized to provide services in the jurisdiction in which the Project is located. The inspection service inspectors and/or supervisors shall be Professional Engineers and/or Architects, licensed to practice in the jurisdiction in which the Project is located. The Owner and Architect reserve the right to review the credentials and experience of the inspection service and reserve the right to approve or disapprove the selection of any inspection service company.

C. Inspections shall include those tests noted in the individual Spec sections, as noted on the Drawings, on the structural drawings special inspection schedule(s) and shall also include but not be limited to the following:
   1. Test pits to determine the condition of existing, adjacent foundations.
   2. Soil bearing capacity, DCP, moisture content, granularity, etc.
   3. Soil contamination quality and volume to verify conformance with NYS DEC requirements to be provided by C&S or other entity.
   4. Sheeting and shoring
   5. Footing excavations, footing depth placement and location and reinforcing steel placement, size, connection(s)
   6. Foundation walls and reinforcing steel
   7. Concrete test cylinders including source, mix ratios, placement methods, additives, time and day, weather and any other factors deemed pertinent.
      a. For any test cylinders which do not meet the requirements of the Specifications or any other requirements, recommendations, etc. referenced therein including ACI standards, the Owner reserves the right to require the Contractor to provide Windsor Probe tests and or core samples of in-place concrete to verify the 28 day compressive strength. Any tests on material(s) which do not meet those standards shall be

deemed to be in non-conformance/non-compliance with the Specifications and Contract Documents and the work from which they are taken shall be removed and replaced in its entirety without additional cost to the Owner.

b. Provide test cylinders for each individual pour sequence within the footing, foundation and similar construction process. Provide test cylinders when there is more than one source/provider during a pour sequence.

c. The number of test cylinders shall be as required by the ACI and as otherwise noted.

8. Structural erection for plumb, level, square and tolerances.

9. Structural steel welding, bolting and other connections.

a. Structural steel moment connections shall be certified in writing by the fabricator and/or welder indicating conformance with AWC standards. The Owner reserves the right to require x-ray or other means of post-fabrication investigation and analysis to confirm the connection's conformance with applicable requirements and standards; any such post-fabrication investigation and analysis shall be provided by the Contractor without additional cost to the Owner.

1.18 BID FORMS FOR GENERAL/SUBCONTRACTOR PRICING

A. See IFBs

1.19 PROJECT REPORTING

A. Throughout the progress of the Work, the Contractor shall maintain at the site, one record copy of all drawings, specifications, addenda, RFI's change orders, shop drawings and submittals, marked currently to record all changes and deviations made during construction. Submit all record documents, in a reproducible form (paper or digital), to the Architect at the completion of the Work.

B. The Contractor and/or the Contractor's on-site representative shall maintain a daily field-log, in digital or written form, detailing a minimum of the following:

1. Constructions activities that occurred,
2. Deviations from the Drawings that were approved by the Architect and incorporated into the work,
3. Listing of inspections by officials of the AHJ and Independent Inspections.

C. The Contractor and/or the Contractor's on-site representative shall maintain a regular photographic (film or digital) record of the construction activities and shall provide the Architect and Owner with a digital copy of this information once a month.

D. During construction, the Contractor shall keep an accurate record of all deviations in the work between that shown on the Drawings and Specifications and its actual installation.

E. The Contractor shall prepare and submit to the Owner and Architect, 'As Built Drawings' on media approved by the Architect and Owner.

F. The As Built Drawings shall reflect the actual installed conditions and shall be neatly and accurately drawn to scale to match the drafting of the Construction Documents.

G. During the course of the Project, the Contractor shall provide copies of all Lien Releases using AIA Document Forms or similar forms approved by the Owner for all payments to the Contractor, Subcontractors, material and equipment suppliers and other persons and businesses receiving payment for services, materials, equipment, devices, etc.

1.20 TEMPORARY FACILITIES AND CONTROLS

A. The following requirements shall pertain, unless otherwise agreed between owner and contractor.

1. During construction the contractor shall provide portable bathroom facilities in accordance with the requirements of the AHJ and in sufficient quantity and adequate location to protect the hygiene of all persons on the site.
2. Contractor and subcontractors shall coordinate all excavating and demolition with all applicable utility companies and AHJ bodies/entities and shall make all necessary efforts to protect existing utilities from damage during construction.

3. Contractor and subcontractors shall notify miss utility or similar agency having jurisdiction prior to the beginning of any excavation and construction operations and all such utilities shall be clearly marked on the project site.
4. The contractor shall be responsible for establishing and maintaining all necessary temporary utility connections throughout construction operations. Temporary utility lines and their locations and connections shall be reviewed and approved by the utility having jurisdiction and the AHJ, as necessary. All such lines and connections shall be fully protected to prevent accidental damage and injury. In no case, shall any such lines or connections be located or left unprotected in proximity to a public right-of-way nor within access of any unauthorized person, whether such person is in a public right-of-way or on the construction site.

B. The contractor shall be responsible for paying the charges for all temporary utilities throughout the construction process unless otherwise agreed in writing by the owner and contractor prior to the commencement of construction activities.

1.21 PROJECT SUPERVISION

A. Work and requirements under this section are in addition to any such requirements noted in any contract documents between the Owner and Contractor and in the AIA General Conditions if included as part of the Contract Documents. If the requirements in this section are at variance with the requirements noted in the above, the stricter requirements shall govern and take precedence whether the stricter requirements are contained herein or in the other documents.
B. The Contractor shall be responsible for supervising, scheduling and coordinating the work of the Project and shall have an on-site Superintendent assigned to the Project and that person shall be on site during all construction processes.
C. The Superintendent shall be responsible for inspecting the work of the Contractor and the work of all the Subcontractors and shall visually inspect and review all such work and verify that the work is in conformance with the Drawings and Specifications and any other Contract Documents.
D. If the Superintendent discovers that any such work is not in conformance, the Superintendent and the Contractor shall cause the work to be corrected without additional cost.
E. If the Superintendent discovers that any such work is not in conformance and cannot be immediately rectified, the Superintendent and the Contractor shall stop that work and shall notify the Architect and Owner and assist them in resolving the problem(s) and rectifying the work, without additional cost to the Owner.
F. Unless otherwise noted and agreed in writing, the Superintendent shall be responsible for scheduling inspections by the AHJ and independent inspectors and shall provide adequate notification to all parties to allow all such inspections to be provided in a timely manner and with adequate lead time for the inspectors to inspect the work, materials and installation and provide the required certifications.
G. The contractor and subcontractors shall verify dimensions shown on the drawings before laying out the work.
H. The contractor shall be responsible for coordinating the work of the individual trades and subcontractors. The contractor shall take all measures necessary to insure that:
    1. The work of the various subcontractors is performed in conformance with the design intent of the drawings,
    2. All such work is accommodated and installed in a workmanlike fashion in conformance with the requirements of the drawings and specifications and in full compliance with all applicable codes, regulations and standards.
I. The architect and/or owner reserve the right to require the contractor to remove and replace without additional cost, any and all subcontractor work whose installation has:
    1. Changed the design of the project,
    2. Changed the work of other subcontractors or caused their work to change the design of the project,
    3. Changed the scope and/or extent of work of other subcontractors,

4. Created conditions, either directly or indirectly, which are at variance with either the design intent or the specific requirements of the drawings and specifications,
5. in any other manner negatively effected the design, construction, schedule and other parameters and requirements of the project.

J. A lack of coordination, between subcontractors and/or between subcontractors and the contractor or his representative, that results in work having to be removed, modified, or otherwise adjusted, shall not be cause for a change order or for an increase in the contract time or for any other additional costs.

K. Sub-contractors shall coordinate their work with all adjacent work and shall cooperate with all other trades and subcontractors so as to facilitate the general progress of the work. Each trade shall afford all other trades every reasonable opportunity for the installation of their work.

L. Where the work of a subcontractor(s) will be installed in close proximity to, or will interfere with the work of other trades, the subcontractor(s) shall work out space conditions with the contractor to insure satisfactory installation(s) prior to beginning the work of their trade. All new studs, furring and framing members shall be placed so as to avoid and/or minimize interference with locations of casework, piping, ductwork, recessed lighting fixtures and similar items.

1.22 PRE-INSTALLATION/CONSTRUCTION CONFERENCE/MEETINGS

A. The General contractor shall hold pre-construction/installation meetings with the applicable subcontractors/ installers as noted in individual specification sections and as noted herein.

B. THE POOL CONTRACTOR AND BUILDING/GENERAL CONTRACTOR SHALL HOLD PRE-CONSTRUCTION MEETINGS TO CONFIRM LIMITS OF RESPONSISILITY AND TO COORDINATE THEIR INDIVIDAL WORK SCOPES.

C. Meetings shall review the work to be performed, the limits and requirements of the various subcontractors, vendors and installers, the responsibilities for and SOW of and any overlap between various entities/installers. subcontractors, scheduling requirements, inspection requirements and all other matters that may have an effect on the construction.

D. All parties that are involved in the various portions of the work shall attend the meeting. The meeting discussions and decisions shall be formalized with a written memorandum that is kept on file and included in the project close-out documents. The Architect and Owner reserve the right to request such meeting memorandum(s) at any time during the project.

E. Meetings shall include but not be limited to the following:
1. General site work, utility coordination and grading including all potential site grading on -site, off site and for the pool proper
2. Concrete foundations and MEP rough-ins
3. Concrete Waterproofing if separate from above
4. Pool layout and construction
5. Various interior finishes including tile
   A. Coordinate affected MEP trades for these meetings
6. Exterior cladding
7. Signage locations

1.23 GENERAL EXECTUTION WORKMANSHIP

A. All work shall be performed in a workmanlike manner in accordance with recognized standards of the construction industry and in accordance with the recommendations of applicable manufacturer and trade associations/organizations, whether or not those associations/organizations are noted herein. When there is a disagreement between requirements, the requirements which note the greater quality, quantity or more stringent characteristics and requirements for the work shall take precedence, unless otherwise agreed in writing by the owner and architect prior to fabrication and/or installation of the work.

B. Prior to commencing with their work, all subcontractors shall be responsible for inspecting any applicable substrate and/or adjacent materials, assemblies and systems that their work may be attached to, join or abut, for damage, applicability as a substrate and suitability for attaching or joining and that subcontractor's installation /application of their work shall not commence until such inspections have been completed. The subcontractor shall be responsible for cleaning and other similar minor remedial preparations of the substrate for application. Any defects in the substrate that cannot be remedied by cleaning and/or minor remedial work by the subcontractor shall be brought to the attention of the contractor immediately and work shall not commence until such remedial work has been completed. Failure to notify the general contractor of a problem with a substrate, and/or adjacent materials, assemblies and system prior to commencing construction shall not relieve the subcontractor of the responsibility to provide their portion of the work in accordance with the construction documents, manufacturer's requirements, good construction practices and the requirements of the AHJ without additional cost to the owner.

C. All work shall be coordinated and installed so as to minimize cutting and patching of existing surfaces and items and/or newly installed items, surfaces and assemblies. Contractor and subcontractors shall not cut, drill, notch or otherwise modify the structural characteristics of structural members and non-structural members required for fire ratings, without the express, prior written approval of the AOR SER, MEPER.

D. Any items, surfaces and assemblies that are cut shall be patched to match color, texture and other visual attributes and shall restore the item, surface or assembly to its full function, purpose and integrity. If such restoration is not possible, the item, surface or assembly shall be replaced without additional cost to the owner.

E. Special attention shall be paid to penetrations in fire-rated assemblies and to minimizing cutting so as to minimize the annular space around the penetrant.

1.24 QUALITY ASSURANCE

A. The following requirements may be waived and/or modified by the owner or the architect acting as the owner's agent if, in their sole opinion, this specification's requirement for a minimum standard of care and training, certification and fiscal health is otherwise met and at a minimum, is the same as the prevailing standard in the local construction industry

B. Manufacturer qualifications: minimum 2 years in business

C. Supplier qualifications: minimum 2 years in business with at least three business credit references available upon request

D. Testing and inspection agency qualifications: minimum 2 years in business

E. Manufacturer's field services: minimum 3 years experience in the construction specialty they are reviewing and duly authorized by the manufacturer to provide such service and current in all required continuing education and certifications.

F. General speciality installers: minimum 1.5 years experience in the construction specialty they are working in and duly authorized by the manufacturer to provide such installation services and current in all required continuing education and certifications.

1.25 QUALITY ASSURANCE FOR WARRANTY RESPONSIBILITY

A. Unless otherwise agreed in writing, the following general requirements apply to the contractor and all subcontractors providing or installing systems that have an associated manufacturer's warranty:

1. Each subcontractor shall be responsible for insuring that all the work performed qualifies for the manufacturer's warranty.
2. As part of the work , subcontractor shall submit, the following:
   A. All pertinent warranty information from the manufacturer
   B. All pertinent installer certifications and approvals
   C. The manufacturer's procedure for certifying the installation, for applying for the manufacturer's warranty and any exclusions due to field conditions that the manufacturer may impose.

D. This information shall also contain a specific time-frame for warranty application and a deadline by which the certification and subsequent warranty issuance shall occur. Warranty application and issuance shall be scheduled so that the completed warranty issuance occurs a minimum of 7 business days before the scheduled issuance of the certificate of final completion. In no case shall the application for warranty be more than 15 business days after issuance of the certificate of substantial completion and in no case shall the deadline for warranty issuance be after issuance of the certificate of final completion.

3. During the period after issuance of the certificate of final completion and prior to the issuance of the manufacturer's warranty, the subcontractor shall take all precautions necessary to fully and completely protect the work in place so as to qualify for the manufacturer's warranty. Upon completion of the work and prior to issuance of the certificate of final completion, the subcontractor shall notify the contractor in writing of any operations, work, etc. That may not be performed on or adjacent to the installed work prior to issuance of the manufacturer's warranty and that might, in any way effect the issuance of the manufacturer's warranty..
4. The subcontractor shall make all necessary efforts within the time-frame noted above to obtain the manufacturer's warranty. The subcontractor shall provide to the contractor a copy of the subcontractor’s application for warranty issuance. Any items or workmanship found not to be in conformance with the manufacturer's recommendations and requirements and which must be corrected to obtain issuance of the warranty, shall be corrected by the subcontractor immediately upon notification and without additional costs or charges.
5. Failure to perform any of the following procedures or failure to provide any of the following items shall not be acceptable and the owner/owner's representative may immediately take any and all actions which it considers necessary to obtain the manufacturer's warranty. Any costs incurred by the owner/owner's representativin obtaining the warranty may be charged to the contractor/subcontractor:
   A. Failure to provide written notification to the contractor regarding operations that may not be performed.
   B. Failure, in the sole opinion of the owner/owner's representative, to fully and completely protect the work in place prior to issuance of the manufacturer's warranty.
   C. Failure to provide a copy of the subcontractor’s application for warranty issuance within 15 business days after issuance of the certificate of substantial completion.
   D. Failure to apply for and provide a copy of any similar items including requests(s) for inspection, requests for re-inspection, warranty repairs requests, etc. Required by the manufacturer.
   E. Failure to correct any work not in conformance with the manufacturer's recommendations and requirements and which must be corrected to obtain warranty issuance.
   F. Failure to obtain issuance of the manufacturer's warranty in the time-frame noted above unless otherwise agreed in writing BY THE OWNER/OWNER'S REPRESENTATIV PRIOR TO THAT DATE.

1.26 PRODUCT REQUIREMENTS

A. All materials stored on site shall be stored and protected against water damage, wind and construction dust and damage.
B. All materials shall be stored on or off-site in conformance with applicable manufacturer’s requirements.
C. Materials stored on or off-site that are susceptible to or responsive to moisture levels fluctuations shall be stored on elevated spacers/pallets and in such manner as to bring their moisture levels into conformance with manufacturer’s requirements, site ambient conditions or final installed conditions, as applicable for the specific material.

D. All materials delivered to the site shall immediately be checked for damage and conformance with applicable construction document requirements and the owner shall be immediately notified of any deviations or damage.
E. Materials shall not be stacked or stored on construction that has not yet met or been confirmed to have met it's full design load nor shall materials be stored in concentrated areas in such a manner as to exceed structural design loads.

1.27 PROJECT COMMUNICATION

A. All communication regarding the Project between the Contractor and Owner and Architect shall be in writing or if conducted verbally, shall be confirmed in writing within 3 business days of the verbal communication.
B. Electronic email communication shall be acceptable as a substitute for written communication subject to the following requirements and subject to the exceptions noted below:
    1. All email communication shall contain a RE line including the Project number and/or address and a short summary of the contents/purpose of the email.
    2. All email communication shall be distributed to all participants of the project as directed by the Owner.
    3. Email communication shall be subject specific and shall not contain superfluous information from other previous email communications.
C. All Information requests for clarification shall be submitted in writing as a Request for Information (RFI). Each RFI shall note the location of the work that the RFI is addressing and shall be specific and detailed in it's request(s). RFI's shall be sent to the Architect and the Owner.
    1. The Contractor shall keep and maintain a binder or other similar filing method of all RFI requests and responses and shall incorporate this information in the final Project Closeout information.
    2. RFIs shall be submitted to the Architect a minimum of 4 weeks before the information is required.
    3. Each RFI shall contain the date and sequential number of the RFI (beginning with #1)
D. Addenda
    1. The Architect may periodically issue Addenda to the drawings in written and/or graphic form, using an Addendum Sheet.
    2. These Addenda are intended to clarify the Drawings and Specifications, make corrections to the Drawings and Specifications, make revisions to the Drawings and Specifications as directed by the Owner and to otherwise assist the Owner and Contractor in understanding the design intent of the Contract Documents.
    3. Addenda are not intended as approvals of Change Orders or Contract/Construction Time, unless a Change Order referencing those Addenda has been properly executed as herein noted.
    4. The Contractor shall keep and maintain a binder or other similar filing method of all Addenda and shall incorporate this information in the final Project Closeout information.

1.28 PROJECT ACCOUNTING AND COSTS

A. Project accounting methods, reports, updates, schedules and invoicing shall be as directed and/or required by the Owner and by any clauses of the Contract(s) between the Owner and Contractor.
B. Unless otherwise agreed in writing between the Owner and Contractor, the Contractor shall provide to the Owner CPM schedules or other schedule formats agreed to by the Owner.
C. Unless otherwise agreed in writing between the Owner and Contractor, the Contractor shall provide the Owner with a full and detailed description of the Contractor's invoicing and accounting methods, with all terms and words thoroughly defined and shall secure the approval of the Owner for these methods prior to or as a part of the contract execution process.

D. The Owner reserves the right to require documentation over an above that submitted by the Contractor for any and all items, including but not limited to, field labor, office labor, materials, equipment rental costs, etc.

E. Unless otherwise agreed in writing between the Owner and Contractor, if equipment rental costs are not included as part of the General Contractor's Construction Cost;
   1. The Contractor shall notify the Owner a minimum of 2 weeks in advance of any equipment rental or purchase, and,
   2. The Owner reserves the right to instruct the Contractor to return or stop invoicing for items and equipment that, in the Owner's sole discretion, are not being utilized to their full extent. Any such instruction shall not be considered contractually to be a direction of the means and methods of construction as defined in the applicable Contracts.

F. Applications for payment shall be made using AIA G700 series documents with supporting documentation for all ordered, stored materials and items or other similar and Owner approved application form.

1.29 PERMITS AND FEES

A. General Construction Permit and fees required by the AHJ shall be the responsibility of the Owner unless otherwise agreed in writing.

B. All trade permits and fees required by the AHJ shall be paid by the pertinent Subcontractor(s).

C. The Contractor shall obtain and pay for all permits to close streets, alleys and other similar vehicular and pedestrian access routes unless otherwise agreed in writing.

D. The Contractor shall obtain and pay for all permits for dumpsters, fences and other similar items unless otherwise agreed in writing.

E. The Contractor shall provide a traffic management plan, when required by the AHJ.

1.30 ALLOWANCES

A. Contractor shall provide Allowance Dollar Amounts for the materials, fixtures, etc. noted in the NOTICE TO BIDDER/IFB if provided, herein, if noted, in the SOW documents released for bidding and in the Drawings and these Specifications or as otherwise required by the Owner.
   1. Allowance Item Dollar Amounts shall be for the item(s) only, unless otherwise specifically agreed to by the Owner in other Contract Documents and shall include:
      a. the direct cost of the item purchased by the Contractor with Overhead and Profit (if and as allowed in the Contract(s) between Owner and Contractor),
      b. sales tax and freight,
      c. all necessary devices, connectors and similar devices normally provided by the manufacturer of these items as part of any such installation.
      d. If warranty costs for OFCI items are separated from Allowance Dollar Amounts, any such breakdown shall be as required by the Owner.
   2. Unless otherwise agreed in writing by the Owner, Allowance amounts shall be included within the base Construction Cost.
   3. The labor required to install Allowance items shall be included in the base Construction Cost and shall not be included as part of the Allowance Dollar Amount unless otherwise agreed by the Owner in writing or unless otherwise specifically noted in the individual spec section. If selected items exceed the individual Allowance amount for that item, the difference in amount shall be paid by the Owner as a Change Order.
   4. Unless otherwise agreed in writing by the Owner and Contractor, the Owner shall have the right to assign and/or transfer portions of or all of an allowance dollar amount within the overall Contract Cost, including from item to item, from trade to trade and from line item to line item, as long as the total and combined Allowance Dollar amounts as defined above, are not exceeded. In no case, shall Allowance Dollar amounts which are not exceeded revert to the Contractor or to a general

contingency fund or line item without the express, prior written approval of the Owner.

B. Allowances provided by the Contractor as requested by the Owner for items that are not noted on the Drawings and Specifications shall be listed separately from all other Allowance items and shall be broken down to include the item(s) themselves and all associated costs, including labor and installation.

C. Allowance Prices noted as Alternate Allowance Prices shall be for alternates to the Allowance items shown and noted in the Drawings and Specifications. The 'primary' Allowance Price shall be included in the base Construction Cost and the alternate shall be noted separately outside the base Construction Cost. If the Owner chooses to use the Alternate Allowance Price, that alternate will replace the 'primary' Allowance Price within the base Construction Cost.

1.31 UNIT PRICES

A. Unit Prices are for items that are not included in the base Construction Cost but are anticipated to be costs that may be incurred due to unknown site conditions, etc.

B. Unless otherwise agreed in writing between the Owner and Contractor, Unit Prices shall not be included in the base Construction Cost. They shall be listed separately from the base Construction Cost in a manner that clearly delineates and defines the amount, scope of work, etc.

C. Unit prices shall be provided as noted in the Drawings and Specifications. The Unit Prices shall be stated as dollar amounts for a unit of work and shall include all labor, materials, equipment, associated devices and all other items necessary to accomplish the work, for the following portions of the work and as otherwise required by the Owner. The unit of work shall be as noted in the applicable Specification sections or the IFB.

~~**D. Unit Price Registry:**~~

~~1. Installed cost per SF of the 12x24 wall tile specified~~

1.32 ALTERNATE(S)

A. Add Alternate amounts shall be for additional alternates to the base work shown and noted in the Drawings and Specifications. The alternate shall be noted separately outside the base Construction Cost, or as otherwise noted in the IFB. If the Owner agrees to the Add Alternate Price, that alternate will be in addition to the SOW noted within the base Construction Cost.

B. Portions of the work noted as Alternate(s) may be for alternates to the 'primary' work shown and noted in the Drawings and Specifications. The 'primary' price shall be included in the base Construction Cost and the alternate price shall be noted separately outside the base Construction Cost. If the Owner chooses to use the Alternate Price, that alternate will replace the 'primary' Price within the base Construction Cost.

C. In all cases, Alternate Prices shall include all labor, materials, equipment necessary to fully provide the work described as an alternate and shall also include all taxes, freight, fees, etc. for the materials and labor involved in providing the work unless otherwise agreed in writing between the Owner and the Contractor.

D. Alternates and Add Alternates shall be as noted in the appropriate registry herein or as otherwise noted on the Drawings and Specifications.

E. Add Alternate Registry

~~1. Pool~~ *Also see AP drawings*

~~a.~~ *Pool Alternate No. 1: The beach access "Twin Splash-Tumble Bucket" water feature within the main pool shall be bid as an alternate. No provisions for future installation shall be provided in the event the Owner elects to omit this feature.*

b. Pool Alternate No. 2: The following elements shall be provided as unit price elements. The base bid shall include all associate piping for all identified units and all related "Safeswap" mounting hardware to be installed in the concrete water play zone under the base bid with the identified feature elements available for future purchase and installation.

Helio No. 6, Bobble No. 1, Fumbling 5, and (2) Tube No. 1 shall all be priced as individual unit price elements for the Owner's consideration. (Pool Add-Alternate No. 2 - Provide unit price for each of the identified water features identified above.)

c. ~~Pool Add Alternate No. 1: The addition of fixed sunscreens for the leisure seating area. Provide a unit price per sunscreen for the Owner's consideration within Alternate No. 1. If the sunscreens are not accepted, all foundation work specific to the specified sunscreens shall be omitted for the Project.~~

d. ~~Pool Add Alternate No. 2: The non-condensing swimming pool heater shall be bid as an alternate. All related gas supply piping and venting and MEP connections and associated devices per the standard details shall be included under the add alternate. The venting and exhaust associate with the heater shall be combined with heater alternate and if Alternate No. 2 is not accepted, all venting and exhaust shall be omitted for the Project and will be installed later if the Owner elects to install the specified heater.~~

1) This work has been left on the drawings but is not a part of the REBID scope. At the County's discretion, it may be added at a future date.

e. ~~*Pool Add Alternate No. 3: The beach access "Twin Splash-Tumble Bucket" water feature within the main pool shall be bid as an alternate. No provisions for future installation shall be provided in the event the Owner elects to omit this feature.*~~

f. ~~Pool Add Alternate No. 4: The following elements shall be provided as unit price elements. The base bid shall include all associate piping for all identified units and all related "Safeswap" mounting hardware to be installed in the concrete water play zone under the base bid with the feature elements available for future purchase and installation. Helio No. 6, Bobble No. 1, Fumbling 5, and (2) Tube No. 1 shall all be priced as individual unit price elements for the Owner's consideration.~~

g. ~~Pool Add Alternate No. 5: 25-Yard 6" diameter custom length lane lines and Racing lane storage reel.~~

1) Include in base bid

h. ~~Pool Add Alternate No. 6: Furnish and Install Clear Comfort Secondary Sanitation Systems for main pool and water play area.~~

i. ~~Pool Add Alternate No. 7: Meyco custom mesh pool winter cover. Provide in sections to cover lap pool, leisure, and beach access zone to simplify labor associated with installation and removal and enhance off-season storage.~~

j. ~~Pool Add Alternate No. 8: Furnish and install six (6) SR Smith Velocity Starting blocks Model No. VELOMR-TS-SA.~~ *Embed/anchors are part of the base bid.*

2. ~~Building~~

a. ~~Building Add Alternate No. 1: Base SOW includes specified pre-fabricated standing seam/batten roof over manufacturer's required underlayment on entry space and 20 year FG shingles over manufacturer's recommended underlay and with ice and snow membrane at all eave conditions and noted flashing on the two wings and the two pavilions. Add-alternate includes specified pre-fabricated standing seam/batten roof over the two wings and the pavilions with noted flashing provided and manufacturer's recommended underlayment as part of the pre-fabricated system. There is no change to the roof sheathing.~~

b. ~~Building Add Alternate No. 1A: Add Color Guard Snow Retention System and associated clips on front and back faces of hipped entry roof on the east and south faces and on those portions of the roof facing the pool that are above walking areas and not over a lower roof.~~

c. ~~Building Alternate No. 2: Base SOW for pavilions is to leave the hip truss framing exposed underneath without ceiling. Add-alternate is to provide a~~

~~ceiling using the specified ¼" JH HardiSoffit panels run in an orthogonal pattern with 1x3 JH FC trim and attached to the truss bottom chord~~

~~d. Building Add Alternate No. 3: Base SOW for pavilions is to leave the hip truss framing exposed underneath without ceiling. Add-Alternate is to stick-frame the roof as noted in the structural drawings (Ref 1/S104.1) and leave open without ceiling.~~

~~e. Building Add Alternate No. 4: Add-alternate includes installing and connecting the HVLS fan based on a submittal using the below as BOD: Base SOW includes providing wiring and setting fan-rated J Box for fan along with blocking necessary to mount the box to the truss bottom chords.~~

~~1) Humongous Fan: 8' HVLS 8 Blade Fan & VFD Controller with 25.5" extension~~

1.33 CHANGE ORDERS

A. Amounts of change orders for change items and changes in the project shall be provided and agreed to in writing by the Owner and Contractor prior to proceeding with that portion of the Work unless otherwise agreed by the Owner and Contractor.
   1. In no case, shall the commencement by the Contractor or a Subcontractor of any or all portions of the work contained in a Change Order constitute or be claimed to constitute acceptance of that Change Order by the Owner or Architect, except as follows:
      a. The Owner reserves the right to issue a written Notice To Proceed to the Contractor, defining the extent and portions of the work contained in the Change Order and authorizing those defined portions of the work to proceed, without any such Notice constituting an approval of the Change Order in it's entirety.

B. Change Orders shall be prepared on an AIA form or on a similar form that has been pre-approved in writing by the Owner. If a non-AIA form is proposed to be used, the Contractor shall submit the form to the Owner a minimum of 30 business days prior to commencing any construction operations. The Change Order form shall be prepared in 4 parts; (2) shall be forwarded to the Owner, (1) shall be forwarded to the Architect and (1) shall be retained by the Contractor.

C. Change Orders shall contain the following information:
   1. The date and sequential number of the Change Order
   2. (beginning with #1)
   3. A clear written description of the proposed change to the work, including references to the appropriate Drawings, Addendum, RFIs, etc.
   4. A clear, quantified description of any change to the Contract time.
   5. The Dollar amount of the change. The amount shall be broken down to include;
      a. Any change to the base Contract Price
      b. Any change to Allowance, Unit Price items
      c. The amount of the Contractor's Overhead and Profit

D. Change Orders shall be prepared and forwarded to the Owner a minimum of 30 days prior to, or as otherwise agreed by the Owner and Contractor in writing, the Contractor's estimated start for the work contained and described in the Change Order.

E. The Contractor shall not commence the work contained and described in the Change Order without receiving the Owner's written approval of the Change Order or without receiving other instruction(s) from the Owner, such as a Notice To Proceed or other instructions as agreed to by the Owner and Contractor prior to the commencement of the Project.

F. Unless otherwise agreed to in writing between the a Owner and Contractor, Change Order costs shall be carried as a separate or series of separate line item costs within the overall construction cost and in all cases, shall be clearly defined and delineated as additions to the base contract cost, GMP, etc.

1.34 ADDENDA

A. For this project, addenda are defined as substantial revisions or clarifications to the project scope issued prior to execution of a construction contract. All addenda shall be enumerated in the contract for construction and shall become a part of the contract documents.

1.35 RFIs

A. Requests for interpretation/information may be submitted in either digital email or online in project management digital form.

B. All information requests for clarification shall be submitted in writing as a request for information/interpretation (RFI). Each RFI shall note the location of the work that the RFI is addressing, shall be specific and detailed in it's request(s).

C. RFI shall be directed to the architect and owner's rep/pm and shall be submitted in minimum triplicate fashion with (2) copies for the pm and (1) for the architect with the contractor retaining (1) copy. Alternately, digital or project management software may be utilized to prepare and track RFIs

D. RFIs shall be submitted in a timely fashion and at least 21 business days before the information is required to allow the architect sufficient time to review and respond to the RFI. The contractor shall thoroughly review all the current construction documents before issuing an RFI and an RFI shall not be used in lieu of or to remove the contractor's responsibility for thoroughly reviewing and understanding the site conditions and drawings. RFIs that are received by the pm or architect and that lack required information and/or clarity or that are frivolous in nature may, at the sole discretion of the pm or architect, be returned to the contractor and no further action will be taken on them. If the RFI is deemed satisfactory in execution and intent, the pm shall review it and then forward it to the architect for a response.

E. The architect will endeavor to respond to the RFI within 10 business days but that response time is not guaranteed. Time is of the essence and it shall be the contractor's sole responsibility to review and prepare the RFI in a timely manner so as not to delay the project.

F. Responses to RFI s shall not constitute a change in construction cost/sum or the construction sow or schedule.

G. The contractor shall keep and maintain a binder or other similar filing method of all RFI requests and responses and shall incorporate this information in the final project closeout information. Alternately, digital or project management software may be utilized to prepare and track RFI s.

H. Each RFI shall contain, at a minimum, the following information

1. Sequential numbering
2. Date
3. Project # and address
4. Referenced drawings
5. Brief description and request

1.36 ARCHITECT'S SUPPLEMENTAL INSTRUCTIONS

A. Asi (architect's supplemental instructions) shall be provided, as necessary, by the architect to clarify the drawings and to indicate minor changes in the work that do not affect the contract scope, cost or time.

B. Asi responses will be provided to on an ASI form by the architect and will generally follow the naming requirements of RFIs.

1.37 CONSTRUCTION CHANGE DIRECTIVE (CCD)

A. CCD may be provided only when the owner has indicated general agreement of the change to the contract sum and the change in cost or time or other terms and conditions are not yet quantifiable or agreed upon.

B. CCDs shall be confirmed and validated with change orders within 15 business days of completion of the work of the CCD.
C. All CCDs shall be numbered sequentially and dated and shall be treated separately from change orders.

1.38 UTILITY CONNECTIONS AND TEMPORARY SERVICES
A. During construction the Contractor shall provide portable bathroom facilities in accordance with the requirements of the AHJ and in sufficient quantity and adequate location to protect the hygiene of all persons on the site.
B. Contractor and Subcontractors shall coordinate all excavating and demolition with all applicable utility companies and shall make all necessary efforts to protect existing utilities from damage during construction.
C. Contractor and Subcontractors shall notify Miss Utility or similar agency having jurisdiction prior to the beginning of any excavation and construction operations and all such utilities shall be clearly marked on the project site.
D. The Contractor shall be responsible for establishing and maintaining all necessary temporary utility connections throughout construction operations. Temporary utility lines and their locations and connections shall be reviewed and approved by the utility having jurisdiction and the AHJ, as necessary. All such lines and connections shall be fully protected to prevent accidental damage and injury. In no case, shall any such lines or connections be located or left unprotected in proximity to a public right-of -way nor within access of any unauthorized person, whether such person is in a public right-of-way or on the construction site.
E. The Contractor shall be responsible for paying the charges for all temporary utilities throughout the construction process unless otherwise agreed in writing by the Owner and Contractor prior to the commencement of construction activities.

1.39 INSURANCE: See 00 00 00 and IFBs

1.40 CODES, REGULATIONS AND STANDARDS
A. Construction shall comply with applicable Federal, State, County and / or local statutes, ordinances, regulations, law and codes including
1. As noted on the Drawings
2. Applicable requirements of Local Power / Utility and Telephone Company(s).
B. All work shall be performed in a workmanlike manner in accordance with generally recognized standards of the construction industry and in accordance with the recommendations of applicable manufacturer and trade associations and applicable utilities.

1.41 BID SUBSTITUTIONS
A. It is the intention of these specifications to provide a standard of quality and performance that is satisfactory for the project and for the County. The Basis of Design (BOD) is noted on the drawings and in the specifications but this BOD is not intended to limit the possibility of other substitutions, contingent on meeting the requirements and standards noted below. In addition, other approved manufacturers have been noted and listed to assist bidders in sourcing components.
B. Any bid substitutions proposed by bidders shall comply with the following requirements:
1. The proposed substitution shall be equal to or better in every respect than the specified component. If it is not of such quality and performance, the substitution shall not be considered unless, at the sole discretion of the County and the AE, the County elects to waive these quality and performance standards.
a. Any such substitution shall clearly note all areas in which the quality and performance do not meet the levels of the BOD.
2. Any proposed substitution shall include all the necessary supporting documentation to prove compliance with the levels of the BOD. The bidder should ensure that the information provided is sufficient. The AE will not be responsible for researching any information or data needed to prove compliance with the levels of the BOD. Any

proposed substitution that does not include sufficient information to prove compliance will, at the sole discretion of the County and the AE, not be reviewed or considered.

3. Consideration of a substitution shall not be deemed a guarantee of acceptance of that substitution. Any proposed substitutions will be reviewed expeditiously but no guarantee is made in regard to a specific time-frame or response for reviewing said substitution.
4. Approval of a proposed substitution shall at the sole discretion of the County and the AE.

1.42 SUBSTITUTIONS

A. Definitions
   1. The phrase 'or approved equal' shall be as noted in the specifications or, if not noted, shall mean as approved by the Architect for equivalence or better in quality, size, construction, etc. In all cases and characteristics, the approved equal items shall be equal to or better than the specified item. Determination of equivalence shall be at the sole discretion of the Architect.
   2. The phrase 'or similar' shall be as noted in the specifications or, if not noted, shall mean an item of similar quality, size, construction, etc., as defined by commonly accepted standards and practices of the construction industry.
   3. The phrase 'construction standard' shall be as noted in the specifications or, if not noted, shall mean an item considered to be standard and satisfactory for its intended use as defined by commonly accepted standards and practices of the construction industry.

B. The products specified herein and in the Drawings set the standards of quality, material, durability, efficiency, finish, assembly and performance. The use of proprietary specifications is not intended to limit competition; unless otherwise specifically noted, all proprietary specifications shall be amendable to alternatives subject to the following conditions:
   1. In the sole opinion of the Architect, the alternatives are equal or better in every respect to the specified items and products.
   2. In the sole opinion of the Architect, the alternatives comply with the design intent of the Project and work.
   3. The requests for substitutions are performed in accordance with all applicable portions of the Specifications
   4. The requests for substitutions are submitted in a timely manner and are approved by the Architect and/or Owner in writing prior to ordering any such items, commencement of the work and/or installation of any such items.
   5. No Substitutions shall be allowed for items noted as "No Substitution" or similar noted in the Specifications and/or Drawings.
   6. Substitutions shall be submitted for consideration a minimum of 30 business days prior to the ordering and/or installation date of the project schedule (whichever is earlier) and in all cases, shall be submitted in sufficient time to allow the architect's consideration and to prevent schedule problems due to ordering time delays. It shall be the contractor's responsibility to verify that the proposed substitution will not negatively impact the project schedule and the owner shall be under no obligation to adjust said schedule due to such delays.
   7. Requests for substitutions shall include shop drawings, product data, samples and additional information necessary to demonstrate that the proposed substitution is equal or better in every respect to the specified product. The Architect shall not be responsible for providing this information or otherwise researching a proposed substitution. The Architect reserves the right to request additional documentation if, in the Architect's sole opinion, the supplied information is inadequate to determine the characteristics of the proposed substitution.
   8. Substitutions so submitted shall include any and all adjustments of that trade and any other trades affected thereby. Substitutions which, in the sole opinion of the Architect, require alterations to the design intent as shown and noted in the Drawings and Specifications will not be approved.

C. The Architect will endeavor to respond to substitution requests and any submitted shop drawings and other submittals within 14 business days of receipt of a complete, satisfactory submittal. Approval of these submittals shall not be construed as changing or revising any other parts of the contract documents and drawings and shall not relieve the contractor of the responsibility to provide a completed and fully functional project constructed in accordance with the contract documents and all applicable codes within the required and/or contractual time-frame. The Architect shall not be bound by a specific schedule and no claim for damages shall be allowed based on the Architect's time for response(s)

1.43 SUBMITTALS

A. Submittals shall include:
   1. Material samples
   2. Shop drawings
   3. Product data / cut sheets
   4. Material lists
   5. Manufacturer's literature and other required information
   6. Substitution requests
      a. Substitutions for approved materials will be allowed under the conditions noted in the SUBSTITUTIONS section of this Specification.
   7. Quality Assurance and Quality Control Submittals
   8. Coordination Drawings
   9. Certification of Asbestos free products

B. The Architect shall provide to the Contractor a draft submittal registry or shall otherwise list the required submittals herein. Upon request, the Contractor shall provide submittal submission dates, submittal submission due dates and required return dates of reviewed items.

C. The Submittal Registry shall include the following information:
   1. Title (by Architect for Contractor review)
   2. Category of Submittal (Certification, Mock-Up, Operations/Maintenance Manual, Product Data, Sample, Shop Drawing, Test Report, As Built, etc.) (by Architect for Contractor review)
   3. Name of Subcontractor, if applicable (Contractor provided, optional)
   4. Date due from Subcontractor (Contractor provided, optional)
   5. Date due to be submitted for review (Contractor provided, required)
   6. Date due for submittal review to be completed (Contractor provided, required)
   7. Date for transmittal to Subcontractor (Contractor provided, optional)
   8. Date for material or product delivery to project (Contractor provided, required)
   9. Priority. Low, normal or high (Contractor provided, required)

D. With the exception of physical samples and color charts, or as otherwise approved by the Architect, all submittals shall be electronic images in .PDF format.

E. Submittals which are rejected by the Architect shall be re-submitted as soon as possible after notification of the rejection and shall be marked "RESUBMITTED", in addition to the other information required.

F. Submittals shall be made sufficiently in advance of requirements to allow the Architect adequate time for review and proper consideration and action on those submittals. In no case shall submittals be made less than 30 calendar days in advance of such requirements. The Architect shall endeavor to respond as quickly as possible but shall not be held to a specific response timeframe.

G. The Submittal Registry shall be kept up-to-date by the Contractor until all submittals are approved. Failure to provide the requested information, or delay in submitting required submittals may result in the payment request being returned to the Contractor until the required schedule or submittals are received.

H. The approval or acceptance of samples, shop drawings and product data shall not preclude the rejection of any material and/or product upon the discovery of defects in same prior to the final acceptance of the complete work.

I. The Contractor/Subcontractor (Submittee) shall be held responsible for any delay in the progress of the work which may be due to the Contractor/Subcontractor(s) failure to conform to these requirements; contract time(s) shall not be extended due to failure to submit samples, shop drawings and product data promptly. No delay claims shall be considered for Architect review times that are longer than noted above.

J. Submittals shall be properly labeled and shall indicate specified service for which material, equipment or item is to be used, section and article number of Specifications governing, Submittee's name and Project name.

K. If the submittals and/or shop drawings show variations from the requirements of the Contract, the Submittee shall make specific mention of such variation in the transmittal letter; if no mention is made, the Submittee shall not be relieved of the responsibility of executing the work in accordance with the Contract even though such submittals have been approved.

L. Shop Drawings shall be examined by the Submittee and also by the Contractor if the Contractor is not the direct Submittee, prior to transmittal to the Architect. Shop Drawings submitted to the Architect shall bear the Submittee's signature of approval indicating that the Submittee has examined and checked each drawing and has found said drawings to be in accordance with the Contract Documents. Any shop drawing submitted without such approval shall not be considered by the Architect and shall be returned for re-submittal.

M. Shop Drawings shall include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawing and shall include the following information:
   1. Dimensions.
   2. Identification of products and materials included by sheet and detail number.
   3. Compliance with specified standards.
   4. Notation of coordination requirements.
   5. Notation of dimensions established by field measurements.

N. The approval of samples, shop drawings and product data, etc. by the Architect shall be general and shall not be understood as:
   1. Meaning that the submitted items have been checked in detail;
   2. Relieving the Submittee from responsibility, nor the necessity of furnishing the material, for performing the work as required by the Contract Documents;
   3. Permitting any departure from the Contract Documents;
   4. Relieving the Submittee of the responsibility for any errors in details, dimensions or otherwise;
   5. Approved departures from additional details or instructions previously furnished by the Architect or Owner's Representative, without specific written approval;
   6. A guarantee of measurements of building condition(s).

O. The Contractor shall maintain an office file set of all submissions and shall also maintain a parallel set of approved submissions at the construction site.

P. Submittal Registry; Includes the following and as noted in individual specification sections:
   1. Structural as noted on the structural drawing sheets and notes and including:
      ~~a. Myrtha pool submittal cutsheet/shop drawings~~
      b. Wood roof trusses cutsheets/shop drawing for layout, including bottom chord loading and confirmation of various elements that are shown and noted in the structural/architectural layout
      c. Manufactured lumber members cutsheet with allowable stress ratings
      d. Concrete rebar layout shop drawings for all concrete work
      e. Concrete test cylinders report and truck transit slip with mix ratios
      f. Cutsheets for manufactured lumber headers and beams
      g. Shop drawing for front steel gate per design drawing
   2. Pool as noted on the AP drawing sheets and specifications and including:
      ~~a. Myrtha pool submittal cutsheet/shop drawings~~

b. Pool reinforcing shop drawing or as noted in the AP drawings. Note that this takes precedence over the previous Myrtha shop drawing note on the structural drawings.
c. PDS/cutsheets for pool equipment, including pumps, filters, controllers and similar items
d. Report of survey/datum information and confirmation of pool alignment and elevations
e. Pool piping layout and inverts for coordination with GC; this may be done as a shop drawing or in other form that presents the information clearly
f. PDS/cutsheets for water attraction components from Vortex including feature elements, control devices and support equipment.

3. Civil as noted on the civil drawing sheets and notes and including:
   a. Compaction inspection reports as noted
4. MEP as noted on the MEP drawing sheets and specifications and including:
   a. Plumbing equipment, fixtures and fittings cutsheets and PDS
   b. Electrical equipment, fixtures and fittings cutsheets and PDS
   c. Mechanical equipment, fixtures and fittings cutsheets and PDS
   d. CFM balancing test(s)
   ~~e. Concession kitchen exhaust hood and fire suppression system cutsheets, PDS and other supporting information to confirm code compliance~~
5. Architectural as noted on the architectural drawing sheets, schedules and specifications and including:
   a. Toilet partitions shop drawing, verification color samples
   b. Locker configuration shop drawing/cutsheet and color samples
   c. Bench shop drawing/cutsheet and color samples
   d. Pre-fabricated shower shop drawing/cutsheet and color samples
   e. Toilet Accessories; optional at GC option if no substitutions
   f. PDS for Wall and Door Protection- Optional
   g. Tile confirming samples, cutsheets and PDS on tile, setting bed, accessories and grouting materials and confirmation of use in non-conditioned space subject to occasional freezing
   ~~h. Terreon single lavatory cutsheets and PDS (not otherwise specified in plumbing) and color samples~~
   ~~i. Terreon extended countertop lavatory cutsheets and PDS (not otherwise specified in plumbing) and color samples~~
   j. Masonry veneer color samples of stretcher, corner and sloped stretcher units with sides finished as noted
   k. Masonry veneer flashing and accessories cutsheets and PDS
   l. CMU masonry veneer 48x48 wall sample/mockup
   ~~m. Pre-fabricated metal standing seam roof shop drawing showing fastener locations, panels sizes, details, etc., cutsheets, PDS and color selection samples~~
   n. Fiber Cement wall mock-up/sample of one section of wing wall incorporating standard trim and details shown and noted on the drawings
   o. Flashing material fabrication drawings of RWL/gutter profiles, cutsheets, PDS and color selection samples. Fabrication drawings may be simple but must show the overall dimensions and appearance of the various components
   p. FG shingle cutsheets, PDS and color selection samples
   q. Paint draw-downs samples and field samples
   r. Sealant PDS and color selection samples/charts
   s. Concrete sealing samples in minimum 24x24
   t. Epoxy flooring sample in minimum 16”x16” size and including one cove base condition and termination. Epoxy flooring materials cutsheets, PDS and installer certifications
   u. Reception concrete countertop shop drawing and finish sample
   v. Door schedule, shop drawings, cutsheets and PDS

w. Hardware schedule, cutsheets and PDS
x. ACT cutsheets and PDS
y. Shop drawings/PDS/cutsheets of fence fabrications and layout and including specific drawings that indicate the noted gates, hardware and any installation specific work required for hardware, etc.
z. Roof and Gable vents PDS/cutsheets; provide color samples in colors specified
aa. Shop drawing and PDS for front steel gate per design drawing
bb. PDS/cutsheets of penetrating sealers and elastomeric joint sealers and color chart
cc. PDS/MDSS of all insulation and thermal envelope product s and systems
dd. PDS/cutsheets of all GPDW and associated products
ee. PDS and confirming materials sample of FRP System
ff. ACT system PDS and samples
gg. Project close-out information as noted herein in other sections of this specification

1.44 CONTRACTOR SUBMITTAL RESPONSIBILITIES

A. Review submittals for compliance with Contract Documents and approve submittals prior to transmitting to the Architect.
B. Specifically record deviations from Contract Document requirements, including minor variations and limitation.
C. Contractor's approval of submittals shall indicate that the Contractor has determined and verified materials, field measurements and field construction criteria, and has checked and coordinated information within each submittal with requirement of the Work and Contact Documents. Field conflicts which arise from the contractor's failure to fully review and approve submittals before ordering equipment, will result in the contractor being burdened with all costs to remediate the situation.
D. Contractor shall be responsible for:
    1. Compliance with the Contract Documents
    2. Confirming and correlating quantities and dimensions
    3. Selecting fabrication processes and techniques of construction.
    4. Coordination of the work represented by each submittal with other trades.
    5. Performing the work in a safe and satisfactory manner.
    6. Compliance with the approved Construction Schedule.
    7. All other provisions of the agreements.
E. It is understood that the Architect's notation on the submittals is not to be construed as an authorization for additional work or additional cost.
F. If any notations represent a change to the Contract Sum, submit a cost proposal for the change in accordance with procedures specified before proceeding with the work.
G. Notify the Architect of any notations made by the Architect which the Contractor finds unacceptable. Resolve such issues prior to proceeding with the Work.
H. Fabrication work shall not begin until all specified submittal procedures have been fulfilled.
I. Do not submit shop drawings, product data or samples representing work for which such submittals are not specified. The Architect shall not be responsible for consequences of inadvertent review of unspecified submittals.
J. The review of shop drawings shall not relieve the Contractor of the responsibility for proper construction and the furnishing of materials and labor required even though the same may not be indicated on the review shop drawings.
K. Certify that only asbestos free material is used in the execution of all work.

1.45 PROJECT CLOSE-OUT

A. Contractor and pertinent Subcontractors shall submit the following to the Owner at the completion of the Work:
    1. All final operations and maintenance data, including originals of all manuals, information, data sheets and similar written information provide by manufacturers

for equipment, fixtures, devices and similar items provide by the Contractor and Subcontractors.

2. All manufacturer's warranties and manuals
3. All Third Party and Independent Inspection test results, reports, certifications and other similar documents
4. All test reports for systems operations, including mechanical, plumbing, electrical, sprinkler, smoke alarm, fire alarm/annunciator systems, elevator(s), other conveying systems.
5. A copy of all tests, reports and certifications provided by manufacturers and/or independent testing agencies that have reviewed and/or tested items, equipment, systems, etc. in the Project.
6. As built drawings as noted.
7. A full and complete pictorial record of the Project.
8. Copies of all building Permits, Building Permit inspections (including Approvals and Disapprovals)
9. A copy of all project log(s) that the Contractor kept on-site during the Project.
10. Any other information regarding the Project that is deemed pertinent.

B. The Contractor shall prepare and submit to the Owner and Architect, 'As Built Drawings' on media approved by the Architect and Owner. The As Built Drawings shall reflect the actual installed conditions and shall be neatly and accurately drawn to scale to match the drafting of the Construction Documents.

C. The Contractor shall provide copies of all Lien Releases using AIA Document Forms or similar forms approved by the Owner for all payments to the contractor, Subcontractors, material and equipment suppliers prepared, provided and received during the Project.

D. Punch List

1. At the completion of Substantial Completion as defined in the AIA General Conditions, the Contractor shall prepare a written Punch List, listing work remaining to be done, items, equipment, etc. to be provided and/or installed, work that is to be repaired, revised or replaced and any other similar items and issues. This list shall be forwarded to the Architect and Owner for their review and subsequently, the Architect and Owner will perform an on-site review of the Punch List with the Contractor.
2. The Punch list shall be organized by CSI Division or other appropriate organization and shall include the work itself, the detailed, proposed remedy to the work, as necessary and as pertinent, and/or the proposed extent of supplemental work necessary to complete the work and the schedule to complete the work.
3. The Architect and Owner reserve the right to add or delete items from the Punch List. After this on-site review the Contractor shall prepare a revised Punch List and shall include scheduled dates for completion of each and every item on the list. The Contractor shall notify the Architect and Owner when the Punch List has completed in its entirety and the Architect and Owner shall perform an on-site review of the completed Punch List work. The Architect and Owner reserve the right to refuse acceptance of work previously provided or provided as part of the work performed in response to the Punch List and to require that any such work be remedied.
4. When the Architect has provided or agreed to a specific punch list correction approach and that approach is not followed completely, the e Architect reserves the right to refuse acceptance of said correction and require the correction to comply with the agreed upon approach.
5. When all portions of the Punch List work as noted above have been completed, the Owner shall provide a letter to the Contractor indicating acceptance of the Punch List work as corrected and remedied. The issuance of any such letter shall not be construed as abrogating any rights that the Owner may have under applicable laws nor shall it be construed as modifying in any manner, the warranty and guarantee obligations of the Contractor to the Owner. In addition, the Contractor shall be responsible for correcting and remedying any additional

Punch List items that are generated after the issuance of the letter due to any additional work that the Contractor may perform on the Project including, work that is part of the base contract work, work that is an addition to the base contract, work performed as part of the Punch List or work that is part of the Contractor's termination of operations at the Project. Any such additional corrections shall be handled as Additional Punch List items using the process noted above.

1.46 FINAL CLEAN UP

A. Upon completion of the work covered by the Contract the Contractor shall leave the completed Project ready for use and occupancy without the need of further cleaning of any kind and with all Work in new condition, fully operational and in perfect order. In addition, upon completion of all Work the Contractor shall remove from the vicinity of the Work all plant, buildings, rubbish, unused materials, concrete forms and other materials belonging to him or used under its direction during construction or impairing the use or appearance of the property and shall restore such areas affected by the work to their original condition, and, in the event of its failure to do so, the same shall be removed by the Owner at the expense of the Contractor, and the Contractor and/or its surety shall be liable therefore. Final clean-up shall include but not be limited to the following:
   1. All finished surfaces shall be swept, dusted, washed and polished. This includes cleaning of the Work of all finishing trades where needed, whether or not cleaning by such trades is included in their respective sections of the specifications.
   2. Roofs, utility tunnels, manholes and pipe trenches and spaces between the new and existing Work shall be left thoroughly cleaned.
   3. Finished flooring shall be thoroughly cleaned in accordance with the manufacturer's recommendations.
   4. Where the finish of floors has been marred or damaged in any space or area, the entire floor of that space or area shall be refinished as recommended by the manufacturers of the flooring.
   5. All equipment shall be in an undamaged, bright, clean, polished and new appearing condition.
   6. All new glass shall be washed and polished, both sides. The Contractor shall be responsible for all breakage of glass in the area of the Work from the commencement of its activities until the building is turned over to Owner. The Contractor shall replace all broken glass and deliver the entire building with all glazing intact and clean.
   7. Provide new filters for all HVAC equipment that utilizes filters after final cleaning.
   8. Remove all paint spatters and overspray from exterior surfaces.

B. Clean adjacent structures and improvements of dust, dirt, and debris caused by construction operations. Return adjacent areas to condition existing before construction operations began.

1.47 GUARANTEES

A. Contractor guarantees for the materials and labor of this project shall be for a period of one year following Final Completion of the Project, as defined by the AIA General Conditions, unless otherwise noted in the Specifications or unless otherwise agreed in writing between the Owner and Contractor or otherwise provided for in extended manufacturer's and/or equipment warranties.

END OF SECTION 01 10 00

SECTION 04 20 00 - UNIT MASONRY, POINTING AND REPAIR OF EXISTING MASONRY

PART 1 - GENERAL

1.1 INCORPORATION

A. The Supplementary Conditions (Section 01 10 00) are hereby made a part of this Specification section and the provisions set forth herein shall apply to all labor, materials, equipment, etc. provided as part of the work of individual sections
   1) UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES.

1.2 SPECIFICATION COORDINATION

A. Requirements noted in this spec are in addition to those requirements noted in the Structural Drawings and the Structural Drawing Notes. If there is disagreement between these Specifications and the Structural Drawings and the Structural Drawing Notes, the requirements in either which note the greater quality, quantity or more stringent characteristics and requirements for the work shall take precedence, unless otherwise agreed in writing by the Architect prior to fabrication and/or installation of the work.

B. If there is disagreement between these Specifications and the Structural Drawings and the Structural Drawing Notes, the Contractor shall request clarification from the Architect and/or the Structural Engineer through the Architect, using an RFI.

1.3 EXTENT OF WORK

A. Work in this section includes providing all labor, materials, equipment, services and other items necessary to perform the masonry work as required to complete the work shown and noted in the Drawings and Specifications.

B. Provide all accessories, connectors and other items ordinarily provided and necessary for the installation of the work in this section, whether or not specifically shown and noted.

C. Work in this section also includes:
   1. Air and vapor barrier materials for masonry veneer construction normally specified under Division 7 are specified herein for convenience.
   2. Sealants and coatings for CMU normally specified under Division 7 are specified herein for convenience.

D. Work in this section includes, in general:
   1. New CMU masonry veneer over wood stud work as shown and noted in the Drawings.
   2. New CMU masonry as shown and noted in the Drawings.

E. See the Civil Drawings, the Architectural Drawings and the Sheeting and Shoring Drawing(s) for the extent of work and for additional notes, requirements and Specifications.

F. The Drawings indicate the specific and required grades that shall be achieved and adhered to in the construction. If not so noted, the Contractor shall submit an RFI to the Architect requesting clarification of any grade points, heights, dimensions, etc., as necessary to install the work.

G. Control and Datum lines for elevations shall be provided and maintained in accordance with Spec 01 10 00.

1.4 COORDINATION

A. Contractor and Sub-Contractor(s) shall coordinate the work in this section with the work of all other trades to minimize cutting and patching. Special attention shall be paid to coordinating masonry work with the installation of concrete work, expansion joint covers, steel stud sheathing and installation of stud sheathing, air and water barrier, etc.

1.5 CODES AND STANDARDS

A. All work shall conform with all applicable Codes and Regulations and with all applicable standards of the following: Brick Institute of America and the National Concrete Masonry Association.

1.6 SUBMITTALS AND SHOP DRAWINGS

A. All Shop Drawings shall be reviewed, stamped and sealed by a Professional Engineer licensed to practice in the jurisdiction in which the Project is located. Shop Drawing/Submittals shall be in accordance with section 011000.

B. Contractor shall provide the following submittals:

1. Masonry veneer anchors
2. Masonry reinforcing wire
3. Masonry flashing, termination bar, etc.
4. Spray or sheet applied sheathing air and water barrier
5. Veneer CMU samples, and data sheets
6. Sealant and coatings for CMU walls
7. Contractor shall provide the following submittal as a field sample:
   a. One minimum 48” high and 48” long wall sample incorporating:
      1) A sloped stretcher course, an inside and an outside corner and an expansion sealant joint
      2) Typical coursing
   b. The Architect and/or Owner shall review this sample and provide approval or direct the Contractor to correct it. After any corrections and approval of the sample, the column shall be marked clearly as a field sample submittal and protected against damage. The sample shall be kept on site throughout the length of all operations involving masonry veneer.

1.7 UNIT PRICES AND ALLOWANCES

A. Provide the following Unit Prices

1. 4 x 8 x 16 standard unit with 7 5/8” face finished
2. 4 x 8 x 16 standard corner unit with 7 5/8” and 3 5/8” face finished
3. 4 x 8 x 16 standard sloped unit with 7 5/8” and 15 5/8” face finished (sloped stretcher)

1.8 TESTS AND INSPECTIONS

A. The following inspections shall be provided:

1. Inspection of a regular basis of the attachment and layout of masonry veneer anchors
2. Inspection of weep flashing, termination bars, etc. immediately after installation and prior to running additional courses of brick above that point.
   a. Inspections shall include a digital photographic record of the observed and any corrected conditions. These images shall be provided as part of the Project Close-out.

PART 2 - PRODUCT

2.1 CONCRETE MASONRY UNITS (CMU)

A. CMU shall conform to applicable ASTM Standards including:

1. Hollow Load-Bearing CMU ---ASTM C90-78, Grade N-l for use as backup for brick walls, Grade N-l or S-l elsewhere.
2. Hollow Non-load Bearing CMU -- ASTM C129-75, Type I.
3. Solid Load-Bearing CMU ---ASTM C145-75, Type I, Grade U-for use as backup for brick or foundation walls below grade; Grade U-1 or P-1 elsewhere.
4. Corner and end CMU shall have square external corners.
5. Recycled Content: Minimum **NA** percent post-consumer recycled content, or minimum **NA** percent pre-consumer recycled content at contractor’s option.

B. CMU shall be the following:

1. Backup/support CMU type and color shall be as follows:
   a. Varies x 8x16, 2 cell slumped, gray color.
2. Ground face unit: York Building Products;
   a. Wings: Tuscany Gemstone, Ground Finish, Standard Series
   b. Entry: Ash Gemstone, Ground Finish, Standard Series
3. Note that there is no recycled content requirement.

4. Note that several shapes will be required, including a standard 4x8x16 stretcher, a 4x8x16 corner unit with return to be cut in field, a 4x8x16 sloped stretcher course with finished edge
5. Free-standing CMU wall at south may be constructed with (1) wither 8x8x16 units with finished exposed faces or (2) wythes 4x8x16 with finished faces

2.2 BRICK: NA

2.3 PRECAST AND CONCRETE LINTELS: NA

2.4 CMU LINTELS:

A. CMU lintels shall be fabricated from full size load-bearing lintel units having face matching other CMU.
B. Cavity shall be solidly filled with concrete and compacted thoroughly in place.

2.5 STEEL LINTELS

A. Steel lintels shall be American Standard channels conforming to ASTM A-36, primed with one coat red oxide primer prior to installation.
B. Lengths shall be calculated to allow 6 in. bearing at each end or as otherwise noted in the structural drawings.
C. Sizes shall be as shown and noted in the Drawings. If not noted, loose steel angle sizes shall be as follows (based on 4" CMU): see chart at end of section

2.6 GENERAL REINFORCEMENT

A. Horizontal metal reinforcing at CMU walls shall be standard weight, hot-dipped, galvanized truss type. Out- to-out spacing of longitudinal wires shall be approximately 2" less than nominal width of masonry wall or wythe.
B. Ties between multiple wythe masonry walls shall be continuous, horizontal tab type of corrosion resistant minimum 9 ga. Wire
C. Corrugated steel strip ties shall be not less than 20 ga. hot-dipped, galvanized steel, 1" wide, with lengths as required to engage masonry wythes a minimum of 2 1/2".
D. Wire mesh type ties shall be from 16 ga. steel wire fabricated into mesh and hot-dipped galvanized after fabrication.
E. Ties shall be minimum 12" long and 1" less in width than the wall in which it is placed.
F. Reinforcing bar shall be as shown and noted in the Drawings and Specifications and shall conform to ASTM A615-78, Grade 40.
G. Solid cell grouting material shall be 3000 psi per-gravel aggregate concrete; mortar will not be acceptable unless otherwise approved prior b4 the Architect prior to installation.

2.7 BRICK/CMU VENEER REINFORCEMENT, ANCHORAGE AND FLASHING

A. Wood Stud frame veneer ties shall be:Hohmann and Barnard (HB), H&B BL-407 or HB-213 or DW-10 in HDG finish, or approved equal. Space anchors 16" oc horiz and 24" oc vertically max. (16x16 preferred). Provide HB x-seal tape or anchor seal tape or similar behind anchors
B. Wire ties shall be of sufficient length to be embedded minimum 2” into bed joint of veneer. Verify sheathing thickness prior to ordering anchors.
C. Anchors shall be spaced 16” o.c. horizontally and 24” o.c. vertically max. (16x16 preferred) and shall be arranged to provide (1) tie per maximum 2.66 sf of wall area. Screw fasteners shall be as recommended by HB.
D. Continuous wire reinforcement shall be:
    a. HB Continuous Wire, hot-dip galvanized after fabrication per ASTM A-153-B2, or Approved equal.
E. Weep hole and flashing protections shall be Mortar Net or approved equal.
F. Weep hole flashing shall be HB Textro Flash Polyethylene/ rubberized asphalt flashing with HB Termination Bar #T2, 26 gauge aluminum with sealant applied at top flange, or approved equal.
G. Provide HB Drip Plate #DP, Type 304 stainless steel, 26 gauge, with compressible foam and Flash-Adhere Adhesive Strip, or approved equal, below flashing.

2.8 AIR AND WATER BARRIER AT BRICKCMU VENEER WALL

A. The entire surface of sheathing behind the veneer shall be covered 100% and lapped and tapped as recommended by the manufacturer, with a WR Drainage Plane (e.g. Drainable WRB) with 90% drainage efficiency per ASTM E2273) from one of the following:
   1. DUPONT STUCCOWRAP
   2. Dupont DRAIN WRAP
   3. TAMLYN DRAINABLE HOUSEWRAP.

2.9 MORTAR

A. Mortar shall conform to all applicable ASTM Standards including ASTM Sand shall conform to ASTM C-144.

B. Mortar types shall be as follows:
   1. Masonry work below grade and in contact with the earth, including parging masonry work below grade: Type M.
   2. Load-bearing masonry work: Type M, or S only.
   3. All exterior masonry work, including exterior building walls above grade, unless otherwise noted L or N.
   4. Mortar for brick veneer shall be Portland cement-lime type conforming to ASTM C270 or BIA M1-72, Type N.
      a. Portland Cement:
         1) Fly Ash: Comply with ASTM C593.
         2) Recycled Content: Minimum **NA** percent post-consumer recycled content, or minimum **NA** percent pre-consumer recycled content at contractor's option.
         3) Slag: Comply with ASTM C989;
         4) Recycled Content: Minimum **NA** percent post-consumer recycled content, or minimum **NA** percent pre-consumer recycled content at contractor's option.
   5. Interior non load-bearing masonry work: Type M,S,N or O, optional
   6. Pointing exterior work: Type N.
   7. Pointing interior work: Type O.
   8. Exterior pavers: Type M.
   9. Mortar colors shall be as follows:
      a. York Building Products Reference
         1) Ash: WR-280
         2) Tuscany: WR-423
   10. Mortar used for tuck-pointing shall match proportions of original masonry as closely as possible. If this is not possible, use Type N pre-hydrated mortar.
   11. Mortar used for surface grouting shall have the following proportions:
      a. 1 part portland cement; 1/3 part hydrated lime 1 1/3 part fine sand (passing #30 sieve).

2.10 PARGING

A. Parging shall be from portland cement mortar, Type M and sand mix applied as shown and noted in the Drawings and in thicknesses as follows, if not otherwise noted:
   1. 3/8" thick where masonry is required to be waterproofed or damp-proofed with bituminous product on interior surfaces
   2. 3/4" thick on exterior of all masonry walls below grade that enclose a habitable space and where masonry is required to be waterproofed or damp-proofed
   3. 3/4" thick on exterior walls above grade where parging will be exposed to view
   4. 3/8" thick on areaway walls.
   5. ¼-3/8" on cmu walls at reception area

2.11 RELATED MATERIALS

1. Expansion Joint fillers shall be preformed strips of sponge rubber, either natural or synthetic rubber, plastic or other rubber-like material conforming to ASTM D1752-67

2. Backer rods to control the depth of the sealant shall be a size that will compress 25%. Denver Foam open-cell polyurethane or reticulated (soft) polyethylene rod or similar is acceptable. Closed-cell polyethylene may be used but care must be taken not to puncture the rod which can cause outgassing or bubbling/blistering in the sealant. In joints too shallow for backer rod, provide a polyethylene bond-breaker tape to prevent three-sided adhesion.
3. Bond Break materials shall be 15 Ibs. asphalt saturated felt conforming to ASTM D226-77 or as noted above.
4. Sealants at relieving angles, expansion joints and similar masonry joints shall be Pecora Dynatrol II or I-XL or approved equal, color to match the adjacent veneer
   a. Ash: Limestone; 039
   b. Tuscany: Adobe Accent; CF-10
5. Provide manufacturer's recommended primer for all masonry surfaces
6. Vents shall be corrugated, color-matched plastic vents below each sill flashing and other wall interruptions to allow venting of the air space: BOD is HB 343 quadro-vent or similar.
   a. Ash veneer: use grey or clear
   b. Tuscany veneer; use buff or clear

2.12 CLEANING AGENTS

A. Cleaning agents shall be one of the following:
   1. Muriatic Acid Solution; acid solution shall be as weak as possible, preferable 5% with maximum 10%
   2. Soap or Detergent
   3. Commercial Cleaners and Solvents shall be used only with prior written approval from Architect

2.13 SEALANTS AND COATINGS

A. See Product Finish Schedule

PART 3 - EXECUTION

3.1 GENERAL WORKMANSHIP

A. All workmanship shall be in accordance with all applicable portions of "Brick Institute of America, BIA Technical Bulletin 11B" and "National Concrete Masonry Association, TEK Manual".
B. Coursing rods with courses marked thereon shall be used for all brickwork.
C. Scaffolding, platforms, etc., wherever used, shall be erected, maintained and disassembled so as to prevent defacing new or existing masonry work.
D. Provide all shoring and bracing necessary to support completed work during subsequent work.

3.2 SETTING OTHER WORK

A. Cutting and patching of masonry work for installation of work under this or other sections including demolition/removal of existing construction, shall be performed as directed and shall be coordinated so as to minimize cutting and patching.
B. Items furnished by others shall be securely braced in position and built in as work progresses. These items include:
   1. Nailing sheeves and wood grounds
   2. Blocking, flashing and expansion joints as shown and noted in the Drawings and Specifications
   3. Inserts for sleeves and other items for mechanical and electrical work, including refrigerant line set wall penetrations
   4. Items specified under other sections such as door frames, etc., where required to be embedded in masonry work
C. Grout solidly with mortar around all penetrations and built-in items, such as anchors, etc.

D. As work progresses, fill all hollow metal door frames that are set in masonry solid with mortar or grout.
E. Flashings shall be as shown and noted on the Drawings and Specifications.

3.3 GENERAL WORKMANSHIP

A. Walls shall be laid to lines and shall be straight, plumb and of uniform thickness. Walls shall be laid up from face side of wall in running bond unless otherwise shown or agreed upon prior to commencement.
B. Exterior veneer shall be laid:
   1. In running bond
   2. Joint width shall be maximum 3/8” and shall be tooled slightly concave.
C. Hollow units shall be laid with full mortar coverage on horizontal and vertical face shells.
D. Webs shall be bedded in all courses of piers, columns and pilasters, in the starting course on footings and foundation walls and where adjacent to cells or cavities to be reinforced or filled solid with mortar/grout.
   1. Solid units shall be laid with full head and bed joints.
E. Corner units and sloped units shall be neatly cut so as to close air space gaps and to be within approximately ¼” or less of adjacent materials.
F. All units shall be ordered, provided and set so that a consistent, finished face is visible across the entire veneer wall without exception.
G. Masonry units shall be laid in beds of mortar of appropriate plasticity and fullness so that dashing or slushing of joints will not be necessary.
H. In cavity walls, bevel mortar on cavity side to prevent dropping mortar into cavity.
I. Horizontal coursing joints shall be kept level and in true, uniform width. Vertical joints shall be maintained in reasonable, true vertical alignment and cut as necessary to maintain such alignment.
J. Soon after mortar has attained initial set, finish and compact with metal tool, forcing mortar tight against unit and closing all cracks.
K. Brick and CMU joints shall be maximum 3/8" wide and tooled concave type, unless otherwise noted.
L. Where necessary to course out with existing work, joints may be up to 1/2 inch thick but shall, in no case be larger; splits shall be used, as necessary, to eliminate joints larger than ½ inch.
M. Masonry subcontractor and GC shall lay out the vertical coursing of all veneer and provide a veneer ledge haunch, as shown and noted in the drawings, that is set at the correct height to allow coursing to work out and achieve top of wall elevations as noted and without excessive use of split courses. If a split course is required, it shall be laid at the lowest possible point of the veneer wall where it will be least visible.
N. Where noted to be covered with stucco or parged, CMU joints shall be flush, non-tooled type.
O. Provide 3 crs solid brick or 1 crs 100% solid (NOT FILLED) block continuous by 8" width under all concrete slabs bearing on masonry walls.
P. Unless otherwise noted, provide 6 crs of solid brick or 2 crs of 100% solid block, 8" wide by minimum 32" length at all structural steel bearing.
Q. Bearing noted as SMP (solid masonry piers) shall be solid CMU or hollow cell CMU poured 100% solid with pea-gravel concrete down to footing and with reinforcing as noted.
R. Steel lintels shall have minimum 6" bearing at each end unless otherwise noted.
S. Weep holes in retaining walls, unless otherwise noted, shall be formed with PVC pipe, cut cleanly and solidly grouted into place.
T. Flashings and weep holes shall be protected during construction so as to prevent any clogging of holes and any damage or perforation of flashing. Any flashings that are discovered during the course of work to be defective shall be removed and replaced by the Sub-Contractor without additional cost or charges.

3.4 REMOVING EXISTING WORK: NA

3.5 JOINING EXISTING WORK: NA

3.6 WORKMANSHIP FOR BRICK VENEER ON WOOD STUDS

A. General Requirements
   1. All weep holes, flashing, termination bars and other items shall be installed as noted in the Drawings and herein as the work progresses.
   2. Install Mortar Net as the work progresses to keep weep holes cavity free of mortar.
   3. Contractor and/or Subcontractor shall review the drawings and the field conditions prior to commencing work and shall request clarification, using an RFI, for any conditions that are unclear from the Drawings or that are or appear to be at variance with the Drawings.

B. Exterior Sheathing Inspection
   1. Prior to applying the barrier and any wall ties, the Contractor shall inspect the exterior sheathing substrate for damage and shall remove, repair and/or patch any defects.
   2. Fill and tape all gaps and tape all seams completely per manufacturer's recommendations prior to installation of barrier.

C. Air and Vapor Barrier
   1. Veneer wall ties shall be installed over a sheet applied air and water barrier.
   2. The barrier shall be installed in complete conformance with the manufacturer's requirements, with detailing as required by the manufacturer and shall fully and completely cover the exterior sheathing surface.
   3. The barrier shall be inspected by the installer and a third-party or manufacturer's representative to insure that the coverage is complete and correct. Any deficiencies shall be remedied prior to installation of veneer wall ties.

D. Veneer wire ties shall be spaced and installed in conformance with all BIA and NCMA recommendations and as follows:
   1. Anchors shall be spaced 16" o.c. horizontally and 24" o.c. vertically max. (16"x16" preferred) and shall be arranged to provide (1) tie per maximum 2.66 sf of wall area
   2. Veneer wall ties shall be attached with screws as recommended by manufacturer. Ties shall be securely attached to the studs or sheathing
   3. Veneer wall ties shall be installed over X-Seal tape or similar sealing gasket

E. Weep holes shall be provided at intervals of 16-24" maximum.
   1. Weep holes shall be formed with head joint plastic vents and shall be cut/set flush with the exterior brick face.

3.7 REINFORCING MASONRY WORK

A. Provide all joint reinforcing, ties, anchors etc. as shown and noted in the Drawings and Specifications and as recommended by NCMA and BIA. All such items shall be laid on top of a bed of mortar and shall be covered by mortar before laying the next masonry course. Where not otherwise noted, provide Dur-O-Wall, or equal, at 8" o.c. vertically at all exterior and foundation walls.

B. All cells and cavities at vertical bar reinforcement shall be filled solid with pea-gravel concrete along the entire length of the reinforcement. Filling shall be performed as the masonry work progresses; do not fill cavities by pouring in lifts greater than 16" at a time.

3.8 PROTECTION

A. All masonry work shall be protected from freezing as recommended by "BIA" and "NCMA". Work shall be performed within the temperature ranges recommended by above organizations.

B. Anti-freezes shall not be used unless specifically approved by the Architect.

3.9 CLEANING

A. Cleaning shall be in accordance with "BIA, #20 and NCMA TEK 08-04A or as amended.

B. During progress of work, take precautions to keep masonry as clean as possible. Protect adjacent surfaces susceptible to wicking and mask or otherwise protect windows, doors and ornamental trim.
C. Upon completion, clean all work with stiff brushes and one of the following:
   1. Clean water and detergent; hose off wall to remove detergent traces.
   2. Solution of muriatic acid and water, if the following conditions are met:
      a. Masonry shall be thoroughly saturated with water before and after application of solution.
      b. Solution shall not remain on surface for more than 10 minutes.
      c. Solution shall be immediately scrubbed off and wall is flushed with water to remove all traces of acid.
      d. Architect provides written approval.
D. Discolorations, stains and other damages to work shall be removed or units shall be cut out and replaced.
E. Inspect installed weep holes for damage and clogging and clean as necessary.

3.10 EXTERIOR PAVERS: NA

3.11 TUCK-POINTING
A. Where applicable, in areas of existing adjacent buildings where the wall is left exposed or where remedial work on recently installed veneer is required, tuck point all joints that show visible cracks and other deterioration capable of admitting water.
B. Cut out old mortar, using toothing chisel or pointers grinder, to a uniform depth of 3/4" or until sound mortar is reached. Do not overcut joints or damage brick. Clean joints by air-blowing or rinsing with water. Tuck-pointing application shall conform with "BIA #7F".

3.12 SITE ENVIRONMENTAL PROCEDURES: NA

Masonry Opening	Exterior Angles	Interior Angles
4'-0" or less	3 1/2"x3 ½”x5/16”	2(3 ½”x3 ½”x5/16”)
6’-0”	4”x3 ½”x5/16”	2(4”x3 ½”x5/16”)
8’-0”	5”x3 ½”x5/16”	2(5”x3 ½”x5/16”)

END OF SECTION 04 20 00

SECTION 05 50 00 - MISCELLANEOUS METAL FABRICATIONS AND PRODUCTS

PART 1 - GENERAL

1.1 INCORPORATION

A. The Supplementary Conditions (Section 01 10 00) are hereby made a part of this Specification section and the provisions set forth herein shall apply to all labor, materials, equipment, etc. provided as part of the work of individual sections UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES.

B. This specification is provided in addition to any specifications provided on the structural drawings. If there is a variance between the two specifications, the stricter requirements shall pertain.

1.2 SPECIFICATION COORDINATION

A. Requirements noted in this spec are in addition to those requirements noted in the Structural Drawings and the Structural Drawing Notes. If there is disagreement between these Specifications and the Structural Drawings and the Structural Drawing Notes, the requirements in either which note the greater quality, quantity or more stringent characteristics and requirements for the work shall take precedence, unless otherwise agreed in writing by the Architect prior to fabrication and/or installation of the work.

B. If there is disagreement between these Specifications and the Structural Drawings and the Structural Drawing Notes, the Contractor shall request clarification from the Architect and/or the Structural Engineer through the Architect, using an RFI.

1.3 EXTENT OF WORK

A. Work in this section includes providing all labor, materials, equipment, services and other items necessary to perform the miscellaneous metal fabrication work as required to complete the work shown and noted in the Drawings and Specifications.

B. Provide all accessories, connectors and other items ordinarily provided and necessary for the installation of the work in this section, whether or not specifically shown and noted.

C. Work in this section includes, in general, the following:
   1. Miscellaneous bollards as noted in the Product Schedule for Finish
   2. Steel gate and fence at entry
   3. Loose veneer lintels

D. Control and Datum lines for elevations
   1. The Drawings indicate the specific and required grades and elevations that shall be achieved and adhered to in the construction. If not so noted, the Contractor shall submit an RFI to the Architect requesting clarification of any grade points, heights, dimensions, etc., as necessary to install the work.

E. Prime and finish coats normally specified in spec 099000 are specified herein for convenience. Also see the Product Finish Schedule for paint coating information

F. The Drawings indicate general arrangement and design intent; all conditions and dimensions must be VIF. Architect shall be notified of any discrepancies between field and drawn conditions

1.4 SUBMITTALS AND SHOP DRAWINGS

A. All Shop Drawings shall be reviewed, stamped and sealed by a Professional Engineer licensed to practice in the jurisdiction in which the Project is located. Shop Drawing/Submittals shall be in accordance with section 01 10 00.
   1. Contractor shall provide the following shop drawings:
      a. Shop Drawings indicating the number, size, dimension, method of mounting/attachment and connections for each fabrication item noted above.
      b. Include all pertinent information necessary to demonstrate Code conformance of installation(s).
   2. Contractor shall provide the following submittals:
      a. PDS for primer

b. If not included as part of the shop drawing PDS/ information/specifications for all steel tubing, plate, bolts, etc., and other items.

1.5 CODES AND STANDARDS

A. All work shall conform with all applicable Codes and Standards, including:
1. AISC "Specifications for the Design, Fabrication and Erection of Structural Steel for Buildings", latest edition
2. American Welding Society "Code for Welding in Building Construction", D1.1, 2002 or latest edition.
3. All assemblies shall be detailed, fabricated and erected in conformance with all applicable codes and standards.
4. All portions of the fabrications that involve railing and handrail assemblies shall be detailed, fabricated and erected in conformance with all applicable codes. Assemblies shall be designed to resist a simultaneous vertical and horizontal thrust of minimum 50 lbs. per linear ft. applied in any direction at the top railing and transfer that load down through the supports to anchorage/attachment.

PART 2 - PRODUCT

2.1 MATERIALS

A. Sizes, types and connections shall be as shown and noted in the Drawings and Specifications. If not so noted, they shall include:
1. All steel tubing shall be new, free from rust and shall conform with ASTM-501.
2. Structural steel shall be as shown and noted. If no so noted, it shall include:
3. Steel shapes and plates---------ASTM A-36.
4. Pipe columns----------ASTM A-53, Type E or S, Grade B with minimum yield of 35 KSI or Pipe 3 Standard where noted.
5. High strength bolts---------- -ASTM A-325.
6. All other bolts and nuts--------ASTM A-307.
7. All shapes, bolts, nuts and other items shall be new and free from rust.

2.2 COATINGS

A. Primer shall be re-oxide or equal, shop applied; 1 coat with touch-up in-field- as necessary for items finish-coated in the field.
B. Finish coat shall be Sherwin Williams Pro Industrial™DTM acrylic semi-gloss, interior and exterior; old BM#1603; semi-gloss

2.3 BOLLARDS AND ANGLES

A. Provide and install bollards and angles in the locations shown and noted on the Drawings and in the Product Schedule.
B. Bollards and angles shall be as shown and noted on the Product Finish Schedule, the Structural drawings and Spec section 04 20 00.
C. Prime bollards and angles on all sides with red-oxide or equal. Touch up priming after installation. Fill all gaps between angles and wall surfaces on exterior walls with sealant. Finish coat with specified exterior coatings, brush applied; 2 coats.

PART 3 - EXECUTION

3.1 VERIFICATION

A. Contractor/ Fabricator shall make all required measurements in the field to ensure proper and satisfactory fit of assembly(s).
B. Contractor/ Fabricator shall verify that assemblies may be fabricated and installed in strict accordance with the original design and the approved Shop Drawings.

3.2 QUALITY

A. It is the intention of this specification to call for a finished fabrication item that is free of visible blemishes, defects, misalignments, sags and discolorations in the finish coat, etc. The coating application process shall include grinding, de-burring and sanding as necessary throughout the process to insure a smooth, uniform surface during application of primer and finish coats.

3.3 WORKMANSHIP

A. All connections shall be shop-welded, unless otherwise noted.
B. All joints and intersections of metal shall be made tight fitting and shall be securely fastened.
C. All members shall be fabricated, joined and erected in true and crisp alignment with no member out of alignment by more than 1/16” over 8’-0”
D. All holes shall be drilled or punched. Burned holes will not be acceptable.
E. All welds shall be ground smooth, thoroughly cleaned and primed. Any welds which, in the opinion of the Architect are defective or inadequately smooth, shall be repaired by the Fabricator with no additional costs or charges.
F. After installation touch-up shop priming damage, using compatible primer.

END OF SECTION 05 50 00

SECTION 06 41 00 – CASEWORK AND SIMILAR FABRICATIONS

PART 1 - GENERAL

1.1 INCORPORATION

A. The Supplementary Conditions (Section 01 10 00) are hereby made a part of this Specification section and the provisions set forth herein shall apply to all labor, materials, equipment, etc. provided as part of the work of individual sections UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES.

B. For convenience, this specification section includes any custom cabinetry noted on the Drawings and Specifications and also includes manufactured casework and countertops that would normally be specified under section 12 30 00

1.2 COORDINATION

A. All the work in this section shall be coordinated with the work of all other trades to minimize cutting and patching. Special attention shall be paid to coordinating finish casework with the installation of GPDW, trim and paint finishes.

1.3 EXTENT

A. Work required in this section includes providing all interior casework and countertops as shown and noted in the Drawings and Specifications, and includes all nails, screws and other fasteners necessary for finish carpentry, whether or not actually mentioned.

B. Minor details, including but not limited to fasteners, blocking, etc. not usually drawn or specified, but necessary for the proper installation and operation of the system(s) shall be provided as if herein specified or drawn.

C. See spec 06 20 00 for wood trim

D. Finishes are specified herein for convenience.

E. Work in this section includes some fabrications that are not wood casework but, for the purposes of this project, are considered casework or custom fabrications. See also the Product Schedule for Finish and the Kitchen Equipment Schedule on the Drawings. They include:

1. Reception Countertop; concrete fabrication
2. Specified in this section only for convenience since custom countertops are part of the work; see Spec 22 42 16.04:
   a. ~~Family Changing Room Countertops and lavs; Bradley Terreon custom fabrication; see Product Schedule for Finish~~
   b. ~~Men's and Women's Locker Room Lavatory: Bradley Terreon fabrication; see Product Schedule for Finish.~~
3. Concession Kitchen countertop and supports

1.4 QUALITY

A. All plywood shall be in conformance with APA standards

B. All trim lumber shall be kiln-dried.

C. All workmanship shall be in conformance with AWI standards

1.5 STORAGE AND HANDLING

A. Any trim lumber and plywood stored on site shall be stored within a waterproof cover and shall be stacked with spacers on level platform raised above grade.

1.6 REFERENCE STANDARDS

A. American National Standards Institute (ANSI)
   1. ANSI A208.1-2009 Particle Board
   2. ANSI A208.2, Medium Density Fibreboard (MDF).
   3. ANSI/HPVA HP-1, American National Standard for Hardwood and Decorative Plywood.

B. American Society for Testing and Materials (ASTM)
   1. E84-09 Surface Burning Characteristics of Building Materials

C. American Hardboard Association (AHA)
   1. A135.4-04 Basic Hardboard

D. American Lumber Standard Committee, Incorporated (ALSC)

E. American Society of Mechanical Engineers (ASME)

1. B18 Square, Hex, Heavy Hex and Askew Head Bolts and Hex, Heavy Hex, Hex Flange, Lobed Head, and Lag Screws

F. Builders Hardware Manufacturers Association (BHMA)
1. A156.9-03 Cabinet Hardware
2. A156.11-04 Cabinet Locks
3. A156.16-02 Auxiliary Hardware

G. Hardwood Plywood and Veneer Association (HPVA)
1. HP1-09 Hardwood and Decorative Plywood

H. National Electrical Manufacturers Association (NEMA)
1. LD 3-05 High Pressure Decorative Laminates

I. Architectural Woodwork Institute (AWI)
1. Architectural Woodwork Quality Standards

J. National Hardwood Lumber Association (NHLA)

1.7 SUBMITTALS AND SHOP DRAWINGS

A. Shop Drawing/Submittals shall be in accordance with section 01 10 00.

B. Contractor shall provide the following shop
1. Shop Drawing for Family Changing Room Terreon custom countertop and lavatory
2. Shop Drawing for Men+Women Locker Terreon and lavatory
3. Shop Drawing for Reception custom concrete countertop
4. A shop drawing for the Concession kitchen countertop may be provided at the Contractor's option but it is not required.

C. Contractor shall provide the following submittals:
1. Sample of selected Terreon countertop material
2. Minimum 12" square sample (or other approved size) of reception countertop material, tint and finish
3. PDS and MDS for finishes

1.8 ALLOWANCES, ALTERNATES AND UNIT PRICES: NA

PART 2 - PRODUCT

2.1 MATERIALS

A. All materials and construction shall be as shown and noted in the Drawings and Specifications and in the Product Schedule for Finish and the Kitchen Equipment Schedule and if not noted shall include:
1. The following components are specified for convenience in this specification. Also refer to Product Schedule for Finish and Spec 22 42 16.04
~~a. Bradley Terreon custom Family Changing Countertop and Lav (CTOP-3):~~
~~1) LD-3010 OMNIDECK SERIES CTOP WITH LAV AND WASTE RECEPTACLE PER THE DRAWINGS. CTOP LENGTH IS CUSTOM; SINK BOWL IS #WB-TR1, QTY (1) WITH MOUNTING BRACKET (IN CONFORMANCE WITH ANSI A117.1 KNEE CLEARANCES), 9" SQUARE #SW WASTE OPENING; WASTE RECEPTACLE #WR-377-363700 21 GAL CAP OR AS OTHERWISE SPECIFIED/NOTED IN OTHER SCHEDULES; CUSTOM BOWL PLACEMENT, #EE EASED EDGE; #BS BACKSPLASH, 3" HIGH; #FA FRONT APRON, 3" HEIGHT.~~
~~2) THIS IS A SUBMITTAL ITEM AND REQUIRES A SHOP DRAWING AS PART OF THE SUBMITTAL. THE BOD IS BRADLEY TERREON SINGLE BOWL EXTENDED COUNTERTOP WITH A WASTE RECEPTACLE CUT OUT, SINK BOWL, FAUCET, EXPOSED AND DRESSED EDGE, UNDER-SINK ACCESS PANEL/SHROUD AND WALL SUPPORT AT THE SIDE NEAR THE SHOWER. NOTE THAT THE CTOP IS CONTINUOUS FROM INSIDE CORNER TO WITH IN 3" OF THE SHOWER OPENING. THIS IS A SIDE-APPROACH SHOWER AND THE CTOP MAY PROJECT INTO THE REQUIRED SPACE BUT MUST HAVE A MINIMUM OF 27" CLEAR BELOW (WITH THE CTOP TOP SET AT 34") AND THE KNEE CLEARANCES REQUIRED FOR A STD LAV. A 'BOOMERANG' SHAPED SUPPORT BRACKET IS ACCEPTABLE IF IT CONFORMS WITH KNEE CLEARANCE REQUIREMENTS.~~
~~b. Bradley Terreon Mens and Womens Lav (CTOP-4):~~
~~1) LD-3010 OMNIDECK SERIES INETGRAL SINK BOWL AND CTOP. CTOP LENGTH IS 30"; SINK BOWL IS #WB-TR1, QTY (1) WITH MOUNTING BRACKET~~

~~(IN CONFORMANCE WITH ANSI A117.1 KNEE CLEARANCES); #EE EASED EDGE; #BS BACKSPLASH, 3" HIGH; #FA FRONT APRON, 3" HEIGHT.~~

~~2) THIS IS A SUBMITTAL ITEM AND MAY HAVE BUT DOES NOT REQUIRE A SHOP DRAWING AS PART OF THE SUBMITTAL. THE BOD IS BRADLEY TERREON SINGLE BOWL STANDARD 30" LAVATORY WITH SINK BOWL, FAUCET, EXPOSED AND DRESSED EDGE, UNDER-SINK ACCESS PANEL/SHROUD AND WALL SUPPORT(S).~~

2. Reception Countertop (CTOP-2):
   a. DARK GREY, SIMILAR TO LAMP BLACK ADDDITIVE FINISH. SEAL EXPOSED SURFACES WITH COMPATIBLE, SATIN OR SIMILAR FINISH, SIMILAR TO SCF-1 OR AS RECOMMENDED BY THE FABRICATOR. PROVIDE GROMMETS AS NOTED. PROVIDE 1/8" EASED EDGE.
   b. SEE RECEPTION DESIGN DRAWINGS; THIS IS A SUBMITTAL/SHOP DRAWING ITEM. PROVIDE SAMPLE OF CONCRETE COLOR AND FINISH AS PART OF SUBMITTAL
   c. GROMMET (NOMINAL 2"): HAFELE #631-26-301 OR APPRVD EQUAL
   d. GROMMET (NOMINAL 3"): HAFELE #631-26-302 OR APPRVD EQUAL

3. Concession kitchen Countertops (CTOP-1):
   a. STANDARD PLAM COUNTERTOP WITH 4" BACKSPLASH AND EITHER ROLL-FORMED EDGE OR SQUARE EDGE; NOTCH BACKSPASH, AS NECESSARY, AROUND CONCESSION SERVICE WINDOWS.
   b. SUBSTRATE SHALL BE 1 LAYER ¾" CDX PLYWD OR EQUIVALENT WITH ¾" PLYWOOD ADDITIONAL STRENGTHING/REINFORCING STRIPS TO NET A TOTAL CTOP DIMENSION OF 1.5". SEE DETAILS/ELEVATIONS IF PROVIDED.
   c. PROVIDE HAFELE E-LEG, 60 MM DIAM, 876 MM (34 1/2"), BLACK SEMI-GLOSS EPOXY COATED LEG AND MOUNT PLATE, WITH 1" ADJUSTBLE LEG LEVELOR, ITEM NO. 635.61.395, OR APPROVED EQUAL. SPACE LEGS A MAXIMUMOF 36" APART, WITHIN 3" OF EACH COUNTERTOP END AND PROVIDE A MINIMUM CLEAR SPACE OF 30" AT EACH CONCESSION WINDOW. PROVIDE 2X4 CLEAT OR <2X2X1/8-3/16" AS WALL CLEAT ALONG ALL SURFACES. IF < IS USED, PROVIDE 5/16" D HOLES AT APPROX 12-16" OC TO SCREW COUNTERTOP TO < FROM BELOW
   d. AT UNDERCOUNTER ICE MACHINE AND SLUSHY MACHINE: PROVIDE SAME CTOP CONSTRUCTION BUT SET TOP AT 42" AFF TO PROVIDE CLEARANCE FOR 38.25" ICE MACHINE HEIGHT. ELEVATE CTOP BY RAISING WALL CLEAT AND PROVIDING (2) 2X6 BAND ON WEST SIDE, CONNECTED TO WOOD WALL CLEAT; LEG MOUNT PLATE WILL SCREW TO BOTTOM OF BAND. WALL CLEATS SHALL BE INSTALLED ON EAST AND SOUTH WALLS AND PROVIDE (1) LEG AT WEST SIDE UNDER (2)2X6 AND (1) LEG TO EAST OF UNDERCOUNTER ICE MACHINE; CONFIRM MACHINE OPENING CLEARANCE IS A MINIMUM OF 32" BETWEEN LEGS. WRAP WEST AND NORTH EDGES OF FRAMING WITH 1X6 SPF WD TRIM TO FINISH AND MITER EXPOSED CORNER. ALL EXPOSED WOOD SURFACES SHALL BE PRIMED AND PAINTED PER THE PRODUCT SCHEDULE FOR FINISH, MK # PTD-5
   e. WilsonArt Plam; 4783-WHITE TIGRIS

B. For any non-standard or custom cabinets that are or may be provided, the following standards shall apply:
   1. Provide drawer/check rail at drawers.
   2. All cabinet sides, tops, bottoms, doors, drawer heads:
   3. ¾" (unless thickness is noted otherwise) quarter-sawn, book-matched plywood with edge tape for stain grade work and birch or equal plywood for paint-grade work
   4. Drawer Construction shall be as shown and noted in the Drawings and Specifications and if not noted shall include:
      a. Plywood sub-head
      b. Plywood sides and back
      c. ¼" plywood or white/grey melamine-coated mdf/particle board bottom for drawers 18" or less in width and 3/8" plywood or white/grey melamine-coated mdf/particle board bottom for drawers greater than 18" in width; bottoms shall be rabbeted/dadoed into drawer sides, backs and subheads.
      d. All exposed plywood edges shall be edge-taped
      e. Alternate: drawers may be pre-fabricated metal system from blum or approved equal.

f. Pull out shelves from ¾" plywood w/ edge tape and ¾" x 1" front stop/pull; depth = see drawings"; width = cabinet width minus runner thicknesses minus (2) ½" spacers for door clearance

C. CUSTOM CABINET HARDWARE: All hardware shall be as shown and noted in the Drawings and Specifications and if not noted shall include:
1. File drawer slides; Accuride/Hafele 17 3/4"(installed length), black, full-extension, #422.17.461 with 150 lb. Rating or approved equal
2. Pull-out shelf runners (where noted); Hafele #421.25.404 or approved equal note; provide ½" spacer between cabinet side and runner mount to allow shelf clearance at door.
3. Door hinges for side hinged doors; full-overlay, Hafele hinge # 329.01.509 w/ snap-release mounting plate #329.63.527 or approved equal.
4. Number of hinges per door;
   a. Door height up to 36"; (2) hinges
   b. Door height up to 48"; (3) hinges
   c. Door height up to 60"; (4) hinges
   d. Door height up to 72"; (5) hinges
   e. Door height up to 84"; (6) hinges
5. Inside, acute/negative angle hinges Hafele duomatic negative angle hinge # 329.09.514 w/ mounting plate #329.63.527 or approved equal.
6. Door hinges for tilt-down(bottom-hinged) doors: Hafele all-metal flap hinge, chrome-plated # 342.66.709 or approved equal; 2 per door
7. Door flap stays: Hafele dorana-stop flap stay, black/nickel-plated, #365.86.311 (left) and #365.86.302 (right) or approved equal(one at each door).
8. Provide (2) clip catches at tops of all tilt-down doors; construction standard.
9. Door hinges for tilt-up lids Hafele all-metal flap hinge, chrome-plated # 342.66.709 or approved equal; 2 per lid
10. Lid stays for tilt-up lids; Hafele fall-ex lid stay #372.17.253
11. Adjustable shelf supports; Hafele # 282.11.710
12. Grommets: Hafele #429.93.313, black, 1 7/8" diam, or approved equal
13. Provide clear plastic door bumpers, minimum (2) per drawer head/door; Hafele #356.21.428 or approved equal

D. CUSTOM CABINET FASTENERS
1. All fasteners shall be finish nails or screws of proper dimension to secure member, unless otherwise noted.
2. Casework shall be assembled using screws and/or biscuits; nailing will not be acceptable.
3. Interior screws shall be finish head type where exposed to view, with heads countersunk and spackled smooth.
4. All exterior nails, screws and fasteners, as necessary shall be galvanized and shall be of proper dimension to secure member.

E. CUSTOM CABINET FINISHES
1. Clear coat shall be spray or roller applied satin-gloss acrylic lacquer or similar, approved equal unless otherwise noted. Apply minimum 2 clear coats to cabinet interiors and 3 coats to exteriors/exposed surfaces
2. Solid coats shall be spray or roller applied satin-gloss acrylic lacquer or cabinet enamel. Apply minimum 2 clear coats to cabinet interiors and 3 coats to exteriors/exposed surfaces.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prior to beginning work in this section, Contractor shall verify that all necessary blocking, backing and support members are in place, of sufficient size and are correctly located to insure firm, true, uniform and continuous support for finish carpentry.
B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.
C. Clean surfaces thoroughly prior to installation
D. Before installing, ensure that the humidity in the installation spaces is within AWI recommended range and is capable of being maintained, and condition materials to average prevailing humidity in installation areas for a minimum of 24 hours.
E. Notify Architect and Owner/Owner representative immediately if humidity is not in conformance with AWI requirements and do not proceed with installation until the humidity levels have been confirmed as conforming with AWI tolerances and requirements.

3.2 WORKMANSHIP

A. All finish carpentry and casework shall produce joints and surfaces which are true, level, plumb, tight and well fastened.
B. All joints shall be made to conceal shrinkage.
C. All finishes shall be uniform without runs, sags, hold-out and blemishes

3.3 PROTECTION

A. All casework shall be touched up with matching finish, after installation.
B. All doors and drawers shall be adjusted to produce true and uniform alignments and gaps and to insure smooth operation.
C. Installed casework and countertops shall be protected with appropriate means after installation and any damage occurring after installation and prior to Final Completion shall be repaired without additional cost.
D. Remove and replace finish carpentry materials that are wet, moisture damaged, and mold damaged.
    1. Indications that materials are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
    2. Indications that materials are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration

END OF SECTION 06 41 00

SECTION 07 19 16 PENETRATING SEALERS

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Surface preparation.
B. Application of clear, water repellant sealer for concrete and masonry surfaces.

1.02 RELATED SECTIONS
A. Section 03 05 00 - Common Work Results for Concrete.
B. Section 03 30 00 - Cast-in-Place Concrete.
C. Section 13 11 00 – Pool Sealants

1.03 SUBMITTALS
A. Comply with Section 01 10 00 - Submittal Procedures.
B. Submit manufacturer's product data and application instructions.

1.04 DELIVERY, STORAGE, AND HANDLING
A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
B. Store materials in a clean, dry area in accordance with manufacturer's instructions.
C. Keep product from freezing.
D. Avoid direct contact with this product as it may cause mild-to-moderate irritation of the eyes and/or skin.
E. Protect materials during handling and application to prevent damage or contamination.

1.05 ENVIRONMENTAL REQUIREMENTS
A. Do not apply product when surface temperatures are expected to be below 40° F (4° C) or above 90° F (32° C) during or within eight hours of expected application.
B. Do not apply to frozen concrete.
C. Do not apply to surfaces that are to receive caulks or sealants.

PART 2 PRODUCTS

2.01 MANUFACTURER
A. Sherwin Williams/H&C, or approved equal

2.02 MATERIALS
A. ~~H&C Hydro Defend Water Based clear concrete sealer; Siloxane-based water repellent, to create a breathable barrier with no concrete discoloration and which is specifically recommended for pool decks or approved equal.~~ *See product schedule for coating information.*

PART 3 EXECUTION

3.01 EXAMINATION
A. Examine surfaces to receive water repellent sealer. Notify architect if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions have been corrected.
B. Perform a test application on each type of surface prior to full-scale application to determine suitability and final appearance.
C. Test using the recommended application instructions.
D. Let area dry thoroughly before inspection.

3.02 SURFACE PREPARATION
A. Protect adjacent surfaces not designated to receive water repellent.
B. Wait a minimum of 14 days or as recommended by the manufacturer before applying the water repellent to new concrete. Ensure that pH is between 6-10.

C. Clean and prepare surfaces to receive water repellent in accordance with manufacturer's instructions, ensuring that all stains, oil, grease, form release agents, dust, and dirt are removed prior to application.

D. Ensure surface is clean and thoroughly dry. The residual moisture must not exceed 4% and the surface temperature should be 5.5° F (3°C) above the dew point or as otherwise recommended by the manufacturer.

E. Apply water repellent on substrate and observe the rate of penetration. If it is not absorbed by the surface immediately, then additional cleaning of surface is required.

3.03 APPLICATION

A. Apply with sprayer (5-15 psi), Nylon/polyester brush or high density roller cover

B. ~~Horizontal Application Instructions~~

~~1. For best results, surface and air temperature should be above 50°F and below 90°F. Temperature should not fall below 40°F for 24 hours following application. Do not apply if rain is expected within 12 hours of application. Stir thoroughly before and during application. DO NOT THIN. Apply liberally and evenly; surface should remain wet for 2-3 minutes. A pump up sprayer is the recommended method of application. Use a cone type spray nozzle for greatest efficiency. Avoid atomization of material. Remove excess material by back-rolling. DO NOT OVERAPPLY. For rough, porous surfaces, allow material to penetrate 5-10 minutes, then recoat. Dense surfaces will only require a single application. If coating vertical surfaces, apply in the same manner, working from the bottom to the top.~~

3.04 PROTECTION

A. Protect treated surfaces from rain for a minimum of six hours.

B. Restrict foot traffic for a minimum of four hours at 68° F (20° C). This time may need to be extended based on air and surface temperatures.

END OF SECTION 07 19 16

SECTIONS 07 21 00 - THERMAL INSULATION, 07 21 16 BLANKET INSULATION, 07 26 00 VAPOR RETARDER, 09 81 00 SOUND INSULATION

PART 1 - GENERAL

1.1 INCORPORATION

A. The Supplementary Conditions (Section 01 10 00) are hereby made a part of this Specification section and the provisions set forth herein shall apply to all labor, materials, equipment, etc. provided as part of the work of individual sections UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES.

1.2 SPECIFICATION COORDINATION

A. Requirements noted in this spec are in addition to those requirements noted in the Drawings. If there is disagreement between these Specifications and the Drawing Notes, the requirements in either which note the greater quality, quantity or more stringent characteristics and requirements for the work shall take precedence, unless otherwise agreed in writing by the Architect prior to fabrication and/or installation of the work.

B. If there is disagreement between these Specifications and the Drawings, the Contractor shall request clarification from the Architect, using an RFI.

C. For convenience, this section integrates several thermal protection sections and also includes sound insulation.

1.3 EXTENT OF WORK

A. Minor details not usually drawn or specified, but necessary for the proper installation and operation of the system(s) shall be provided as if herein specified or drawn.

B. Work in this section includes providing all labor, materials, equipment, services and other items necessary to perform the insulation work shown and noted in the Drawings and Specifications, installed in complete conformance with all applicable codes and standards.

C. Provide all accessories, connectors and other items ordinarily provided and necessary for the installation of the work in this section, whether or not specifically shown and noted.

D. Work in this section includes:

1. Batt or blanket type insulation in the two wings
2. The entry space roof is not insulated
3. Rigid insulation boards
4. Vapor barriers
5. Sound insulation of demising walls between bathrooms and locker rooms/changing rooms and adjacent spaces using UFB
6. Air and water barriers for brick veneer construction are also specified in spec 04 20 00.

1.4 COORDINATION

A. Work in this section shall be coordinated with work set forth in other sections so that finished work shall be complete in every respect.

B. Special attention shall be paid to roof insulation penetrations and coordination with green roof work.

C. Special attention shall be paid to insulating all concealed stud corner, header and similar spaces during the framing process to maintain the thermal envelope consistently.

1.5 SUBMITTALS AND SHOP DRAWINGS

A. Shop Drawing/Submittals shall be in accordance with section 01 10 00.

B. Contractor shall provide the following submittals:

1. PDS, MDSS and installation requirements for all insulation materials.

1.6 CODES AND STANDARDS

A. All insulation shall be provided and installed with all applicable Codes, whether or not specifically mentioned herein.

B. Air sealing shall be in conformance with the Building Performance Institute recommendations.

1.7 ALLOWANCES, ALTERNATES AND UNIT PRICES: NA

PART 2 - PRODUCT

2.1 MANUFACTURERS

A. Manufacturers shall be as follows, or approved equal:
   1. CertainTeed
   2. Owners-Corning Corp.
   3. Dow Chemical Co.
   4. 3-M.
   5. Amoco Corp.
   6. Johns Manville

B. Fiberglass insulation shall be formaldehyde-free and shall contain a minimum of 25% recycled glass.

C. MATERIALS; Refer to sheet A103
   1. Exterior below grade insulation for walls and slabs shall include rigid extruded polystyrene boards, rigid polyisocyanurate foam boards in locations shown and noted in the Drawings and Specifications. If not noted, provide the following:
      a. Provide R10 rigid board insulation under all slabs-on-grade and foundation walls for a distance of 24” down and 24” back from interior slab edge.
      b. Insulation in new flooring, ceiling, roof, joist and wall cavities shall be Kraft Paper Faced fiberglass batts (KPFB), Unfaced Fiberglass Batts (UFB) and rigid boards provided in locations and in thickness(es) as noted in the Drawings
         1) Miscellaneous cavity spaces:
            a) Less than 2”: expanding foam.
            b) More than 2”: loose fill mineral wool or loose FG.
         2) Locker Room walls: UFB 5 ½”; Sor sound insulation only.
         3) Ceilings of conditioned spaces within unconditioned spaces as shown and noted on the Drawings: Closed Cell Spray foam insulation with minimum R-6.5 per inch
      c. Foil-faced fiberglass batts with integral vapor barrier (FFFB) will not be acceptable, unless otherwise approved by the Architect prior to installation.
      d. Interior vapor barriers shall be minimum 6 mil, 3 ply polyethylene sheet, Griffolyn Type 65 or approved equal if KPFB are not used
         1) Note that the wings may have either KFFB with integral VDR or may be blown-in insulation or UFB. If either of the latter two are used, provide a VDR as noted herein.
         2) Provide insulation control netting or equal, as necessary, under the truss bottom chords to maintain insulation in proper position and clear of systems and ACT below.
      e. Joint sealing tape shall be Griff-Tape, Fab-Tape or approved equal.
      f. Insulation in stud framing, such as headers and corners which will be in-accessible during normal installation work shall be site-applied, expanding foam type polyisocyanurate, or rigid polyisocyanurate boards, applied during the framing work.
      g. CMU wall insulation:
         1) All CMU walls which extend more than 24” above the adjacent grade and which do not have interior, furred or insulated walls shall be insulated with a field-spray-applied foam in all un-filled cells with Core-Fill 500, 2-part amino-plastic resin or approved equal.

~~h. Curtain wall insulation: if not provided under spec 08900, Owens-Corning Curtain Wall Insulation/MW or approved equal.~~

~~i. Safing insulation: whether or not shown and noted on the Drawings, provide fire-safing insulation, Owens-Corning Safing Insulation/MW or approved equal as follows:~~

~~1) Between spandrel panels and floor slabs~~

~~2) At all 'poke-through' and/or penetrations in fire-rated assemblies~~

j. Provide air-sealing of all penetrations using non-expansive spray foam or caulk

k. DWV and supply plumbing piping insulation of piping and mechanical components shall be as shown and noted on the MPE drawings.

l. Provide foam-type sealing gaskets at all devices and boxes that penetrate the vapor barrier.

m. Provide one of the following insulation behind all electrical boxes and similar devices and items in exterior walls, when insulation R value will not be continuous:
   1) 1 ¼" closed-cell, R-8 per inch insulation, folded into layers to provide minimum R value
   2) Rigid insulation of sufficient depth to completely fill the space and provide minimum R value
   3) Non-expansive spray foam to completely fill the space and provide minimum R value

n. Rigid insulation board over masonry surfaces that are not otherwise finished shall be Owens-Corning 703 Series, All Service Jacket (ASJ) face, 2" thickness, inorganic glass fiber board or approved equal.

o. The entire surface of sheathing behind the veneer shall be covered 100% and lapped and tapped as recommended by the manufacturer, with a WR Drainage Plane (e.g. Drainable WRB) with 90% drainage efficiency per ASTM E2273) from one of the following:
   1) DUPONT STUCCOWRAP
   2) Dupont DRAIN WRAP
   3) TAMLYN DRAINABLE HOUSEWRAP.

PART 3 - EXECUTION

3.1 GENERAL

A. All insulation materials and installation shall conform with manufacturer's recommendations.

B. VAPOR BARRIER INSTALLATION

1. Provide vapor barrier(s) in all locations noted in the Drawings, including on exterior framed walls and framed ceilings of all new construction and along walls and ceilings of all remodeled or otherwise altered construction.
2. Vapor barrier shall be installed toward the warm or heated side of the ceiling or wall surface.
3. The entire area (s) to be insulated shall be enveloped with a continuous VDR applied either separately from or integral with the insulation. All obstructions, penetrations and projections in the plane area to be insulated shall have vapor barrier neatly fitted and taped there to in such manner as to exclude passage of vapor or warmed air.
4. When using a separate VDR, lap all separate joints minimum 4". Tape all interior joints and penetrations
5. Inspection
   a. After the VDR has been installed and prior to installing any finishes, the Contractor and installer shall review and inspect the barrier and shall repair and cuts, tears, bulges or other defects and inconsistencies in the barrier.

C. BATT INSULATION
   1. Batt insulating materials shall be installed neatly and cut to fit so as to completely fill cavity without compressing (unless otherwise noted above) and to provide specified R values. Insulation shall be neatly fitted about all hangars, fire-breaks, etc., in the area to be insulated with all aperture and irregular spaces sealed with vapor barrier and loose insulation to maintain full thickness of insulation.
   2. Install insulation behind pipes, electrical boxes and other items located in or on exterior walls. Where there is insufficient space to install the full specified batt provide alternative insulation as noted herein.
   3. Provide air-sealing of all penetrations in the thermal and air barrier envelope. Installation and workmanship shall be as recommended by the Building Performance Institute and applicable code requirements.

D. BOARD INSULATION
   1. Protect board from puncture, compression, exposure to sunlight and other damage.
   2. Board shall not be left exposed to any interior, habitable space.
   3. Board shall be fitted tightly with butt joints and with all openings for penetrations neatly cut.
   4. Vertical rigid insulation shall be applied with adhesive sufficient or manufacturer approved mechanical fasteners to retain insulation in place during subsequent construction operations.
   5. Horizontal insulation shall be laid in place and secured by approved means as necessary to maintain position during subsequent construction operations.

END OF SECTION 07 21 00 THROUGH 09 81 00

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Asphalt roofing shingles.

B. Leak barrier and moisture shedding roof deck protection.

C. Underlayment.

D. Metal flashing associated with shingle roofing.

E. Attic ventilation and ventilation accessories are noted in 07 72 00.

F. Note that shingles are part of the Base SOW on the project and shall be provided on the two wings and the two pavilions. Add Alternate(s) are pre-fabricated standing seam roof system.

1.2 RELATED SECTIONS

A. Section 06 10 00 - Rough Carpentry.

B. Section 07 62 00 - Sheet Metal Flashing and Trim.

1.3 REFERENCES

A. AC438-1011-R1 - New Acceptance Criteria for Alternative Asphalt Roofing Shingles

B. American Society of Civil Engineers (ASCE): ASCE 7 - Minimum Design Loads for Buildings and Other Structures.

C. Asphalt Roofing Manufacturers Association (ARMA).

D. ASTM International (ASTM):
1. ASTM D 3018 - Standard Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.
2. ASTM D 3161 - Standard Test Method for Wind-Resistance of Asphalt Shingles (Fan-Induced Method).
3. ASTM D 3462 - Standard Specification for Asphalt Shingles Made from Glass Felt and Surfaced with Mineral Granules.
4. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
5. ASTM B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
6. ASTM C 1549 - Standard Test Method for Determination of Solar Reflectance Near Ambient Temperature Using a Portable Solar Reflectometer.
7. ASTM D 4586 - Standard Specification for Asphalt Roof Cement, Asbestos-Free.
8. ASTM E 903 - Standard Test Method for Solar Absorption, Reflectance and Transmission of Materials Using Integrating Spheres.

E. ENERGYSTAR.

F. National Roofing Contractors Association (NRCA).

G. Sheet Metal and Air Conditioning Contractors National Association, 1nc. (SMACNA) - Architectural Sheet Metal Manual.

H. U.S. Green Building Council (USGBC): Leadership in Energy and Environmental Design (LEED), where applicable.

I. Underwriters Laboratory (UL)
   1. UL 790 - Tests for Fire Resistance of Roof Covering Materials.
   2. UL 997 - Wind Resistance of Prepared Roof Covering Materials.

1.4 DEFINITIONS

A. Roofing Terminology: Refer to ASTM D1079 and the glossary of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual for definitions of roofing terms related to this section.

1.5 SUBMITTALS

A. Submit under provisions of Division 01 10 00

B. Product Data: Manufacturer's data sheets on each product to be used, showing compliance with requirements.

C. Color sample consisting of 2 shingle courses by 1 course long.

D. Installation Instructions: Manufacturer's installation instructions, showing required preparation and installation procedures.

E. LEED Submittals: Submit documentation indicating solar reflective index.

1.6 LEED CERTIFICATION

A. NA

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Provide all primary roofing products, including shingles, underlayment, leak barrier by a single manufacturer but leak barrier may be a separate manufacture if the PDS specifically states its applicability for this application and the shingle manufacture accepts it for warranty purposes.

B. Installer Qualifications: Installer must be approved by manufacturer for installation of all roofing products to be installed under this section.

1.8 REGULATORY REQUIREMENTS

A. Provide a roofing system achieving an Underwriters Laboratories (UL) Class C fire classification.

B. Install all roofing products in accordance with all federal, state and local building codes.

C. All work shall be performed in a manner consistent with current OSHA guidelines.

1.9 PRE-INSTALLATION MEETINGS

A. Convene a pre-installation meeting a minimum two weeks prior to starting work of this section.
   1. Contractor shall schedule and arrange meeting and meeting place and notify attendees.

   2. Mandatory Attendees: Roofing installer

   3. Optional Attendees: Owner's representative, Architect's representative, prime Contractor's representative, manufacturer's technical representative.

   4. Review all pertinent requirements for achieving the warranty specified below and set

schedule for final warranty inspection.

1.10 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened labeled packaging until ready for installation.

B. Store products in a covered, ventilated area, at temperature not more than 110 degrees F (43 degrees C); do not store near steam pipes, radiators, or in sunlight.

C. Store bundles on flat surface to maximum height recommended by manufacturer; store rolls on end.

D. Store and dispose of solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.11 WEATHER CONDITIONS

A. Proceed with work only when existing and forecasted weather conditions will permit work to be performed in accordance with roofing shingle manufacturer's recommendations.

1.12 WARRANTY

A. Provide manufacturer's standard limited warranty:
1. Provide to the Owner a GAF Shingle and Accessory Ltd. Warranty.
2. Provide to the Owner a GAF WeatherStopper Golden Pledge Ltd Warranty.
3. Provide to the Owner a GAF WeatherStopper Silver Pledge Ltd Warranty.
4. Provide to the Owner a GAF Weather Stopper System Plus Ltd Warranty.
5. Provide to the Owner a GAF All American Pledge Guarantee.
6. Provide to the Owner a GAF Cornell ThermaCal Nail Base Roof Insulation Ltd. Warranty.
a. Warranty Duration: 15 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: GAF, Residential Roofing Products, which is located at: 1 Campus Drive Parsippany, NJ 07054; Toll Free Tel: 800 ROOF-411; Tel: 800-766-3411; Fax: 973-628-3451; Email: AIS@gaf.com; Web: www.gaf.com.

B. Requests for substitutions will be considered in accordance with provisions of Section 01 10 00

2.2 SHINGLES

A. BOD is Royal Sovereign Shingles, by GAF, or approved equal:
1. Granule surfaced self-sealing asphalt shingle with a strong fiberglass reinforced Micro Weave core and StainGuard protection, which prevents pronounced discoloration from blue-green algae through formulation/unique blends of granules.
2. Traditional 3-tab styling with a 5 or 5-5/8 inch exposure.
3. UL 790 Class A rated with UL 997 Wind Resistance Label; ASTM D 7158, Class H; ASTM D 3161, Type 1; ASTM D 3018, Type 1; ASTM D 3462; AC438 compliant; Dade County Approved, Florida Building Code Approved, Texas Dept of Insurance Approved, ICC Report Approval.
4. Color: Slate

2.3 HIP AND RIDGE SHINGLES

A. Distinctive impact resistant self-sealing hip and ridge cap shingle complementing the color of selected roof shingle. Each bundle covers approx. 25 lineal feet (7.62 m) with a 6-2/3 inch (169 mm) exposure. Seal-A-Ridge ArmorShield Ridge Cap Shingles by GAF, or approved equal.

2.4 STARTER STRIPS

A. Self-sealing starter shingle designed for all roof shingles. Each bundle covers approx. 120 lineal feet (36.58 m). ProStart Starter Strip by GAF, ort approved equal.

2.5 LEAK BARRIER

A. Self-adhering, self-sealing, bituminous leak barrier surfaced with a smooth polyethylene film. Approved by UL, Dade County, ICC, State of Florida and Texas Department of Insurance. Each Roll contains approx. 200 sq ft. (18.6 sq m), 36 inches x 66.7 feet (0.9 m x 20.3 m). StormGuard Leak Barrier, by GAF, or approved equal.

2.6 UNDERLAYMENT

A. Premium, water repellant, breather type non-asphaltic underlayment. UV stabilized polypropylene construction. Meets or exceeds ASTM D226 and D4869. Approved by Dade Country, Florida Building Code, and ICC. Roll available in 10 squares (approximately 1003 sq ft) of material at 54 inches x 223 ft and 4 square (approximately 400.2 sq ft) of material at 36 inches x 133.4 ft. Deck-Armor Premium Breathable Roof Deck Protection, by GAF.

2.7 ROOFING CEMENT

A. Asphalt Plastic Roofing Cement meeting the requirements of ASTM D 4586, Type I or II.

2.8 ROOF ACCESSORIES

A. Compression Collars: UV stable solid molded PVC compression collar, Kynar PVDF coated 24 gauge galvanized flange, Ultimate Pipe Flashing by Lifetime Tool.

2.9 ATTIC VENTILATION

A. Fascia and Soffit/Under Eave Vents: James Hardi Soffit board or approved equal; see other specification sections

B. Roof and gable end louvers and vents; see specification section 07 72 00

2.10 NAILS

A. Nails: Standard round wire, zinc-coated steel or aluminum; 10 to 12 gauge, smooth, barbed or deformed shank, with heads 3/8 inch (9 mm) to 7/16 inch (11 mm) in diameter. Length must be sufficient to penetrate into solid wood at least 3/4 inch (19 mm) or through plywood or oriented strand board by at least 1/8 inch (3.18 mm).

2.11 METAL FLASHING

A. Galvanized Steel: 24 gauge hot-dip galvanized steel sheet, complying with ASTM A 653/A 653M, G90/Z275.

B. Aluminum: Minimum 0.032 inch (0.8 mm) aluminum sheet, complying with ASTM B 209.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until roof deck has been properly prepared.

B. If roof deck preparation is the responsibility of another installer, notify Architect or building owner of unsatisfactory preparation before proceeding.

3.2 PREPARATION OF SUBSTRATE

A. Clean deck surfaces thoroughly prior to installation of leak barrier and roof deck protection.

B. At areas to receive leak barrier, fill knot holes and cracks with latex filler.

3.3 INSTALLATION OF UNDERLAYMENT

A. Install using methods recommended by manufacturer in accordance with local building code. When local codes and application instructions are in conflict, the more stringent requirements shall take precedence.

B. Eaves:
   1. Place eave edge metal flashing tight with fascia boards; lap joints 2 inches (50 mm) and seal with plastic cement; nail at top of flange.
   2. On roofs with slope between 2:12 and 4:12, and on all roofs in the north, install leak barrier up the slope from eave edge to 36 inches from the edge or at least 24 inches (610 mm) beyond the interior face of the warm exterior wall, whichever is greater; lap ends 6 inches (150 mm) and bond.

C. Valleys:
   1. Install leak barrier at least 36 inches wide centered on valley; lap ends 6 inches (150 mm) and seal.
   2. Where valleys are indicated to be "open valleys", install metal flashing over leak barrier before roof deck protection is installed; DO NOT NAIL THROUGH metal flashing; secure by nailing at 18 inches (457 mm) on center just beyond edge of flashing so that nail heads hold down edge.

D. Hips and Ridges:
   1. Install GAF leak barrier along entire lengths. If ridge vents are to be installed, position the GAF leak barrier so that the ridge slots will not be covered.

E. Roof Deck:
   1. Install one layer of roof deck protection over entire area not protected by eave or valley membrane; run sheets horizontally lapped so water sheds; nail in place.
   2. On roofs sloped at more than 4 in 12, lap horizontal edges at least 2 inches (50 mm) and at least 2 inches (50 mm) over eave protection membrane.
   3. On roofs sloped between 2 in 12 and 4 in 12, lap horizontal edges at least 19 inches (480 mm) and at least 19 inches (485 mm) over eave protection membrane.
   4. Lap ends at least 4 inches (100 mm); stagger end laps of each layer at least 36 inches (915 mm).
   5. Lap roof deck protection over valley protection at least 6 inches (152 mm).

F. Deck-Armor Application
   1. Deck-Armor shall be installed over a clean, dry deck.
   2. Install Weather Watch or StormGuard Leak Barrier at eaves, valleys, rakes, skylights, dormers and other vulnerable leak areas.
   3. Lay Deck-Armor over deck and overlap 3 inch (76 mm) at side laps and 6 inch (152 mm) at end laps.
   4. For exposure to rain or snow, overlap 12 inch (305 mm) at end laps.

5. For side and end laps: fasten Deck-Armor 12 inch (305 mm) o.c. (6 inch (152 mm) o.c. for high wind areas).
6. For middle of the roll: fasten Deck-Armor 24 inch (610 mm) o.c. (12 inch (305 mm) o.c. for high wind areas).
7. For exposure to rail or snow, completely cover all side laps, end laps and fasteners with tape.
8. For long term exposure see complete Deck-Armor installation instructions for side lap detail.
9. If roof may be exposed to high winds, apply tape over all fasteners at the center of the roll to prevent rain or snow from entering at the fasteners.

G. Penetrations:
1. At vent pipes, install a 24 inch (610 mm) square piece of leak barrier lapping over roof deck protection; seal tightly to pipe.
2. At vertical walls, install leak barrier extending at least 6 inches (150 mm) up the wall and 12 inches (305 mm) on to the roof surface lapping over roof deck protection.
3. At rake edges, install metal edge flashing over leak barrier and roof deck protection; set tight to rake boards; lap joints at least 2 inches (50 mm) and seal with plastic cement; secure with nails.
4. At hips and ridges, install leak barrier along entire lengths. If ridge vents are to be installed, position the leak barrier so that the ridge slots are not covered.

3.4 INSTALLATION OF SHINGLES

A. Install in accordance with manufacturer's instructions and requirements of local building code.
1. Avoid breakage of shingles by avoiding dropping bundles on edge, by separating shingles carefully (not by "breaking" over ridge or bundles), and by taking extra precautions in temperatures below 40 degrees F (4 degrees C).
2. Handle carefully in hot weather to avoid damaging shingle edges.
3. Secure with 4 to 6 nails per shingle; use number of nails required by manufacturer or by code, whichever is greater. Nails must be long enough to penetrate through plywood or OSB, or 3/4 inch (19 mm) into dimensional lumber.

B. Install hip and ridge shingles as required by the manufacturer. At ridges, install hip and ridge shingles over ridge or ridge vent material, where noted.

C. Make valleys using "open valley" technique:
1. Snap diverging chalk lines on metal flashing, starting at 3 inches (75 mm) each side of top of valley, spreading at 1/8 inch per ft (9 mm per meter) to eave.
2. Run shingles to chalk line.
3. Trim last shingle in each course to match chalk line; do not trim shingles to less than 12 inches (305 mm) width.
4. Apply 2 inches (50 mm) wide strip of plastic cement under ends of shingles, sealing to metal flashing.

D. All penetrations shall be flashed according to GAF, ARMA and NRCA application instructions and construction details.

3.5 INSTALLATION OF VENTILATION

A. Code Requirements: Ventilation shall meet or exceed current FHA, HUD and local code requirements.

B. Ridge Vents:
1. Cut continuous vent slot through sheathing, stopping 6 inches (150 mm) from each end of ridge.
2. On roofs without ridge board, make slot 2 inches (50 mm) wide, centered on ridge.
3. On roofs with ridge board, make two slots 1-3/4 inches (89 mm) wide, one on each

side.
4. Install ridge vent material full length of ridge, including uncut areas.
5. Butt ends of lengths of ridge vent material and join using plastic cement.
6. Install eave vents in sufficient quantity to equal or exceed the ridge vent area, calculated as specified by manufacturer.
7. Install ridge shingles over ridge vent material; use nails of specified length; do not drive nails home, leaving 3/4 inch (19 mm) slot open between ridge and roof shingles.

C. Hip Vents and Rooftop Vents:
1. Install according to manufacturer's instructions.
2. Install vents in sufficient quantity to equal or exceed the exhaust vent area, calculated as specified by manufacturer.

D. Roof Louvers:
1. Cut vent hole through sheathing as specified by the manufacturer for the type of vent to be installed.
2. Install a 24 inches (610 mm) square section of leak barrier, centered around the hole.
3. Install according to manufacturer's instructions for flashing vent penetrations.
4. Install eave vents in sufficient quantity to equal or exceed the exhaust vent area, calculated as specified by manufacturer.

3.6 INSTALLATION OF VENTILATION ACCESSORIES

A. Foundation Vents: Install per manufacturer recommendations

3.7 PROTECTION

A. Stage work progress so that traffic is minimized over completed roofing.

B. Protect installed products until completion of project

END OF SECTION

PART 1 - GENERAL

1.1 DESCRIPTION OF WORK

A. This section covers the pre-finished, pre-fabricated Architectural standing seam roof system and all metal trim, accessories, fasteners, insulation and sealants indicated on the drawings as part of this section and as necessary to produce a 100% waterproof and complete system.
B. Drawings and general provisions of the Contract, including general and Supplementary Conditions and Division 01 Specifications, apply to this section.
C. Related Work Specified Elsewhere

1.2 SUMMARY

A. Section Includes
    1. Factory formed Standing Seam metal roof panels
B. Related work specified elsewhere. (Note: select from the below or add appropriate sections)
    1. Section 07 62 00
    2. Section 07 31 00
C. The design intention is to have a standing seam roof that is visually equivalent to the roof on the Culpeper Field House and of matching color. The PAC system is specified as the BOD but other systems may be proposed, subject to the substitution requirements of 01 10 00.
D. The Base SOW for this roof system is the hipped entry roof; the wings and pavilions are covered with fiberglass shingles. Building Add- Alternate #1 includes replacing the shingles with the same PAC system roof on the wings and pavilions. Any associated flashing for the shingle roofs shall be replaced with matching, compatible flashing provided by the roof system vendor/subcontractor. There is no change to the roof sheathing.
E. Building Add Alternate No. 1A: Add Color Guard Snow Retention System and associated clips on front and back faces of hipped entry roof on the east and south faces and on those portions of the roof facing the pool that are above walking areas and not over a lower roof.

1.3 DEFINITIONS

A. Metal Roof Panel Assembly: Metal roof panels, attachment system components, miscellaneous metal framing, thermal, and accessories necessary for a complete weathertight roofing system.
B. References:
    1. American Society for Testing and Materials (ASTM)
        a. ASTM A 653: Steel Sheet, Zinc Coated by the Hot Dip Process
        b. ASTM A 792: Steel Sheet, Aluminum-Zinc Alloy Coated by the Hot Dip Process
        c. ASTM B 209: Aluminum and Aluminum Alloy Sheet and Plate
        d. ASTM B370 Standard Specification for Copper Sheet and Strip for Building Construction
    2. Sheet Metal and Air Conditioning Contractors National Association (SMACNA)
        a. SMACNA Architectural Sheet Metal Manual, 1993 edition
    3. American Iron and Steel Institute (AISI)
        a. AISI Cold Formed Steel Design Manual
    4. Aluminum Association
        a. Aluminum Design Manual
    5. Metal Construction Association
        a. Preformed metal Wall Guidelines
    6. Code References
        a. ASCE, Minimum Loads for Buildings and Other Structures
        b. BOCA National Building Codes
        c. UBC Uniform Building Code
        d. SBC Standard Building Code

1.4 QUALITY ASSURANCE

A. Petersen Aluminum Corp, Annapolis Junction, MD, 800-344-1400 products establish a minimum of quality required.
B. Manufacturer and erector shall demonstrate experience of a minimum of five (5) years in this type of project.
C. Panels shall be factory-produced only. No portable, installer-owned or installer-rented machines will be permitted.

1.5 SUBSTITUTIONS

A. The material, products and equipment specified in this section establish a standard for required function, dimension, appearance and quality to be met by any proposed substitution.
B. Substitutions shall be subject to the substitution requirements of 01 10 00.

1.6 SYSTEM DESCRIPTION

A. Material to comply with:
    1. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate

1.7 ROOF SYSTEM PERFORMANCE TESTING

A. General Performance: Metal roof panels shall comply with performance requirements without failure due to defective manufacture, fabrication, installation or other defects in construction.
B. Roof System shall be designed to meet Standard Building Code Wind Load requirements.
C. Panels to meet:
    1. Water Penetration: When tested per ASTM E-283/1680 and ASTM E-331/1646 there shall be no uncontrolled water penetration or air infiltration through the panel joints.
    2. UL 2218 - Impact Resistance rated.

1.8 WARRANTIES

A. Finish warranty: Manufacturer's standard form in which manufacturer agrees to repair finish or replace standing seam metal roof panels that show evidence of deterioration of factory-applied finish within specified warranty period.
    1. Exposed Panels Finish - deterioration includes the following:
        a. Color fading more than 5 hunter units when tested according to ASTM D 2244
        b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214
        c. Cracking, checking, peeling or failure of a paint to adhere to a bare metal.
    2. Warranty Period: 20 Years from the date of substantial completion
B. Applicator shall furnish written warranty for a two (2) year period from date of substantial completion of building covering repairs required to maintain roof and flashings in watertight condition.

1.9 SUBMITTALS

A. Furnish detailed drawings showing profile and gauge of exterior sheets, location and type of fasteners, location, gauges, shape and method of attachment of all trim locations and types of sealants, and any other details as may be required for a weather-tight installation.
B. Provide finish samples of all colors specified.
C. Shop drawings: Show fabrication and installation layouts of metal roof panels, metal wall panels or metal soffit panels, details of edge conditions, side-seam joints, panel profiles, corners, anchorages, trim, flashings, closures and accessories, and special details. Distinguish between factory and field-assembled work
D. Coordination Drawings: Roof plans, drawn to scale, on which the following are shown and coordinated with each other, based on input from installer of the items involved:
    1. Roof panels and attachments
    2. Wood trusses, bracings and supports

3. Roof-mounted items including snow guards and items mounted on roof curbs.

E. LEED Submittals: NA

1.10 DELIVERY, STORAGE AND HANDLING

1. Ordering: Comply with manufacturer's ordering instruction and lead time requirements to avoid construction delays.
2. Deliver components, sheets, metal roof panels and other manufactured items so as not to be damaged or deformed. Package metal roof panels for protection during transportation and handling.
3. Unload, store and erect metal roof panels in a manner to prevent bending, warping, twisting and surface damage.
4. Stack metal roof panels on platforms or pallets, covered with suitable weathertight and ventilated covering. Store metal roof panels to ensure dryness. Do not store metal roof panels in contact with other materials that might cause staining, denting or other surface damage.
5. Protect strippable protective coating on any metal coated product from exposure to sunlight and high humidity, except to the extent necessary for material installation.

1.11 PROJECT CONDITIONS

A. Weather Limitations: proceed with installation only when existing and forecasted weather conditions permit metal roof panel work to be performed.
B. Field Measurements: Verify actual dimensions of construction contiguous with metal roof panels by field measurements before fabrication.

1.12 COORDINATION

A. Coordinate sizes and locations of roof curbs, equipment supports and roof penetrations with actual equipment provided.
B. Coordinate metal roof panels with rain drainage work, flashing, trim and construction of decks, parapet walls and other adjoining work to provide a leakproof, secure and noncorrosive installation.
C. Coordinate roof panels with roof exhaust vents, plumbing VTR and concession exhaust hood details.

PART 2 - PRODUCTS

2.1 PANEL DESIGN

A. General: Provide factory-formed metal roof panels designed to be installed by lapping and interconnecting raised side edges of adjacent panels with joint type indicated and mechanically attaching panels to supports using concealed clips inside laps. Include clips, cleats, pressure plates and accessories required for a weathertight installation.
B. Roof panels shall be standing seam Snap-On Batten in 18" widths with 1 1/2" high seams.
C. Panels to be produced Smooth - Factory Standard.
D. Panels to be designed for attachment with concealed fastener clips, spaced as required by the manufacturer to provide for both positive and negative design loads, while allowing for the expansion and contraction of the entire roof system resulting from variations in temperature.
E. Forming: Use continuous end rolling method. No end laps on panels. No portable rollforming machines will be permitted on this project, no installer-owned or installer-rented machines will be permitted. It is the intent of the Architect to provide Factory-Manufactured panel systems only for this project.

2.2 ACCEPTABLE MANUFACTURERS

A. Basis of design for this project is detailed around the roofing product of Petersen Aluminum Corp, Annapolis Junction, MD, 800-344-1400, Snap-On Batten. PAC or approved equal shall be reviewed and approved by Architect.

2.3 MATERIALS AND FINISHES

A. Preformed roofing panels shall be fabricated of .032 Aluminum
B. Color shall be Slate Grey, subject to receiving an approving a color sample.
C. Finish shall be Kynar 500 or Hylar 5000 Fluorocarbon coating with a top side film thickness of 0.70 to 0.90 mil over a 0.25 to 0.3 mil prime coat to provide a total dry film thickness of 0.95 to 1.25 mil, to meet AAMA 621. Bottom side shall be coated with a primer with a dry film thickness of 0.25 mil. Finish shall conform to all tests for adhesions, flexibility and longevity as specified by Kynar 500 or Hylar 5000 finish supplier.
D. If Strippable coating to be applied on the pre-finished panels to the top side to protect the finish during fabrication, shipping and handling, film shall be removed before installation.
E. Trim: Trim shall be fabricated of the same material and finish to match the profile, and will be press broken in lengths of 10 to 12 feet. Trim shall be formed only by the manufacturer of their approved dealer. Trim to be erected in overlapped condition. Use lap strips only as indicated on drawings. Miter conditions shall be factory welded material to match the sheeting.
F. Closures: use composition or metal profiled closures at the top of each elevation to close ends of the panels. Metal closures to be made in the same material and finish as face sheet.
G. Fasteners: Fasteners shall be of type, material, size, corrosion resistance, holding power and other properties required to fasten miscellaneous framing members to substrates.
H. Substrate shall be Plywood
I. Roofing Underlayment
    1. On all surfaces to be covered with roofing material, furnish and install a 40 mil Peel & Stick membrane, required as outlined by metal panel manufacturer. Membrane to be a minimum of 40 mil thickness, smooth, non-granular, high temperature. Basis of design: Carlisle WIP 300 HT High Temperature Protection Self Adhering Roofing Underlayment. Other acceptable manufacturers include:
        a. W.R Grace "Ice & water Shield"
        b. Interwrap Titanium PSU-30
        c. Tamko TW Tile and Metal Underlayment
    2. Underlayment shall be laid in horizontal layers with joints lapped toward the eaves a minimum of 6, and well secured along laps and at ends as necessary to properly hold the felt in place. All underlayment shall be preserved unbroken and whole.
    3. Peel and Stick Underlayment shall lap all hips and ridges at least 12 to form double thickness and shall be lapped 6 over the metal of any valley or built-in gutters and shall be installed as required by the Standing Seam Panel Manufacturer to attain the desired 20 Year Weathertightness Warranty.
J. Sealants
    1. Provide two-part polysulfide class B non-sag type for vertical and horizontal joints or
    2. One part polysulfide not containing pitch or phenolic extenders or
    3. Exterior grade silicone sealant recommended by roofing manufacturer or
    4. One part non-sag, gun grade exterior type polyurethane recommended by the roofing manufacturer.
K. Building Add Alternate No. 1A: Add Color Guard Snow Retention System and associated clips on front and back faces of hipped entry roof on the east and south faces and on those portions of the roof facing the pool that are above walking areas and not over a lower roof. Color shall match main roof color.

2.4 FABRICATION

A. Comply with dimensions, profile limitations, gauges and fabrication details shown and if not shown, provide manufacturer's standard product fabrication.
B. Fabricate components of the system in factory, ready for field assembly.
C. Fabricate components and assemble units to comply with fire performance requirements specified.
D. Apply specified finishes in conformance with manufacturer's standard, and according to manufacturer's instructions.

PART 3 - EXECUTION

3.1 INSPECTION

A. Examine alignment of structural wood and related supports, primary and secondary roof framing, solid roof sheathing, prior to installation.
B. For the record, prepare written report, endorsed by installer, listing conditions detrimental to performance of the Work.
C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 FASTENERS

A. Secure units to supports
B. Place fasteners as indicated in manufacturer's standards.

3.3 INSTALLATION

A. Panels shall be installed plumb and true in a proper alignment and in relation to the structural framing. The erector must have at least five years successful experience with similar applications.
B. Install metal panels, fasteners, trim and related sealants in accordance with approved shop drawings and as may be required for a weather-tight installation.
C. Remove all strippable coating and provide a dry-wipe down cleaning of the panels as they are erected.

3.4 DAMAGED MATERIAL

A. Upon determination of responsibility, repair or replace damaged metal panels and trim to the satisfaction of the Architect and Owner.

END OF SECTION 07 41 13

SECTION 07 46 46 – FIBER-CEMENT SIDING AND PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Fiber cement lap siding, panels, shingle, trim, fascia, molding, and accessories; James Hardie HZ10 Engineered for Climate Siding and Hardie Architectural Panels.

B. Factory-finished fiber cement lap siding, panels, shingle, trim, fascia, molding, and accessories; James Hardie HZ10 Engineered for Climate Siding.

1.2 RELATED SECTIONS

A. Section 05 40 00 - Cold-Formed Metal Framing.

B. Section 06 10 00 - Rough Carpentry on structural drawings

C. Section 06 20 00 - Finish Carpentry.

1.3 REFERENCES

A. ASTM D3359 - Standard Test Method for Measuring Adhesion by Tape Test, Tool and Tape.

B. ASTM E136 - Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750 degrees C.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 30 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Shop Drawings: Provide detailed drawings of atypical non-standard applications of cementitious siding materials which are outside the scope of the standard details and specifications provided by the manufacturer.

D. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

E. Verification Samples: For each finish product specified, two samples, minimum size 4 by 6 inches (100 by 150 mm), representing actual product, color, and patterns.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Minimum of 2 years experience with installation of similar products.

B. Mock-Up: Provide a mock-up for evaluation of surface preparation techniques and application workmanship.
   1. Finish areas designated by Architect.
   2. Do not proceed with remaining work until workmanship, color, and sheen are approved by Architect.
   3. Remodel mock-up area as required to produce acceptable work.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store siding on edge or lay flat on a smooth level surface. Protect edges and corners from chipping. Store sheets under cover and keep dry prior to installing.

C. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

1.8 WARRANTY

A. Product Warranty: Limited, non-pro-rated product warranty.
1. Hardie Architectural Panels for 30 years.

B. Finish Warranty: Limited product warranty against manufacturing finish defects.
1. When used for its intended purpose, properly installed and maintained according to Hardie's published installation instructions, James Hardie's ColorPlus finish with ColorPlus Technology, for a period of 15 years from the date of purchase: will not peel; will not crack; and will not chip. Finish warranty includes the coverage for labor and material.

C. Workmanship Warranty: Application limited warranty for 2 years.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: James Hardie Building Products, Inc., which is located at: 231 S. La Salle St. Suite 2000; Chicago, IL 60604; Toll Free Tel: 877-236-7526; Email:request info (info@jameshardie.com);
Web:https://www.jameshardiepros.com|https://www.jameshardie.com

Requests for approval of equal substitutions will be considered in accordance with provisions of Section 01 10 00. Substitutions must be equivalent in profile configuration and exposure to specified materials.

2.2 PANELS AND TRIM

A. Hardie Architectural Panels as manufactured by James Hardie Building Products, Inc. A non-combustible fiber-cement panel.
1. Product Composition: Grade II, Type A, fiber-cement sheets as defined by ASTM C1186. manufactured by the Hatschek process and cured by high pressure steam autoclaving.
2. Florida State Product Approval FL13223.
3. Florida State Product Approval FL 32103.
4. Intertek Product Listing.
5. Code Compliance:
a. International Building Code (IBC):
1) Section 1404.10: 2009, 2012 and 2015. 2) Section 1403.10: 2018 and 2021.
b. International Residential Code (IRC):
1) Table R703.3(1): 2009, 2012, 2015, 2018, and 2021.
2) Section R703.10.1 as ASTM C 1186 Grade II, Type A Fiber Cement: 2009, 2012, 2015, 2018 and 2021.

c. Florida Building Code (FBC):
   1) Section 1404.10: 2017 and 2020.
   2) Section 1405.16 as ASTM C 1186 Grade II, Type A Fiber Cement.
d. Wind Design:
   1) Manufacturer's readily available design load and exposure category tables are derived from testing in accordance with ASTM E 330.
   2) Wind speed design coefficient assumptions per Analytical Method in ASCE 7.
   3) Wood Framing Specific Gravity: 0.42 or greater unless otherwise stated.
   4) Wood Structural Sheathing Panel Specific Gravity of 0.50 or higher unless otherwise stated.

6. Fire Characteristics:
   a. Tested in Accordance with ASTM E136: Classified as non-combustible.
   b. May be used in ASTM E119 fire resistance rated assemblies as listed by Warnock Hersey.
   c. Class A Material: Per FBC 2017 and 2020, and 2018 IBC Section 803.1.1 Surface Burning Characteristics when tested in accordance with ASTM E84:
      1) Flame Spread Index : 0. Smoke Developed Index: 0.
7. Type (1): Hardie Architectural Panel – Smooth, Hardie Panel
8. Type (2): Hardie Artisan Aspyre Siding, V groove, 8.25”
9. Type (3): Hardie fiber cement trim of sizes shown and noted on the Drawings
10. Type (4): Hardie Ventilated Soffit panel
11. Physical Properties:
   a. Test Method ASTM C1185: Passed.
      1) Dimensional Tolerances:
         a) Length: Plus or minus 0.5 percent or plus or minus1/4 inch (6 mm).
         b) Width: Plus or minus 0.5 percent or plus or minus1/4 inch (6 mm).
         c) Thickness: Plus or minus 0.04 inch (1 mm).
         d) Squareness: Less than1/32 inches per ft (2.6 mm per m) of length.
         e) Edge Straightness: Less than 1/32 inches per ft (2.6 mm per m) of length.
      2) Density: Less than 83 pounds per sq ft (4 kPa).
      3) Water Tightness: No drop formation; Pass.
      4) Flexural strength:
         a) Wet Conditioned, psi: Greater than 1015 psi (7 MPa); Pass.
         b) Equilibrium Conditioned, psi: Greater than 1450 psi (10 MPa); Pass.
      5) Warm Water Resistance, Observations: No structural alteration; Pass
      6) Heat and Rain Resistance: No structural alteration; Pass.
      7) Freeze and Thaw Resistance:
         a) Physical Observations Mass: No structural alteration; Pass
         b) Loss Percentage: Less than or equal to 3.0 percent; Pass.
         c) Freeze/Thaw, Percent Strength Retention: Greater than or equal to 80 percent; Pass.
   b. Fire Characteristics:
      1) ASTM E84: Surface Burning Characteristics.
         a) Flame Spread Index (FSI) Smoke: 0.
         b) Developed Index (SDI): 0.
         c) Fuel Contributed: 0.
         d) International Building Code: A.

2) ASTM E136: Non-combustibility: Pass.

12. Trim Accessories:
    a. J Trim: Aluminum extrusion to be used as a trim at abutments; soffits, masonry, windows, etc.
    b. Low-Profile Inside Corner Trim: Aluminum extrusion to be used for inside corners.
    c. Inside Corner Trim: Aluminum extrusion to be used for inside corners.
    d. Low-Profile Outside Corner Trim: Aluminum extrusion to be used for outside corners.
    e. Low Profile 45 degrees Inside Corner Trim: Aluminum extrusion to be used for bay windows.
    f. Low Profile 45 degrees Outside Corner Trim: Aluminum extrusion to be used for bay windows.
    g. Vertical T Trim: Aluminum extrusion to be used along vertical butt joints. For horizontal panel orientations only.
    h. Vertical H Trim: Aluminum extrusion to be used along vertical butt joints. For horizontal panel orientations only.
    i. Horizontal Angled T Flashing Trim: Aluminum extrusion to be used along horizontal control joints.
    j. Horizontal Z Flashing Trim: Aluminum extrusion to be used along horizontal control joints.
    k. Base Trim: Aluminum extrusion to be used as a base edge solution.
    l. Base Outside Corner Trim: To be used as an outside corner connection for Base trim.
    m. Base Inside Corner Trim: To be used as an inside corner connection for Base trim.
    n. Base Jointer: To be used to connect Base trims.
    o. Trims Accessories shall be weither field-coated or prefinished in Sable Brilliance (Dark Grey)

    p. HardieTrim Boards: Fiber cement trim for corners and windows. Can be mounted horizontally or vertically.

2.3 FASTENERS

A. Wood Framing Fasteners shall be as recommended by James Hardie for the height and loads of the building in their HZ10 installation requirements and Technical Data Sheet:

2.4 FINISHES

A. Factory Primer: Provide factory applied universal primer.
    1. Primer: Factory primed by James Hardie.
    2. Topcoat: Refer to Section 09 90 00 or to Product Finish Schedule - Painting and Coating and Exterior Finish Schedule. Aspyre Artisan siding is available onluy primed so will require field top-coating

B. Factory Finish: Refer to Exterior Finish Schedule.
    1. Product: ColorPlus Technology by James Hardie; Contractor’s Option is to field coat to old BM #1603 (Graphite Grey) or to have pre-finished using Iron Grey. This applies only to the Hardie Panel and Hardie Trim
    2. Definition: Factory applied finish; defined as a finish applied in the same facility and company that manufactures the siding substrate.
    3. Process:
        a. Factory applied finish by fiber cement manufacturer in a controlled environment within the fiber cement manufacturer's own facility utilizing a multi-coat, heat

cured finish within one manufacturing process.

b. Each finish color must have documented color match to delta E of 0.5 or better between product lines, manufacturing lots or production runs as measured by photo spectrometer and verified by third party.

4. Protection: Factory applied finish protection such as plastic laminate that is removed once siding is installed
5. Note that Hardie Panel and Hardie Trim may be pre-coated as noted above or field-top-coated; Contractor's option.
6. Accessories: Complete finishing system includes pre-packaged touch-up kit provided by fiber cement manufacturer. Provide quantities as recommended by manufacturer. Color to match field -coated cladding or pre-coated in Sable Brilliance; Contractor's option.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If framing preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Framing shall be nominal 2 inch by 4 inch (or larger) (51 mm by 102 mm) wood framing selected for minimal shrinkage and complying with local building codes, including the use of water-resistive barriers or vapor barriers where required. Minimum 1-1/2 inches (38 mm) face and straight, true, of uniform dimensions and properly aligned.

1. Install water-resistive barriers and claddings to dry surfaces.
2. Repair any punctures or tears in the water-resistive barrier prior to the installation of the siding.
3. Protect siding from other trades.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Install a water-resistive barrier is required in accordance with local building code requirements.

D. The water-resistive barrier must be appropriately installed with penetration and junction flashing in accordance with local building code requirements.

E. Install WRB weather barrier in accordance with local building code requirements.

F. Use compatible Seam Tape at joints and laps.

3.3 INSTALLATION - HARDIE ARCHITECTURAL PANELS

A. Install materials in strict accordance with manufacturer's installation instructions.

B. Install over braced wood. See General Fastening Requirements. Irregularities in framing and sheathing can mirror through the finished application. Correct irregularities before installing siding.

C. A water-resistive barrier (WRB) is required in accordance with local building code requirements. The water-resistive barrier must be appropriately installed with penetration and junction flashing in accordance with local building code requirements.

D. When installing horizontally, a WRB with min. 90 percent drainage efficiency shall be used.

E. Adjacent finished grade must slope away from the building in accordance with local building codes - typically a minimum of 6 inches (152 mm). in the first 10 ft (3.048 mm). F.

Do not use Hardie Architectural Panels in Fascia or Trim applications.

G. Do not install so that product remains in contact with standing water.

H. Installed on flat vertical wall applications only.

3.4 FINISHING

A. Finish unprimed siding with a minimum one coat high quality, alkali resistant primer and one coat of either, 100 percent acrylic or latex or oil based, exterior grade topcoats or two coats high quality alkali resistant 100 percent acrylic or latex, exterior grade topcoat within 90 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.

B. Finish factory primed siding with a minimum of one coat of high quality 100 percent acrylic or latex or oil based exterior grade paint within 180 days of installation. Follow paint manufacturer's written product recommendation and written application instructions.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 07 46 46

SECTION 07 62 00 - SHEET METAL FLASHING

PART 1 - GENERAL

1.1 INCORPORATION

A. The Supplementary Conditions (Section 01 10 00) are hereby made a part of this Specification section and the provisions set forth herein shall apply to all labor, materials, equipment, etc. provided as part of the work of individual sections UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES.

1.2 EXTENT

A. Work required in this section includes providing all miscellaneous flashing, gutters and RWL's and includes all, screws, fasteners, sealants and items necessary for finish, whether or not actually mentioned.

B. Minor details, including but not limited to fasteners, blocking, etc. not usually drawn or specified, but necessary for the proper installation and operation of the items) shall be provided as if herein specified or drawn.

C. See also spec 07 31 00 and 07 41 13 for roofing and flashings

D. Work includes:

1. Installation of shingle step flashing, drip edge flashing, kick-out flashing and other noted and required flashings as shown and noted in the Drawings and Specifications, as necessary to accommodate adjacent work.
2. If Building Add-Alternate #1 is selected, flashings noted herein shall be provided as part of the pre-fabricated roofing system with the exception of RWLs and gutters which may be provided under this specification section or as part of the roof system.
3. Installation of RWL, gutters and conductor heads

1.3 QUALITY

A. In the absence of specific requirements to the contrary, all work shall be in conformance with the best sheet metal practices and in conformance with the most recent edition of the "Architectural Sheet Metal Manual" prepared by the Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA).

1.4 COORDINATION

A. Work in this section shall be coordinated with work performed under other sections of the Specifications and in particular, with work performed as part of the roof system(s).

B. All the work in this section shall be coordinated with the work of all other trades to minimize cutting and patching. Special attention shall be paid to coordinating items with the installation of masonry veneer and sealants.

C. All flashing materials provided under this section which are adjacent to or in contact with flashing materials provided as part of the roof system and which are not provided by the roof Subcontractor shall be compatible in material and color.

D. Coordinate work in this section with the work of the Cladding/Siding Subcontractor to insure that all flashings that must be installed prior to the cladding application have been so installed and to insure that all flashings required by the cladding manufacturer have been checked for compliance/conformance with the cladding system.

1.5 SUBMITTALS

A. Submittals shall be handled in accordance with the provisions of section 01 10 00.

B. Provide the following submittals:

1. Minimum 24" long x 12" wide sample of coil stock flashing with selected color(s).
2. finished counter flashing as shown and noted on the Drawings, if provided under this section

C. Provide the following Shop Drawings:

1. Fabrication drawings for gutters, conductor head and RWLs indicating size and configuration.

PART 2 - PRODUCT

2.1 FLASHING MATERIALS

A. Roof drip edge flashing materials exposed to view and/or noted as ‘finished flashing’ on the Drawings shall be minimum .020” thick, 24 gauge aluminum, color TBS. Flashing shall be broken smoothly and with true lines to provide a smooth, finished appearance.

B. Other trim including head /trim flashing not supplied as part of window units and other architectural flashing: From construction standard aluminum coil stock, .030-.040”, 18-20 thick gauge, finish to match window frame and/or adjacent construction, broken profile as shown and noted on the Drawings.

C. Flashing for roof exhaust curbs shall be 040”, 20 thick gauge, charcoal grey if shingles and slate grey or similar (TBS from submittal standard colors to match roofing) if building Add-Alternate #1 pre-fabricated roof option is selected.

2.2 GUTTER/ RWL MATERIALS

A. Gutters shall be sizes as noted, anodized aluminum square profile,
   1. SMACNA Style ”A”, as noted on the Drawings and as follows:
      a. On eave sides or structures, rectangular, dimension per SMACNA calculations and the roof plan, color charcoal grey
      b. Attachment shall be with spike and ferrule or strap attached below finish roofing surface and drip edge, similar to SMACNA Figure “A’ or “B”.

B. RWL’s shall be rectangular anodized aluminum as noted on the Drawings, and as follows:
   1. RWL’s connecting to gutters on roof structure shall be rectangular, dimension per SMACNA calculations and the roof plan, color Charcoal Grey
   2. RWL hangars shall match SMACNNA Figure ‘I” profile.
   3. Provide 90 degree elbow at all RWL discharge unto lower roofs
   4. Provide aluminum downspout strainers at all outlet tubes.
   5. RWL hangar straps shall be from .032, flat stock aluminum minimum 1 inch wide, color to match RWL.

C. Conductor heads shall be fabricated from matching aluminum material with riveted and sealed seams.

PART 3 - EXECUTION

3.1 FLASHING / GUTTER INSTALLATION AND WORKMANSHIP

A. All flashing and gutter/ rwl installation and workmanship shall be in accordance with SMACNA recommendations.

B. All bends, breaks and seams shall be tight, straight, uniform, consistent and in conformance with the dimensions shown on the Drawings, the recommendations of SMACNA and good building practice.

C. All flashing shall be attached with hidden fasteners and installed so that it is tight and truly aligned against backing members and in uniform alignment with adjacent materials, bends and architectural features.

3.2 GUTTERS AND RWL INSTALLATION

A. All gutters shall be hung with minimum slope required to drain.

B. All RWL’s shall be installed in the locations shown and noted on the Drawings and to discharge as noted. All locations for RWL installation shall be VIF with the Architect prior to installation. Any RWL’s installed without the Architect’s prior approval of the location shall, at the Architect’s request, be removed and relocated without additional cost.

C. Strap connection of RWL’s shall be made in conformance with the requirements of the cladding/siding manufacturer to insure the continuity and warranty of the system.

D. All joints in gutters shall be lapped one inch, riveted/ screwed and sealed. Elbows in RWL's shall be made by mitering and the miters riveted/ screwed and sealed or soldered if copper. ALL ELBOWS SHALL BE MADE AS TIGHT AS POSSIBLE SO THAT LATERAL RUNS OF RWL's FROM GUTTER OUTLET TUBE TO VERTICAL PORTION OF RWL IS NEARLY HORIZONTAL WITH MAXIMUM PITCH OF 1 INCH PER 12 INCHES.

END OF SECTION 07 62 00

SECTION 07 72 00 – ROOF MOUNTED ATTIC INTAKE AND EXHAUST VENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Roof mounted attic intake and exhaust vents.
2. Accessories.
3. Gable end vents

B. Related Sections:

1. Section 07 31 13 - Asphalt Shingles
2. Section 07 62 00 - Sheet Metal Flashing and Trim
3. Section 07 46 46 Fiber Cement Siding

1.3 PERFORMANCE REQUIREMENTS

A. General Performance: Roof mounted attic intake and exhaust vents shall withstand exposure to weather and resist thermally induced movement without failure, rattling, leaking, or fastener disengagement due to defective manufacture, fabrication, installation, or other defects in construction.

1.4 QUALITY ASSURANCE

A. Certifications:

1. Passed Miami-Dade County test requirements for structural uplift and wind driven rain infiltration. Miami-Dade County Approved - NOA No.: 13-1203.04 expires 07/10/2019. ***Note: exhaust installation only.***

2. Texas Department of Insurance “Windstorm” Approved - Product Evaluation Report No.: RV-85.

1.5 ACTION SUBMITTALS

A. Product Data: For roof mounted attic intake and exhaust vents indicated.

1.7 DELIVERY, STORAGE AND HANDLING

A. Store materials in a dry, well-ventilated, weathertight place.
B.

1.8 COORDINATION

A. Coordinate layout and installation of roof mounted attic intake and exhaust vents with roofing membrane and base flashing and interfacing and adjoining construction to provide a leakproof, weathertight, secure, and noncorrosive installation.

B. Coordinate dimensions with rough-in information or Shop Drawings of equipment to be supported.

1.9 WARRANTY

A. Manufacturer's standard limited lifetime warranty against defects in manufacturer's materials and workmanship.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Basis of Design: Lomanco Incorporated, 2101 West Main Street, P.O. Box 519, Jacksonville, Arkansas 72076, 1-800-643-5593 phone, (501) 982-1258 fax, www.lomanco.com is specified.

2.2 ROOF AND GABLE MOUNTED ATTIC INTAKE AND EXHAUST VENT:

A. Roof, as shown and noted:
   a. BOD is Lomanco 600-Sngle, Black, 60 SI NFA
   b. BOD is Lomanco 600-D Twin, Black,1200 SI NFA
   c.

B. Gable End, as shown and noted: Lomanco Series 100, flush mount, color WB or BL or approved equal

2.3 ACCESSORIES:

A. Fasteners: Manufacturer's standard fasteners. Fasten in accordance to manufacturer's written instructions.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions, and other conditions affecting performance of the Work.

B. Verify that substrate is sound, dry, and securely anchored.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install roof mounted attic intake and exhaust vents according to manufacturer's written instructions.

END OF SECTION 07 72 00

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 INCORPORATION

A. The Supplementary Conditions (Section 01 10 00) are hereby made a part of this Specification section and the provisions set forth herein shall apply to all labor, materials, equipment, etc. provided as part of the work of individual sections UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES.

1.2 EXTENT OF WORK

A. Work in this section includes providing all labor, materials, equipment, services and other items necessary to perform the sealant work as required to complete the work shown and noted in the Drawings and Specifications.

B. Provide all accessories, connectors and other items ordinarily provided and necessary for the installation of the work in this section, whether or not specifically shown and noted.

C. Work in this section includes:

1. Caulking of all door and window frames and GPDW returns, etc., in/on interiors walls.
2. Caulking of all door and window frames, fiber cement trim, panel and siding intersections, metal trim material intersections, etc., in/on exterior walls and surfaces to make watertight.
3. Caulking and sealing of roof penetrations and roof material intersections to make watertight shall be provided by the roofing Subcontractor.
4. Sealant joints at slab are noted in 07 92 13

1.3 COORDINATION

A. Work in this section shall be coordinated with work in all other sections to produce joints that are 100% waterproof.

B. All sealant materials adjacent to roof materials shall be consistent with those materials in finish and color and shall be approved by the roof manufacturer for use in or near the MBS system.

1.4 SUBSTITUTIONS

A. Substitutions will be accepted subject to conformance with substitution requirements noted in section 01 10 00.

B. Any proposed substitution shall be certified by the manufacturer and such certification shall be supplied in writing, for use in these conditions of building and on these materials.

C. Any proposed substitution shall have warranty equal to or more extensive than the warranty provided by the manufacturer herein specified. Such warranty comparisons shall be made by the Architect upon submission of adequate warranty information and any such decisions shall be final.

1.5 SUBMITTALS AND SHOP DRAWINGS

A. Submittals shall be handled in accordance with the provisions of section 011000.

1. Provide the following Submittals:
   a. Product Data: Submit manufacturer’s product data, installation instructions, use limitations and recommendations for all sealants.
   b. Samples: Submit representative samples of the following for approval:
   c. Sealant color charts

1.6 INSPECTIONS

A. Contractor shall the services of an independent inspector to inspect the sealant application during and at the completion of the work. The report shall be included in the Project Close-out.

PART 2 - PRODUCT

2.1 MATERIALS

A. Caulking materials shall include the following, or approved equals:

1. Interior: At wood to wood intersections frames of doors and windows to GPDW and similar conditions; Interior/exterior grade paintable acrylic latex with silicone; clear.
2. Exterior: At intersections of windows to fiber cement siding and trim and similar conditions; Pecora Dynatrol II or I-XL; color Granite Grey CF30 or Black 012.
3. Exterior: At intersection of door frames to cladding/siding, JH Hardie trim accessories, one of the following, or approved equal:
   a. Exterior grade paintable acrylic latex with silicone, clear; To be field -top coated.
   b. Quad OSI elastomeric polymner with synthetic resin formulated sealant, clear; To be field -top coated.
   c. Pecora Dynatrol II or I-XL, color matched to selected exterior siding colors without top-coating
4. At junction of dissimilar materials subject to water infiltration such as ceramic tile and GPDW; GE Silicone or similar, clear
5. At junctions of dissimilar materials not otherwise noted; Pecora Dynatrol II or I-XL, Tremco Dymonic one component, moisture curing, modified polyurethane or approved equal; color to match adjacent materials and TBS based on Submittals.
   a. Soft joints at wall tile: Limestone; 039
   b. Soft joints at ceiling tile: Dover Sky, CF14
6. Sealants at relieving angles, expansion joints and similar masonry joints shall be Pecora Dynatrol II or I-XL or approved equal, color to match the adjacent veneer
   a. Ash: Limestone; 039
   b. Tuscany: Adobe Accent; CF-10
7. At metal pan trim/flashing: manufacturer's recommended sealant
8. At fixed, site built glazing units: GE SCS 1000 sealant or equal, translucent.
9. Sealing expansion joints in parking areas, as necessary; Vulkem 255 FM premolded joint designed to be used with Vulkem polymeric nosing compound for sealing expansion joints, or approved equal.---NA
10. Interior Stain grade work: Clear Acrylic Latex Caulk w/ Silicone---NA
11. Curtain wall applications, if applicable; Sealant shall be the responsibility of the curtain wall SubContractor. Sealant shall be similar to Tremco Spectrem 2 , medium modulus, one part, high performance, neutral cure silicone sealant for use in sealing joints within curtain/window wall systems, or approved equal.---NA
12. Sealing around plumbing fixtures: White (or the color of the fixture) silicone sealant.
13. Back-Up Materials; closed cell polyethylene foam rod Backer rods to control the depth of the sealant shall be a size that will compress 25%. Denver Foam open-cell polyurethane or reticulated (soft) polyethylene rod or similar is acceptable. Closed-cell polyethylene may be used but care must be taken not to puncture the rod which can cause outgassing. Provide a polyethylene bond-breaker tape to prevent three-sided adhesion.
14. Primers and related materials, as necessary, shall be from the same manufacturer or shall be as recommended and approved by the sealant manufacturer.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. Prior to commencing work all openings and joints shall be examined and prepared for caulking. Adjacent surfaces shall be ready to receive the work. The Subcontractor/installer shall notify the Contractor of any surfaces not in conformance and shall not proceed with the work until those non-conformances have been corrected.

B. All joints shall be made 100% consistent, uniform and free from defects.

C. Inspections shall be performed as noted above and shall include:

1. Visual inspection of all joints during and at the end of the work and using the scaffolding, etc. used by the sealant applicator so as to visually inspect the joints at a maximum of 24” distance from the joint.

D. Prior to applying caulking compound, install back-up material as necessary and in accordance with recommendations of sealant compound manufacturer. Joint width and depth shall not exceed sealant manufacturer’s guidelines.

E. Apply caulking compound by gun wherever possible; minimize application by knife. Insure that caulking covers and completely seals joints.

F. Surfaces to receive sealant shall be prepared with paint/primer, bond break materials or other means as necessary to conform with sealant manufacturer’s requirements and so as to produce a joint that is exposed to movement in only one direction and to prevent three-sided adhesion.

END OF SECTION 07 92 00

PART 1 GENERAL

1.01 SECTION INCLUDES
A. Concrete joint preparation.
B. Application of one-component, self-leveling, cold-applied horizontal joint sealant.

1.02 RELATED SECTIONS
A. Section 03 30 00 - Cast-in-Place Concrete.
B. Section 13 15 10 – Pool edge to concrete deck
C. Section 07 90 00 - Joint Protection.

1.03 REFERENCES
A. ASTM C920: Standard Specification for Elastomeric Joint Sealants.
B. ASTM D2240: Standard Test Method for Rubber Property—Durometer Hardness.
C. Federal Specification TT S-00230C.

1.04 SUBMITTALS
A. Comply with Section 01 10 00 - Submittal Procedures.
B. Submit manufacturer's product data and application instructions.

1.05 QUALITY ASSURANCE
A. Installer Qualifications: Use an installer and adequate number of skilled personnel who are thoroughly trained and experienced in joint sealing application techniques.
B. Obtain joint sealant materials and accessories from a single manufacturer regularly engaged in manufacturing the product.
C. Provide products which comply with all state and local regulations controlling use of volatile organic compounds (VOCs).

1.06 DELIVERY, STORAGE, AND HANDLING
A. Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
B. Store materials in a clean, cool, dry area in accordance with manufacturer's instructions.
C. Do not open packaging until ready to use.
D. Protect materials during handling and application to prevent damage or contamination.

1.07 ENVIRONMENTAL REQUIREMENTS
A. Condition material to 65° - 75° F (18.3° - 23.9° C) before using.
B. Apply material at temperatures between 41 - 104° F (5 – 40° C).
C. Do not apply sealant in joints containing free water.

PART 2 PRODUCTS

2.01 MANUFACTURER
A. W.R. Meadows, Inc., PO Box 338, Hampshire, Illinois 60140-0338. (800) 342-5976. (847) 683-4500. Fax (847) 683-4544. Web Site www.wrmeadows.com, or approved equal.

2.02 MATERIALS
A. Horizontal Joint Sealant: One-component, cold-applied, self-leveling polyurethane joint sealant.
1. Performance Based Specification: Horizontal joint sealant shall have the following characteristics:
a. ASTM C 920-11: Type S, Grade P, Class 25, Use T1, T2, NT, O, M, G

b. Federal Specification TT S-00230C, Type I, Class A
c. Consistency: Liquid, Self-Leveling.
d. Skin Formation Time (74° F - 50% RH): 60-120 minutes.
e. Water and Salt Spray Resistance: Excellent.
f. Shore Hardness, ASTM D2240: Shore A 35 ± 5.
g. Modulus at Break, ASTM D412: >0.6 MPa.
h. UV Resistance: Good.
i. Resistance to Dilute Acids and Bases: Average.
j. Temperature Resistance: -40 - 176° F (-40 - 80° C.).
k. VOC: 24 g/L.
l. Non-bubbling formula; may be applied to green concrete.

2. Proprietary Based Specification: POURTHANE SL self-leveling joint sealant manufactured by W.R. MEADOWS, or approved equal.

2.03 ACCESSORIES

A. Backer Rod: KOOL-ROD or CERA-ROD manufactured by W.R. MEADOWS.
B. Joint Filler: CERAMAR®, DECK-O-FOAM®, FIBRE EXPANSION JOINT with SNAP-CAP® manufactured by W. R. MEADOWS.
C. Primer System: P/G PRIMER manufactured by W.R. MEADOWS.

PART 3 EXECUTION

3.01 EXAMINATION

A. Examine areas to receive joint sealant. Notify Consultant if surfaces are not acceptable. Do not begin joint preparation or sealant application until unacceptable conditions have been corrected.
B. Ensure accessory materials are compatible with joint sealant and approved by membrane manufacturer.
C. Ensure joint sealant is compatible with all materials and surfaces that will be in direct contact prior to proceeding.

3.02 JOINT PREPARATION

A. Ensure proper joint design practices are followed allowing for a 2:1 width to depth ratio.
B. Joint dimensions should allow for ¼” (6.35 mm) minimum and ½” (12.7 mm) maximum thickness for sealant.
C. Joint depth should not exceed 3/8” (10 mm).
D. Remove foreign substances, incompressibles, and free water from joint opening.
E. Concrete joints must be clean and dry.
F. Dust, dirt and laitance should be removed prior to application.
G. Install backer rod or joint filler to control depth of joint sealant.
H. Protect adjacent surfaces not designated to receive joint sealant.

3.03 PRIMING

A. Substrates only require priming if testing indicates a need or where sealant will be subjected to water immersion after cure.
B. Mix all material in both containers.
C. Pour part A into part B and mix thoroughly with a clean wooden or metal paddle for approximately 3 - 4 minutes.
D. Scrape container sides and bottom for complete integration.
E. Apply primer system to properly prepared joint surfaces by brush, depositing a light, continuous film.
F. Apply an additional coat to very soft, porous surfaces.
G. Allow primer to become tacky to the touch prior to application of the joint sealant.

3.04 APPLICATION

A. Condition material to 65° - 75° F (18.3° - 23.9° C) before using.
B. Apply joint sealant in accordance with manufacturer's instructions.
C. Gun sealant into joint opening in one direction and allow sealant to flow and level out as necessary.
D. Joint sealant will form a skin after approximately 60-120 minutes with air and surface temperatures above 74°F (23°C).

3.05 CLEAN-UP

A. Clean tools with xylene or toluene and remove masking tape before sealant cures.

END OF SECTION 07 92 13

SECTIONS 08 11 00 - METAL DOORS AND FRAMES,
08 31 00 - ACCESS DOORS, 08 50 00 - WINDOWS,
08 70 00 - HARDWARE.

PART 1 - GENERAL

1.1 INCORPORATION

A. The Supplementary Conditions (Section 011000) are hereby made a part of this Specification section and the provisions set forth herein shall apply to all labor, materials, equipment, etc. provided as part of the work of individual sections UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES.

1.2 EXTENT OF WORK

A. **FOR CONVENIENCE AND BREVITY, THIS SPECIFICATION SECTION INCORPORATES MISCELLANEOUS SPECIFICATION SECTIONS RELATED TO DOORS, WINDOWS AND HARDWARE.**

B. Work in this section includes providing all labor, materials, equipment, services and other items necessary to perform the door and hardware work shown and noted in the Drawings and Specifications.

C. Provide all accessories, connectors fasteners and other items ordinarily provided and necessary for the installation of the work in this section, whether or not specifically shown and noted.

D. Work in this section must be reviewed with the work noted in spec 08900. Work in this section includes interior doors within units, unit entry doors, miscellaneous doors which are not a part of the curtain wall/storefront work and hardware for these units.

E. Work in this section includes:
   1. Doors, windows and frames shown and noted in the Drawings.
   2. Door and window hardware shown and noted in Drawings and Specifications including:
      a. Locksets, pulls and other handles
         1) Hinges, when not provided as part of door / frame unit.
         2) Exit/panic hardware
   3. Access doors
   4. Miscellaneous hardware:
      a. Thresholds
      b. Smoke Seals
      c. Kick plates
      d. Door protective strikes

1.3 SHOP DRAWINGS, SUBMITTALS and SUBSTITUTIONS

A. Provide the following Submittals:
   1. Interior doors and frames
   2. Exterior doors and frames
   3. Individual windows. Note that windows are noted in the Window Schedule in the Drawing and Pella is used as the BOD but a submittal is required for the proposed window package
   4. Door locksets, exit devices and miscellaneous hardware
   5. Submittals shall include the following information:
      a. Fire-rated Windows, if provided under this section:
      b. Window elevations, including R.O. size, jamb/jamb size, glass size, R and U values (including edge and center values), infiltration data, warranty information, cladding color selection, fire-rating, installation details.
      c. Door sizes/elevations, core materials, finish selection options, any bore restrictions, fire-ratings where applicable, frame/rabbet information and warranty information
   6. Submittals shall be handled in accordance with the provisions of section 01 10 00.
   7. Substitutions will be accepted subject to conformance with substitution requirements noted in section 01 10 00.

8. Submittals shall be provided regarding warranty information and procedures as noted below.
   a. Any proposed substitutions shall have warranty equal to or more extensive than the warranties herein specified. Such warranty comparisons shall be made by the Architect upon submission of adequate warranty information and any such decisions shall be final.
9. Note the specific submittal requirements for hardware in the hardware schedule and the requirement to cross-check all hardware, keying system(s) and operations during the submittal process.

1.4 ALLOWANCES, UNIT PRICES AND ALTERNATES: NA

1.5 WARRANTIES
A. Windows:
   1. Non-Glass Materials and Workmanship — Transferable Ten (10) Year Limited Warranty.
   2. Glass — Transferable Twenty (20) Year Limited Warranty.

PART 2 - PRODUCT

2.1 DOORS AND FRAMES; ALSO SEE SCHEDULE
A. Doors and frames shall be as noted in the schedule on the Drawings and as noted below.
   1. BOD is Ceco Regent Series for interior, non-insulated doors and Legion for insulated doors or approved equal
B. Prehung units shall have the following number of hinges, finish satin-chrome #626:
   a. 6’-8” or less; 3 hinges per slab
   b. 7’-0”; 3-4 hinges per slab
   c. 8’-0”; 4 hinges per slab
   d. Greater than 8’-0”; 5-6 hinges per slab
C. Interior fire-rated doors shall be Construction Standard flush-face, solid-core, as noted on the schedule and herein; NA
D. Knock- down or welded frames/bucks shall be as shown and noted in the drawings and as follows:
   1. Shop-primed
   2. Of adequate throat dimension to encompass wall and provide adequate attachment
   3. Wall thicknesses/throat shall be verified by the Contractor prior to ordering units.
   4. Double rabbet/drywall frame concealed fastener type with no exposed screws for installation at GPDW walls
   5. Double rabbet wrap-around throat type with integral ‘T’ or wire anchors laid into masonry for installation at CMU walls.
   6. Frames shall be as noted in the schedule
   7. Frame shall have proper bore and mortise to accommodate the hardware specified on the Drawings and herein.
   8. Frames shall have punched holes for attachment of rubberized door bumpers if gasket frame is not specified.

2.2 WINDOWS
A. See Window Schedule for additional information. Pella fiberglass Impervia windows are the BOD for the project but substitutions are acceptable for price and availability
B. Window submittals shall match the R.O. dimensions given in the Drawings without additional detailing or re-framing/modification of opening sizes.
C. See Window Schedule for additional information.

D. All operable windows shall have screens provided either by the manufacturer or by a secondary source.
E. Screen frame shall match interior window frame color and finish, unless otherwise approved or as noted on the schedule
F. Screen color shall be charcoal grey or similar unless otherwise approved.
G. Confirm all requirements for tempered glazing and for WOCD and egress and submit as part of window submittal

2.3 HARDWARE
A. Hardware shall be as noted in schedule on drawings and attached at the end of this section

2.4 ACCESS DOORS
A. Access doors shall be as noted in notes on drawings and attached at the end of this section

PART 3 - EXECUTION

3.1 INSTALLATION
A. Prior to installing units, inspect rough and/ or masonry opening for plumb, square and level. Adjust opening as necessary to accommodate unit installation.
B. Install all doors, windows and frames plumb and level and securely fastened and/ or shimmed according to the manufacturer's recommendations.
C. Install all hardware in conformance with manufacturer's recommendations. Prior to installation, inspect doors, frame and surrounding surfaces to receive work and verify that those surfaces and items are in conformance with manufacturer's requirements. Notify Contractor of any surfaces and items not in conformance and do not install until those deficiencies have been corrected.
D. Provide elastomeric or similar flashing, as shown and noted on the Drawings around all rough openings, folded in and attached to framing prior to setting windows and doors and including sill dam flashing at doors; see drawing details
E. Fill all shim spaces around windows and doors with non-expanding type foam insulation

3.2 QUALITY CONTROL AND INSPECTION
A. After installation, perform the following work:
1. Check window and door units for proper operation and insure that units are free from binding, have equal and consistent reveals along the hinge and strike/latch sides of the units.
2. Check that door slabs hang level, plumb and true within the frame.
3. Adjust, repair, and replace as necessary any door or window unit which is not fully functioning and in conformance with the above requirements.
4. Check all locksets for proper operation with and without key and verify keying and any KAL functions. Provide keys to Owner immediately after installation is complete and checked.
5. Provide sill flashing under all exterior door units and set door unit sill in (3) full, continuous beads of silicone sealant or equal.

HARDWARE SCHEDULE

HARDWARE SCHEDULE NOTES:

1. DOOR HARDWARE NOTED HEREIN OR ON A SEPARATE HARDWARE SCHEDULE IS A SUBMITTAL ITEM. HARDWARE NOTATIONS ESTABLISH THE GENERAL LEVEL OF QUALITY AND FUNCTION THAT THE COIUNTY REQUIRES BUT MAY NOT INCLUDE ALL ITEMS NECESSARY TO INSTALL THE LOCK OR PREP THE DOOR FOR THE HARDWARE. GC AND HARDWARE SUPPLIER SHALL REVIEW THE SPEC/SCHEDULE AND ASSIST THE ARCHITECT AND COUNTY IN PREPARING A COMPLETE AND THOROUGH HARDWARE SCHEDULE THAT CLEARLY AND COMPLETELY LISTS ALL LOCKSETS, DOOR PREP REQUIREMENTS, CYLINDER TYPES AND REQUIREMENTS, FUNCTIONS AND OTHER, ASSOCIATED HARDWARE. WHERE POSSIBLE, DOOR PREP REQUIREMENTS HAVE BEEN NOTED BUT IT IS THE RESPONSIBILITY OF THE GC/VENDOR TO CONFIRM ALL REQUIREMENTS PRIOR TO ORDERING.
2. ALL FUNCTIONS OF LOCKS SHALL BE CLEARLY NOTED AND SHALL BE CONFIRMED WITH THE COUNTY DURING THE SUBMITTAL PROCESS. NOTE ALSO, THAT THE COUNTY USES A GRAND MASTER KEYING SYSTEM, SO ALL LOCKSET CORES/CYLINDERS SHALL BE COMPATIBLE WITH THAT SYSTEM.
3. CULPEPER COUNTY HAS REQUESTED THAT SARGENT LOCKSETS BE SPECIFIED FOR THIS PROJECT TO MAINTAIN CONTINUITY ACROSS COUNTY FACILITIES. SUBSTITIONS FOR THESE LOCKSETS WILL NOT BE CONSIDERED UNLESS SPECIFIED ITEMS ARE UNAVAILABLE AT TIME OF CONSTRUCTION OR ARE OTHERWISE UNSUITABLE FOR THE APPLICATION.
4. CORES CYLINDERS SHALL ALSO BE COORDINATED WITH THE KEYS/CORES/CYLINDERS OF THE CULPEPER FIELD HOUSE KEYING SYSTEM.
5. OTHER ITEMS ARE AN ‘OR APPROVED EQUAL’, SUBJECT TO SUBMITTAL REQUIRMENTS.

HARDWARE MARKS

A. CLOSER:
   a. FOR OFFICES: SARGENT 1331-JO-STANDARD ARM, EN FINISH OR APPROVED EQUAL; PULL-SIDE MOUNT; ANSI/BHMA A156.4, GRADE 1; AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANT; ICC A117.1 COMPLIANT; UL-CUL FIRE-RATED UP TO 3 HOUR; NON-HANDED; ADJUSTABLE CLOSING FORCE RANGE FROM SIZE 1 - 6
   b. FOR LOCKER ROOMS, CLASSROOMS AND SINGLE CONCESSION DOOR: SARGENT 1432-O-STANDARD ARM, EN FINISH OR APPROVED EQUAL; PULL-SIDE MOUNT; ANSI/BHMA A156.4, GRADE 1; AMERICANS WITH DISABILITIES ACT (ADA) COMPLIANT; ICC A117.1 COMPLIANT; UL-CUL FIRE-RATED UP TO 3 HOUR; NON-HANDED; ADJUSTABLE CLOSING FORCE RANGE FROM SIZE 1 – 6; 15 MILLION CYCLE FREQUENCY

B. KICK PLATE: SCHLAGE/IVES #8400 STAIN CHROME/US26D KICK PLATE, 10”X34”.
   a. INSTALL ON PUSH AND PULL SIDES:
      i. FOR LOCKER ROOM DOORS
      ii. FOR CLASSROOM DOORS
      iii. ALL FILTER ROOM DOORS
      iv. ALL CONCESSION AND CONCESSION STORAGE DOORS
   b. INSTALL ON PUSH SIDE:
      i. FOR OFFICE DOORS
   c. INSTALL ON APPROACH SIDE
      i. FACILITY STORAGE DOORS
      ii. CLASSROOM STORAGE DOORS
      iii. LOCKER JANITOR AND SERVICE ENTRANCE DOORS

C. HINGES:
   a. FOR ALL DOORS EXCEPT LOCKER ROOM DOORS, CLASSROOM DOORS, OUTWSWING DOORS, CONCESSION AND FILTER ROOM DOORS: ANTI- FRICTION BEARING HINGE- COMMERCIAL GRADE, 5-KNUCKLE, AVERAGE FREQUENCY/STANDARD WEIGHT, STANLEY OR APPRVD EQ, FBB179 OR CB179 (4 ½” X 4 ½”) OR (4 ½” X 4”), 626/US26D-SATIN CHROME, SWAGED U.O.N. OR AS NECESSARY. MIN 3 HINGES PER DOOR. INTENDED FOR MEDIUM WEIGHT DOORS; ACTUAL DOOR WEIGHT SHALL BE CROSS-CHECKED WITH HINGE WEIGHT BY VENDOR DURING SUBMITTAL PROCESS.
   b. FOR LOCKER ROOM DOORS, CLASSROOM DOORS, FILTER ROOM SINGLE DOOR AND CONSESSION SINGLE DOORS: FRICTION BEARING HINGE- COMMERCIAL GRADE, 5-KNUCKLE, HIGH FREQUENCY/HEAVY DUTY, STANLEY OR APPRVD EQ, STD WEIGHT,

ANTI-FRICTION BEARING, FBB168 (4 ½" X 4 ½") OR (4 ½" X 4"), 626/US26D-SATIN CHROME, SWAGED U.O.N. OR AS NECESSARY. MIN 3 HINGES PER DOOR. INTENDED FOR HEAVY DUTY/SDI LEVEL 3 DOORS; ACTUAL DOOR WEIGHT SHALL BE CROSS-CHECKED WITH HINGE WEIGHT BY VENDOR DURING SUBMITTAL PROCESS.

c. FOR OUTSWING DOORS: FRICTION BEARING HINGE- COMMERCIAL GRADE, 5-KNUCKLE, HIGH FREQUENCY/HEAVY DUTY, STANLEY OR APPRVD EQ, STD WEIGHT, ANTI-FRICTION BEARING, FBB168 (4 ½" X 4 ½") OR (4 ½" X 4"), 626/US26D-SATIN CHROME, SWAGED U.O.N. OR AS NECESSARY. NON-REMOVEABLE PINS(NRP). MIN 3 HINGES PER DOOR. INTENDED FOR HEAVY DUTY/SDI LEVEL 2 AND 3 DOORS; ACTUAL DOOR WEIGHT SHALL BE CROSS-CHECKED WITH HINGE WEIGHT BY VENDOR DURING SUBMITTAL PROCESS.

D. ASTRAGAL FOR DOUBLE DOORS: CAL-ROYAL EAST-501, ALUMINUM 'T' ASTRAGAL WITH VINYL INSERT OR APPROVED EQUAL; ASTRAGAL SHALL EXTEND FULL HEIGHT OF DOOR EXCEPT AROUND STRIKE PROTECTOR.

E. FLUSH HEAD AND FOOT BOLTS FOR DOUBLE DOORS THAT REQUIRE LOCKING: IVES FB 457, US 26D/626 FINISH. PROVIDE TWO PER INACTIVE LEAF OF DOUBLE DOOR. PROVIDE HEAD BOLT STRIKE PLATE AND FOOT BOLT DUST-PROOF RETRACTABLE STRIKE DP2, US 26D/626. *MOUNTING IS 8-32 X 1" FPHMS AND WILL REQUIRE ADDITIONAL INACTIVE DOOR LEAF PREP*

F. STRIKE PROTECTOR FOR USE ON SINGLE OR DOUBLE DOORS THAT REQUIRE LOCKING; DON-JO #PLP211, 626 FINISH. INSTALL ON ACTIVE DOOR LEAF

G. DOOR STOPS:
   a. ALL DOORS, AS NOTED EXCEPT LOCKER ROOM AND CLASSROOM DOORS: IVES WALL-MNT WALL STOP WS 447 FOR DRYWALL/WOOD, US 26D/626 FINISH. PROVIDE IN-WALL BLOCKING; SET APPROX 1.5" ABOVE TOP OF COVED FLOORING EDGE
   b. LOCKER ROOM, CLASSROOM DOORS CONCESSION DOORS: IVES FLR-MNT FS 446 DOOR STOP AND MANUAL DOOR HOLDER FOR MASONRY
   c. FILTER ROOM DOOR AND OTHER DOORS THAT REQUIRE A DOOR STOP WITH HOOK; IVES WALL STOP+HOOK WS-449 FOR DRYWALL/WOOD, US 26D/626 FINISH. PROVIDE IN-WALL BLOCKING;

H. CYLINDRICAL DOOR LOCKSET; **MEN'S AND WOMENS LOCKER ROOMS**: SARGENT 11-LINE, 11G37, ANSI F84, CLASSROOM FUNCTION (DEADLOCKING LATCH, LATCHBOLT BY EITHER LEVER UNLESS OUTSIDE LEVER IS LOCKED BY THE KEY, KEY IN OUTSIDE LEVER LOCKS OR UNLOCKS OUTSIDE LEVER, INSIDE LEVER ALWAYS OPERATIVE); ANSI/BHMA CODE: A156.2, SERIES 4000, GRADE 1; ADA LEVER HANDLE 'B'; ROSE CONFIG 'L'

I. CYLINDRICAL DOOR LOCKSET; **FAMILY LOCKER ROOMS**: SARGENT 11-LINE, 11G24, ANSI F82, ENTRY/OFFICE FUNCTION (DEADLOCKING LATCH, LATCHBOLT BY EITHER LEVER UNLESS OUTSIDE LEVER IS LOCKED BY PUSH/TURN BUTTON IN INSIDE LEVER, PUSH BUTTON RELEASED BY KEY OR TURNING INSIDE LEVER, CLOSING DOOR DOES NOT UNLOCK OUTSIDE LEVER OR RELEASE BUTTON); ANSI/BHMA CODE: A156.2, SERIES 4000, GRADE 1; ADA LEVER HANDLE 'B'; ROSE CONFIG 'L' (CONFIRM ROSE DIAMETER WITH FULL LIGHT DOOR STILE WIDTH0; SATIN CHROME US 26D/626 FINISH)

J. CYLINDRICAL DOOR LOCKSET; **OFFICES**: SARGENT 10-LINE, 10G05, ANSI F81, ENTRY/OFFICE FUNCTION (DEADLOCKING LATCH, LATCH BY EITHER LEVER UNLESS OUTSIDE LEVER IS LOCKED BY PUSH/TURN BUTTON IN INSIDE LEVER, PUSH BUTTON RELEASED BY KEY OUTSIDE OR LEVER INSIDE, TURN BUTTON MUST BE RELEASED MANUALLY, KEY RETRACTS LATCH WHEN OUTSIDE LEVER IS LOCKED); ANSI/BHMA CODE: A156.2, SERIES 4000, GRADE 1; ADA LEVER HANDLE 'B'; ROSE CONFIG 'L' (CONFIRM ROSE DIAMETER WITH FULL LIGHT DOOR STILE WIDTH); SATIN CHROME US 26D/626 FINISH)

K. CYLINDRICAL DOOR LOCKSET; **CLASSROOM**: SARGENT 10-LINE, 10G37, ANSI F84, CLASSROOM FUNCTION (DEADLOCKING LATCH, LATCHBOLT BY EITHER LEVER UNLESS OUTSIDE LEVER IS LOCKED BY THE KEY, KEY IN OUTSIDE LEVER LOCKS OR UNLOCKS OUTSIDE LEVER, INSIDE LEVER ALWAYS OPERATIVE); ANSI/BHMA CODE: A156.2, SERIES 4000, GRADE 1; ADA LEVER HANDLE 'B'; ROSE CONFIG 'L' (CONFIRM ROSE DIAMETER WITH FULL LIGHT DOOR STILE WIDTH); SATIN CHROME US 26D/626 FINISH)

L. CYLINDRICAL DOOR LOCKSET; **STAFF BATHROOM**: SARGENT 10-LINE, 10U65, ANSI F76A, PRIVACY BATH/BEDROOM FUNCTION (LATCH BY EITHER LEVER UNLESS OUTSIDE LEVER IS LOCKED BY PUSH BUTTON IN INSIDE LEVER, TURNING INSIDE LEVER OR CLOSING DOOR

RELEASES BUTTON, EMERGENCY BUTTON IN OUTSIDE LEVER UNLOCKS, WITH USE OF A BLADE SCREWDRIVER IN OUTSIDE LEVER AND RELEASES INSIDE BUTTON); ANSI/BHMA CODE: A156.2, SERIES 4000, GRADE 1; ADA LEVER HANDLE 'B'; ROSE CONFIG 'L'

M. CYLINDRICAL DOOR LOCKSET; **CONCESSION**: SARGENT 10-LINE, 10G05, ANSI F81, ENTRY/OFFICE FUNCTION (DEADLOCKING LATCH, LATCH BY EITHER LEVER UNLESS OUTSIDE LEVER IS LOCKED BY PUSH/TURN BUTTON IN INSIDE LEVER, PUSH BUTTON RELEASED BY KEY OUTSIDE OR LEVER INSIDE, TURN BUTTON MUST BE RELEASED MANUALLY, KEY RETRACTS LATCH WHEN OUTSIDE LEVER IS LOCKED); ANSI/BHMA CODE: A156.2, SERIES 4000, GRADE 1; ADA LEVER HANDLE 'B'; ROSE CONFIG 'L' (CONFIRM ROSE DIAMETER WITH FULL LIGHT DOOR STILE WIDTH); SATIN CHROME US 26D/626 FINISH)

N. CYLINDRICAL DOOR LOCKSET; **STORAGE, FILTER/SINGLE DOOR**: SARGENT 10-LINE, 10G04, ANSI F86, STORAGE FUNCTION (DEADLOCKING LATCH, LATCH BY LEVER INSIDER OR KEY OUTSIDE, OUTSIDE LEVER RIGID AT ALL TIMES); ANSI/BHMA CODE: A156.2, SERIES 4000, GRADE 1; ADA LEVER HANDLE 'B'; ROSE CONFIG 'L'

O. CYLINDRICAL DOOR LOCKSET; **STORAGE/DOUBLE DOOR**: SARGENT 10-LINE, 10G04, ANSI F86, STORAGE FUNCTION (DEADLOCKING LATCH, LATCH BY LEVER INSIDER OR KEY OUTSIDE, OUTSIDE LEVER RIGID AT ALL TIMES); ANSI/BHMA CODE: A156.2, SERIES 4000, GRADE 1; ADA LEVER HANDLE 'B'; ROSE CONFIG 'L'. NOTE THAT THIS IS FOR USE IN DOUBLE STORAGE DOORS ON ACTIVE LEAF. INACTIVE LEAF: SARGENT 10-LINE, 10U94-2, DOUBLE LEVER PULL, LEVER AND ROSE BOTH SIDES JOINED BY THRU-BOLTS, STD DOOR PREP W/ DUMMY LATCH PLATE

P. **PANIC BAR AT SOUTH EGRESS GATE**: THIS IS A SUBMITTAL ITEM FOR BOTH THE GATE AND THE PANIC BAR/SHIELD KIT. B.O.D. IS LOCKEY USA AND MAY BE AN APPROVED EQUAL, SUBJECT TO SUBSITUTION REQUIREMENTS. NOTE THAT THE GATE LEAF IS 48" WIDE. PANIC BAR AND SAFETY SHIELD KIT SHALL BE LOCKEY USA #ED-52B EDGE PANIC SHIELD SAFETY KIT WITH DETEX V-40, ANSI/BHMA CERTIFIED GRADE 1 COMPLIANT PANIC BAR WITH OUTSIDE KEY FUNCTION. EDGE STYLE PANIC SHIELD, EDGE STYLE STRIKE BRACKET, KEYED CYLINDER (SCHLAGE KEYWAY), EDGE STYLE KEYED CYLINDER GATE BOX, EDGE STYLE LATCH PROTECTOR, JAMB STOP. UPGRADE BAR TO V40xEBxWX48 FOR 42" WEATHERIZED BAR, BLACK FINISH (IF AVAILABLE), WITH MAX GUARD TAMPER OPTION PLATE LOCATED APPROX. 5-6+ ABOVE PANIC BAR. THE FUNCTION OF THIS PANIC BAR IS ALWAYS LOCKED FROM THE EXTERIOR AND LATCHED FROM THE INTERIOR WITH UNLATCHING UPON DEPRESSING INSIDE PANIC BAR FACE. CYLINDER DOGGING MAY BE PROVIDED BUT IS NOT REQUIRED. THIS GATE WILL BE USED ONL;Y FOR EMERGENCY EGRESS AND IS NOT INTENDED FOR ROUTINE ACCESS.

Q. WEATHER STRIPPING: PEMKO OR APPROVED EQUAL; PEMKO 29310CV, GREY OR BLACK.

R. INDIVIDUAL DOOR THRESHOLD SILL IF NOT OTHERWISE PROVIDED AS PART OF FRAME PACKAGE; B.O.D. IS PEMKO. **PLEASE NOTE THE FOLLOWING REGARDING DESIGN INTENT AND SILL SPEC:** <u>THE INTENTION IS TO USE A HALF-SADDLE PROFILE WHERE THE FINISH EPOXY FLOORING IS NOT CONTINUOUS ON BOTH SIDES OF THE DOOR, SO THAT THE SQUARE EDGE OF THE SILL ACTS AS A STOP FOR THE FLOORING MATERIAL. HOWEVER, ON DOORS WHERE THE EPOXY FLOORING IS CONTINUOUS ON BOTH SIDES, SILL PROFILE IS DEPENDENT ON CONSTRUCTION SEQUENCE AND WHEN THE FLOOR IS INSTALLED IN RELATION TO THE DOOR SILLS. IF THE DOOR SILLS ARE FIT AFTER THE FRAMES ARE SET AND DOORS INSTALLED, A STANDARD SADDLE PROFILE CAN BE USED SINCE IT WILL BRIDGE OVER THE FINISH FLOORING. HOWEVER, IF THE SILLS ARE SET BEFORE FLOORING INSTALLATION, A DIFFERENT SILL PROFILE WILL BE NEEDED WHERE THE EPOXY FLOOR OCCURS ON BOTH SIDES OF THE SILL, IN ORDER TO PROVIDE A STOP FOR THE EPOXY MATERIAL ON BOTH SIDES AND SO THAT THE EPOXY COATING DOES NOT BURY/LAP UNTO THE SILL. THIS SILL PROFILE WOULD BE SIMILAR TO PEMKO #2755 HALF-SADDLE JOINER. THIS SITUATION MUST BE REVIEWED AND DECIDED PRIOR TO FLOORING INSTALLATION AND SILL/HARDWARE SUBMITTAL AND ORDERING TO ENSURE THAT THE CORRECT SILL IS USED. THEREFORE, THE SPECS BELOW ARE GUIIDELINES AND ARE NOT FINAL AND MUST BE CONFIRMED BY THE GC.</u>

   a. DOOR SILLS WHERE THERE IS NO CHANGE IN SLAB HEIGHT AND FLOOR FINISH IS CONSISTENT: PEMKO ½" MAX HEIGHT SADDLE THRESHOLD, SIMILAR TO #171/172, OF APPROPRIATE LENGTH TO MATE WITH JAMB; MILL FINISH ALUMINUM; BHMA CERTIFIED.
   b. DOOR SILLS WHERE THERE IS CHANGE IN SLAB HEIGHT AND FLOOR FINISH IS NOT CONSISTENT THROUGH OR WHERE FLOOR FINISH STOPS AT AN EXTERIOR/INTERIOR

DOOR: PEMKO 1/4" MAX HEIGHT HALF-SADDLE THRESHOLD, SIMILAR TO #275/2746 OF APPROPRIATE LENGTH TO MATE WITH JAMB; MILL FINISH ALUMINUM; BHMA CERTIFIED. NOTE THAT HALF SADDLE IS INTENDED TO ACT AS A STOP TO THE INTERIOR 1/8-3/16" THICK EPOXY FLOORING SPECIFIED; THE SILL MIUST BE A MAXIMUM ¼" HIGH TO MEET ANSI A117 SILL HEIGHT REQUIREMNTS BECAUSE THERE IS A MAX. ¼" ELEVATION CHANGE BETWEEN INDOOR AND OUTDOOR SLAB

S. INDIVIDUAL DOOR SILL SWEEP IF NOT OTHERWISE PROVIDED; PEMKO 307AV MILL FINISH ALUMINIM WITH GREY INSERT
T. DOOR SILENCERS: SIMILAR TO IVES SR64/65, GREY.
U. THESHOLD TRANSITIONS, WHERE FIELD REQUIRED OR REQUIRED BY REVISIONS TO PROJECT FLOORING MATERIALS; NOTE THAT THESE CONDITIONS ARE NOT CALLED OUT ON THE DOOR SCHEDULE AND ARE PROVIDED FOR INFORMATION ONLY:
    a. STANDARD THRESHOLD FOR FIN FLOOR MATL TRANSITIONS: MD BUILDING PRODUCTS THRESHOLD AFF 212 MF 36″ D#0402, ALUMINUM FINISH, OR SIMILAR
    b. FOR LARGER TRANSITIONS; MD BUILDING PRODUCTS 4″ HEAVY DUTY FLUTED TOP COMMERCIAL THRESHOLD – 1/2″ X 4″" – 72″, ALUMINUM FINISH, OR SIMILAR
    c. TILE TO CARPET/VCT; MD BUILDING PRODUCTS, TILE TO CARPET EDGING, ALUMINUM FINISH, OR SIMILAR
    d. TILE TO VCT; MD BUILDING PRODUCTS, TILE EDGE REDUCER, ALUMINUM FINISH, OR SIMILAR

ACCESS DOORS SCHEDULE

A) FIRE-RATED (AND NON-RATED) ACCESS DOORS
    a) GENERAL: PROVIDE RATED AND NON-RATED ACCESS DOORS AS SHOWN AND NOTED IN THE DRAWINGS, AS NECESSARY TO PROVIDE COMPLETE ACCESS FOR MAINTENANCE TO DUCTWORK, WATER VALVES AND SIMILAR ITEMS AND AS NOTED BELOW:
        i) AT ALL DWV WALL CLEAN-OUTS
        ii) AT ALL WATER SHUT-OFF VALVES NOT READILY ACCESIBLE
        iii) AT ALL WATER RISER SHUT-OFF VALVES
        iv) AT ALL DUCTWORK CLEAN-OUTS, LINT-TRAPS, FIRE DAMPERS AND SIMILAR ITEMS AND DEVICES.
        v) AT ALL SMALL EQUIPMENT THAT REQUIRES ACCESS TO A SERVICE SIDE AND WHICH IS NOT OTHERWISE READILY ACCESSIBLE.
    b) DECORATIVE CEILING ACCESS PANELS IN NON-RATED CEILINGS SHALL BE PITTCON INDUSTRIES, INC.SOFTFORMS STR-050-050, OR APPROVED EQUAL,1/2 INCH DEEP, EXTRUDED ALUMINUM PROFILE WITH 7/8 INCH INTEGRAL FINS WITH SIZE(S) AS SHOWN AND NOTED. PANEL SHALL BE PROVIDED WITHOUT FLUSH INSERT. FACE/COVER PLATE SHALL BE ½ INCH MDO PLYWOOD, OR APPROVED SIMILAR ITEM WITH FLUSH FACE.
    c) ACCESS DOORS/PANELS IN NON-RATED WALLS/CEILINGS: MILCOR #3203-014, FLUSH-MOUNT 14"X14", 16 GA STL FRAME W/ 14 GA STL FLUSH DOOR, KEY-LATCH LOCKABLE, WITH DRYWALL BEAD/FLANGE FOR FLUSH FINISHING WITH COMPOUND OR APPRVD EQUAL.
    d) ACCESS DOORS/PANELS IN NON-RATED WALLS AT DWV PIPING CLEANOUTS: MILCOR #3202-026, FLUSH-MOUNT 14"X14", 16 GA STL FRAME W/ 14 GA STL FLUSH DOOR, KEY-LATCH LOCKABLE, WITH STANDARD FACE FRAME/FLANGE OR APPRVD EQUAL.

END OF SECTIONS 08 11 00, 08 31 00, 08 50 00, 08 70 00

SECTION 09 29 00 - GYPSUM DRYWALL AND 25 GA METAL FRAMING

PART 1 - GENERAL

1.1 INCORPORATION

A. The Supplementary Conditions (Section 01 10 00) are hereby made a part of this Specification section and the provisions set forth herein shall apply to all labor, materials, equipment, etc. provided as part of the work of individual sections UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES.

1.2 EXTENT OF WORK

A. Work in this section includes all gypsum wallboard, (gpdw,GPDW) gypsum coreboard, exterior gypsum-based sheathing, cement-slurry board, tile backer board light gage (25 ga))metal studs and metal furring channels complete with all fasteners, beads and accessories necessary for a complete finish job and ordinarily provided, whether or not actually mentioned.

B. In general, the work includes:

1. Dropped tile-covered ceilings
2. Ceilings that are a part of floor assemblies, whether rated or non-rated
3. Interior partition walls, demising walls, etc.
4. Interior load bearing walls
5. Miscellaneous in-wall blocking for cabinets, toilet accessories, in-wall items such as fire extinguisher cabinets, etc. if framing is part of GPDW SOW

C. Access doors (08310) are specified under spec 08100-08710.

D. The project is designed with wood-framed interior walls and it is assumed that wood framing and GPDW work will be by separate subcontractors. Therefore, interior NLB steel stud framing is not noted or called for in this section.

1.3 COORDINATION

A. Work in this section shall be coordinated with the work set forth in other sections so that the work is complete and finished in every respect.

1.4 SUBSTITUTIONS

A. Substitutions shall be acceptable if proposed substitution is equal or better in all characteristics than suggested products.

B. Submittals for proposed substitution shall be in accordance with section 010000

1.5 PRODUCT HANDLING

A. Wall board shall be protected from moisture and damage. Store gpdw in conditioned space prior to installation.

B. Store gpdw in areas where structure is adequate to support temporary live loads. Do not stack gpdw over 40 sheets high without the permission of the Architect or Structural Engineer.

1.6 SUBMITTALS AND SHOP DRAWINGS

A. Contractor shall provide the following submittals:

1. Manufacturer’s cut-sheets, PDS and similar information for each and all gypsum-based panel materials.
2. Manufacturer’s cut-sheets, PDS and similar information for and steel stud, runner, furring channels and similar items/materials.
3. Manufacturer’s cut-sheets, PDS and similar information for metal trim accessories.

B. Contractor shall provide the following submittal as a field sample:

1. After completion of framing work and prior to installation of gpdw as noted below, Contractor shall designate one 48” long by approximately 8’ high section of stud wall as a field sample submittal and shall have that wall fully and completely finished as noted below with all required GA finish levels and then field-primed. The Architect and/or Owner shall review this sample and provide approval or direct the Contractor to re-finish or correct the finish. After re-finishing and

approval of the sample, the wall shall be marked clearly as a field sample submittal and protected against damage. All other finishing shall match the finishing of this sample.

2. Provide one designated 48” x 96” wall panel with each of the specified GA finish levels installed.
3. See the schedules for GA finish level requirements.

1.7 ALLOWANCES, ALTERNATES AND UNIT PRICES:NA

1.8 CODES AND STANDARDS

A. All products and installation shall conform with all applicable Codes, Regulations and Standards, including:
   1. Gypsum Association “Fire Resistance Design Manual”, most recent edition.
   2. Gypsum Association GA-216-80, “Recommended Specifications for the Application and Finishing of Gypsum Board” and GA 214: recommended Levels of Finish Quick Reference Guide”
   3. Underwriters Laboratories.
   4. ASTM
      a. ASTM C36 fire-rated and non-rated gypsum wallboard.
      b. ASTM C630 for water-resistant wallboard.
      c. ASTM C931 for exterior grade ceiling wallboard.
      d. ASTM C79 for exterior grade gypsum sheathing.
      e. ASTM C479 for type and joint compound.
      f. ASTM C645, A568, A525 for galvanized steel studs;NA
      g. ASTM C10002, C954 for drywall screws.

PART 2 - PRODUCT

2.1 GENERAL

A. Materials shall meet the requirements and standards noted herein and may be from approved manufacturers, based on the submittal process noted. Manufacturer’s include:
   1. National Gypsum
   2. GP Gypsum
   3. USG
   4. Fry Reglet
   5. MarinoWare
   6. DaleIncor
   7. Studco
B. Gypsum based materials and metal framing materials of the same type and specification shall be from the same manufacturer; do not mix manufacturers.
C. Reveal trim/accessories shall be from the same manufacturer; do not mix manufacturers.
D. MATERIALS
   1. Fasteners
      a. Fasteners include:
         1) Drywall screws for steel framing; Type-S, case-hardener steel with Philips head, minimum 1 inch long AND of sufficient length to penetrate a minimum of 3/8” into framing, self-drilling and self-tapping.
         2) Drywall nails shall not be used under any circumstances.
   2. Accessories
      a. Accessories include:
         1) Corner bead; all-metal hot dipped galvanized steel with minimum 1 ¼” flange widths.
         2) Paper tape-edge corner bead will not be acceptable.
         3) Control joint: .093 zinc control joint with mud flanges
         4) Trim:

a) 'L' shaped galvanized steel, angle edge trim/wallboard casing, with mud flange; Fry Reglet #DRML-50 for ½" gpdw, DRML-625 for 5/8" gpdw or equal shall be used in all locations subject to abuse. In other location, plastic trim from Trim-Tex or equal may be used. Paper-edge taped bead will not be acceptable.
b) 'J'-shaped galvanized steel, angle edge trim/wallboard casing, with mud flange.
c) NOTE THAT J-BEAD SHALL NOT BE USED IN ANY APPLICATION WHERE EXPOSED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE ARCHITECT.
d) Reveal molding for exterior soffit work, where shown and noted: Fry Reglet 'F' reveal #FDM series, 'W' reveal #WDM series, as necessary, or approved equal.
e) Reveal Bead/trim, typical, unless otherwise noted and where shown and noted: Fry Reglet #DRMZ-50-50 for ½" gpdw, DRMZ-625-50 for 5/8" gpdw, or approved equal
f) 'U'-shaped reveal bead; Fry Reglet #DRM-50- 50 for ½" gpdw, DRM-625-50 for 5/8" gpdw, or approved equal

5) All joint compound and type shall be product of one manufacturer, shall be as recommended by the manufacturer and GA for that product and as required to produce the specified finish and shall include:
a) Chemically-hardening type compound for tape bedding and exterior ceiling board.
b) Vinyl-type for finishing work.

3. Gypsum-Based Drywall Wall Board (GPDW): Gypsum wallboard in thicknesses and in locations shown and noted in the Drawings, including:
a. Non-rated wall and ceiling assemblies, as noted on the schedules, and as noted below:
1) GRADE/TYPE R-REGULAR, GOLD BOND FIRESHIELD, TAPERED EDGE; 5/8" OR APPROVED EQUAL
2) ½" OF SAME BEHIND FRP SYSTEM
4. Walls and Ceilings of all shower enclosures that will receive pre-fabricated bath or shower enclosures and will receive tile: ½" JAMES HARDIE HARDIE BACKER OR APPROVED EQUAL
5. Walls of all locker room and family changing wall that will receive tile: ½" JAMES HARDIE HARDIE BACKER OR APPROVED EQUAL.
6. Walls of all locker room and family changing rooms that will not receive tile: GOLD BOND eXP INTERIOR EXTREME IR OR AR OR APPROVED EQUAL; 5/8"
7. Walls and ceiling of Filter Room: GOLD BOND eXP INTERIOR EXTREME IR OR AR OR APPROVED EQUAL; 5/8"
8. Walls and ceilings of bathrooms not covered with cement-slurry board, tile backer board or tile: STANDARD, TAPERED EDGE, MOISTURE RESISTANT 'GREEN BOARD' OR APPROVED EQUAL; 5/8"

PART 3 - EXECUTION

3.1 STEEL AND FRAMING: NA

3.2 GYPSUM DRYWALL PREPARATION

A. Store all products in the space in they will be applied for minimum 24 hours prior to commencing drywall work.
B. Inspect all framing and back-up members to insure that they are aligned, straight, plumb, level and securely fastened together and to the building structure. Replace and otherwise repair all such members as necessary prior to wallboard installation.

C. Prior to wallboard installation, insure that all job conditions, including framing and back-up members are in conformance with all manufacturer's instructions and recommendations. Correct any non-conforming framing or other deficiencies.

3.3 GPDW-GENERAL

A. All soffits and beams shall be as noted. It is the intention of the architectural design that beam and corners shall align with piers, columns and wall corners to produce clean internal-type corners, with all faces of adjacent surfaces in correct alignment, without overlap or plane changes. Contractor shall notify Architect prior to installing gpdw, of any discrepancies or framing conditions that will prevent installation and finishing to this condition. Finished work that does not conform to the design WILL NOT be accepted.

B. FINISH LEVELS: The finish levels noted on the Product Schedule for Finish are intended to indicate the level of finish required for the work of this section by location and by paint sheen finish. The finish levels are based on the recommendations prepared by the Gypsum Association and related industry groups. Contractor shall review and verify the finish levels and shall request clarification from the Architect for the finish level of any area or surface that is not noted.

1. Walls to be finished with tile or similar materials and which require the joints to be sealed; Level 2. Note that taping of joints in board materials that will receive tile shall be made with mesh tape bedded in the setting material of the tile; joint compound and/or paper tape will not be acceptable.
2. Non-accessible walls such as attic demising walls; GA Level 2 or better
3. Filter room: GA Level 3-4
4. Locker Rooms and Family Changing Rooms: GA Level 4 minimum GPDW finish. Provide GA Level 4-5 finish on any painted wall sections that are greater than 36" in length.
5. GA Level 4 Minimum on all other surfaces, U.O.N.

3.4 WALLBOARD INSTALLATION

A. All installation shall be in conformance with GA and wallboard manufacturer's standards.

B. Apply ceiling prior to wall application.

C. Place wallboard with long dimension at right angles to ceiling framing.

D. Wallboard may be placed with long dimension at right angles parallel to wall framing.

E. All abutting edges shall occur over framing or shall be back-blocked, except where the layers of laminated system occur.

F. All joints shall be staggered with respect to those in adjacent rows or to those in opposite face of partitions and on layers of laminated system and unless otherwise noted in wall type details.

G. Cut wallboard accurately so as to fit tightly around all penetrations.

H. Attach panels to framing in accordance with all applicable Codes, Standards and manufacturers' instructions.

I. Screws shall not penetrate or break wallboard face-paper. Remove any screws that do penetrate and add a new screw immediately beside the hole.

3.5 FINISHING

A. All finishing shall be in conformance with GA standards and levels of finish noted above.

B. Finishing shall include the taping of all joints, installation of all necessary metal accessories, the concealment with adhesive of such joints, heads of fasteners and flanges of metal accessories and the sanding smooth of all areas to prepare them to receive paint and other decorative coatings. All joints and fasteners shall be made invisible, unless otherwise noted.

C. Provide corner bead at all external corners. Provide stop-head as shown and noted in the Drawings. Provide stop-head or control joint, as recommended by manufacturer, at all joints where wallboard abuts masonry and bearing walls and where wallboard abuts flush wall and ceiling surfaces. Provide reveal bead/trim as shown and noted on the Drawings and herein.

D. Provide trim details at all door jambs and at all windows as shown and noted on the Drawings and herein.

E. Workmanship shall include the following and as noted above in levels of finish; the stricter requirements of each spec section shall be adhered to:
   1. Tape shall be centered over joints and fully embedded in joint compound:
   2. Cover tape with sufficient compound to fill all recesses and extend to feather edge outside of tape edge.
   3. All fastener heads and dimples shall receive minimum 2 coat treatment of joint compound.
   4. Extreme care shall be taken to insure a smooth finish with minimum amount of sanding between coats to prevent face-paper damage.
   5. Proper drying time shall be allowed between successive coats.
   6. Inspect all drywall, taping and patching work after paint prime coat(s) has been applied by using a light source, held obliquely to the wall surface or other methods recommended by GA. Repair, refinish and patch all damage or inadequately finished surfaces to ensure a smooth surface free of blemishes and irregularities. All repair/point-up/corrective work shall have colored chalk or other colorant lightly mixed into the compound to allow the repair work to be verified and differentiated from work underneath.
   7. Protect drywall work after installation and prime coat. Inspect and patch all damaged areas prior to application of finish paint and decorative coatings.

END OF SECTION 09 29 00

PART 1 - GENERAL

1.1 INCORPORATION

A. The Supplementary Conditions (Section 011000) are hereby made a part of this Specification section and the provisions set forth herein shall apply to all labor, materials, equipment, etc. provided as part of the work of individual sections UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES.

B. EXTENT OF WORK

1. Work in this section includes providing ceramic tile, stone and thresholds, as shown and noted in the Drawings and Specifications, and includes all, screws, fasteners, sealants and items necessary for finish, whether or not actually mentioned.
2. Minor details, including but not limited to fasteners, blocking, etc. not usually drawn or specified, but necessary for the proper installation and operation of the system(s) shall be provided as if herein specified or drawn.
3. Work includes:
   a. Ceramic tile work in Locker Rooms and Family Changing Rooms as noted in the Product Schedule for Finish and as follows:
      1) Walls of the above where noted
      2) Walls above pre-fabricated showers
      3) Ceilings above prefabricated showers
   b. See spec 09 29 00 for substrate requirements, whether provided under work of that section or this section.

1.2 REFERENCES

A. Comply with current editions and applicable Specifications of the following:
1. American Society for Testing and Materials (ASTM).
2. American National Standards Institute (ANSI).
3. Tile Council of North America (TCNA) Handbook for Ceramic Tile Installation.

1.3 QUALITY

A. All items, materials and devices shall be new, clean and free from defects.
B. Inspect all materials upon delivery, prior to and during installation.
C. Replace, do not repair any defective items.

1.4 STORAGE AND HANDLING

A. All devices and materials shall be stored so as to prevent damage.

1.5 SUBSTITUTIONS, SUBMITTALS AND SHOP DRAWINGS

A. Shop Drawing/Submittals shall be in accordance with section 01 10 00.
B. Contractor shall provide the following submittals:
1. (2) 12”x24 sample of each tile type specified and (1) 12”x12” sheet of mosaic tile selected
2. The Architect and/or Owner shall review this sample. After approval of the sample, the sample shall be marked clearly as a field sample submittal and protected against damage. All other tile shall match this sample.
3. Schlutter tile trim accessories
4. APDS and MDSS for all setting materials, grout and similar materials. Documentation shall confirm suitability of materials for installation in a space that may be subject to freezing.

1.6 ALLOWANCES, UNIT PRICES AND ALTERNATES

A. Provide the following UNIT PRICE:
1. Installed cost per SF of the 12x24 wall tile specified

PART 2 - PRODUCT

2.1 MANUFACTURERS

A. Daltile is the BOD. Other manufacturers are acceptable, subject to the substitution requirements and the Architect and Owner's agreement that the proposed tile is equal to or better in every way than the specified tile and that it is visually equal to or better than the specified tile.

2.2 MATERIALS: Tile shall be provided as shown and noted in the Drawings and Schedule and specified herein, including:

A. Wall tile T-1:
   1. DALTILE: COLORBODY PORCELAIN, MATTE, INTENDED FOR AREAS WHERE FREEZE MAY BE POSSIBLE, 3/16" JOINT, WA+<0.5%,BREAKING STRENGTH = >275 LBS, SCRATCH HARDNESS = 8.0, CHEMICAL RESISTANT.
   2. COLOR: #IL-47: STAGE
   3. 5/16" THICK, 12"X 24"

A. Shower ceiling tile T-2:
   1. DALTILE: COLORBODY PORCELAIN, MATTE, INTENDED FOR AREAS WHERE FREEZE MAY BE POSSIBLE, 3/16" JOINT, WA+<0.5%,BREAKING STRENGTH = >275 LBS, SCRATCH HARDNESS = 8.0, CHEMICAL RESISTANT
   2. COLOR: #IL-45; LUMEN
   3. 5/16" THICK, 3"X3" IN 12"X12" SHEETS

B. Setting materials include:
   1. INSTALL OVER MAPEI KERABOND/KERALASTIC MORTAR SYSTEM. OTHER MANUFACTURERS WILL BE CONSIDERED IF DOCUMENTATION CONFIRMS SUITABILITY FOR INSTALLATION IN A SPACE THAT MAY BE SUBJECT TO FREEZING

C. Grout materials include:
   1. Sanded grout for all non- glazed ceramic floor tiles, unless otherwise recommended by the tile manufacturer;
   2. G-1 for T-1: LATICRETE SPECTRALOCK PRO PREMIUM, NON-SAG, EPOXY GROUT OR LATICRETE SPECTRALOCK 200 IG, NON-SAG EPOXY GROUT OR APPROVED EQUAL; #24; NATURAL GREY
   3. G-2 for T-2: LATICRETE SPECTRALOCK PRO PREMIUM, NON-SAG, EPOXY GROUT OR LATICRETE SPECTRALOCK 200 IG, NON-SAG EPOXY GROUT OR APPROVED EQUAL; #90: LIGHT PEWTER

D. See Product Schedule for Finish for additional information and requirements.

E. Provide field-applied silicone joint sealant to all grout joints in tiles located in public areas. The use of epoxy-modified grout or grout with other admixtures shall not relieve the Contractor from the responsibility of sealing the joints unless manufacturer confirms that sealant is not required for epoxy based systems and otherwise agreed in advance by the Architect during the submittal process.

PART 3 - EXECUTION

3.1 INSTALLATION AND WORKMANSHIP

A. All tile shall be installed according to TCA recommendations.

B. Prior to commencing with tile installation verify that all floor, substrate and wall surfaces are level and plumb within the following approximate tolerances:

C. Subfloor maximum variation -1/4" in 10 feet.

D. Vertical surfaces maximum variation -1/4" in 8 feet.

E. Wall tile around built-in showers shall be brought to within maximum 3/16" of the tub top; the remaining gap shall be filled with compatible sealant; do not grout the gap.

F. Tile shower floors shall include waterproofing membrane laid over substrate and covered with a mortar/concrete bed sloped to the drain on all four sides and with minimum thickness of 1"

G. Layout lines shall be prepared to insure that the tiles are set in the alignment and pattern indicated on the Drawings. If no alignment is indicated, the pavers shall be set square to the adjacent wall.
H. Tile layout shall be started with full tiles in the most visible locations; make-up and/or partial tiles shall be placed in locations that are the least visible. If no pattern is indicated on the Drawings, the installer and/or Contractor shall verify the layout with the Architect prior to beginning work.
I. Tiles shall be set firmly and evenly in a full setting bed and beaten in as required by the manufacturer.
J. Setting bed trowel grooves shall be as recommended by the manufacturer for the tile size and material.
K. All tiles shall be set so as to create a uniform, consistent surface with uniform grout joint spaces and with all tiles set in plane with adjacent tiles and without noticeable variation in planarity.
L. After initial tile installation, protect surface, as necessary, to allow complete and adequate curing of the surface. Fully clean all pavers of grout, dirt and other deleterious matter.
M. Contractor shall replace any tiles that are damaged or whose bond is broken as part of the Punch List work noted in Spec 01 10 00.

END OF SECTION 09 30 00

SECTION 09 50 00 - ACOUSTICAL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general conditions of Contract, including General and Supplementary Conditions and Divisions-1 Specification sections apply to work of this section.

1.2 SUMMARY

A. Section Includes
   1. Acoustical ceiling panels
   2. Exposed grid suspension system
   3. Wire hangers, fasteners, main runners, cross tees, and wall angle moldings
   4. Perimeter Trim
   5. Attic access panels whether provided by ACT vendor or others

B. Related Selections
   1. Section 09 29 00 - GPDW
   2. Divisions 23 - HVAC Air Distribution
   3. Division 26 - Electrical

C. Proposed Product Substitution
   1. Submittals that do not provide adequate data for the product evaluation will not be considered. The proposed substitution must meet all requirements of this section and section 01 10 00, including but not necessarily limited to, the following: Single source materials suppliers (if specified in Section 1.5); Underwriters' Laboratories Classified Acoustical performance; Panel design, size, composition, color, and finish; Suspension system component profiles and sizes; Compliance with the referenced standards.

1.3 REFERENCES

A. American Society for Testing and Materials (ASTM):
   1. ASTM A 1008 Standard Specification for Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability
   2. ASTM A 641 Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire
   3. ASTM A 653 Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) by the Hot-Dip Process
   4. ASTM C 423 Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method
   5. ASTM C 635 Standard Specification for Metal Suspension Systems for Acoustical Tile and Lay-in Panel Ceilings
   6. ASTM C 636 Recommended Practice for Installation of Metal Ceiling Suspension Systems for Acoustical Tile and Lay-in Panels
   7. ASTM D 3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber
   8. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
   9. ASTM E 119 Standard Test Methods for Fire Tests of Building Construction and Material
      a. Armstrong Fire Guard Products or approved similar.
   10. ASTM E 580 Installation of Metal Suspension Systems in Areas Requiring Moderate Seismic Restraint
   11. ASTM E 1111 Standard Test Method for Measuring the Interzone Attenuation of Ceilings Systems
   12. ASTM E 1414 Standard Test Method for Airborne Sound Attenuation Between Rooms Sharing a Common Ceiling Plenum
   13. ASTM E 1264 Classification for Acoustical Ceiling Products

B. International Building Code

C. ASHRAE Standard 62.1-2004, Ventilation for Acceptable Indoor Air Quality

D. NFPA 70 National Electrical Code

E. ASCE 7 American Society of Civil Engineers, Minimum Design Loads for Buildings and Other Structures
F. International Code Council-Evaluation Services - AC 156 Acceptance Criteria for Seismic Qualification Testing of Non-structural Components
G. International Code Council-Evaluation Services Report - Seismic Engineer Report
   1. ESR 1308 - Armstrong Suspension Systems
H. International Association of Plumbing and Mechanical Officials - Seismic Engineer Report
   1. 0244 - Armstrong Single Span Suspension System
I. California Department of Public Health CDPH/EHLB Emission Standard Method Version 1.1 2010

1.4 SYSTEM DESCRIPTION
A. Continuous/Wall-to-Wall
B. Dropped ceiling portions and GPDW bulkheads as shown and noted in the drawings.

1.5 SUBMITTALS
A. Product Data: Submit manufacturer's technical data for each type of acoustical ceiling unit and suspension system required.
B. Samples: Minimum 6 inch x 6 inch samples of specified acoustical panel; 8 inch long samples of exposed wall molding and suspension system, including main runner and 4 foot cross tees.
C. Shop Drawings: Layout and details of acoustical ceilings show locations of items that are to be coordinated with, or supported by the ceilings. OPTIONAL
D. Certifications: Manufacturer's certifications that products comply with specified requirements, including laboratory reports showing compliance with specified tests and standards. For acoustical performance, each carton of material must carry an approved independent laboratory classification of NRC, CAC, and AC.

1.6 QUALITY ASSURANCE
A. Single-Source Responsibility: Provide acoustical panel units and grid components by a single manufacturer.
B. Fire Performance Characteristics: Identify acoustical ceiling components with appropriate markings of applicable testing and inspecting organization.
   1. Surface Burning Characteristics: As follows, tested per ASTM E 84 and complying with ASTM E 1264 Classification: Fire Class A
C. Coordination of Work: Coordinate acoustical ceiling work with installers of related work including, but not limited to building insulation, gypsum board, light fixtures, mechanical systems, electrical systems, and sprinklers, if provided.

1.7 DELIVERY, STORAGE AND HANDLING
A. Deliver acoustical ceiling units to project site in original, unopened packages and store them in a fully enclosed space where they will be protected against damage from moisture, direct sunlight, surface contamination, and other causes.
B. Before installing acoustical ceiling units, permit them to reach room temperature and a stabilized moisture content.
C. Handle acoustical ceiling units carefully to avoid chipping edges or damaged units in any way.

1.8 PROJECT CONDITIONS
A. Space Enclosure:
   1. Standard Ceilings: Do not install interior ceilings until space is enclosed and weatherproof; wet work in place is completed and nominally dry; work above ceilings is complete; and ambient conditions of temperature and humidity are continuously maintained at values near those intended for final occupancy. Building areas to receive ceilings shall be free of construction dust and debris.
   2. HumiGuard Plus Ceilings: Building areas to receive ceilings shall be free of construction dust and debris. Products with HumiGuard Plus performance and hot dipped galvanized steel, aluminum or stainless steel suspension systems can be

installed up to 120°F (49°C) and in spaces before the building is enclosed, where HVAC systems are cycled or not operating. Cannot be used in exterior applications where standing water is present or where moisture will come in direct contact with the ceiling

3. HumiGuard Max Ceilings: Building areas to receive ceilings shall be free of construction dust and debris. Ceilings with HumiGuard Max performance can be installed in conditions up to 120°F (49°C) and maximum humidity exposure including outdoor applications, and other standing water applications, so long as they are installed with either SS Prelude Plus, AL Prelude Plus, or Prelude Plus Fire Guard XL suspension systems. Products with Humiguard Max performance can be installed in exterior applications, where standing water is present, or where moisture will come in direct contact with the ceiling. Only Ceramaguard with AL Prelude Plus suspension system can be installed over swimming pools.

1.9 WARRANTY

A. Acoustical Panel: Submit a written warranty executed by the manufacturer, agreeing to repair or replace panels that fail within the warranty period. Failures include, but are not limited to the following:
   1. Acoustical Panels: Sagging and warping
   2. Grid System: Rusting and manufacturer's defects
B. Warranty Period:
   1. Acoustical panels: One (1) year from date of substantial completion
   2. Grid: Ten years from date of substantial completion
C. The Warranty shall not deprive the Owner of other rights the Owner may have under other provisions of the Contract Documents and will be in addition to and run concurrent with other warranties made by the Contractor under the requirements of the Contract Documents.

1.10 MAINTENANCE

A. Extra Materials: Deliver extra materials to Owner. Furnish extra materials described below that match products installed. Package with protective covering for storage and identified with appropriate labels.
   1. Acoustical Ceiling Units: Furnish quality of full-size units equal to 5.0 percent of amount installed.
   2. Exposed Suspension System Components: Furnish quantity of each exposed suspension component equal to 2.0 percent of amount installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Armstrong World Industries is the BOD. Other manufacturers may be considered subject to the substitution requirements.
B. Ceiling Panels:
   1. Armstrong World Industries, Inc.
C. Suspension Systems:
   1. Armstrong World Industries, Inc.
D. Perimeter Systems
   1. Armstrong World Industries, Inc.

2.2 ACOUSTICAL CEILING UNITS

A. Acoustical Panels: Locker and Family Changing Rooms: ARMSTRONG 5/8"" CERAMAGUARD, FINE-FISSURED PERFORATED PANELS #607, 24X24, SQUARE LAY-IN WITH BRIGHT-WHITE GRID, WITH NRC = .55, , CAC = 38, WITH LR = .79 WITH HUMIGUARD MAX OR APPROVED EQUAL. FOR USE WITH ARMSTRONG PRELUDE SUSPENSION SYSTEM (15/16" WIDE AND 1 11/16" HIGH)
B. Acoustical Panels: Other Spaces: ARMSTRONG 3/4" ULTIMA PANELS #1910, 24X24, SQUARE LAY-IN WITH BRIGHT-WHITE GRID, WITH NRC = .75, CAC = 35, LR = .88 WITH HUMIGUARD PLUS OR APPROVED EQUAL. FOR USE WITH ARMSTRONG PRELUDE SUSPENSION SYSTEM (15/16" WIDE AND 1 11/16" HIGH)

2.3 ACCESS PANELS

A. Whether provided under this section by ACT subcontractor/vendor or by others, provide attic access panels in locations shown and noted in the Drawings
   1. Best Door BA-KSTE-24-48; 24”x48” drop down access panel to fit within the grid and be covered with (2) 24x24 tiles, or approved equal.

2.4 METAL SUSPENSION SYSTEMS

A. Main beams and cross tees, base metal and end detail, fabricated from commercial quality hot dipped galvanized steel complying with ASTM A 653. Main beams and cross tees are double-web steel construction with exposed flange design. Exposed surfaces chemically cleansed, capping prefinished galvanized steel in baked polyester paint. Main beams and cross tees shall have rotary stitching.
   1. Structural Classification: ASTM C 635 normal duty
   2. Color: Blizzard White and match the actual color of the selected ceiling tile, unless noted otherwise.
   3. Acceptable Product: ARMSTRONG PRELUDE SUSPENSION SYSTEM (15/16” WIDE AND 1 11/16” HIGH) as manufactured by Armstrong World Industries

B. Size for five times design load indicated in ASTM C 635, Table 1, Direct Hung unless otherwise indicated.

C. Wire for Hangers and Ties: ASTM A 641, Class 1 zinc coating, soft annealed, with a yield stress load of at least time three design load, but not less than 12 gauge.

D. Edge Moldings and Trim: 7875 - 10ft Shadow Molding

E. Accessories, as necessary include:
   1. ALBERC2 - aluminum systems - 2" Aluminum Beam End Retaining Clip
   2. BERC2 - steel - 2" Beam End Retaining Clip
   3. BERC - Beam End Retaining Clip
   4. SJMR15 - Seismic Joint Clip - Main Beam - 15/16" Suspensions
   5. SJMR09 - Seismic Joint Clip - Main Beam - 9/16" Suspensions
   6. SJCG - PeakForm Suspension - Seismic Joint Clips CT
   7. SJCSI - Square Bulb Suspension - Seismic Joint Clip CT
   8. ES4 - for 15/16" Prelude Expansion Sleeves
   9. ES49 - for 9/16" Suprafine
   10. ES76004 for 1/4" Silhouette Suspension
   11. ES76008 - for 1/8" Silhouette Suspension
   12. STAC - Single Tee Adapter Clip
   13. 7445 - 48" Stabilizer bar - not required when using the BERC2
   14. 7425 - 24" Stabilizer bar - not required when using the BERC2

PART 3 - EXECUTION

3.1 EXAMINATION

A. Do not proceed with installation until all wet work such as concrete, terrazzo, plastering and painting has been completed and thoroughly dried out, unless expressly permitted by manufacturer's printed recommendations. (Exception: HumiGuard Max Ceilings)

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical units to balance border widths at opposite edges of each ceiling. Avoid use of less than half width units at borders, and comply with reflected ceiling plans. Coordinate panel layout with mechanical and electrical fixtures.

B. Confirm that GPDW bulkheads that ACT system abuts are in place and at the correct heights to achieve the details and relationships noted in the drawings.

3.3 INSTALLATION

A. Follow manufacturer installation instructions.

B. Install suspension system and panels in accordance with the manufacturer's instructions, and in compliance with ASTM C 636 and with the authorities having jurisdiction.

C. Suspend main beam from overhead construction with hanger wires spaced 4-0 on center along the length of the main runner. Install hanger wires plumb and straight.
D. Install wall moldings at intersection of suspended ceiling and vertical surfaces, including at GPDW bulkhead vertical surfaces. Miter corners where wall moldings intersect or install corner caps.
E. For reveal edge panels: Cut and reveal or rabbet edges of ceiling panels at border areas and vertical surfaces.
F. Install acoustical panels in coordination with suspended system, with edges resting on flanges of main runner and cross tees. Cut and fit panels neatly against abutting surfaces. Support edges by wall moldings.

3.4 ADJUSTING AND CLEANING

A. Replace damaged and broken panels.
B. Clean exposed surfaces of acoustical ceilings, including trim, edge moldings, and suspension members. Comply with manufacturer's instructions for cleaning and touch up of minor finish damage. Remove any ceiling products that cannot be successfully cleaned and or repaired. Replace with attic stock or new product to eliminate evidence of damage.

END OF SECTION 09 50 00

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Resinous Systems of the Following Types:
1. Sherwin-Williams HPF, Resuflor Deco Quartz BC23.
2. Note that flooring turns up as coved base per SW standard details with varying heights, depending on space. Refer to Product Schedule for Finish for additional information.
3. Installed system shall be slip-resistant.

1.2 RELATED SECTIONS

A. Section 03300 – Cast-In-Place Concrete.

1.3 REFERENCES

A. ASTM International (ASTM):
1. ASTM C 29 / C 29M - Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate.
2. ASTM C 128 - Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate.
3. ASTM C 413 - Standard Test Method for Absorption of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.
4. ASTM C 566 - Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying.
5. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
6. ASTM D 695 - Standard Test Method for Compressive Properties of Rigid Plastics.
7. ASTM D1475 - Standard Test Method For Density of Liquid Coatings, Inks, and Related Products.
8. ASTM D 2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
9. ASTM D 2240 - Standard Test Method for Rubber Property—Durometer Hardness.
10. ASTM D 2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
11. ASTM D2369 - Standard Test Method for Volatile Content of Coatings.
12. ASTM D 2370 - Standard Test Method for Tensile Properties of Organic Coatings.
13. ASTM D 3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
14. ASTM D 4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
15. ASTM D 4366 - Standard Test Methods for Hardness of Organic Coatings by Pendulum Damping Tests
16. ASTM D5441 - Standard Test Method for Analysis of Methyl Tert-Butyl Ether (MTBE) by Gas Chromatography.
17. ASTM D 7234 - Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers.
18. ASTM F 1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
19. ASTM F 2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes

20. ASTM G 154 - Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials.
21. ASTM G 155 - Standard Practice for Operating Xenon Arc Light Apparatus for Exposure of Non-Metallic Materials.

B. Deutsches Institut fur Normung (DIN):
1. DIN 53460 – Testing of Plastics; Determination of the Vicat Softening Temperature of Thermoplastics.

C. International Concrete Repair Institute (ICRI):
1. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.

D. Military Specifications (MIL):
1. MIL-D-3134J - Deck Covering Materials.

E. National Floor Safety Institute (NFSI):
1. ANSI/NFSI B101.1 - Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials.

1.4 SUBMITTALS

A. Submit under provisions of Section 01 10 00.

B. Product Data:
1. Manufacturer's data sheets on each product to be used, including properites, VOC content, wet static coefficient of friction, compressive strength, tensile strength, eloongation and similar properties.
2. Preparation instructions and recommendations.
3. Storage and handling requirements and recommendations.
4. Typical installation methods.

C. Verification Samples: Two representative units of each system, including color and texture.

D. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.

E. Manufacturer’s Certification: Submit manufacturer’s certification that materials comply with specified requirements and are suitable for intended application.

F. Manufacturer’s Project References: Submit manufacturer’s list of successfully completed resinous flooring system projects, including project name and location, name of architect, and type and quantity of flooring systems furnished.

G. Applicator’s Project References: Submit applicator’s list of successfully completed resinous flooring system projects, including project name and location, name of architect, and type and quantity of flooring systems applied.

H. Care and Maintenance Instructions: Submit manufacturer’s care and maintenance instructions, including cleaning instructions.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.

B. Applicator's Qualifications:
   1. Applicator regularly engaged, for a minimum of 5 years, in application of resinous flooring systems of similar type to that specified.
   2. Employ persons trained for application of resinous flooring systems.

C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

D. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect's review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
   1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
   2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.
   3. Retain mock-up during construction as a standard for comparison with completed work.
   4. Do not alter or remove mock-up until work is completed or removal is authorized.

1.6 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and batch number.

B. Storage and Handling Requirements:
   1. Store and handle materials in accordance with manufacturer's instructions.
   2. Keep materials in manufacturer's original, unopened containers and packaging until application.
   3. Store materials in clean, dry area indoors between 65 and 80 degrees F (18 and 27 degrees C).
   4. Store materials out of direct sunlight.
   5. Keep materials from freezing.
   6. Protect materials during storage, handling, and application to prevent contamination or damage.

1.8 PROJECT CONDITIONS

A. Apply flooring system under the following ambient conditions:
   1. Ambient and Concrete Floor Temperatures: Between 65 and 85 degrees F (18 and 29 degrees C).
   2. Material Temperature: Between 65 and 85 degrees F (18 and 29 degrees C).
   3. Relative Humidity: Maximum 80 percent.
   4. Dew Point: Floor temperature more than 5 degrees over dew point.

B. Do not apply flooring system under ambient conditions outside manufacturer's limits.

C. Ensure that the concrete slab moisture level is acceptable to the manufacturer and that a under slab VDR/VB has been installed.

1.9 WARRANTY

A. Submit manufacturer's standard warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: The Sherwin-Williams High Performance Flooring, 866-540-1299 swflooring@sherwin.com Website: https://industrial.sherwin-williams.com/na/us/en/resin-flooring.html

B. Requests for substitutions will be considered in accordance with provisions of Section 01 10 00.

2.2 SHERWIN-WILLIAMS HPF, RESUFLOR DECO QUARTZ BC23

A. Resuflor Deco Quartz BC23.
1. Primer: Resuprime 3830/3835, 20 mils.
2. First Broadcast Coat with decorative quartz broadcast: Resuflor 3561 clear, 10-12 mils.
3. Second Broadcast Coat with decorative quartz broadcast: Resuflor 3561 clear, 15 mils.
4. Grout Coat: Resuflor UVE, 15 mils.
5. Topcoat: Armorseal Rexthane Clear 2 mils. With H&C Shark Grip 3.2 oz. per gallon.
6. Slip resistance additive: H&C Sharkgrip Slip-Resistant Additive
7. Color: Winter Sky

2.3 SYSTEM PROPERTIES

A. Resuflor Deco Quartz BC23
1. Abrasion Resistance, Taber Abraser CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions, ASTM D4060, 18 mg/loss
2. Adhesion to Concrete, psi [MPa], ASTM D4541, 450 [3.10] (concrete failed)
3. Adhesion to Concrete, psi [MPa[, ASTM D7234, 732 [4.48] (concrete failed)
4. Coefficient of Friction-COF, James Friction Tester, ASTM D2047, 0.63
5. Coefficient of Friction-Wet Static, BOT 3000, ANSI/NFSI B101.1, 0.94
6. Compressive Strength, psi [MPa], ASTM D695, 13,500 [93.079]
7. Flammabilitymm/min, ASTM D635, 182 mm/min
8. König Hardness, ASTM D22540, 171.3
9. Shore D hardness, ASTM D2240, 80-85 @ 0 sec | 75-80 @ 15 sec
10. Sward Hardness (1mil flim), ASTM D2240, 30-40
11. Tensile Strength, psi [MPa], ASTM D2370, 8,000 [55.158]
12. Percent Elongation (resin only), ASTM D2370, 6%
13. Volatile Organic Compound, VOC,lb/gal [g/l], ASTM D3960, Resuflor MPE A+B= 0.41 [49] Resuflor UVE A+B=0.67 [81] Resutile HTS 100 A+B+C=0.05 [6]
14. Water Absorption (24 hours0, ASTM D570, 0.2% weight increase

2.4 PRODUCT PROPERTIES

A. Resuflor 3561: A neutral, two-component, high solids epoxy.
   1. Percent Solids, by weight (by volume), ASTM D1475, A + B: 95.45 (94.56).
   2. Volatile Organic Compound-VOC, ASTM D3960, Mixed A + B: 0.41 lb./gal (49 g/L).
   3. Abrasion Resistance, mg loss, Taber Abraser, C-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions, ASTM D4060: 83.1.
   4. Coefficient of Friction-COF, James Friction Tester, ASTM D2047: 0.59-0.62.
   5. Adhesion to Concrete, ASTM D5441: 732 psi (4.48 MPa) concrete failed.
   6. Adhesion to Concrete, ASTM D7234: 450 psi (3.10 MPa) concrete failed.
   7. Compressive Strength, ASTM D695: 13,500 psi (93.079 MPa).
   8. Tensile Strength, ASTM D2370: 8,000 psi (55.158 MPa).
   9. Percent Elongation, ASTM D2370: 5.
   10. Shor D Hardness, ASTM D2240: 80-85 @ 0 sec, 75-80 @ 15 sec.

B. Resuflor UVE: A two-component, high solids, UV resistant epoxy.
   1. Percent Solids, by weight (by volume), ASTM D2369, A + B: 92.60 (92.11).
   2. Volatile Organic Compound-VOC, ASTM D3960, A + B: 0.67 lb./gal (81 g/L).
   3. Abrasion Resistance, mg loss, Taber Abraser, C-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions, ASTM D4060: 80-90.
   4. Coefficient of Friction-COF, James Fricion Tester, ASTM D2047: 0.59-0.62.
   5. Compressive Strength, ASTM D69: 13,500 psi (93,150 MPa).
   6. Tensile Strength, ASTM D2370: 8,000 psi (55,158 MPa).
   7. Present Elongation, ASTM D2370: 5.
   8. Shore D Hardness, ASTM D2240: 80-85 @ 0 sec, 70-85 @ 15 sec.

C. ArmorSeal Rexthane I MCU: A clear high solids, three-component, satin finish, aliphatic, moisture-cure urethane.
   1. Percent Solids, by weight (by volume), ASTM D2369: 67.
   2. Volatile Organic Compound-VOC, ASTM D3960, 2.8 lb/gal (<340g/L).
   3. Abrasion Resistance, mg loss, Taber Abraser, C-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions, ASTM D4060: 116.
   4. Coefficient of Friction-COF, ASTM C1028: 0.60.
   1. Color: Selected by Architect.

D. Provide Resuprime 3830 moisture vapor primer as recommend by the manufacturer for this installation and coordinate with any other recommended primers.

E. Decorative Quartz (Broadcast): Description, Color-coated, uniformly shaped and sized quartz granules
   1. Grain Size: 40 mesh.
   2. Mohs Hardness: 6.5-7.
   3. Bulk Density, ASTM C29, packed: 90-105 pcf.
   4. Specific Gravity, ASTM C128: 2.65.
   5. Moisture Content, ASTM C566: Less than 0.05 percent.
   6. Colorfastness/UV Stability, ASTM G155: 1,000 hours, pass.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine concrete surfaces to receive flooring system. Verify concrete is structurally sound.

B. Verify that wall substrate for cove base is installed and suitable for installation.

C. Moisture Testing of Concrete: Perform at least one of the following two tests to determine moisture in concrete. Type of test and frequence as recommended by manufacturer and installer.
   1. In-situ Probe Test:
      a. Measure relative humidity in concrete in accordance with ASTM F 2170.
      b. Application of flooring system shall start only if test results are below 75 percent relative concrete humidity.
      c. If test results are above limits, notify Architect and flooring manufacturer in writing.

D. Do not begin preparation or installation until satisfatory moisture test results are achieved. Provide flooring manufacturer's recommended moisture vapor control coating if required.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Protection of In-Place Conditions: Protect adjacent surfaces and adjoining walls from contact with flooring system materials.

C. Surface Preparation:
   1. Prepare concrete surface in accordance with manufacturer's instructions.
   2. Remove dirt, dust, debris, oil, grease, curing agents, bond breakers, paint, coatings, sealers, silicones, and other surface contaminants which could adversely affect application of flooring system.
   3. Steel shot blast concrete to a minimum surface profile of ICRI 310.2R, CSP 5.
   4. Key-cut termination points with 1/4-inch (6-mm) by 1/4-inch (6-mm) cut.
   5. Patch depressions, divots, and cracks in concrete in accordance with manufacturer's instructions.
   6. Mechanically remove loose, delaminated, and damaged concrete and repair in accordance with manufacturer's instructions.
   7. Joints: Fill joints in accordance with manufacturer's instructions.

3.3 INSTALLATION

A. Install flooring system in accordance with manufacturer's instructions and approved submittals at locations indicated on the Drawings.

B. Ensure concrete is dry, clean, and prepared in accordance with manufacturer's instructions.

C. Allow concrete to cure a minimum of 7 days before applying flooring system.

D. Mixing:
   1. Mix material components together in accordance with manufacturer's instructions.
   2. Mix only enough material that can be applied within working time.
   3. Add and mix colorants with materials in accordance with manufacturer's instructions to achieve uniform color.

E. Apply flooring system materials to obtain consistent mil thickness and smooth, uniform appearance and texture.

F. Overlay: Apply overlay in accordance with manufacturer's instructions. Apply overlay to prepared concrete surface.

G. Traction Aggregate: Broadcast traction aggregate in accordance with manufacturer's instructions. Broadcast traction aggregate into wet overlay.

H. Cove:
1. Apply cove primer and cove in accordance with manufacturer's instructions at locations indicated on the Drawings.
2. Apply cove to height and shape as indicated on the Drawings.
3. Apply cove to create seamless, smooth transition between flooring and walls.

I. Seal Coat:
1. Apply seal coat in accordance with manufacturer's instructions.
2. Apply seal coat over traction aggregate.

3.4 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

B. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.

3.5 CLEANING AND PROTECTION

A. Allow flooring system to dry in accordance with manufacturer's instructions before opening to traffic.

B. Allow flooring system to dry a minimum of 1 week before cleaning by mechanical means.

C. Protect completed flooring system from damage during construction.

END OF SECTION 09 67 23.1

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes:
   1. High-performance resinous flooring systems.
   2. Note that flooring turns up as coved base per SW standard details with varying heights, depending on space. Refer to Product Schedule for Finish for additional information.
   3. Installed system shall be slip-resistant.

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.
B. Installer Certificates for Qualification: Signed by manufacturer stating that installers comply with specified requirements.
C. Material Certificates: For each resinous flooring component, from manufacturer.
D. Maintenance Data: For maintenance manuals.
E. Samples: Submit two 6” X 6” samples of each resinous flooring system applied to a rigid backing. Provide sample which is a true representation of proposed field applied finish. Provide sample color and texture for approval from Owner in writing or approved by General Contractor prior to installation.
F. Product Schedule: For resinous flooring.

1.3 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of flooring systems required for this Project.
   1. Engage an installer who is approved in writing by resinous flooring manufacturer as qualified to apply resinous flooring systems indicated.
   2. Installer Letter of Qualification: Installer to provide letter stating that they have been in business for at least 5 years and listing 5 projects in the last 2 years of similar scope. For each project provide: project name, location, date of installation, contact information, size of project, and manufacturer of materials with system information.
B. Source Limitations: Obtain primary resinous flooring materials, including primers, resins, hardening agents, grouting coats, and topcoats, from single source from single manufacturer. Provide secondary materials, including patching and fill material, joint sealant, and repair materials, of type and from source recommended by manufacturer of primary materials.
C. Pre-installation Conference: Conduct conference at Project site before work and mockups begin.
D. Mockups: Apply mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution. Do not cover up mockup area.
   1. Apply full-thickness mockups on 16 square foot floor area selected by Architect.
   2. Finish surfaces for verification of products, color, texture, and sheen.
   3. Simulate finished lighting conditions for Architect's review of mockups.
   4. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
   5. Mockup shall demonstrate desired slip resistance for review and approval by Owner’s representative in writing.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials in original packages and containers, with seals unbroken, bearing manufacturer's labels indicating brand name and directions for storage and mixing with other components.
   1. Maintain containers in clean condition, free of foreign materials and residue.
   2. Remove rags and waste from storage areas daily.

1.5 PROJECT CONDITIONS

A. Environmental Limitations: Comply with resinous flooring manufacturer's written instructions for substrate temperature, ambient temperature, moisture, ventilation, and other conditions affecting resinous flooring application.
B. Lighting: Provide permanent lighting or, if permanent lighting is not in place, simulate permanent lighting conditions during resinous flooring application.
C. Close spaces to traffic during resinous flooring application and for not less than 24 hours after application unless manufacturer recommends a longer period.
D. Ensure that the concrete slab moisture level is acceptable to the manufacturer and that a under slab VDR/VB has been installed.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by:
1. The Sherwin Williams Company, Cleveland, OH. swflooring@sherwin.com

B. Resuflor Deco Flake BC, 20-30 mils nominal thickness.
1. Primer: Resuprime 3830/3835 at 20 mils.
2. Body Coat: Resuflor UVE at 200-300 sq. ft. per gallon.
3. Broadcast: Decorative Flakes 6750 or 6755 to excess at 100-200 lbs. per 1,000 sq. ft.
4. Grout Coat: Resuflor UVE at 150-200 sq. ft. per gallon.
5. Seal Coat: Armorseal Rexthane I MCU at 400-450 sq. ft. per gallon.
6. Slip resistance additive: H&C Sharkgrip Slip-Resistant Additive
7. Color: Modern Camo

2.2 MATERIALS

A. VOC Content of Resinous Flooring: Provide resinous flooring systems, for use inside the weatherproofing system, that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24)].
1. Resinous Flooring: 100 g/L.

B. Provide Resuprime 3830 moisture vapor primer as recommend by the manufacturer for this installation and coordinate with any other recommended primers.

2.3 HIGH-PERFORMANCE RESINOUS FLOORING

A. Resinous Flooring: Abrasion-, impact- and chemical-resistant, high-performance, resin-based, monolithic floor surfacing designed to produce a seamless floor.
B. System Characteristics:
1. Color and Pattern: As indicated from manufacturers listed above.
2. Slip Resistance: Provide slip resistant finish.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine concrete surfaces to receive flooring system.

B. Verify concrete is structurally sound.

C. Verify that wall substrate for cove base is installed and suitable for installation.

D. Moisture Testing of Concrete: Perform at least one of the following two tests to determine moisture in concrete. Type of test and frequence as recommended by manufacturer and installer.In-situ Probe Test:
   1. Measure relative humidity in concrete in accordance with ASTM F 2170.
   2. Application of flooring system shall start only if test results are below 75 percent relative concrete humidity.
   3. If test results are above limits, notify Architect and flooring manufacturer in writing.

E. Do not begin preparation or installation until satisfatory moisture test results are achieved. Provide flooring manufacturer's recommended moisture vapor control coating if required.

3.2 PREPARATION

A. Inspection: Prior to commencing Work, thoroughly examine all underlying and adjoining work, surfaces and conditions upon which Work is in any way dependent for perfect results. Report all conditions which affect Work. No "waiver of responsibility" for incomplete, inadequate or defective underlaying and adjoining work, surfaces and conditions will be considered, unless notice of such unsatisfactory conditions has been filed and agreed to in writing before Work begins. Commencement of Work constitutes acceptance of surfaces.

B. Surface Preparation: Remove all surface contamination, loose or weakly adherent particles, laitance, grease, oil, curing compounds, paint, dust and debris by blast track method or approved mechanical means (acid etch not allowed). If surface is questionable, try a test patch. Create a minimum surface profile for the system specified in accordance with the methods described in ICRI No. 03732 to achieve profile numbers as follows:

C.

1.	**Thin film, to 10 mils**	**CSP-1 to CSP-3**
2.	Thin and medium films, 10 to 40 mils	CSP-3 to CSP-5
3.	Self-leveling mortars, to 3/16”	CSP-4 to CSP-6
4.	Mortars and laminates, to 1/4” or more	CSP-5 to CSP-10

D. Verify that concrete substrates are dry and moisture-vapor emissions are within acceptable levels according to manufacturer's written instructions.
   1. Moisture Testing: Perform tests indicated below.
      a. Calcium Chloride Test: Perform anhydrous calcium chloride test per ASTM F 1869. Proceed with installation only after substrates have maximum moisture-vapor-emission rate of 3 lbs. of water/1000 sq. ft. in 24 hours. Perform tests so that each test area does not exceed 1000 sq. ft. and perform 3 tests for the first 1000 sq. ft. and one additional test for every additional 1000 sq ft.
      b. In-Situ Probe Test: Perform relative-humidity test using in-situ probes per ASTM F 2170. Proceed with installation only after substrates have a maximum 75 percent relative-humidity-level measurement.

3.3 ENVIRONMENTAL CONDITIONS

A. All applicators and all other personnel in the area of the RF installation shall take all required and necessary safety precautions. All manufacturers’ installation instructions shall be implicitly followed.

B. Repair damaged and deteriorated concrete according to resinous flooring manufacturer's written instructions.

C. Alkalinity and Adhesion Testing: Verify that concrete substrates have pH within acceptable range. Perform tests recommended by manufacturer. Proceed with application only after substrates pass testing.

D. Resinous Materials: Mix components and prepare materials according to resinous flooring manufacturer's written instructions.

E. Use patching and fill material to fill holes and depressions in substrates according to manufacturer's written instructions.
F. Treat control joints and other nonmoving substrate cracks to prevent cracks from reflecting through resinous flooring according to manufacturer's written instructions.

3.4 APPLICATIONS

A. Install resinous floor over properly prepared concrete surface in strict accordance with the manufacturer's directions.
   1. Install the primer and/or base coats over thoroughly cleaned and prepared concrete.
   2. Install topcoat over flooring after excess aggregate has been removed.
   3. Maintain a slab temperature of 60°F to 80°F for 24 hours minimum before applying floor topping, or as instructed by manufacturer.
B. Apply components of resinous flooring system according to manufacturer's written instructions to produce a uniform, monolithic wearing surface of thickness indicated.
   1. Coordinate application of components to provide optimum adhesion of resinous flooring system to substrate, and optimum intercoat adhesion.
   2. Cure resinous flooring components according to manufacturer's written instructions. Prevent contamination during application and curing processes.
   3. At substrate expansion and isolation joints, comply with resinous flooring manufacturer's written instructions.
C. Sealant: Saw cut resinous floor topping at expansion joints in concrete slab. Fill sawcuts with sealant prior to final seal coat application. Follow manufacturer’s written recommendations.
D. Apply primer over prepared substrate at manufacturer's recommended spreading rate.
E. Slip Resistant Finish: Provide grit for slip resistance.
F. Apply topcoats in number indicated for flooring system and at spreading rates recommended in writing by manufacturer.

3.5 COMPLETED WORK

A. Cleaning: Upon completion of the Work, clean up and remove from the premises surplus materials, tools, appliances, empty cans, cartons and rubbish resulting from the Work. Clean off all spattering and drippings, and all resulting stains.
B. Protection: Protect Work in accordance with manufacturer's directions from damage and wear during the remainder of the construction period. Use protective methods and materials, including temporary covering, recommended in writing by resinous flooring manufacturer.
C. Contractor shall insure that coating is protected from any traffic until it is fully cured to the satisfaction of the coating manufacturer.

END OF SECTION 09 67 23.2

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Resinous Systems of the Following Types:
   1. Sherwin-Williams HPF, Shop Floor SB.

1.2 RELATED SECTIONS

A. Section 03300 – Cast-In-Place Concrete.

1.3 REFERENCES

A. ASTM International (ASTM):
   1. ASTM C 413 - Standard Test Method for Absorption of Chemical-Resistant Mortars, Grouts, Monolithic Surfacings, and Polymer Concretes.
   2. ASTM D 635 - Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position.
   3. ASTM D 695 - Standard Test Method for Compressive Properties of Rigid Plastics.
   4. ASTM D1475 - Standard Test Method For Density of Liquid Coatings, Inks, and Related Products.
   5. ASTM D 2047 - Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
   6. ASTM D 2240 - Standard Test Method for Rubber Property—Durometer Hardness.
   7. ASTM D 2244 - Standard Practice for Calculation of Color Tolerances and Color Differences from Instrumentally Measured Color Coordinates.
   8. ASTM D2369 - Standard Test Method for Volatile Content of Coatings.
   9. ASTM D 2370 - Standard Test Method for Tensile Properties of Organic Coatings.
   10. ASTM D 3960 - Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings.
   11. ASTM D 4060 - Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.
   12. ASTM D5441 - Standard Test Method for Analysis of Methyl Tert-Butyl Ether (MTBE) by Gas Chromatography.
   13. ASTM D 7234 - Standard Test Method for Pull-Off Adhesion Strength of Coatings on Concrete Using Portable Pull-Off Adhesion Testers.
   14. ASTM F 1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
   15. ASTM F 2170 - Standard Test Method for Determining Relative Humidity in Concrete Floor Slabs Using in situ Probes
   16. ASTM G 154 - Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials.

B. Deutsches Institut fur Normung (DIN):
   1. DIN 53460 – Testing of Plastics; Determination of the Vicat Softening Temperature of Thermoplastics.

C. International Concrete Repair Institute (ICRI):
   1. ICRI 310.2R - Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.

D. Military Specifications (MIL):
   1. MIL-D-3134J - Deck Covering Materials.

E. National Floor Safety Institute (NFSI):
   1. ANSI/NFSI B101.1 - Test Method for Measuring Wet SCOF of Common Hard-Surface Floor Materials.

1.4 SUBMITTALS

A. Submit under provisions of Section 01300.

B. Product Data:
   1. Manufacturer's data sheets on each product to be used, including properites, VOC content, wet static coefficient of friction, compressive strength, tensile strength, eloongation and similar properties.
   2. Preparation instructions and recommendations.
   3. Storage and handling requirements and recommendations.
   4. Typical installation methods.

C. Verification Samples: Two representative units of each system, including color and texture.

D. Shop Drawings: Include details of materials, construction and finish. Include relationship with adjacent construction.

E. Manufacturer’s Certification: Submit manufacturer’s certification that materials comply with specified requirements and are suitable for intended application.

F. Manufacturer’s Project References: Submit manufacturer’s list of successfully completed resinous flooring system projects, including project name and location, name of architect, and type and quantity of flooring systems furnished.

G. Applicator’s Project References: Submit applicator’s list of successfully completed resinous flooring system projects, including project name and location, name of architect, and type and quantity of flooring systems applied.

H. Care and Maintenance Instructions: Submit manufacturer’s care and maintenance instructions, including cleaning instructions.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with a minimum five years documented experience.

B. Applicator’s Qualifications:
   1. Applicator regularly engaged, for a minimum of 5 years, in application of resinous flooring systems of similar type to that specified.
   2. Employ persons trained for application of resinous flooring systems.

C. Source Limitations: Provide each type of product from a single manufacturing source to ensure uniformity.

D. Mock-Up: Construct a mock-up with actual materials in sufficient time for Architect’s review and to not delay construction progress. Locate mock-up as acceptable to Architect and provide temporary foundations and support.
   1. Intent of mock-up is to demonstrate quality of workmanship and visual appearance.
   2. If mock-up is not acceptable, rebuild mock-up until satisfactory results are achieved.

3. Retain mock-up during construction as a standard for comparison with completed work.
4. Do not alter or remove mock-up until work is completed or removal is authorized.

1.6 PRE-INSTALLATION CONFERENCE

A. Convene a conference approximately two weeks before scheduled commencement of the Work. Attendees shall include Architect, Contractor and trades involved. Agenda shall include schedule, responsibilities, critical path items and approvals.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name, manufacturer, and batch number.

B. Storage and Handling Requirements:
1. Store and handle materials in accordance with manufacturer's instructions.
2. Keep materials in manufacturer's original, unopened containers and packaging until application.
3. Store materials in clean, dry area indoors between 65 and 80 degrees F (18 and 27 degrees C).
4. Store materials out of direct sunlight.
5. Keep materials from freezing.
6. Protect materials during storage, handling, and application to prevent contamination or damage.

1.8 PROJECT CONDITIONS

A. Apply flooring system under the following ambient conditions:
1. Ambient and Concrete Floor Temperatures: Between 65 and 85 degrees F (18 and 29 degrees C).
2. Material Temperature: Between 65 and 85 degrees F (18 and 29 degrees C).
3. Relative Humidity: Maximum 80 percent.
4. Dew Point: Floor temperature more than 5 degrees over dew point.

B. Do not apply flooring system under ambient conditions outside manufacturer's limits.

1.9 WARRANTY

A. Submit manufacturer's standard warranty.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer: The Sherwin-Williams High Performance Flooring, 866-540-1299 swflooring@sherwin.com Website: https://industrial.sherwin-williams.com/na/us/en/resin-flooring.html

B. Requests for substitutions will be considered in accordance with provisions of Section 01600.

2.2 SHERWIN-WILLIAMS HPF, RESUFLOR SHOP FLOOR SB

A. Resuflor Shop Floor SB
   1. Primer Coat: Resuflor MPE, 3-5 mils.
   2. Broadcast Coat with silica broadcast: Resuflor MPE, 10 mils.
   3. Grout Coat: Resuflor MPE, 15 mils.
   4. Topcoat: Resutile HTS 100, 3 mils.
   5. Color: As selected by Architect from manufacturer's full range.

2.3 SYSTEM PROPERTIES

A. Resuflor Shop Floor SB
   1. Abrasion Resitance, Taber Abraser CS-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions, ASTM D4060, 18 mg/loss
   2. Adhesion to Concrete, psi [MPa[, ASTM D4541, 450 [3.10] (concrete failed)
   3. Adhesion to Concrete, psi [MPa], ASTM D7234, 732 [4.48] (concrete failed)
   4. Coefficent of Friction-COF, James Friction Tester, ASTM D2047, 0.63
   5. Coefficient of Friction-Wet Static, BOT 3000, ASNI/NFSI B101.1, 0.94
   6. Compressive Strength psi [MPa], D695, 13,500 [93.079]
   7. Flammability, ASTM 635, 182 mm/min
   8. König Hardness (3 mil/0.08 mm film) (topcoat resin), ASTM D4366, 171.3
   9. Resistance to Yellowing as measured using ASTM D2244 after 1000 consecutive hours UV exposure in QUV, ASTM G154, <10 increase of yellowing units (CIE Lab Δb) if pigmented topcoat
   10. Shore D hardnes, ASTM D2240, 80-85 @ 0 sec | 75-80 @ 15 sec
   11. Sward Hardness (imm film), ASTM D2240, 35-40
   12. Tensil Strength, psi [MPa}, ASTM D2370, 8,000 [55.158]
   13. Percent Elongation (resin), ASTM D2370, 6%
   14. Volatile Organic Compound, VOC lb/gal [g/l], ASTM D3960, Resuflor MPE A+B=0.41 [49] Resutile HTS 100 A+B+C=0.05 [6]
   15. Water Absorption (25 hours), ASTM D570, 0.2% weight increase
   16.

2.4 PRODUCT PROPERTIES

A. Resuflor MPE: A neutral, two-component, high solids epoxy.
   1. Percent Solids, by weight (by volume), ASTM D1475, A + B: 95.45 (94.56).
   2. Volatile Organic Compound-VOC, ASTM D3960, Mixed A + B: 0.41 lb./gal (49 g/L).
   3. Abrasion Resistance, mg loss, Taber Abraser, C-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions, ASTM D4060: 83.1.
   4. Coefficient of Friction-COF, James Friction Tester, ASTM D2047: 0.59-0.62.
   5. Adhesion to Concrete, ASTM D5441: 732 psi (4.48 MPa) concrete failed.
   6. Adhesion to Concrete, ASTM D7234: 450 psi (3.10 MPa) concrete failed.
   7. Compressive Strength, ASTM D695: 13,500 psi (93.079 MPa).
   8. Tensile Strength, ASTM D2370: 8,000 psi (55.158 MPa).
   9. Percent Elongation, ASTM D2370: 5.
   10. Shor D Hardness, ASTM D2240: 80-85 @ 0 sec, 75-80 @ 15 sec.

B. Resutile HTS 100: A clear high solids, three-component, satin finish, aliphatic, moisture-cure urethane.
   1. Percent Solids, by weight (by volume), ASTM D2369, A + B + C: 94.02 (92.57).
   2. Volatile Organic Compound-VOC, ASTM D3960, Mixed A + B + C: 0.05 lb/gal (6 g/L).
   3. Abrasion Resistance, mg loss, Taber Abraser, C-17 Taber Abrasion Wheel, 1,000 gram load, 1,000 revolutions, ASTM D4060: 18.

4. Coefficient of Friction-COF, James Friction Tester, ASTM D2047: 0.63.
5. Wet Static Coefficient of Friction, BOT 3000, ANSI/NFSI B101.1: 0.94.
6. Flammability, ASTM G154: 182 mm/min.
7. Resistance to Yellowing as measured using ASTM D2244 after 1000 consecutive hours UV exposure in QUV, ASTM G154, <10 increase of yellow units (CIE Lab Δb)
8. Tensile Strength, (resin only), ASTM D2370: 6,250 psi (43,092 MPa).
9. Percent Elongation, (resin only), ASTM D2370: 6.
10. König Hardness, (3 mil/76.2 micron film), ASTM D4366: 171.3.
11. Water Absorption, 24-hour immersion, ASTM C413: 0.2 percent weight increase.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine concrete surfaces to receive flooring system. Verify concrete is structurally sound.

B. Moisture Testing of Concrete: Perform at least one of the following two tests to determine moisture in concrete. Type of test and frequence as recommended by manufacturer and installer.
   1. In-situ Probe Test:
      a. Measure relative humidity in concrete in accordance with ASTM F 2170.
      b. Application of flooring system shall start only if test results are below 75 percent relative concrete humidity.
      c. If test results are above limits, notify Architect and flooring manufacturer in writing.

C. Do not begin preparation or installation until satisfatory moisture test results are achieved. Provide flooring manufacturer's recommended moisture vapor control coating if required.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Protection of In-Place Conditions: Protect adjacent surfaces and adjoining walls from contact with flooring system materials.

C. Surface Preparation:
   1. Prepare concrete surface in accordance with manufacturer’s instructions.
   2. Remove dirt, dust, debris, oil, grease, curing agents, bond breakers, paint, coatings, sealers, silicones, and other surface contaminants which could adversely affect application of flooring system.
   3. Steel shot blast concrete to a minimum surface profile of ICRI 310.2R, CSP 5.
   4. Key-cut termination points with 1/4-inch (6-mm) by 1/4-inch (6-mm) cut.
   5. Patch depressions, divots, and cracks in concrete in accordance with manufacturer’s instructions.
   6. Mechanically remove loose, delaminated, and damaged concrete and repair in accordance with manufacturer’s instructions.
   7. Joints: Fill joints in accordance with manufacturer’s instructions.

3.3 INSTALLATION

A. Install flooring system in accordance with manufacturer’s instructions and approved submittals at locations indicated on the Drawings.

B. Ensure concrete is dry, clean, and prepared in accordance with manufacturer's instructions.

C. Allow concrete to cure a minimum of 7 days before applying flooring system.

D. Mixing:
1. Mix material components together in accordance with manufacturer's instructions.
2. Mix only enough material that can be applied within working time.
3. Add and mix colorants with materials in accordance with manufacturer's instructions to achieve uniform color.

E. Apply flooring system materials to obtain consistent mil thickness and smooth, uniform appearance and texture.

F. Overlay: Apply overlay in accordance with manufacturer's instructions. Apply overlay to prepared concrete surface.

G. Traction Aggregate: Broadcast traction aggregate in accordance with manufacturer's instructions. Broadcast traction aggregate into wet overlay.

H. Cove:
1. Apply cove primer and cove in accordance with manufacturer's instructions at locations indicated on the Drawings.
2. Apply cove to height and shape as indicated on the Drawings.
3. Apply cove to create seamless, smooth transition between flooring and walls.

I. Seal Coat:
1. Apply seal coat in accordance with manufacturer's instructions.
2. Apply seal coat over traction aggregate.

3.4 FIELD QUALITY CONTROL

A. Field Inspection: Coordinate field inspection in accordance with appropriate sections in Division 01.

B. Manufacturer's Services: Coordinate manufacturer's services in accordance with appropriate sections in Division 01.

3.5 CLEANING AND PROTECTION

A. Allow flooring system to dry in accordance with manufacturer's instructions before opening to traffic.

B. Allow flooring system to dry a minimum of 1 week before cleaning by mechanical means.

C. Protect completed flooring system from damage during construction.

END OF SECTION 09 67 23

SECTION 09 77 00 – FIBER REINFORCED WALL PANELS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Prefinished polyester glass reinforced plastic sheets and adhered to GPDW with Level 2 finish or untreated, primed and caulked plywood/OSB.
   1. PVC trim.

B. Products Not Furnished or Installed under This Section:
   1. Substrate

1.2 REFERENCES

A. American Society for Testing and Materials: Standard Specifications (ASTM)
   1. ASTM D 256 - Izod Impact Strengths (ft #/in)
   2. ASTM D 570 - Water Absorption (%)
   3. ASTM D 638 - Tensile Strengths (psi) & Tensile Modulus (psi)
   4. ASTM D 790 - Flexural Strengths (psi) & Flexural Modulus (psi)
   5. ASTM D 2583- Barcol Hardness
   6. ASTM D 5319 - Standard Specification for Glass-Fiber Reinforced Polyester Wall and Ceiling Panels.
   7. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

A. Product Data: Submit sufficient manufacturer's data to indicate compliance with these specifications, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

B. Shop Drawings: OPTIONAL Submit elevations of each wall showing location of paneling and trim members with respect to all discontinuities in the wall elevation.

C. Selection Samples: Submit sample of specified manufacturer’s standard color pattern and finish

D. Manufacturers Material Safety Data Sheets (MSDS) for adhesives, sealants and other pertinent materials prior to their delivery to the site (available as downloads for most Marlite’s products at http://www.marlite.com/tech-details.aspx or by contacting Marlite at info@marlite.com).

1.4 QUALITY ASSURANCE

A. Conform to building code requirements for interior finish for smoke and flame spread requirements as tested in accordance with:
   1. ASTM E 84 (Method of test for surface burning characteristics of building Materials)
      a. Wall Required Rating – Class [A] [C].

B. Sanitary Standards: System components and finishes to comply with:
   1. United States Department of Agriculture (USDA) / Food Safety & Inspection Services (FSIS) requirements for food preparation facilities, incidental contact.
   2. Food and Drug Administration (FDA) 2013 Food Code 6-101.11.
   3. Canadian Food Inspection Agency (CFIA) requirements.

1.5 DELIVERY, STORAGE AND HANDLING

A. Deliver materials factory packaged on strong pallets.

B. Store panels and trim lying flat, under cover and protected from the elements. Allow panels to acclimate to room temperature (range of 60 to 75°F) for 48 hours prior to installation.

1.6 PROJECT CONDITIONS

A. Environmental Limitations: Building are to be fully enclosed prior to installation with sufficient heat (70°) and ventilation consistent with good working conditions for finish work

B. During installation and for not less than 48 hours before, maintain an ambient temperature and relative humidity within limits required by type of adhesive used and recommendation of adhesive manufacturer.
   1. Provide ventilation to disperse fumes during application of adhesive as recommended by the adhesive manufacturer.

1.7 WARRANTY

A. Furnish one-year guarantee against defects in material and workmanship.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURER

A. Marlite; 1 Marlite Drive, Dover, OH 44622. 800-377-1221 FAX (330) 343-4668 Email: info@marlite.com www.marlite.com.

B. Product:
   1. Standard FRP; S100-S2S; smooth finish

2.2 PANELS

A. Fiberglass reinforced thermosetting polyester resin panel sheets complying with ASTM D 5319.
   1. Dimensions:
      a. Thickness – 0.090 “ (2.29mm) nominal
      b. Width - 4'-0” (1.22m) nominal
      c. Length – 10’-0” (3.0m) nominal; cut to fit above cove base
   2. Tolerance:
      a. Length and Width: +/-1/8 “ (3.175mm)
      b. Square - Not to exceed 1/8 “ for 8 foot (2.4m) panels or 5/32 “ (3.96mm) for 10 foot (2.4m) panels

B. Properties: Resistant to rot, corrosion, staining, denting, peeling, and splintering.
   1. Flexural Strength - 1.7 x 10^4 psi per ASTM D 790.
   2. Flexural Modulus – 6.0 x 10^5 psi per ASTM D 790.
   3. Tensile Strength – 8.0 x 10^3 psi per ASTM D 638.
   4. Tensile Modulus – 9.43 x 10^5 psi per ASTM D 638.
   5. Water Absorption - 0.17% per ASTM D 570.
   6. Barcol Hardness (scratch resistance) of 30 as per ASTM D 2583.

7. Izod Impact Strength of 7.0 ft. lbs./in ASTM D 256

C. Back Surface: Smooth. Imperfections which do not affect functional properties are not cause for rejection.

D. Front Finish: Marlite Standard FRP is available in a variety of colors, including;
1. S100 S/2/S White
2. Fire Rating Class C
3. Size:48x120

E. Provide following PVC trims in matching color:
1. FRP division trim at panel joints
2. FRP edge trim at panel bottom above epoxy cove base
3. FRP inside corner trim

2.3 ACCESSORIES

A. Fasteners: Non-staining nylon drive rivets.
1. Match panel colors.
2. Length to suit project conditions.

B. Adhesive: Either of the following construction adhesives complying with ASTM C 557.
1. Marlite C-551 FRP Adhesive - Water- resistant, non-flammable adhesive.
2. Marlite C-915 Construction Adhesive - Flexible, water-resistant, solvent based adhesive, formulated for fast, easy application.
3. Titebond Advanced Polymer Panel Adhesive – VOC compliant, non-flammable, environmentally safe adhesive.

C. Sealant:
1. Marlite Brand MS-250 Clear Silicone Sealant.
2. Marlite Brand MS-251 White Silicone Sealant.
3. Marlite Brand - Color Match Sealant.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine backup surfaces to determine that corners are plumb and straight, surfaces are smooth, uniform, clean and free from foreign matter, nails countersunk, joints and cracks filled flush and smooth with the adjoining surface.
1. Verify that stud spacing does not exceed 24” (61cm) on-center.

B. Repair defects prior to installation.
1. Level wall surfaces to panel manufacturer’s requirements. Remove protrusions and fill indentations.

3.2 INSTALLATION

A. Comply with manufacturer's recommended procedures and installation sequence.

B. Cut sheets to meet supports allowing 1/8” (3 mm) clearance for every 8 foot (2.4m) of panel.
1. Cut and drill with carbide tipped saw blades or drill bits, or cut with shears.
2. Pre-drill fastener holes 1/8” (3mm) oversize with high speed drill bit.

a. Space at 8” (200mm) maximum on center at perimeter, approximately 1” from panel edge.
b. Space at in field in rows 16’ (40.64cm) on center, with fasteners spaced at 12” (30.48 cm) maximum on center.

C. Apply panels to board substrate, above base, vertically oriented with seams plumb and pattern aligned with adjoining panels.
1. Install panels with manufacturer's recommended gap for panel field and corner joints.
a. Adhesive trowel and application method to conform to adhesive manufacturer’s recommendations.
b. Drive fasteners for snug fit. Do not over-tighten.

D. Apply panel moldings to all panel edges using silicone sealant providing for required clearances.
1. All moldings must provide for a minimum 1/8 “(3mm) of panel expansion at joints and edges, to insure proper installation.
2. Apply sealant to all moldings, channels and joints between the system and different materials to assure watertight installation.

3.3 CLEANING

A. Remove excess sealant from panels and moldings. Wipe panel down using a damp cloth and mild soap solution or cleaner.

B. Refer to manufacturer's specific cleaning recommendations Do not use abrasive cleaners.

END OF SECTION 09 7700

PART 1 - GENERAL

1.1 INCORPORATION

A. The Supplementary Conditions (Section 01 10 00) are hereby made a part of this Specification section and the provisions set forth herein shall apply to all labor, materials, equipment, etc. provided as part of the work of individual sections UNLESS AGREED TO BY THE OWNER AND CONTRACTOR AND MODIFIED IN WRITING BY THOSE PARTIES.

1.2 EXTENT OF WORK

A. Refer also to the Product Schedule for Finish for additional information
B. Work under this section includes the preparation of the following interior surfaces and exterior surfaces to receive paint and the painting of those surfaces.
C. Interior Surfaces
    1. Interior walls and dropped ceilings shall be coated with one coat primer and two coats acrylic latex, UON.
    2. Interior wood trim including cove trim, and any door/window casing/trim not provided as a GPDW return, shall be coated with one coat primer and two coats acrylic latex, UON.
    3. Door slabs shall be pre-finished or field painted matching schedule specification
    4. Door jambs shall be pre-finished or field painted matching schedule specification
    5. Interior paint color is old Ben Moore # 1548.
D. Exterior Surfaces
    1. Note that some interior surfaces within the entry space are exterior materials and shall be coated as exterior materials.
    2. Exterior cladding, including cladding shall be pre-finished as noted
        a. Hardie Panel may be pre-finished or filed coated as noted
        b. James Hardie fiber cement trim may be pre-finished or filed coated as noted
        c. James Hardie Artisan Aspyre siding shall be factory primed and filed top-coated.
    3. Exterior coatings shall be coated with one coat primer (if not pre-primed) and two coats exterior, acrylic latex, semi-gloss finish paint.
    4. Exterior metal work at the following locations, shall be shop primed and field coated as note in the Product Schedule for Finish, PTD-3:
        a. Front Entry Gate.
    5. Exterior concrete surfaces shall be coated as noted in the Product Schedule for Finish.
    6. Exterior colors shall be:
        a. Old Ben Moore # 1603/Graphite Grey, if not per-finished.
        b. Other colors are to be selected from the standard Sherwin Williams color pallette. Assume (2) exterior cladding colors and (1) trim color
E. Sealing coatings and other coatings normally specified under this section may also be specified for convenience in other sections.

1.3 SUBMITTALS

A. Provide the following submittals:
    1. Manufacturers PDS, MDSS and all other pertinent information for all coating products. Provide manufacturer or other-provided ‘drawdown’ samples of paint finishes selected
B. Provide the following samples:
    1. Provide manufacturer or other-provided 8”x8”‘drawdown’ samples of paint color and finishes selected
    2. Prior to commencing with the work, provide one 2’x2’ sample board and/or sample material with the specified primer and top coats for all exterior surfaces.
    3. Prior to commencing with the work, provide one 2’x2’ sample board or equally sized wall area with the specified primer and top coats for all interior surfaces.

C. The Architect and Owner reserve the right to adjust the color, sheen and other characteristics of the painted surfaces based on their review of these submittals.
D. The approved samples shall be maintained at the project site, free from damage and deterioration throughout the length of painting operations.

PART 2 - PRODUCT

2.1 MANUFACTURERS AND MATERIALS

A. All paints and coatings for work in this section shall be low VOC-type.
B. Manufacturers shall be one of the following:
   1. Sherwin Williams
C. Formulations, sheen, and finishes shall be as noted in the Product Schedule for Finish and shall include:
   1. PTD-1: PRO INDUSTRIAL pre-catalyzed water-based epoxy, satin, interior
   2. PTD-2: PRO INDUSTRIAL pre-catalyzed water-based epoxy, semigloss, interior
   3. PTD-3: PRO INDUSTRIAL™DTM acrylic semi-gloss, interior and exterior
   4. PTD-4: acrylic, interior; emerald interior latex, satin
   5. PTD-5: acrylic, interior; emerald interior latex, semi-gloss
   6. PTD-6: acrylic, exterior; emerald exterior acrylic satin
   7. *SCF-1: coating sealer for interior spaces that are not conditioned, H&C® CLARISHIELD® solvent-based natural look clear concrete sealer, provide a low-sheen finish.*
   8. *SCF-2: coating sealer for exterior pool deck apron and associated exterior concrete SOG flatwork around pool, H&C® CLARISHIELD® solvent-based natural look clear concrete sealer, provide a low-sheen finish.*
   9. *SCF-3: coating for interior conditioned spaces, RESUTILE AQUA 4410/4411 water-based, breathable, aliphatic urethane, with SHARKGRIP added to 2nd of two coats.*

PART 3 - EXECUTION

3.1 GENERAL

A. It is the intention of this specification to call for finished painted surfaces, free of imperfections and with smooth, even color. All interior painting shall receive one tinted primer coat and two finish coats unless the Architect and Owner have given written approval of a field SUBMITTAL sample of an alternative finishing regimen prior to the commencement of any work.

3.2 PREPARATION

A. Preparation of the new surfaces for paint includes:
B. Caulking of material intersections and joints.
C. Pointing up hairline cracks less than 1/16” wide with caulk.
D. Spackling and sanding nail holes and obvious imperfections over 1/8 inch in diameter.
E. Sanding of imperfections and intersections/ joints of wood trim.
F. Removal of loose, scaling and otherwise un-adhered paint and caulking and spackling of cracks and nail holes.
G. Feathering/ spackling of scraped areas to blend.
H. After priming, inspect wall surfaces with a light source positioned to illuminate the wall surface obliquely and point-up, as necessary, to provide a 100% smooth wall surface, free of gouges, imperfections, joint lines, etc.
I. Spot-prime all knots and other areas subject to bleed-through with paint manufacturer’s recommended primer.

3.3 METAL PRIMING

A. All interior and exterior metal surfaces shall be shop-primed with red-oxide or approved equal primer, unless otherwise noted. After fabrication and installation is complete and before to top coating, all surfaces shall be field spot-primed with matching primer.

3.4 WORKMANSHIP

A. Remove dirt and dust from surfaces immediately prior to application of paint.
B. Keep work area free of dust during painting operations.
C. Mask and/or otherwise fully protect all surfaces that are not to receive paint, including but limited to, hardware, electrical devices, glazing, pre-finished surfaces, etc.
D. Materials to be spread/rolled/sprayed evenly and smoothly without runs, sags or other defects.
E. Finished work shall show even color, free from dark or rust spots, skips, runs and dull or gloss spots.
F. Remove any and all overspray/paint spatters from hardware, electrical devices and all other similar items after top coating is complete.

3.5 COMPLETION

A. In addition to the Punch list requirement of spec 01 10 00:
    1. Architect and/or Owner shall conduct a walk-through inspection of the work after top coating is complete and shall inform the Contractor of any punch list items that need to be completed and/or repaired. Any such items shall be completed and/or repaired without additional cost.
    2. Any damage which occurs to in-place items that are not a part of work in this section and which are damaged by work performed in this section shall be cleaned, repaired and/or replaced, as necessary and without additional charge.
    3. After application of top coats and as part of the Punch List prior to completion, touch-up all finish coats damaged by construction operations occurring after application of finish coats without additional charge.

END OF SECTIONS 09 90 00, 09 91 13, 09 91 23

SECTION 10 14 00 - SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Interior and exterior signage, including:
   1. ADA signage
   2. Building identification signage
   3. Miscellaneous room/space signage
   4. Code compliance signage
   5. Pool safety signage, if not provide by the pool subcontractor

1.2 REFERENCES

A. ASTM International (ASTM):
   1. ASTM B209 Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

B. United States Access Board, Americans with Disability Act (ADA):
   1. Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG).
   2. ADAAG 703.3.1 - Braille dimension measurements.

1.3 SUBMITTALS

A. Submit under provisions of Section 01 10 00.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Materials, fabrication, finishing, fastenings, hardware, and accessories.
   4. Mounting details and installation methods.

C. Shop Drawings: Provide project specific, scaled, shop drawings including:
   1. Extents of installation, room sizes, layouts, profiles, signage dimensions, penetrations if any, control dimensions and architectural alignments.
   2. Interface with building services and adjacent construction.
   3. Material thicknesses and joints, anchorage, trim, hardware and locks, finishes, substrate materials, and accessories.
   4. Base building requirements, and installation procedures.
   5. Identify typography, artwork, finishes, message locations and similar.
   6. Coordinate nomenclature and terminology with sign drawings, message schedule, and location plan.

D. Qualifications: For manufacturer and installer.

E. Certificates: Product certificates signed by the manufacturer certifying materials comply with specified performance characteristics, physical requirements, and project specific requirements.

F. Manufacturers Field Reports: Submit no later than 2 business days after each site visit.

G. Samples:
   1. Selection Samples: Provide manufacturers standard samples for selection of finishes, colors, and textures.
   2. Verification Samples: Provide two samples for each product to be installed, minimum size 6 by 6 inch (150 by 150 mm).
      a. Interior Signs: Submit one full size sample of each type, style, and color including method of attachment. Accepted samples may be incorporated into

finished work.

H. Closeout Submittals:
   1. Operations and maintenance data.
   2. Warranty.

1.4 QUALITY ASSURANCE

A. Single Source Responsibility: Except as noted below, all materials and components shall be fabricated by a single manufacturer/vendor including mounting hardware and materials, fittings, fastenings, lighting, electronics, finished surfaces and concealed internal supports.

B. Manufacturer Qualifications: Minimum 2 years or more experience in fabrication of solid materials, experienced in performing work of similar size and scope, and with production facilities to meet the project schedule.

C. Installer Qualifications: Specialized in performing signage work, with minimum 2 years experience installing similar products.

1.5 PRE-INSTALLATION MEETINGS

A. Convene at the project site minimum two weeks prior to starting work of this section to determine and confirm locations for individual signage.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Ordering: Comply with manufacturer's ordering instructions and lead time requirements to avoid construction delays.

B. Do not deliver signs until facility is enclosed and conditioned within temperature and humidity ranges expected of final occupancy.

C. Deliver and store products in manufacturer's original, unopened packaging bearing the brand name and manufacturer's identification until ready for installation.
   1. Package and label signs in groups indicated on the drawings.
   2. Prevent contact with materials or project conditions that may cause corrosion, discoloration, or staining.
   3. Store signage materials in a safe, dry, above ground location until mounting surfaces are ready for installation.
   4. Protect from damage from other trades.

D. Handling: Handle materials to avoid damage.

1.7 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.9 WARRANTY

A. Provide manufacturer's standard one-year product warranty against defects in materials.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer/Fabricator; Open Specification

B. Requests for substitutions or adjustments to signage requirements will be considered in accordance with provisions of Section 01 10 00.

2.2 FABRICATI0N

A. Assemble units to the greatest extent possible in the fabrication shop to minimum onsite splicing or assembly.
   1. Ensure welds are behind finished surfaces and will not transmit distortion or discoloration to finished surfaces.
   2. Joints, miters and connections shall be tight and free of fractures.
   3. Extruded members to be free from extrusion marks. Square turns and corners sharp, curves true.
   4. Fasteners shall be concealed unless specifically shown on the drawings.
   5. Form work to required shapes and sizes, with true curves, lines and angles. Provide necessary rebates, lugs and brackets for assembly.
   6. Exposed ends and edges mill smooth, with corners slightly rounded

B. Components shall allow for expansion and contraction for a minimum material temperature range of 56 degrees C (100 degrees F), without causing buckling, excessive opening of joints or over stressing of adhesives and fasteners.

C. Plane surfaces should be smooth, flat and without oil-canning, free of rack and twist. Restore texture to filled or cut areas.
   1. Maximum variation from plane of surface plus or minus 0.032 inch (0.8 mm).

D. Movable parts, including hardware, shall be cleaned and adjusted to operate as designed without binding or deformation. Doors and covers centered in opening of frame. All contact surfaces fit tight and even without forcing or warping components.

E. Painted surfaces shall be primed in accordance with the paint manufacturers instructions. Finish coating of paint to have complete coverage with no light or thin applications that show substrate or primer. Finished surface smooth, free of scratches, gouges, drips, bubbles, thickness variations, foreign matter and other imperfections.

F. Disassemble units only as necessary for shipping and handling limitations. Clearly mark units for re-assembly and coordinated installation as indicated on the drawings.

2.3 SIGNAGE

A. Provide the interior and exterior signage noted in MISCELLANEOUS FURNISHINGS, FITTING, EQUIPMENT AND TOILET ACCESSORIES SCHEDULE for marks SN-1 through SN-20.

B. Pool signage shall be as noted in the AP drawings.

PART 3 EXECUTION

3.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.
   1. Verify areas are finished and ready to receive signage
   2. Verify location of cast-in anchors, mounting hardware, concrete foundations or

similar supports are properly installed, in the proper locations, and of the type and size required for each type of sign.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

C. Do not begin installation until unacceptable conditions are corrected.

3.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Protect adjacent work and finished surfaces from damage during installation.

3.3 INSTALLATION

A. Install in accordance with manufacturer's instructions, including product technical bulletins, product catalog installation instructions, and product carton installation instructions.

B. Locate as indicated on the drawings, sign location plan, and in accordance with approved shop drawings.

C. Avoid warps, buckles, distortion, opening joints, or overstressing welds or fasteners.

D. Exterior Signs, Direct Burial Installations: Exterior concrete footings engineered and installed by general contractor within the following guidelines:
1. Bore holes to a diameter at least 4 times as large as the largest post cross section, to a minimum depth of 36 inch (914 mm) below grade.
2. Cover below grade portion with bituminous coating to prevent oxidation or moisture damage.
3. Place gravel, sand, or crushed stone in the bored hole to facilitate drainage.
4. Place concrete around post, ensure units are square, level, and plumb.

E. Exterior Signs, Base Mounted Installations:
1. Set unit on prepared base and secure with anchor bolts.
2. Secure joint between module and base using exterior sealants specified in Section 07 91 26 - Joint Fillers.
3. Ensure units are square, level, and plumb.

F. Interior Signs:
1. Mount signs in proper alignment, level and plumb according to the sign location plan and the dimensions given on elevation and sign location drawings.
2. Where otherwise not dimensioned, signs shall be installed where best suited to provide a consistent appearance throughout the project.
3. Clarify exact placements and alignments with the architect if required.

G. Make final adjustments to components to ensure proper alignment, fit, and smooth operation of any removable or moveable parts.

3.4 CLEANING

A. Remove temporary coverings and protection of adjacent work areas.

B. Clean installed products in accordance with manufacturer's instructions prior to owner's acceptance. Wipe clean with water-dampened cloth. Do not use chemicals or solvents.

C. Remove construction debris from project site and legally dispose of debris.

D. Clean all exposed surfaces in accordance with the manufacturer instructions.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION 10 14 00

SECTION 10 21 13 – TOILET COMPARTMENTS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Compact Laminate (CL/Solid Phenolic), Moisture Resistant Substrate: (Bobrick DuraLineSeries).
   1. Toilet partitions.
   2. Urinal privacy screens.
   3. Lavatory dividers.

1.2 SUBMITTALS

A. Submit under provisions of Section 01 10 00 - Administrative Requirements.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. USA Certificate of Origin: Manufacturer shall supply with first submittal, an example of their Certificate of Origin declaring toilet compartments are wholly manufactured and assembled specifically in the United States, including city and state locations. A notarized Certificate of Origin shall be provided with closeout documents.

D. Shop Drawings: Submit manufacturer's shop drawings for each product specified, including the following:
   1. Plans, elevations, details of construction and attachment to adjacent construction.
   2. Show anchorage locations and accessory items.
   3. Verify dimensions with field measurements prior to final production of toilet compartments.

E. Verification Samples: For each finish product specified, two samples, minimum size 6 inches (150 mm) square representing actual product, color, and patterns.

1.3 QUALITY ASSURANCE

A. Manufacturer Qualifications: Minimum 10 year experience manufacturing similar products.

B. Installer Qualifications: Minimum 2 year experience installing similar products.

C. Single Source Requirements: To the greatest extent possible provide products from a single manufacturer.

D. Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.

1.4 PRE-INSTALLATION MEETINGS

A. Convene minimum two weeks prior to starting work of this section.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver and store products in manufacturer's unopened packaging bearing the brand name and manufacturer's identification until ready for installation.

B. Handling: Handle materials to avoid damage.

1.6 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.7 SEQUENCING

A. Ensure that products of this section are supplied to affected trades in time to prevent interruption of construction progress.

1.8 WARRANTY

A. Manufacturer's Warranty (SierraSeries and DuraLineSeries): Manufacturer's standard 25 year limited warranty for panels, doors, and stiles against breakage, corrosion, delamination, and defects in factory workmanship. Manufacturer's standard 1 year guarantee against defects in material and workmanship for stainless steel door hardware and mounting brackets.

PART 2 PRODUCTS

2.1 MANUFACTURERS

A. Acceptable Manufacturer/BOD: Bobrick Washroom Equipment, Inc., which is located at: 6901 Tujunga Ave.; North Hollywood, CA 91605-6213; Tel: 818-764-1000; Fax: 818-765-2700; Email:info@bobrick.com; Web:www.bobrick.com

B. Basis of Design Products: Based on the quality and performance requirements of the project, specifications are based solely on the products of Bobrick Washroom Equipment, Inc. www.bobrick.com. Location of manufacturing shall be the United States.

C. Substitutions: The Architect will consider products of comparable manufacturers as a substitution, pending the Contractor's submission of adequate documentation of the substitution in accordance with procedures in 01 10 00 of the Project Manual. Documentation shall include a list of five similar projects of equivalent size where products have been installed for a minimum of two years, and manufacturer's certification that products are fabricated in the United States.

2.2 COMPACT LAMINATE (SOLID PHENOLIC), MOISTURE RESISTANT SUBSTRATE (DuraLineSeries)

A. Compact Laminate (Solid Phenolic) Toilet Partitions: Bobrick DuraLineSeries.
   1. Design Type: CGL #1082 Duraline
      a. Standard Height.
         1) Door/Panel Height: 58 inches (147 cm).
         2) Floor Clearance: 12 inches (30 cm).
         3) TO FINISH AT APPROX 82.5” AFF WITH HEADRAIL, FLOOR ANCHORED AND OVERHEAD BRACED
         4) CLASS B.
   2. Privacy Style Partitions: No sightlines with gap-free interlocking doors and stiles routed 0.300 inches (7.6 mm) from the edge to allow 0.175 inch (4.4 mm) overlap to prevent line-of-sight into the toilet compartment. Privacy strips fastened or adhered onto the partition material are not acceptable.
   3. Mounting Configuration:
      a. Floor-mounted.
         1) Stile Standard Height: 69 inches (175 cm);
      b. Floor-mounted, overhead-braced with anodized aluminum headrails, 0.065 inch (1.65 mm) thick with anti-grip profile.

1) Stile Maximum Height: 83 inches (211 cm);
c. Floor-to-ceiling.
1) Stile Standard Height: As required, 10 feet 0 inches (305 cm) maximum.

B. Compact Laminate (Solid Phenolic) Urinal Screens: Bobrick DuraLine Series.
1. Mounting Configuration:
a. Floor-anchored standard height
1) Screen Standard Height: 58 inches (178 cm) with floor clearance: 12 inches (30 cm).
2) Stile Standard Height: 69 inches (175 cm);
b. Floor-to-ceiling.
1) Screen Height: 58 inches (178 cm) with floor clearance: 12 inches (30 cm).
2) Stile Height: As required up to 10 feet 0 inches (305 cm) maximum.
3) Note that Women's Locker WC stall will be standard depth adjacent to lavatory and will require headrail connection. Men's urinal divider shall be same depth and connection type.

C. Materials: Solidly fused plastic laminate with matte-finish melamine surfaces; integrally bonded colored face sheets and black phenolic-resin core.

D. Edges: Black; brown edges not acceptable.

E. Color As selected by Architect from manufacturer's standard DuraLineSeries Compact Grade Laminate color range: PEWTER MESH WITH BLACK CORE, 4878-60,

F. Fire Resistance:
1. National Fire Protection Association/International Building Code Interior Wall and Ceiling Finish: Class B / Uniform Building Code: Class II.
a. Flame Spread Index (ASTM E 84): 30 for panels and stiles.
b. Smoke Developed Index (ASTM E 84): 55 for panels, 20 for stiles.

G. Finished Thickness:
1. Stiles and Doors: 3/4 inch (19 mm).
2. Panels and Screens: 1/2 inch (13 mm).

H. Stiles: Floor-anchored stiles furnished with expansion shields and threaded rods.
1. Leveling Devices: 7 gauge, 3/16 inches (5 mm) thick, corrosion-resistant, chromate-treated, double zinc-plated steel angle leveling bar bolted to stile; furnished with 3/8 inch (10 mm) diameter threaded rods, hex nuts, lock washers, flat washers, spacer sleeves, expansion anchors, and shoe retainers.
2. Stile Shoes: One-piece, 22 gauge (0.8 mm), 18-8, Type 304 stainless steel, 4 inch (102 mm) height; tops with 90 degree return to stile. One-piece shoe capable of adapting to 3/4 inch (19 mm) or 1 inch (25 mm) stile thickness and capable of being fastened (by clip) to stiles starting at wall line.

I. Wall Posts: Pre-drilled for door hardware, 18-8, Type 304, 16 gauge (1.6 mm) stainless steel with satin finish; 1 inch (25 mm) x 1-1/2 inches (38 mm) x 58 inches high (1473 mm).

J. Anchors: Expansion shields and threaded rods at floor connections as applicable. Threaded rods secured to supports above ceiling as applicable. Supports above ceiling furnished and installed as Work of Section 05 50 00 - Metal Fabrications.

K. Hardware:
1. Compliance: Operating force of less than 5 lbs. (2.25 kg).
2. Emergency Access: Hinges, latch allow door to be lifted over keeper from outside compartment on inswing doors.
3. Materials: 18-8, Type 304, heavy-gauge stainless steel with satin finish.
4. Doorstops: Prevents inswinging doors from swinging out beyond stile; on outswing

doors, doorstop prevents door from swinging in beyond stile.

5. Fastening: Hardware is secured to door and stile with pin-in-head Torx stainless steel machine screws. Hinges, latch and optional door stops secured to door with pin-in-head Torx stainless steel machine screws into factory-installed, threaded brass inserts. Fasteners for hinges latch and optional door stops secured directly into core not acceptable.
   a. Threaded Brass Inserts: Factory-installed; withstand direct pull force exceeding 1500 lbs. (680 kg) per insert.
6. Clothes Hooks: Projecting no more than 1-1/8 inch (29 mm) from face of door.
7. Door Latch: Track of door latch prevents inswing doors from swinging out beyond stile; on outswing doors, door keeper prevents door from swinging in beyond stile; 16 gauge (1.6 mm) sliding door latch, 14 gauge (2 mm) keeper.
8. Locking: Door locked from inside by sliding door latch into keeper.
9. Hinge Type:
   a. Standard.
      1) Balanced, with field-adjustable cam to permit door to be fully closed or partially open when compartment is unoccupied.
10. Mounting Brackets:
   a. Standard concealed.
      1) Mounting Brackets: Mounted inside compartment; exposed brackets on exterior of compartment not acceptable with the exception of outswing doors.

PART 3 PRODUCTS

3.1 PREPARATION

A. Prepare substrates including but not limited to blocking and supports in walls and ceilings at points of attachment using methods recommended by the manufacturer for achieving the best result for the substrates under the project conditions.
   1. Inspect areas scheduled to receive compartments for correct dimensions, plumbness of walls, and soundness of surfaces that would affect installation of mounting brackets.
   2. Verify spacing of plumbing fixtures to assure compatibility with installation of compartments.

B. If preparation is the responsibility of another installer, notify Architect in writing of deviations from manufacturer's recommended installation tolerances and conditions.

C. Do not proceed with installation until substrates have been properly prepared with blocking and supports in walls and ceilings at points of attachment and deviations from manufacturer's recommended tolerances are corrected. Commencement of installation constitutes acceptance of conditions.

3.2 INSTALLATION

A. Install products in strict compliance with manufacturer's written instructions and recommendations, including the following:
   1. Verify blocking and supports in walls and ceilings has been installed properly at points of attachment.
   2. Verify location does not interfere with door swings or use of fixtures.
   3. Use fasteners and anchors suitable for substrate and project conditions
   4. Install units rigid, straight, plumb, and level.
   5. Conceal evidence of drilling, cutting, and fitting to room finish.
   6. Test for proper operation.

3.3 ADJUSTING, CLEANING AND PROTECTION

A. Adjust hardware for proper operation after installation. Set hinge cam on in-swinging doors to hold doors open when unlatched. Set hinge cam on out-swinging doors to hold

unlatched doors in closed position.

B. Touch-up, repair or replace damaged products.

C. Clean exposed surfaces of compartments, hardware, and fittings.

END OF SECTION 10 21 13

SECTION 10 26 00 – WALL AND DOOR PROTECTION

Part 1 - GENERAL

1.01 SUMMARY

A. This section includes the following types of wall protection systems:

1. Corner Guards

2. Wall Guard/chair rail

B. Related sections: The following sections contain requirements related to this section:

1. Refer to structural notes for blocking. If not noted, provide in-wall wood blocking as necessary.

1.02 REFERENCES

A. National codes (IBC, UBC, SBCCI, BOCA and Life Safety)

B. American Society for Testing and Materials (ASTM)

1.03 SUBMITTALS

General: Submit the following in accordance with conditions of contract and Division 1 specification section 01 10 00

A. PDS each system component and installation accessory required, including installation methods for each type of substrate: Optional

1.04 QUALITY ASSURANCE

A. Installer qualifications: Engage an installer who has no less than 3 years experience in installation of systems similar in complexity to those required for this project.

B. Manufacturer's qualifications: Not less than 5 years experience in the production of specified products and a record of successful in-service performance.

C. Code compliance: Assemblies should conform to all applicable codes including IBC, UBC, SBCCI, BOCA and Life Safety.

D. Fire performance characteristics: Provide metal components tested in accordance with ASTM 84 for Class C/3 fire characteristics or better.

E. Single source responsibility: Provide all components of the wall protection system manufactured by the same company to ensure compatibility of color, texture and physical properties.

1.05 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the project site in unopened original factory packaging clearly labeled to show manufacturer.

B. Material must be stored flat.

1.06 PROJECT CONDITIONS

A. Installation areas must be enclosed and weatherproofed before installation commences.

1.07 Warranty

A. Provide 1-year Limited Warranty

Part 2 - Products

2.01 MANUFACTURERS

A. WallGuard; https://wallguard.com/

B. Other manufacturers shall be acceptable subject to 01 10 00 Substitution requirements.

2.02 PRODUCTS: Also refer to Product Schedule for Finish

A. VINYL WALL GUARD; MARK TR-1; #2135 WALL GUARD, ROUNDED PROFILE, SMOOTH FINISH, 1 1/16" H X 1 1/6" W, STANDARD LENGTHS OF 12 FT. CLASS A FIRE RATING, MATERIAL THICKNESS: VINYL .100", ALUMINUM .062". PROVIDE END CAPS AT EACH SECTION, WHITE

B. STAINLESS CORNER GUARDS; MARK TR-3; #2330.1 WALL GUARD, 2" WING, 18 GAUGE, TYPE 304 SS, SATIN FINISH, UNDRILLED ADHEIVE MOUNT, 90 DEGREE ANGLE; 72" LENGTH OR NEAREST STANDARD LENGTH, STAINLESS STEEL OUTSIDE CORNER PROTECTOR, STAINLESS STEEL SATIN FINISH

2.03 FABRICATION

A. General: Fabricate wall protection systems to comply with requirements indicated for design, dimensions, detail, finish and member sizes.

B. Preassemble components in shop as much as possible to minimize field assembly

2.04 FINISHES

A. General: Comply with NAAMM "Metal Finishes Manual" for recommendations relative to applications and designations of finishes.

Part 3 - Execution

3.01 EXAMINATION

A. Verification of conditions: Examine areas and conditions under which work is to be performed and identify conditions detrimental to proper or timely completion.

1. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

A. Surface preparation: Prior to installation, clean substrate to remove dirt, debris and loose particles. Perform additional preparation procedures as required by manufacturer's instructions.

B. Protection: Take all necessary steps to prevent damage to material during installation as required in manufacturer's installation instructions.

3.03 INSTALLATION

A. Install the work of this section in strict accordance with the manufacturer's recommendations, using only approved adhesive or mounting hardware and locating all components firmly into position, level and plumb.

3.04 CLEANING

A. General: Immediately upon completion of installation, clean material in accordance with manufacturer's recommended cleaning method.

B. Remove surplus materials, rubbish and debris resulting from installation as work progresses and upon completion of work.

3.05 PROTECTION

A. Protect installed materials to prevent damage by other trades. Use materials that may be easily removed without leaving residue or permanent stains.

END OF SECTION 10 26 00

SECTION 10 28 00 – WASHROOM ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

A. Washroom Accessories; Not all accessories will occur in this specific project:
   1. Automatic hand dryers.
   2. Soap dispensers.
   3. Commercial lavatory faucets.
   4. Paper towel dispensers.
   5. Waste receptacles.
   6. Combination towel dispenser and waste receptacle units.
   7. Sanitary napkin vendors.
   8. Sanitary napkin disposal units.
   9. Toilet tissue dispensers.
   10. Toilet seat cover dispensers.
   11. Combination sanitary napkin disposal and toilet tissue dispenser units.
   12. Combination toilet seat cover dispenser and toilet tissue dispenser units.
   13. Combination toilet seat cover dispenser, sanitary napkin disposal and toilet tissue dispenser units.
   14. Mirrors.
   15. Medicine cabinets.
   16. Shower rods and curtains.
   17. Folding shower seats
   18. Bathtub Seat.
   19. Soap dishes.
   20. Combination recessed soap dish and bar.
   21. Grab bars.
   22. Towel bars.
   23. Facial tissue dispensers.
   24. Specimen pass-thru cabinets.
   25. Shelves.
   26. Narcotic Cabinet.
   27. Hooks.
   28. Door bumpers.
   29. Combination clothes hooks and bumpers.
   30. Custodial/janitorial accessories.

1.2 RELATED REQUIREMENTS

A. Section 06 10 00 - Rough Carpentry, coordination with blocking.
B. Section 09 29 00 - Plaster and Gypsum Board, coordination with blocking.
C. Section 09 30 00 - Tiling, coordination with layout and installation.
D. Section 10 21 13 - Toilet Compartments, coordination with accessories.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's data sheets for each product specified, including the following:
   1. Installation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Cleaning and maintenance instructions.
   4. Replacement parts information.

B. Schedule: Submit a toilet accessory schedule, indicating the type and quantity to be installed in each washroom. Use room numbers as indicated on the Drawings. Refer to and follow the nomenclature of MISCELLANEOUS FURNISHINGS, FITTING, EQUIPMENT AND TOILET ACCESSORIES SCHEDULE.

1.4 QUALITY ASSURANCE

A. Manufacturer: Provide products manufactured by a company with a minimum of 10 years successful experience manufacturing similar products.

B. Single Source Requirements: To the greatest extent possible provide products from a single manufacturer.

C. Accessibility Requirements: Comply with requirements applicable in the jurisdiction of the project, including but not limited to ADA and ICC/ANSI A117.1 requirements as applicable.

D. Hazardous Materials: Comply with EU Directive “Restrictions of Hazardous Substances (RoHS) requirements.”

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver, store and handle materials and products in strict compliance with manufacturer's instructions and recommendations. Protect from damage.

1.6 WARRANTY

A. Manufacturer’s Warranty for Washroom Accessories: Manufacturer’s standard 1 year warranty for materials and workmanship.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Acceptable Manufacturer/BOD:
   1. Trash Can Warehouse
   2. Best Bath
   3. Suitmate
   4. Bobrick Washroom Equipment, Inc., which is located at: 6901 Tujunga Ave.; North Hollywood, CA 91605-6213; Tel: 818-764-1000; Fax: 818-503-1930; Contact us: https://www.bobrick.com/contact/; Web: https://www.bobrick.com/

B. Basis of Design Products: Based on the quality and performance requirements of the project, specifications are based solely on the products of Bobrick Washroom Equipment, Inc.. Location of manufacturing shall be the United States.

C. Substitutions: The Architect will consider products of comparable manufacturers as a substitution, pending the contractor's submission of adequate documentation of the substitution in accordance with procedures in 01 10 00 of the Project Manual. Documentation shall include a list of five similar projects of equivalent size where products have been installed for a minimum of two years, and manufacturer's certification that products are fabricated in the United States.

2.2 ITEMS AND COMPONENTS

A. Suite mate Swimsuit Dryer: Mark LR-17; WALL-MOUNT SWIMSUITWATER EXTRACTOR, 115V, 304-SERIES, MEDICAL-GRADE STAINLESS STEEL, MANUAL SELF-START AND STOP VIA HAND PRESSURE ON THE LID, BUILT-IN GROUND FAULT CIRCUIT INTERRUPTER (GFCI) OR RESIDUAL CURRENT DEVICE (RCD), OPERATES WITHOUT HEAT • UL, CUL, AND CE SAFETY CERTIFICATIONS

B. Note that Best Bath pre-fabricated shower packages include shower grab bars, seat and other items as noted in the schedule. Other grab bars are noted and specified in the schedule.

C. Provide the accessories noted in MISCELLANEOUS FURNISHINGS, FITTING, EQUIPMENT AND TOILET ACCESSORIES SCHEDULE for marks LR-2 through LR-16 and summary schedule below.

PART 3 EXECUTION

3.1 INSTALLATION

A. Install products in strict compliance with manufacturer's written instructions and recommendations, including the following:
   1. Verify blocking has been installed properly.
   2. Verify location does not interfere with door swings or use of fixtures.
   3. Comply with manufacturer's recommendations for backing and proper support.
   4. Use fasteners and anchors suitable for substrate and project conditions.
   5. Install units rigid, straight, plumb, and level, in accordance with manufacturer's installation instructions and approved shop drawings.
   6. Conceal evidence of drilling, cutting, and fitting to room finish.
   7. Test for proper operation.

3.2 CLEANING AND PROTECTION

A. Clean exposed surfaces of compartments, hardware, and fittings using methods acceptable to the manufacturer.
B. Touch-up, repair or replace damaged products until Substantial Completion.

3.3 SCHEDULE

~~TOWEL DISPENSOR AND TRASH~~	~~LR-2~~
TOWEL DISPENSOR	LR-3
~~TOWEL TRASH CAN~~	~~LR-4~~
TOWEL TRASH CAN	LR-4.1
SOAP DISPENSOR	LR-5
SANITARY NAPKIN/TAMPON DISPENSOR	LR-6
SANITARY NAPKIN RECEPTACLE	LR-7
TRASH CAN-LARGE, FREE-STANDING; M+W LOCKER ROOM	LR-8
MIRROR-LARGE	LR-9
MIRROR-LAVATORY	LR-10
GRAB BARS AT TOILET COMPARTMENTS	
WC HORIZONTAL BAR-REAR WALL	LR-11
WC HORIZONTAL BAR-SIDE WALL	LR-12
WC VERTICAL BAR-SIDE WALL	LR-13
TOILET PAPER DISPENSOR	LR-14
SHOWER GRAB BARS AND FOLD-DOWN SHOWER SEAT AND SOAP DISPENSOR AND ACCESSORIES	LR-15
SHOWER CURTAIN/ROD/HOOKS	LR-15.1
BABY CHANGING STATION	LR-16

END OF SECTION 10 28 00

SECTION 10 44 16 – PORTABLE FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product indicated, include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.

B. Product Schedule: For fire extinguishers, coordinate final fire extinguisher schedule with fire protection cabinet schedule, as necessary to ensure proper fit and function.

1.3 INFORMATIONAL SUBMITTALS

A. Warranty: Sample of special warranty.

1.4 CLOSEOUT SUBMITTALS

A. Provide operation and Maintenance Data for fire extinguishers to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."

B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to the Los Angeles Fire Department.

1.6 COORDINATION

A. Coordinate type and capacity of fire extinguishers with fire protection cabinet, as necessary, to ensure fit and function.

1.7 WARRANTY

A. Special Warranty: Provide manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fails in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:
    a. Failure of hydrostatic test according to NFPA 10.
    b. Faulty operation of valves or release levers.
2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

A. See PFE notes on sheet A104

B. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and/or location and mounting bracket indicated and including:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. J. L. Industries, Inc.; a division of Activar Construction Products Group.
b. Larsen's Manufacturing Company.
c. Potter Roemer LLC.
d. Buckeye

2. Valves: Manufacturer's standard.
3. Handles and Levers: Manufacturer's standard.
4. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B and bar coding for documenting fire extinguisher location, inspections, maintenance, and recharging.

C. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 2-A:10-B:C, 5-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

D. IF SHOWN RECESSED: JL INDUSTRIES, INC., ACADEMY SERIES, FLAT TRIM, ALUMINUM FINISH, FULL-GLASS DOOR, LAMINATED SAFETY GLASS, FIRE-X FIRE-RATED TUB WITH COSMIC 10E (10 LBS), CLASS A,B,C FIRE RATED FIRE EXTINGUISHER, OR EQUAL

E. IF SHOWN SURFACE MOUNTED AS DRAWN: SAFETY ONE EXTERIOR PLASTIC CABINET, WITH 110 HIGH-IMPACT CRYSTAL POLYSTYRENE FRAME, 110 HIGH-IMPACT CRYSTAL POLYSTYRENE TUB, NON-FIRE RATED, WHITE FINISH, CYLINDER LOCK, STANDARD LETTERING AND CLEAR ACRYLIC GLAZING, OR APPRVD EQUAL, WITH JL INDUSTRIES, INC.COSMIC 10E (10 LBS), CLASS A, B, C FIRE RATED FIRE EXTINGUISHER, OR APPRVD EQUAL.

F. FIRE EXTINGUISHER CABINETS AT NON-PUBLIC AREAS, IF NEEDED OR REQUESTED: JL INDUSTRIES, INC., AMBASSADOR 1013S21, SURFACE-MOUNTED, PAINTED STEEL WITH RED EPOXY DOOR AND TRIM OPTION, WITH FIRE EXTINGUISHER' DECAL, WITH COSMIC 10E (10 LBS), CLASS A,B,C FIRE RATED) FIRE EXTINGUISHER, OR APPRVD EQUAL.

G. KITCHEN PFE: BUCKEYE WET CHEMICAL, 6L (1.6 GAL) CLASS K/1-A:K, WALL MOUNT, #50006 OR APPRVD EQUAL

2.2 MOUNTING BRACKETS

A. Mounting Brackets: Manufacturer's standard steel, designed to secure fire extinguisher to wall or structure, of sizes required for types and capacities of fire extinguishers indicated, with plated or black baked-enamel finish.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. J. L. Industries, Inc.; a division of Activar Construction Products Group.
b. Larsen's Manufacturing Company.

c. Potter Roemer LLC.

B. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated by Architect.

1. Identify bracket-mounted fire extinguishers with the words "FIRE EXTINGUISHER" in red letter decals applied to mounting surface. a. Orientation: Vertical.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fire extinguishers for proper charging and tagging.

1. Remove and replace damaged, defective, or undercharged fire extinguishers.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Install fire extinguishers and mounting brackets in locations indicated and in compliance with requirements of authorities having jurisdiction.

B. Mounting Brackets: Fasten mounting brackets to surfaces, square and plumb, at locations indicated.

END OF SECTION 10 44 16

SECTION 10 51 26 - PLASTIC LOCKERS AND BENCHES

PART 1 - GENERAL

1.1 SECTION INCLUDES
A. Solid plastic lockers and locker room benches.

1.2 RELATED SECTIONS
A. Division 06 Section "Rough Carpentry" for locker anchorage.

1.3 REFERENCES
A. ASTM International (ASTM):
   1. ASTM A 666 - Standard Specification for Annealed or Cold-Worked Austenitic Stainless-Steel Sheet, Strip, Plate, and Flat Bar.
   2. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

B. US Federal Government:
   1. U.S. Architectural & Transportation Barriers Compliance Board. Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG).

C. GREENGUARD Environmental Institute (GREENGUARD):
   1. GREENGUARD certified low emitting products.

1.4 ACTION SUBMITTALS
A. Product Data: Manufacturer's data sheets for each type of product indicated include fabrication details, description of materials and finishes.
   1. Product Test Reports: When requested by Architect, provide documentation indicating compliance of products with requirements, from a qualified independent testing agency.

B. Shop Drawings: Include overall locker dimensions, floor plan, elevations, sections, details, and attachments to other work. Include choice of options with details.

C. Samples for Selection: Furnish samples of manufacturer's full range of colors for initial selection.

D. Samples for Approval: Furnish a physical sample of the material in the selected color.
   1. Size: 6 by 6 inch (102 by 102 mm) in type of finish specified.

1.5 INFORMATIONAL SUBMITTALS
A. Installation instructions.

B. Warranty: Provide a sample of special warranty.

1.6 MAINTENANCE SUBMITTALS
A. Provide operation and Maintenance Data.

1.7 QUALITY ASSURANCE
A. Manufacturer Qualifications: Approved manufacturers listed in this section shall have a minimum 5 years of experience in the manufacture of plastic lockers and benches. Manufacturers seeking approval must submit the following in accordance with the IFB and Division 01 requirements:
   1. Product data, including test data from qualified independent testing agency indicating compliance with requirements.
   2. Samples of each component of product specified.
   3. List of successful installations of similar products available for evaluation by Architect.
   4. Submit substitution request not less than 15 days prior to bid date.

B. Installers Qualifications: An experienced Installer regularly engaged in the installation of lockers for a minimum of 3 years.

C. Source Limitations: Obtain plastic lockers, benches and trim accessories from single manufacturer.
D. Accessibility Requirements: Comply with requirements of ADA/ABA and with requirements of authorities having jurisdiction.
E. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84 by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
   1. Flame-Spread Index: 100 or less.
   2. Smoke-Developed Index: 450 or less.
F. Indoor Environmental Quality Certification: Provide certificate indicated that products have been certified under the following programs, or a comparable certification acceptable to Owner:
   1. GREENGUARD Indoor Air Quality Certified.
   2. GREENGUARD Certified for Children and Schools.

1.8 DELIVERY, STORAGE, AND HANDLING
A. Do not deliver plastic lockers to the site until the building is enclosed and HVAC systems are in operation. Deliver plastic lockers in manufacturer's original packaging. Store in an upright condition. Protect plastic lockers from exposure to direct sunlight.
B. Ship plastic lockers fully assembled.
C. Lift and handle plastic lockers from the base not the sides.

1.9 WARRANTY
A. Special Manufacturer’s Warranty: Provide a 20 year against rust, delamination or breakage of plastic parts under normal use.

PART 2 - PRODUCTS

2.1 MANUFACTURERS
A. Basis-of-Design Manufacturer: Subject to compliance with requirements, provide products of Bradley Corporation, Menomonee Falls, WI 53051, (800)272-3539, fax (262)251-5817; Email info@BradleyCorp.com; Website www.bradleycorp.com.
B. Acceptable alternative, subject to substitution requirements: Scranton Products, 801 E. Corey Street, Scranton, PA 18505, (800) 445.5148; Email info@scrantonproducts.com; Website www.scrantonproducts.com .
C. Submit requests for substitution in accordance with Instructions to Bidders and Division 01 General Requirements.

2.2 MATERIALS
A. High Density Polyethylene (HDPE): 30 percent pre-consumer recycled content polyethylene thermoplastic formed under high pressure into solid plastic components.
B. Stainless-Steel Sheet: ASTM A 666, Type 304.
C. Fasteners: Tamper-Resistant Fasteners
D. Locker Connectors: No. 10-24 sex bolts.
E. Anchors: Type and size required for secure anchorage.
F. Drilled-in-place Masonry Anchors: Minimum 1/4 by 1-3/4 inch (6 by 44 mm) screws.

2.3 STANDARD PLASTIC LOCKERS
A. Basis-of-Design Product: **Bradley LENOXLOCKER**.
B. Locker Dimensions/Configuration: LENOX LOCKER, SOLID HDPE PLASTIC LOCKER, 15”W X 36”H X 12”D, STANDARD DOOR, TWO-TIER LOCKER ~~(2 HIGH X7 = 14 TOTAL LOCKERS EACH LOCKER ROOM)~~, (2 HIGH X4 = 8 TOTAL LOCKERS EACH LOCKER ROOM), (1) WALL HOOK PER LOCKER, NO COAT ROD, SLOPE TOP #LENOXSLOPETOP IN (2) 45” LENGTHS AND (1)15” LENGTH PLACED IN MIDDLE OF RUN, LOCKING MECHANISM IS T.B.D BY THE COUNTY DURING THE SUBMITTAL PROCESS

C. Material: HDPE plastic, 30 percent recycled material.

D. Sides, Tops, Bottoms, Dividers, and Shelves: 3/8 inch (10 mm) thick HDPE plastic with smooth finish.
E. Locker Shelves: 3/8 inch (10 mm) HDPE plastic, mortised into sides and back.
F. Locker Tops: Slope top.
G. Doors: Fabricate from a single piece 1/2 inch (13 mm) HDPE plastic.
   1. Doors and Frame: 1/2 inch (13 mm) thick HDPE plastic with matte texture finish with ventilation slots.
   2. Logo on Door: Indicate accessible lockers.
   3. Handle: ADA/ABA Compliant handle fabricated from injection molded plastic.
   4. Locks: [~~Standard hasp~~] [~~Built-in key lock~~] [~~Built-in combination lock~~] [~~Coin return lock~~] [~~Coin retain lock~~] [~~Keypad lock~~] [~~Combination Padlock~~]. TO BE SELECTED BY COUNTY DURING SUBMITTAL PROCESS
   5. Hinges: Continuous piano hinges, .05 inch/18 gauge (1.27 mm) thick type 304 stainless steel fabricated to wrap around edges of door and frame and attached with stainless steel tamper-resistant screws.
I. Finish: Powder coated to match color of locker.
J. Color: Charcoal Grey S-215
K. Accessories:
   1. Coat Hooks: NO
   2. End Panels: [3/8 inch (10 mm)] thick, with color and finish matching locker body: YES
   3. Filler Panels: 1/2 inch (13 mm) HDPE filler panel, with color and finish matching locker body, attached with 3/8 inch (10 mm) thick HDPE solid plastic angle bracket.
   4. Wall Hooks: Black powder coated, cast zinc hook:YES AS NOTED
   5. Number Plate: White acrylic with black film coating, laser etched with number specified. Provide one per locker. YES
   6. Locker Base: NO.
   7. Coat Rod: NO

2.4 LOCKER FABRICATION

A. Fabricate locker box from a single sheet of HDPE solid plastic with corners fused together. Weld frames and shelves to box assembly. Provide all welded construction of locker parts without dovetail slots or metal fasteners. Add welded gussets in single tier full height lockers.
B. Center Dividers: Full-depth, vertical partitions between bottom and shelf; finished to match lockers.
C. Hardware Attachment: All hinges, handles, hasps, hooks, latch bars, and locks attached with tamper-resistant screws.
D. Provide ventilated panels where indicated.
E. Continuous Base: NA.
F. Continuous Sloping Tops: Fabricated in lengths indicated, without visible fasteners at splice locations; and finished to match lockers: AS NOTED
G. Filler Panels: Fabricated in unequal leg angle shape; finished to match lockers: NO
H. Finished End Panels: Fabricated with [3/8 inch (10 mm)] wide edge dimension, configured to conceal fasteners and holes at exposed ends of plastic lockers: YES

2.4 PEDESTAL BENCH

A. Basis-of-Design Product: **Bradley LENOXPEDESTAL**.
B. Pedestal Bench Dimensions and Configuration; also refer to miscellaneous furnishings, fitting, equipment and toilet accessories schedule
   1. Mark BN-1: LENOX LOCKER PEDESTAL BENCH; **12X72**; BENCH TOP. CONSTRUCTED OF 1.5" THICK HIGH DENSITY POLYETHYLENE (HDPE) WITH HOMOGENEOUS COLOR AND A MATTE FINISH TEXTURE.

PEDESTAL: 17" BLACK ANODIZED ALUMINUM PEDESTAL WITH WELDED ALUMINUM FLANGES, ANCHORED TO FLOOR AND BENCH TOP WITH HARDWARE PROVIDED. 18.5" HEIGHT (ADA COMPLIANT). 20-YEAR WARRANTY AGAINST RUST, DELAMINATION OR BREAKAGE UNDER NORMAL USE

2. MARK BN-2: LENOX LOCKER PEDESTAL BENCH; 20X60 (CUSTOM WIDTH); ADA/ANSI A117.1 COMPLIANT. BENCH TOP: CONSTRUCTED OF 1.5" THICK HIGH DENSITY POLYETHYLENE (HDPE) WITH HOMOGENEOUS COLOR AND A MATTE FINISH TEXTURE. PEDESTAL: 17" BLACK ANODIZED ALUMINUM PEDESTAL WITH WELDED ALUMINUM FLANGES, ANCHORED TO FLOOR AND BENCH TOP WITH HARDWARE PROVIDED. 18.5" HEIGHT (ADA COMPLIANT). 20-YEAR WARRANTY AGAINST RUST, DELAMINATION OR BREAKAGE UNDER NORMAL USE.
3. MARK BN-3: LENOX LOCKER PEDESTAL BENCH; 20X48 (CUSTOM WIDTH); ADA/ANSI A117.1 COMPLIANT. BENCH TOP: CONSTRUCTED OF 1.5" THICK HIGH DENSITY POLYETHYLENE (HDPE) WITH HOMOGENEOUS COLOR AND A MATTE FINISH TEXTURE. PEDESTAL: 17" BLACK ANODIZED ALUMINUM PEDESTAL WITH WELDED ALUMINUM FLANGES, ANCHORED TO FLOOR AND BENCH TOP WITH HARDWARE PROVIDED. 18.5" HEIGHT (ADA COMPLIANT). 20-YEAR WARRANTY AGAINST RUST, DELAMINATION OR BREAKAGE UNDER NORMAL USE.
4. MARK BN-4: LENOX LOCKER PEDESTAL BENCH; 20X30 (CUSTOM WIDTH AND LENGTH); ADA/ANSI A117.1 COMPLIANT. BENCH TOP: CONSTRUCTED OF 1.5" THICK HIGH DENSITY POLYETHYLENE (HDPE) WITH HOMOGENEOUS COLOR AND A MATTE FINISH TEXTURE. PEDESTAL: 17" BLACK ANODIZED ALUMINUM PEDESTAL WITH WELDED ALUMINUM FLANGES, ANCHORED TO FLOOR AND BENCH TOP WITH HARDWARE PROVIDED. 18.5" HEIGHT (ADA COMPLIANT). 20-YEAR WARRANTY AGAINST RUST, DELAMINATION OR BREAKAGE UNDER NORMAL USE

C. Color: Deep Blue S-203, subject to verification sample.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install lockers in climate-controlled environment, shielded from direct sunlight.

B. General: Install on floor or other firm support. Install level, plumb, and true.
   1. Position locker base per approved shop drawing. Using fasteners provided by manufacturer, anchor base sections to the floor.
   2. Attach filler pieces to lockers with male-female sex bolts.
   3. Position first locker according to submittal layout. Square and plumb the locker using concealed shims. Secure the locker to the wall at the top and bottom of the locker. Position second locker next to first, square and plumb to align the tops and bottoms; and temporarily clamp lockers together. Drill four holes through the sides of the lockers and connect lockers using sex bolts provided by manufacturer.

C. Accessories: Fit exposed connections of trim, fillers, and closures together to form tight, hairline joints, with concealed fasteners and splice plates furnished by locker manufacturer. Install as indicated on approved shop drawings.
   1. Coat Hooks: Attach with at least two fasteners.
   2. Coat Rods: Attach at height indicated.
   3. Identification Plates: Identify plastic lockers with approved identification numbers. Attach plates to each locker door.
   4. Filler Panels: Attach with concealed fasteners.
   5. Sloping Tops: Attach sloping-tops to plastic lockers, with closures at exposed ends.
   6. Finished End Panels: Attach at ends indicated.

D. Fixed Locker Benches: Provide no fewer than two pedestals for each bench, spaced as indicated. Securely fasten tops of pedestals to undersides of bench tops, and anchor bases to floor.

3.2 FINAL CLEANING

A. Clean locker interior and exterior surfaces.

B. Remove packaging and construction debris and legally dispose of off-site.

END OF SECTION 10 51 26

SECTION 12 93 43.13 – SITE SEATING BENCHES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Backless benches

1.2 REFERENCE STANDARDS

A. ASTM 6061 – Standard Specification for Aluminum and Aluminum Alloy Extruded Pipes and Tubes

1.3 SUBMITTALS

A. Manufacturer's Product Data
   1. Comply with Section 01 10 00 – Submittal Procedures.
   2. Product Data: Provide for bench specified.
   3. Color Samples: Submit verification sample of colors specified.
   4. Maintenance Data: Submit manufacturer's field touch-up, cleaning, and maintenance instructions.
   5. Warranty Documentation: Submit sample of manufacturer's warranty.

B. Setting Drawings: Show items required for work specified by other Sections.

1.4 QUALITY ASSURANCE

A. Comply with Section 01 10 00 – Quality Assurance.

1.5 DELIVERY, STORAGE AND HANDLING

A. Comply with Section 01 10 00 – Product Storage and Handling Requirements.
B. Handle products in accordance with manufacturer's instructions.
C. Product shall be delivered flat or fully assembled and ready for installation.
D. Products should be stored in a clean, dry environment and protected from impact.

1.6 WARRANTY

A. Provide manufacturer's standard warranty against defects in materials and workmanship.
B. Product shall be warranted against defects in material and workmanship for 3 full years from the date of shipment. Misuse, neglect or alteration of product is not covered under this warranty

PART 2 - PRODUCT.

2.1 MANUFACTURERS

A. Manufacturer: Belson Outdoors, LLC
   1. Phone: (800) 323-5664
   2. Fax: (630) 897-0573
   3. Website: https://www.belson.com/Classic-Style-Flat-Park-Bench-with-Diamond-Rolled-Edge-Steel?addsearch=942S-VR6
   4. Email: sales@belson.com
B. Substitutions: Or approved equal, subject to 01 10 00 substitution requirements.

2.2 METAL BENCHES

A. Steel Flat Bench with Expanded Steel Rolled Edge:
   1. Model: Belson Outdoors: 942S-VR6
   2. Height: 18-3/4 inches
   3. Depth: 12 inches
   4. Length: 72 inches
   5. Weight: 61 lbs.

6. Design: Flat Park Bench.
7. Material: Steel: 12 ga round steel tubing and 12” wide expanded metal, rolled edge diamond pattern.
8. Country of Origin: U/I.
9. Finish: Sealed in an impact resistant, UV stabilized polyethylene finish.
10. Installation: In-ground mount.
11. Color Coating:
    a. Exterior Benches
        1) Type: Polyethylene
        2) Color: Blue seat, Black legs
    b. Interior Benches
        1) Type: Polyethylene.
        2) Color: Black seat, Dark Grey legs.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine paving or other substrates for compliance with manufacturer’s requirements for placement and location.
B. Verify that the substrates are in stable condition and able to support the weight of the benches covered in this section.
C. Verify that the substrates have been effectively prepared to securely anchor benches that will be surface mounted.
D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. General: Comply with manufacturer’s installation instructions and setting drawings.
B. For surface mounting, bolt and anchor benches securely in place.
C. Install in conformance to applicable regional accessibility guidelines and any End User established accessibility policies.

3.3 CLEANING & PROTECTION

A. Clean in accordance with manufacturer's recommendations.
B. Protect installed products until completion of project.
C. Touch up damaged finishes in accordance with manufacturer's instructions before Substantial Completion.

3.4 CLOSEOUT ACTIVITIES

A. Provide executed warranty.

END OF SECTION 12 93 43.13

SECTION 13 11 00 - SUMMARY OF THE SWIMMING POOL WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, under separate specification by Owner, apply to this Section.

1.2 SUMMARY OF THE WORK

A. Work to be performed under the following Contracts shall consist of all labor, materials, tools, equipment, transportation, supervision, and services necessary for, and incidental to, the construction and completion of the Project titled; and as shown on the Drawings and/or as herein specified, to include all work. The Commonwealth of Virginia requires Pool Contractors to maintain a Class B or Class A license, if work is not performed under a General Contractor's Class A license.

B. Lap/Leisure Pool Scope of Work:

1. The scope of work for the swimming pool (also referred to as 'pool or pools' in these specifications) construction is intended to produce a fully functional and code compliant municipal leisure activity / lap aquatic venue for the Culpeper County Community Pool project located at Culpeper County Parks and Recreation, 16388 Competition Drive, Culpeper, VA 22701. The structure is to be constructed by a properly certified General Contractor and a Commercial Swimming Pool Contractor with verifiable references for pneumatically placed concrete swimming pool construction. The design of the pool and support system is intended to produce a low maintenance, long filter run-time performance with minimal outside support.
2. It should be noted that pools are not totally self-sufficient, and a normal schedule of regular maintenance and upkeep must be established by the building ownership. The design features a pressure regenerative filtration system of sufficient turnover to maintain a fully code compliant aquatic facility. The pool pump is supplied with an independent VFD motor control system to permit adjustment of the flow rates for periods of higher usage or peak demands. Ease of operation, high quality water filtration and sanitation equipment, and aggressive filtration rates with moderate water usage are incorporated to make the day-to-day operation of the pool and its support system as low impact as possible.
3. Access to the pool filtration equipment is housed in a dedicated pool equipment room within the bathhouse structure with all piping trenched below the pool deck to supply the pool with filtered and sanitized pool water. All equipment in the pool filter area is to be rated for indoor/outdoor use and have UL certification for wet applications for all electrical components.

C. Basis of Design, Base Bid:

1. The Basis of Design for the Base Bid Swimming Pool vessel shall be a pneumatically placed concrete swimming pool of (dry-gun) gunite or (wet-gun) shotcrete placement methodologies incorporating a skimmer-type recirculating system. The Culpeper County Department of Parks and Recreation reserves the right to select any system that is deemed to be in the best interest of the Department of Parks and Recreation.
2. The Base Bid work associated with the new swimming pool construction is established as a single 6-lane, multi-purpose lap pool including an integral beach access area with an ADA access ramp, and a leisure relaxation area featuring in-pool benches. Under the Base Bid, the 6-lane main pool (45'-0" x 75'-1") ranges in depth from the starting blocks at 6'-9" to 4'-0" in the shallow end shallow end for

recreational swimming, teaching, and exercise. (See architectural drawings for all overall dimensions and profiles.) The pool depth profiles shall meet or exceed the recommendations established in the National Collegiate Athletic Association (NCAA) and National High School Federation (NHSF) standards for competitive swimming, latest edition. The main pool shall operate at a design temperature ranging from 80 to 82 degrees F. for the summer swimming season.

3. The pool heater and associated components and connections are not a part of this rebid process but has been left on the drawings for information in case the county chooses to add that work to the project at a future date. All related LPG supply piping from the existing LPG storage tanks shall be installed at a future date should the county elect to provide a heated swimming pool vessel. The venting and exhaust associate with the heater shall be combined with any future heater installation, all venting and exhaust shall be omitted for the Project and will be installed if the Owner elects to install the specified heater at a future date.
4. Pool Alternate No. 1: The beach access "Twin Splash-Tumble Bucket" water feature within the main pool shall be bid as an alternate. No provisions for future installation shall be provided in the event the Owner elects to omit this feature.
5. Pool Alternate No. 2: The following elements shall be provided as unit price elements. The base bid shall include all associate piping for all identified units and all related "Safeswap" mounting hardware to be installed in the concrete water play zone under the base bid with the identified feature elements available for future purchase and installation. Helio No. 6, Bobble No. 1, Fumbling 5, and (2) Tube No. 1 shall all be priced as individual unit price elements for the Owner's consideration. (Pool Add-Alternate No. 2 - Provide unit price for each of the identified water features identified above.)
6. 25-Yard 6" diameter custom length lane lines and Racing Lane Storage reel.
7. ~~Pool Alternate No. 6: Furnish and Install Clear Comfort Secondary Sanitation Systems for main pool and water play area. (Pool Add-Alternate No. 6)~~
8. ~~Pool Alternate No. 7: Meyco custom mesh pool winter cover. Provide in sections to cover lap pool, leisure, and beach access zones to simplify labor associated with installation and removal and enhance off-season storage. (Pool Add-Alternate No. 7)~~
9. ~~Furnish and install six (6) SR Smith Velocity Starting blocks Model No. VELOMR-TS-SA.~~ Base bid shall include furnishing and install twelve (12) SR Smith "Rock Solid" anchors for the dual post Velocity starting blocks or six (6) anchors if the Velocity single post starting blocks are proposed.

C. The following items are included in the scope of work for the pool contract, but are not limited to:

1. Coordination of all trade-related work impacting the swimming pool construction and the related filter and sanitation systems and functions. Coordination of all piping runs connecting the pool to control over excavation and filter areas shall be fully defined by this contractor and coordinated to eliminate conflict between pool related equipment and the building mechanical and electrical systems located under the floor slabs. A Pre-installation meeting is required for all pool-related equipment with all major trades to coordinate and delineate all scope of work of all trades prior to the start of construction.
2. Furnish and install all pool-related piping, filtration, sanitation, control equipment, tie-ins for building interface, if required.
3. Furnish and install all pool automatic water level control systems to fill and maintain proper water level in the pool, from the main building domestic water system (by others).
4. Furnish and install all pool deck anchors indicated on the drawings.
5. Furnish and install all low voltage control wiring for all pumps, starters (VFDs), and controllers from the pool equipment. All line and high voltage from the electrical panel provided by electrical contractor shall be installed under the electrical contract and all line and high voltage wiring shall be installed and connected to all

pool equipment by the electrical contractor with oversight and coordination furnished by the pool contractor. All “plug and play” equipment shall be installed by the Pool Contractor.

7. Furnish and install all electrical bonding of all conductive metals within 5 feet of the swimming pool containment vessels per the latest NEC and Commonwealth of Virginia DOH requirements. This includes the costs for all bonding certification testing.
8. Costs associated with all water required for testing (prior to finish installations) and water for final startup are to be furnished by the pool contractor. (The Owner may elect to furnish water for the initial testing and final fill up, but the cost for same should be identified by the General Contractor, subject to change.)
10. Coordination and costs for all required chemicals for start-up and the first three months of operation. Include owner orientation of up to three full days for a certified pool operator.
11. Securing all required pool water discharge permits from the local jurisdiction and start-up approvals for the pools.

D. Work not included:
1. Sub-structure drainage to be installed by others.
2. Water service to the filter room to be installed by others under the Plumbing contract.
3. Sanitary drainage from the filter room to be installed by others under the Plumbing contract.
4. Electrical service to the filter room, power wiring and associated electrical panel to be installed by others under the Electrical contract.
5. Building heating system connections to the filter room to be installed by others under the Mechanical contract.
6. Exhaust and venting from pool filter room to be installed by others under the Mechanical contract.

E. All swimming pool systems shall be fully coordinated with the building structure to produce a pool structure able to accommodate incidental structural movement. All ceramic tile finish materials at pool perimeter (Commonwealth of Virginia compliant depth Markings) shall be installed with epoxy-based setting bed and grouting materials to produce a high strength, flexible attachment system with the concrete pool decks and within the containment structure where applicable.

F. All exposed finishes shall be reviewed and approved by the Architect of Record. The pool drawings are furnished to provide the intended scope of work and are consistent with a Bidding and Construction level of completion. These documents are for pricing and construction.

END OF SECTION

SECTION 13 11 13 - BELOW GRADE STAINLESS STEEL POOL SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Base Bid applies to this Section.

1.2 SUMMARY

A. This Section includes the following:
1. Prefabricated Wall System
2. Prefabricated Gutter System
3. Prefabricated Steps
4. Prefabricated Bottom Drains
5. PVC Floor Underlayments
6. PVC Floor Membrane
7. Inlets
8. Accessories

1.3 DEFINITIONS

A. Base Frame: Structural steel member bolted to concrete foundation and/or cast-in-place concrete pool floor assembly designed specifically to provide structural stability between the new concrete foundation system and the pool structure.

B. Bottom Drain: Drain typically placed at lowest portions of pool typically used to drain the pool but will also be used in conjunction with filtration. Often termed 'Main Drain'.

C. Buttress: Structural steel member bolted to panel support or base frame and foundation designed to transfer applied loads to the foundation.

D. Floating Line Anchor: Steel component at pool perimeter used to secure the ends of floating lines. May be one of several available types depending on pool design.

E. Floor Underlayment: Material placed between the foundation and the PVC floor membrane, which may be designed to cushion the floor, buffer imperfections in the floor finish, provide a submembrane drainage layer, etc.

F. Gutter: Component of wall system designed to convey water from the pool along its perimeter to the filtration system.

G. Gutter Mounted: An accessory supported by steel brackets attached to the gutter system designed to reduce the need for deck equipment. May consist of handrails, line anchors, stanchion sockets, or other accessories.

H. Inlet: Water distribution device located at finished pool wall used to distribute water from filtration system into the pool.

I. Liquid PVC: PVC dissolved in a solution that, when exposed to air, will bond to PVC and harden to form a seal.

J. Panel Support: Steel member bolted to the wall panels at panel seams.

K. Primary Components: Structural or critical elements of pool assembly. Primary components include, but are not necessarily limited to, base frames, wall panels, panel supports, buttresses, gutters, and gutter supports, concrete anchors, and PVC membrane.

L. PVC Membrane: Flexible sheet PVC of typically small thickness formed into rolls for use in various applications.

M. PVC Rope: Strips of PVC used in conjunction with a heat welding process to provide a primary seal in many applications.

N. PVC Welding: Process of bonding two or more PVC elements by using a special heat tool to melt adjacent layers of PVC then applying pressure to allow the melted layers to bond and cool.

O. Secondary Components: Less critical elements of pool assembly and fasteners. Secondary components include, but are not necessarily limited to, fasteners, accessories, grilles, PVC sealants and seaming materials, and tile and tile components.

P. Structural Concrete Foundations: The drawings indicate the extent of the concrete foundations, wall assemblies, and concrete floor slabs necessary for a complete and operational swimming pool system. All Myrtha buttress panel construction shall be installed on the concrete walls included in the general construction contract. The construction tolerances for the stainless- steel structural components shall dictate all placement of the concrete foundations to be installed prior to the installation of the below grade Stainless-Steel Pool System. The placement of the structural concrete foundations and wall shall be the responsibility of the General Contractor with supervision and coordination provided by the swimming pool construction contract.

Q. Structural Supports: Base Frames, panel supports, buttresses, etc. designed to provide structural stability to wall system.

R. Wall Panels: Fabricated sheet steel components, which when properly connected and supported, provide pool wall surface and waterproofing.

1.4 SYSTEM PERFORMANCE REQUIREMENTS

A. General: Provide pool manufacturer's standard and/or custom components and assemblies integrated into a complete system that form a pool capable of withstanding imposed structural loads, thermally imposed movement, and deterioration from weather, site, and service conditions at a minimum as specified in this Article.

B. Structural Performance: Provide wall panels, structural supports, structural connections capable of withstanding the effects of soil (backfill) pressures, and hydrostatic & other loads and resulting stresses within the limits without leakage and under the conditions indicated:
   1. Lateral Backfill Loads: Include lateral loads including lateral soil pressure, pool decks, other significant adjacent structures, and overburden created by compaction efforts performed in conformance with compaction techniques specified in this Article.
   2. Hydrostatic Loads: Include lateral loads induced by the presence of water within the pool.
   3. Lateral Live Loads: Include loads induced by contact of swimmers with the structure under intended use conditions.

4. Seismic Loads: Include lateral loads that may be induced into the structure from seismic activity. Consult applicable building codes and geotechnical information as required.
5. Load Combinations: Design pool system to withstand the following load combinations:
6. Structural Bracing: Horizontal deflection of 1/250 of the height, not to exceed 4mm.

C. Water Penetration for wall and floor Systems: Provide wall and floor assemblies manufactured and installed with no water penetration (leakage) through the system(s). PVC shall be continuous across connections between wall panels, between wall panels and floor membrane, and across joints between sections of floor membrane.

1.5 SUBMITTALS

A. General: Submittal procedures shall be as noted below or as noted in the 01 00 00 Supplemental Conditions. If there is a variance between the requirements of each section the stricter requirements shall apply. For the following items in this section, submit 6 sets of documents and 2 sets of samples.
1. Product Data: Include material descriptions, performance characteristics, and finishes for each type of the following system components:
a. Wall Panels
b. Structural Supports
c. Gutters
d. Connections & Interface Components
e. Drains
f. Inlets
g. Floor Underlayments
h. Floor Membrane
i. Accessories
j. Concrete foundations and pool floor slabs

B. Shop Drawings: Include plans indicating the type of system & structural components and the type and number of accessories provided.

C. Samples for Verification: For the following items, include coupons or sample components. Prepare Samples from the same material to be used for the Work:
1. Wall Panels
2. Exposed Membrane
3. PEM “soft-floor” underlayment
4. Exposed PVC Profiles
5. Tile (Single Tiles, or Single Sheets for Mosaics)
6. Exposed Grilles & Grates

D. Product Certificates: Signed by manufacturer of pool system certifying that products furnished comply with requirements.

E. Engineering Reports: manufacturer must submit drawings reviewed by a Registered Professional Engineer and/or a structural report including calculations developed by a Registered Professional Engineer, qualified to engage in design development and/or review of the pool system licensed in the Commonwealth of Virginia. The drawings and/or report shall be sealed by the reviewing Engineer. Provide completed project lists and descriptions as evidence of qualification.

F. Installer Certificate: Signed by manufacturer certifying that installation contractor complies with requirements.

G. Manufacturer Certificate: Signed by manufacturer certifying that they comply with requirements.

H. Project References. Including project location, description of facility and bodies of water manufactured, and representative photographs.

I. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names, and addresses of architects and owners, and other information specified.

J. Warranties: Manufacturer shall submit warranty certificate.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: An experienced installer who has specialized experience in erecting and installing work similar in material, design, and extent to that indicated for this Project and who is acceptable to manufacturer and the following:
1. Has successfully completed five (5) projects similar in type.
2. Exception: In lieu of the required number of projects, installers may engage one or more manufacturer-endorsed master installers with a minimum completion of 20 successful projects similar in type.
3. The Commonwealth of Virginia requires Pool Contractors to maintain a Class B or Class A license, if work is not performed under a General Contractor's Class A license.

B. Manufacturer Qualifications: A firm experienced in manufacturing pools similar to those indicated for this Project and with a record of successful in-service performance.
1. ISO Registration: Firm shall provide ISO 9001 (or better) certificate or provide the following:
a. Evidence of successful-audited QA/QC program.
b. Test results in accordance with Section 2.13 'SOURCE QUALITY CONTROL'
c. Has successfully manufactured a minimum of 30 projects with a minimum of 50 bodies of water which have been installed within the past 5 (five) years.

C. Engineering Responsibility: Preparation of Shop Drawings, testing program development, test result interpretation, and comprehensive engineering analysis by a qualified professional engineer.

D. Source Limitations: Obtain all prefabricated pool systems through one source from a single manufacturer.

E. Product Options: The overall appearance of the pool is obtained through specific information such as overall geometry, components, colors, materials, and performance characteristics as provided on drawings and specifications. The evaluation of completed construction is subject to inspection for purposes of verification by reasonable methods including, but not limited to, post manufacture testing, field testing, and/or performance evaluation.

F. Do not modify intended aesthetic effects, as judged by Architect or aquatic consultant, except with Architect or aquatic consultant's written approval. If modifications are proposed, submit comprehensive explanatory data to Architect for review.

G. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."

1.7 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Deliver components and other manufactured items so as not to be damaged or deformed. Package small components together in crates or containers to prevent loss of small items. Package hazardous and/or sensitive materials together and clearly labeled to indicate use of caution or extra attention is required. Finished panels shall be covered with continuously applied adhesive-fixed protective layer to prevent damage to panel surface. Bundle and secure components to prevent scattering and damage to other materials during shipment

B. Storage:
1. All pool components shall be stored and staged with sufficient site safety and security to ensure damage or losses from vandalism, theft, and weather do not occur.
2. Stack non-structural materials on platforms or pallets, covered with tarpaulins or other suitable weather tight and ventilated covering. Store underlayment and boxed items to ensure dryness. Do not store wall panels, PVC membrane, PVC profiles, or other soft-finish items in contact with other materials that might cause staining, denting, or other surface damage, or in direct sunlight.
3. Store hazardous materials as follows:
   a. Store in a climate-controlled environment within temperature ranges specified by product manufacturer
   b. Keep out of direct sunlight
   c. Store away from open flame or sources of heat
   d. Comply with applicable safety regulations governing hazardous material storage and handling.
4. Handling: Unload, store, and erect manufactured pool components to prevent bending, warping, twisting, and surface damage.

1.8 PROJECT CONDITIONS

A. Weather Limitations: Proceed with installation only when weather conditions permit installation according to manufacturer's written instructions and warranty requirements. Various phases of installation may have differing requirements.

B. Field Measurements: Prior to commencement of installation, site conditions shall be approved in writing by installation contractor as specified in Section 3.1 'Examination'. If projects are phased, installation contractor shall only approve those portions of the project ready for pool installation.

C. Concrete Surfaces: At all times concrete floor shall be protected from oil, paint, solvents, etc., as many of these items will damage PVC membranes. Installation contractor and manufacturer shall be notified in writing if such items do come in contact with concrete floor. These items shall be remedied as required by manufacturer at Contractor's expense.

1.9 COORDINATION

A. Coordinate size and location of concrete footings, stem walls, and floors. Concrete, reinforcement, and formwork requirements are specified in Division 3 Section "Cast-in-Place Concrete."

B. Pneumatically placed concrete for the footings, stem walls, and floors shall not be permitted.

C. Facilitation of storage and staging of hazardous and non-hazardous materials in conformance with 'Delivery Storage & Handling' requirements.

1.10 WARRANTY

A. 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.

B. Special Warranty on Prefabricated Pool System: Written warranty, executed by manufacturer agreeing to repair or replace pool system components provided by manufacturer that have failed and/or directly result in leakage of the pool.

C. Warranty Period: Watertightness (vinyl lining) ten years from the date of Substantial Completion with the option for an additional ten-year extension after manufacture review and approval if the pool is deemed to be suitable for such extension by the manufacturer, structural shell/stainless steel components integrity twenty-five years from date of Substantial Completion. Head wall and related components, 5 years from the date of Substantial Completion, Plastic grille structural integrity-one year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:
1. Myrtha Pools RenovAction System (Commercial Division of A&T Europe, S.p.A.). This system is the basis of design and pricing for the basis of design shall be furnished with all bid submissions. If the basis of design is not included in the bid submission, the bid will be deemed non-responsive.

2.2 STRUCTURAL COMPONENTS

A. Primary components shall be fabricated by cold working from AISI 304 or 316 stainless steel sheet or standard shapes.

B. Secondary components shall be grade AISI 304 stainless steel (minimum) and may be fabricated by hot working as required.

C. Anchor Rods, Bolts, Nuts, and Washers. As follows:
1. Grade AISI 304 stainless steel minimum.

D. Chemical Anchors:
1. Chemical anchor capsules in accordance with ASTM E 1512

2.3 PVC-COATED STEEL MATERIALS

A. Stainless Steel Sheet: Grade AISI 304 stainless steel minimum.

B. PVC-Coated Stainless-Steel Plate: All PVC coated stainless steel components shall be constructed from PVC coated stainless steel sheet (or blanks) manufactured by hot calandering PVC to the stainless-steel sheet. The bonded PVC shall withstand tensile (de-lamination) force of 27 lb. on a sample if 1" at 180° angle de-lamination

2.4 PVC MEMBRANE

A. Floor Membrane: PVC floor membrane shall be a reinforced PVC geo-membrane (chemically coated fabric) with the following properties:
   1. Minimum thickness of 1.5mm in accordance with ASTM D 374.
   2. Minimum resistance to tearing of 90 lb./90 lb. in accordance with ASTM D 1004.
   3. Minimum resistance to peeling of 130/130 N/mm in accordance with ASTM D 638

2.5 FABRICATION, GENERAL

B. General: Design components and field connections required for erection to permit easy assembly.

C. Mark a minimum of one of each part of the assembly to correspond with previously prepared erection drawings, diagrams, and instruction manuals.

D. Fabricate elements to produce clean, smooth cuts and bends. Punch holes of proper size, shape, and location. Cold-formed members shall be free of cracks, tears, and ruptures.

E. Primary Components: Shop fabricate all aspects of primary structural components and panels. Punch/bend all elements including punching of holes for filtration components, through-panel fasteners, lights and accessories, bolted connections and bending of flanges for bolted connections and recesses. Field cutting/modification of primary components is not permitted.

2.6 STRUCTURAL SYSTEM

A. Structural Elements: Manufacturer's standard structural primary system, designed to withstand required loads and specified requirements. Primary system includes base frame, wall panels, panel supports, buttresses, gutter supports and gutters.

B. General: Provide structural elements with required splice members. Factory drill or punch for field-bolted assembly.
   1. Base Frames: 'C'-shaped sections fabricated from cold-worked stainless-steel (14ga (2mm) steel sheet minimum). Frame construction shall ensure tight horizontal tolerance and allow for vertical adjustment to compensate for variations in finished concrete.
   2. Wall Panels: Panels fabricated from cold-worked PVC laminated stainless-steel (14ga (2mm) steel sheet minimum). Panel construction shall provide for flanged-bolted connections with compatible steel with no through-panel fasteners below tile line. Flange bolt spacing shall not exceed 6" without utilizing flange stiffening element. Wall panels will have a protective plastic film on the interior face (water side) of the panel that will be removed during the installation process before the pool is filled with water. Wall panels will have a clear, protective coating applied to the exterior face to provide a permanent shield against oxidation from chlorinated atmosphere.
   3. Panel Supports: Panel supports fabricated from cold-worked steel (14ga (2mm) stainless-steel sheet minimum). Flanges, connection plates, and stiffening elements shall be fabricated by cold-working (no steel welding is permitted).
   4. Buttresses: Structural braces fabricated from 14ga (2mm) steel sheet minimum. In lieu of fabrication from cold-worked sheet, buttresses may be fabricated from hot or cold formed standard angle, c, zee or other standard section provided all additional flanges, connection plates, and stiffening elements are fabricated by cold-working (no steel welding is permitted).
   5. Gutter Supports: Brackets fabricated from cold-worked stainless-steel (14ga (2mm) steel sheet minimum). Gutter supports shall be fabricated integrally with panel supports or

separately provided gutter support construction provides for bolted connection to panel supports.

6. Gutter: Channels fabricated from cold-worked PVC laminated stainless-steel (14ga (1.5mm) steel sheet minimum). Gutter construction shall provide for flanged-bolted connections with compatible steel between gutter segments. Gutter splice plates are not permitted. Gutters/gutter supports for tile finished gutters shall be constructed with permanent adjustment system to level gutter at skim line prior to installation of tile (floating of tile on gutter or adjustment of coping over 1/8" to obtain level skim is not permitted). Gutters will have a protective plastic film on the interior face (water side) of the gutter that will be removed during the installation process before the pool is filled with water. Gutters will have a clear, protective coating applied to the exterior face to provide a permanent shield against oxidation from chlorinated atmosphere.
7. Gutter Drain Flanges: Flanges fabricated from hot or cold formed steel. Flanges may be secured to gutter or gutter drain manifold by steel welding. Flanges shall be fabricated to connect to standard PVC flanges. Gutter drains placed in accordance with the architect's drawings. No flanges in the gutters are permitted; this would obstruct the free flowing of water into the drain.

C. Structural Anchoring: Provide anchoring to foundation as follows:
1. Rods: AISI 304 Stainless Steel in Epoxy filled holes in accordance with anchor manufacturer's written instruction.

D. Connection Hardware: Provide stainless steel bolts, nuts, washers, screws, etc. for fasteners in permanent contact with stainless steel elements, whether through head contact or by penetration through the steel. Bolts/nuts shall be fabricated to prevent seizing (standard bolts with field-applied anti-seize solution are not acceptable).

2.7 STEEL ACCESSORIES

A. Line Anchors: Shall be designed and fabricated to withstand forces specified by floating line manufacturer or by recognized swimming authority. Line anchor construction shall utilize third party bracing elements (not solely supported by wall panel) and/or utilize pool structural system to provide resistance to service forces (line anchors secured only to wall panels are not permitted).

B. Gutter Mounted Elements: Shall be designed and fabricated to withstand forces specified by accessory manufacturer and/or recognized swimming authority in addition to those service conditions specified by governing code officials. Exposed steel shall be polished stainless steel.

C. Bottom Drains: Shall be fabricated from cold worked PVC laminated steel (14ga (2mm) minimum) and/or rigid PVC to facilitate PVC membrane welding at drain edges or fabricated from sheet steel having 16ga (2mm) minimum thickness be equipped with a steel flange, counter flange, two gaskets, compatible fasteners designed to prevent seizing. Drains shall be designed and fabricated to facilitate monolithic concrete slab or block-out type installations and concrete bonding. Drains shall be equipped with grounding lugs or holes for connecting grounding wiring. All drain components shall meet or exceed the requirements of the Virginia Graeme Baker Pool and Spa Safety Act (including applicable provisions of the December 2014 Version). Commercial cast fiberglass main drains offered by Myrtha Pools USA may be provided in lieu of stainless steel main drains.

D. Grab Rail Anchors: Grab rails not penetrating PVC shall be anchored with metallic anchors mounted in concrete. Anchors shall be designed and fabricated to withstand Myrtha required

loads and facilitate simple removal and replacement of the grab rail without damage or part replacement. Grab rail and grab rail anchor sizes shall be coordinated to ensure compatibility.

E. Grab Rails: Shall be fabricated from polished stainless steel having outside diameters as noted on drawings. Grab rail and grab rail anchor sizes shall be coordinated to ensure compatibility.

2.8 PLASTIC GRILLES & ACCESSORIES

A. Gutter Grilles: Grilles fabricated in multiple interchangeable segments. Grilles shall be fabricated with buffers or slats parallel to pool edge to limit deck splash-over.

B. Grab Rail Anchors: Grab rails penetrating PVC shall be anchored with PVC anchors mounted in concrete. Anchors shall be designed and fabricated to withstand Myrtha required loads, facilitate PVC membrane welding, and facilitate simple removal and replacement of the grab rail without damage or part replacement. Grab rail and grab rail anchor sizes shall be coordinated to ensure compatibility.

2.9 SOURCE QUALITY CONTROL

A. Manufacturer shall present certificate of ISO 9001 (or better) registration or the following:
1. Manufacturer will employ an independent testing agency chosen by Contractor to perform source quality-control testing and special inspections, and to prepare test reports.
2. Testing agencies will conduct and interpret tests and state in each report whether test specimens comply with or deviate from requirements.
3. Manufacturer shall allow testing agency access to places where structural/primary components are being fabricated or produced and cooperate with testing agency and provide samples of materials as may be requested for additional testing and evaluation.

B. Manufacturer shall correct deficiencies in or remove and replace primary components that inspections and test reports indicate do not comply with requirements.

C. Additional testing, at manufacturer's expense, will be performed to determine compliance of corrected Work with requirements.

D. Testing agency will report test results promptly and in writing to Contractor and Architect.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Site Conditions: Installation contractor shall confirm in writing suitability of project site to proceed with installation. Items to be confirmed shall include but are not necessarily limited to:
1. Accessibility to pool area.
2. Safety of pool excavation.
3. Ability to store and stage materials in conformance with Section 1.7 'Delivery Storage & Handling'

B. Field Measurements: Construction of the pool foundation and floor shall be coordinated and confirmed as follows:
1. A survey shall be conducted of the formwork for the foundation for the complete pool system (including footings and floor slab) by a qualified independent surveyor. A drawing and/or report of their findings shall be submitted for review. Along with other applicable information,

statement of compliance with construction documents is required. Surveyor shall specifically consider the following:
a. World and relative placement of pool foundation and concrete wall systems
b. Vertical and horizontal line
c. Elevation
d. Allowable construction tolerance

2. Upon completion of the concrete pool foundation and wall systems, a final survey shall be conducted by installation contractor. A drawing and/or report of their findings shall be submitted for review. Deficiencies in any of the areas listed below shall be identified along with other applicable information. The installation contractor along with the manufacturer shall note in writing any possible recommendations for correction of deficient conditions and advise of possible delays and additional costs that may result as soon as possible, specifically considering the following:
a. World and relative placement of pool foundation and concrete wall systems
b. Horizontal line
c. Elevation
d. Concrete finish

3.2 PREPARATION

A. Clean concrete as follows:
1. Mud and dirt shall be swept or washed from concrete floor.
2. Oil, paint, and solvents shall be cleaned, and surfaces treated per manufacturer's recommendations as required in Section 1.8.C 'PROJECT CONDITIONS.'

3.3 TANK INSTALLATION

A. Install pool system according to manufacturer's written instructions and installation drawings.

B. Install grounding for steel components according to applicable articles and governing codes.

C. Prior to component installation, all primary components shall be inspected for damage or defect. Do not install damaged or defective components. Notify pool manufacturer immediately of any damaged or defective components.

D. Do not field cut, drill, or alter primary members without written approval from pool system manufacturer.

E. Set primary and secondary components in locations and to elevations indicated and according to manufacturer's written specification. Maintain structural stability of pool during installation.

F. Base Frame:
1. Connect all base frame elements and set into position prior to leveling to ensure all components are manufactured to the required overall dimensions.
2. For straight wall pools, attach base frame to concrete as required to ensure both finished line and elevation are maintained throughout installation.
3. For curved wall pools, install elevation adjusting bolts after installing wall panels. Do not permanently fix base frame to concrete until all primary components are connected.

G. Wall Panels, Panel Supports, Buttresses, and Gutter Supports.

H. Stage wall panels as required around pool perimeter to protect panel surface at all times.

I. Remove protective panel covering from connecting flanges to prevent covering from being trapped between connecting flanges.

J. Connect wall panels to base frame, panel supports and adjacent wall panels per manufacturer's recommendations with as few bolts as required to prevent gapping between panels. Gutter supports may be installed at this time.

K. Connect buttresses to panel supports and panel supports to foundation to ensure walls are properly braced during installation.

L. After wall segments are installed from end-to-end, install remaining fasteners and tighten per manufacturer's recommendations.

M. Perform final adjustment of wall verticality (and horizontal line if necessary).

N. Final tighten anchors.

O. Gutters & Gutter Supports:
1. Connect remaining gutter supports to panel supports.
2. Attach gutter segments to wall panels/gutter supports/adjacent gutter segments per manufacturer's recommendations with as few bolts as required to prevent gapping between gutter segments.
3. Final tighten gutter segment-to-gutter segment flanges.
4. Final tighten remaining fasteners.
5. For curved wall pools, once all primary elements are connected and tightened, adjust base frame elevation adjusting bolts to level pool structure. Level should be measured from tile recess. Once structure is level and plumb, spot measurements from the finished pool line to the traced pool line shall be recorded. Contractor must be informed in writing of line deviations in excess of 25mm (1"). Once line is confirmed, the base frame should be anchored to foundation as required.
6. Once all gutter segments are fixed place, adjust all skimming sections of gutters to constant water level.

3.4 WALL PANEL SEALING

A. General: Install uniform-watertight PVC seals.

B. Wall panel sealing shall be performed according to manufacturer's written instructions.

C. Mechanical (welded PVC) and chemical seals shall be applied within temperature and climatic ranges specified by manufacturer.

D. Mechanical Seals:
1. Clean surfaces of dirt, dust, debris, and adhesive film by scrubbing with a lightly abrasive fabric or cloth and a mild detergent. Rinse surfaces.
2. Install PVC rods and/or strips to minimize joints and splices.
3. Rods and strips shall be welded to panel to ensure good bond, free of exposed scorching, and free of substrate blisters and wrinkles.
4. Exposed edges of strips and rods shall be chemically sealed as specified in the following item 3.4.E 'Chemical Seals'.

E. Chemical Seals:

1. Clean surfaces of dirt, dust, debris, and adhesive film by scrubbing with a lightly abrasive fabric or cloth and a mild detergent. Rinse surfaces.
2. Avoid application of harsh chemicals and primers on exposed-finished PVC.
3. Ensure substrate remains dry throughout application and curing of chemical seal.
4. Apply liquid PVC in thin layers to prevent forming of bubbles in curing PVC. Seal layers shall be free of such bubbles.
5. Sealant layers applied within four hours over previous layers do not require additional cleaning before application of additional layers. After four hours, sealed surfaces shall be cleaned with cloth or sponge and mild detergent and water.

3.5 PVC MEMBRANE INSTALLATION

A. Install membrane according to manufacturer's written instructions and installation drawings.

B. Prior to permanent fixing or welding, PVC membrane shall be inspected for visible defects or blemishes. Do not install damaged or defective membrane. Notify pool manufacturer immediately of any damaged or defective membrane.

C. PVC membrane shall be stretched both longitudinally and transversely to prevent wrinkles from forming. Wrinkled PVC membrane shall be removed and replaced.

D. Seams:
1. All seams in membrane and connections between membrane and wall panels shall be heat continuously welded a minimum of 38mm (1½"). Heat welding devices explicitly designed for PVC membrane welding shall be utilized for welding. Welds shall be spot checked per manufacturer's written instruction prior to final seam sealing.
2. PVC weld seams shall not extend into flanged accessory connections. Utilize secondary PVC section to provide uniform surface for flanged connections.
3. Exposed PVC membrane edges shall be sealed with liquid PVC or by heat sealing according to manufacturer's written instructions.

3.6 ACCESSORIES INSTALLATION

A. General: Install accessories according to accessory manufacturer and pool manufacturer's written instructions and installation drawings and install grounding for steel accessories according to applicable articles and governing codes.

B. Floor Inlets
1. Install per manufacturer's written recommendations for in floor installation.

C. Wall Inlets:
1. Remove locking rings and adjustable eyelet assemblies and store well-marked in secure location.
2. If supplied, install protective cover caps until locking rings and eyelets are installed.
3. Install locking rings and adjustable eyelet assemblies immediately prior to pool commissioning.

D. Bottom Drains
1. Remove grille and install under-membrane drain sub-assembly (if supplied). Install temporary wood or other protective covering securely over drain.
2. Install grounding according to applicable articles and governing codes.
3. Set drain body flush with adjacent concrete.

4. Temporarily remove bracing members located over drain flanges as required to facilitate drain plumbing pressure testing. Immediately re-install bracing members upon completion of testing.
5. Install drain grilles immediately prior to pool commissioning.

3.7 ERECTION AND LOCATION TOLERANCES

A. Horizontal Line: Face of pool at pool edge shall remain within +/- ¼" of designed dimensions.

B. Structure Elevation: Elevation of wall system below tile or coping shall remain within +/- 1/8" of required elevation to achieve finished pool water level.

C. Finished Skim Elevation: Finished elevation of skimming tile or coping shall remain within +/- 3/32" of specified pool water level.

END OF SECTION

SECTION 13 11 13 – SWIMMING POOL SHOTCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

B. Refer to Section 13 11 00 - Summary of The Swimming Pool Work for additional information regarding the Work of this Section.

1.2 SUMMARY

A. Section includes shotcrete applied by dry-mix or wet-mix process for the following:
   1. New Pool.

B. Related Sections include the following:
   1. Section 13 11 00 - Summary of the Swimming Pool Work
   2. Section 13 11 26 - Exposed Aggregate Pool Finish
   3. Section 13 11 29 - Ceramic Tile Swimming Pool Finish
   4. Section 13 11 41 - Skimmer Recirculation System
   5. Section 13 11 44 - Pool Trench Drain

1.3 DEFINITIONS

A. Shotcrete: Mortar or concrete pneumatically projected onto a surface at high velocity.

B. Dry-Mix Shotcrete: Shotcrete with most of the mixing water added at nozzle.

C. Wet-Mix Shotcrete: Shotcrete with ingredients, including mixing water, mixed before introduction into delivery hose.

D. Rebound: Aggregate mixed with some cement, which ricochets off the surface during the application of shotcrete because of collision with the hard surface, reinforcement, or with the aggregate particles themselves, which amount varies with the position of the work, air pressure, cement content, maximum size and grading of aggregate, amount of reinforcing and thickness of layer. Rebound materials may not be reused in any form for shotcrete work and shall never be worked into the construction by the nozzleman.

1.4 PREINSTALLATION MEETING

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product including reinforcement and forming accessories, shotcrete materials, admixtures, curing compounds and curing blankets.

B. Design Mixtures: For each shotcrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
   1. For pre-dampened dry-mix mixtures, indicate amounts of mixing water to be added to the dry-mix materials before mixing and conveying through the delivery hose.

C. Shop Drawings: For shotcrete installation. Include support and anchor details; reinforcement materials and grades and details of fabricating, bending, and placing reinforcement; number and location of splices; special reinforcement required for openings through shotcrete structures; formwork materials and details of formwork fabrication, assembly, and support; and locations of proposed construction joints.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Material Certificates: For each of the following:
1. Cementitious materials.
2. Admixtures.
3. Form materials.

C. Preconstruction Test Reports; For Shotcrete.

D. Field quality-control reports.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer employing nozzle operators for the Project, each of whom attains mean core grades not exceeding 2.5, according to ACI 506.2, on preconstruction tests, is ACI Shotcrete Nozzleman certified in Dry-Mix Process for Vertical Position, is ACI Shotcrete certified in Wet-Mix Process for Vertical Position as appropriate to the required shotcrete work.

B. Testing Agency Qualifications: Qualified according to ASTM C 1077 and ASTM E 329 for testing indicated.

C. ACI Publications: Comply with ACI 506.2, “Specification for Shotcrete,” unless modified by requirements in the Contract Documents.

D. Shotcrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design shotcrete mixtures.

1.8 PRODUCT HANDLING

A. Protection: Use all means necessary to protect shotcrete materials before, during and after installation and to protect the installed Work specified in other Sections.

B. Replacements: In the event of damage, immediately make all repairs and replacements necessary to the approval of the Architect and at no additional cost to the Owner.

1.9 PRECONSTRUCTION TESTING

A. Submit cured samples showing type of work that can be expected in finish work. It is the General Contractor’s option to use the actual in-place gunite as the required sample. Size to be such for Architect to accurately judge finish product and results.

B. For each day's shooting, the following core test procedure must be followed:

1. Take a panel board, plywood, or any other suitable material approximately one (1) foot square.

2. Set this board on the floor of the pool in the area where the nozzle is working and spray on gunite to the thickness of four inches (4") over the entire surface.

3. When sample has taken its initial set, approximately one (1) hour, gently trim the top and sides of the required 4" thickness; the top surface must be flat and parallel with the bottom surface. On the sides of the panel, scratch an identification number and the date shot.

4. Upon completion of the days shooting, and when the panel has achieved the maximum set allowable for that day, gently relocate this panel to a safe, damp area. Wet the panel thoroughly; cover it with a wet cloth or wet sand.

5. Contact independent certified testing laboratory and advise. Then pick up the panels on the fourth or fifth day, transporting them to their laboratory for curing, cutting and testing in accordance with ACI Standard 506-66, Section 320.

6. Submit test results to Architect before completion of the Project.

1.10 WARRANTY

A. The General Contractor warrants that all materials used in completing the installation contracted for are new and of high quality; that all work has been done in a competent and workmanlike manner; that if any substantial defect occurs in the workmanship or materials, it will be remedied without cost to the Owner if written notice thereof is given to the Contractor within one (1) year from the Date of Substantial Completion. Assemblies or units (such as heaters, pumps, and motors, etc.) and standard fittings or accessories purchased by the Contractor for use in this installation are subject only to the extent of the manufacturer's warrantee.

B. The General Contractor shall warrantee for one (1) year repair of the shotcrete pool structure covering any defects, cracks and/or leaking in the shotcrete pool shell caused by defective workmanship or material, exclusive of damages due to subsurface hydrostatic conditions, provided the pool is kept full of water at all times except for required cleaning and that during such cleaning the pool does not remain entirely empty for more than a forty-eight (48) hour period.

1.11 PATENTED MATERIAL

A. The General Contractor shall pay all royalties and license fees as applicable. He shall defend all suits or claims for infringement of any patent rights and shall save the Owner and Owner’s Architect and his consultants absolutely harmless from loss on account there from.

B. The General Contractor shall not be responsible for all such loss when a particular design, process or the product of a particular manufacturer or manufacturers is specified. If the General Contractor has reason to believe that the design, process, or product specified is an infringement of a patent, he shall be responsible for such loss unless he promptly gives such information to the Owner and the Architect.

PART 2 - PRODUCTS

2.1 FORM MATERIALS

A. Forms: Form-facing panels that provide continuous, straight, smooth, concrete surfaces. Furnish panels in largest practical sizes to minimize number of joints.

2.2 REINFORCING MATERIALS

A. Reinforcing Bars: ASTM A615/A 615M, Grade 60 (Grade 420), deformed.

B. Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting and fastening reinforcing bars and welding wire fabric in place; manufactured according to CRSI's "Manual of Standard Practice" and as follows:
   1. For uncoated reinforcement, use all-plastic bar supports
   2. Do not use masonry or stone as supports

C. Reinforcing Anchors: ASTM A 36/A 36M, unheaded rods or ASTM A 307, Grade A (ASTM F 568M, Property Class 4.6), hex-head bolts; carbon steel; and carbon steel nuts.
   1. Finish: Plain, uncoated.

D. Steel Wire: ANSI/ASTM A82, as drawn, cold-drawn steel wire.

E. Welded Wire Fabric: ANSI/ASTM A185, welded steel wire fabric.

2.3 SHOTCRETE MATERIALS

A. Source Limitations for Shotcrete: Obtain each color, size, type, and variety of shotcrete material and shotcrete mixture from single manufacturer with resources to provide shotcrete of consistent quality in appearance and physical properties.

B. Portland Cement: ASTM C150, Type I or Type III. Use only one brand and type of cement for project.
   1. Fly Ash: ASTM C 618, Class C or Class F.

C. Normal-Weight Aggregates: ASTM C33, from a single source and as follows:
   1. Combined Aggregate Size: ACI 506R or ASTM C 1436, Grading No. 2 sieve analysis.

E. Water: Potable, complying with ASTM C94/C94M, free from deleterious materials that may affect color stability, setting, or strength of concrete.

F. Ground Wire: High-strength steel wire, 0.8 to 1.0 mm in diameter.

G. Joint Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.

2.4 ADMIXTURES

A. General: ASTM C 1141, Class A (liquid) or Class B (non-liquid) but limited to the following admixture materials. Provide admixtures for shotcrete that contain not more than 0.1 percent chloride ions. Certify compatibility of admixtures with each other and with other cementitious materials.
   1. Accelerating Admixture, Conventional: ASTM C 494/C 494M, Type C or Type E.

   2. Pozzolanic Admixture: Fly ash, ground granulated blast-furnace slag, and silica fume as limited in "Shotcrete Materials" Article.

   3. Coloring Admixture: Coloring agent as limited in "Shotcrete Materials" Article.

2.5 CURING MATERIALS

A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yard (305 g/sq. m) dry, or cotton mats.

B. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.

C. Water: Potable

D. Clear, Waterborne, Membrane-Forming Curing Compound: C309, Type I, Class A, unless other type acceptable to the Architect. Do not apply to exterior surfaces to receive a plaster finish or ceramic tile.

2.6 SHOTCRETE MIXTURES, GENERAL

A. Prepare design mixtures for each type and strength of shotcrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 506.2.
   1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs-based laboratory trial mixture or field test data, or both.

B. Cementitious Materials: Use fly ash, pozzolan, ground granulated blast-furnace slag, and silica fume as needed to reduce the total amount of Portland cement, which would otherwise be used, by not less than 40 percent.

C. Cementitious Materials: Limit use of fly ash to not exceed in exceed, in combination, 15 percent of Portland cement by weight.

D. Limit water-soluble chloride ions to maximum percentage by weight of cement or cementitious materials permitted by ACI 301.

E. Admixtures: When included in shotcrete design mixtures, use admixtures according to manufacturer's written instructions.

F. Design-Admixtures: Subject to compliance with requirements, shotcrete design-mixture adjustments may be proposed when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant

2.7 SHOTCRETE MIXTURES

A. Shotcrete Mixture: Proportion mixture to provide shotcrete with the following properties:
   1. Compressive Strength (28 Days): 4000 psi (27.6 MPa).
   2. Air Content: Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight wet-mix shotcrete having an air content before pumping of 8 percent with a tolerance of plus or minus 1-1/2 percent.

2.2 SHOTCRETE EQUIPMENT

A. Mixing Equipment: Capable of thoroughly mixing shotcrete materials in sufficient quantities to maintain continuous placement.

B. Dry-Mix Delivery Equipment: Capable of discharging aggregate-cement mixture into delivery hose under close control and maintaining continuous stream of uniformly mixed materials at required velocity to discharge nozzle. Equip discharge nozzle with manually operated water-injection system for directing even distribution of water to aggregate-cement mixture.
   1. Provide uniform, steady supply of clean, compressed air to maintain constant nozzle velocity while simultaneously operating blow pipe for cleaning away rebound.
   2. Provide water supply with uniform pressure at discharge nozzle to ensure uniform mixing with aggregate-cement mix. Provide water pump to system if line water pressure is inadequate.

C. Wet-Mix Delivery Equipment: Capable of discharging aggregate-cement-water mixture accurately, uniformly, and continuously.

2.3 BATCHING AND MIXING

A. Dry-Mix Process: Measure mixture proportions by weight batching according to ASTM C 94/C 94M or by volume batching complying with ASTM C 685/C 685M requirements.
   1. In volume batching, adjust fine-aggregate volume for bulking. Test fine-aggregate moisture content at least once daily to determine extent of bulking.
   2. Prepackaged shotcrete materials may be used at Contractor's option. Predampen prepackaged shotcrete materials and mix before use.

B. Wet-Mix Process: Measure, batch, mix, and deliver shotcrete according to ASTM C 94/C 94M and furnish batch ticket information.
   1. Comply with ASTM C 685/C 685M when shotcrete ingredients are delivered dry and proportioned and mixed on-site.

2.4 RELATED MATERIALS

A. Latex Bonding Agent: ASTM C 1059/C 1059M, Type II.
   1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following;
      a. Latex Bonding Agent, Type II (Non-Redispersible):
         1) Dayton Superior Corporation; Conspec Strong Bond.
         2) Euclid Chemical Company (The), an RPM company; Flex-Con.
         3) W. R. Meadows, Inc.; Sealtight Acry-Lok.
         4) Kaufman Products, Inc.; Surebond

2.5 REPAIR MATERIALS

A. Concrete Patching Mortar: Chemical treatment for waterproofing concrete.
   1. Xypex Concrete Waterproofing by Crystallization, Xypex Chemical Corporation.
      a. Xypex Concentrate.

2.6 WATERSTOPS

A. Flexible PVC Waterstops: CE CRD-C 572, with factory-installed metal eyelets, for embedding in concrete to prevent passage of fluids through joints. Factory fabricate corners, intersections, and directional changes.
   1. Available Manufacturers:
      a. Bometals, Inc.
      b. Greenstreak.
      c. Meadows, W. R., Inc.
      d. Murphy, Paul Plastics Co.
      e. Progress Unlimited, Inc.
      f. Tamms Industries, Inc.
      g. Vinylex Corp.
   2. Profile: Ribbed without center bulb.
   3. Dimensions: 4 inches by 3/16 inch thick (150 mm by 10 mm thick); nontapered.

B. Non-Expanding Plastic Adhesive Waterstops: Manufactured rectangular or trapezoidal strip, single-component, self-sealing adhesive compound, for adhesive bonding to concrete, 5/8 by 1-1/2 inch.
   1. Products: Subject to compliance with requirements, provide the following:

a. Synko-Flex SF302, Henry Company.
   1) Synko-Flex SF311 Solvent Based Primer.

C. Expanding Waterstops: Sika Hydrotite 1”x 1/4” expanding hydrophilic waterstop, as manufactured by Sika Corporation, St. Louis, Missouri, or equal.

2.7 DRAINAGE FILL

A. Drainage Course under bottom slabs: Narrowly graded mixture of frost-free, washed crushed stone, or crushed or uncrushed gravel; ASTM D 448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch (37.5-mm) sieve and 0 to 5 percent passing a No. 8 (2.36-mm) sieve.

PART 3 – EXECUTION

3.1 PREPARATION

A. Concrete: Before applying shotcrete, remove unsound or loose materials and contaminants that may inhibit shotcrete bonding. Chip or scarify areas to be repaired to extent necessary to provide sound substrate. Cut edges square and 1/2 inch (13 mm) deep at perimeter of work, tapering remaining shoulder at 1:1 slope into cavity to eliminate square shoulders. Dampen surfaces to saturated, surface-dry condition before shotcreting.
   1. Abrasive blast or hydroblast existing surfaces that do not require chipping to remove paint, oil, grease, or other contaminants and to provide roughened surface for proper shotcrete bonding.

B. Earth: Compact and trim to line and grade before placing shotcrete. Do not place shotcrete on frozen surfaces. Dampen surfaces to saturated, surface-dry condition before shotcreting.

C. Rock: Clean rock surfaces of loose materials, mud, and other foreign matter that might weaken shotcrete bonding. Dampen surfaces to saturated, surface-dry condition before shotcreting.

D. Steel: Clean steel surfaces by abrasive blasting according to SSPC-SP 6/NACE No. 3, "Commercial Blast Cleaning."

3.2 FORMS

A. General: Design, erect, support, brace, and maintain forms, according to ACI 301, to support shotcrete and construction loads and to facilitate shotcreting. Construct forms so shotcrete members and structures are secured to prevent excessive vibration or deflection during shotcreting.
   1. Fabricate forms to be readily removable without impact, shock, or damage to shotcrete surfaces and adjacent materials.
   2. Construct forms to required sizes, shapes, lines, and dimensions using ground wires and depth gages to obtain accurate alignment, location, and grades in finished structures. Construct forms to prevent mortar leakage but permit escape of air and rebound during shotcreting. Provide for openings, offsets, blocking, screeds, anchorages, inserts, and other features required in the Work.

B. Form openings, chases, recesses, bulkheads, keyways, and screeds in formwork. Determine sizes and locations from trades providing such items. Accurately place and securely support items built into forms.

3.3 STEEL REINFORCEMENT

A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, and other materials that weaken shotcrete bonding.

C. Securely embed reinforcing anchors into existing substrates, located as required.

D. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports, bolsters, chairs, spacers, and other devices as required to maintain minimum concrete cover. Set wire ties so ends are directed into concrete, not toward exposed concrete surfaces.

E. Place reinforcement to obtain at least 3" minimum coverage for concrete protection if placed against gravel and obtain at least 3" minimum coverage for concrete protection if placed against virgin earth (In-Situ material) or chlorinated swimming pool water.

F. After reinforcing has been placed and supported, no wheeling of materials shall be done across steel except over proper runways bearing on forms rather than reinforcing. Displaced reinforcing must be reset and re-supported before applying shotcrete. During shotcrete placement, continuous attention must be given to proper steel placement.

G. Cleaning, bending, placing, and splicing of reinforcement shall be done in accordance with American Concrete Institute Building Code. Minimum lap for spliced bar reinforcing shall be twenty (20) bar diameters.

3.4 WATERSTOPS

A. Waterstops: Install in construction joints and at other joints indicated to form a continuous diaphragm. Install in longest lengths practicable. Support and protect exposed waterstops during progress of the Work. Field fabricate joints in waterstops according to manufacturer's written instructions. Prevent displacement during shotcrete application.

3.5 JOINTS

A. General: Construct joints at locations indicated or as approved by Architect.

B. Construction Joints: Locate and install construction joints tapered to a 1:1 slope where joint is not subject to compression loads and square where joint is perpendicular to main reinforcement. Continue reinforcement through construction joints unless otherwise indicated.

3.6 ALIGNMENT CONTROL

A. Ground Wires: Install ground wires to establish thickness and planes of shotcrete surfaces. Install ground wires at corners and offsets not established by forms. Pull ground wires taut and position adjustment devices to permit additional tightening.

3.7 EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining work that

is attached to or supported by shotcrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.8 APPLICATION

A. Apply temporary protective coverings and protect adjacent surfaces against deposit of rebound and overspray or impact from nozzle stream.

B. Moisten wood forms immediately before placing shotcrete where form coatings are not used.

C. Apply shotcrete according to ACI 506.2.

D. Apply dry-mix shotcrete materials within 45 minutes after predampening and wet-mix shotcrete materials within 90 minutes after batching.

E. Deposit shotcrete continuously in multiple passes, to required thickness, without cold joints and laminations developing. Place shotcrete with nozzle held perpendicular to receiving surface. Begin shotcreting in corners and recesses.
   1. Remove and dispose of rebound and overspray materials during shotcreting to maintain clean surfaces and to prevent rebound entrapment.

F. Maintain reinforcement in position during shotcreting. Place shotcrete to completely encase reinforcement and other embedded items. Maintain steel reinforcement free of overspray and prevent buildup against front face during shotcreting.

G. After shotcrete has been placed to desired thickness, all high spots shall be cut off with a sharp trowel or screened to a true plane. Screeds, where used, shall be lightly applied to all surfaces so as not to disturb the shotcrete for an appreciable depth, and they shall be worked in an upward direction when applied on vertical surfaces.

H. Finished concrete shall be true to form indicated on the plans and shall be free from swells, ridges, projections, depressions, holes, cavities, mortar deficiencies, and other defects.

I. After placing, all shotcrete patches shall be sounded, and any indications of sand pockets or hollow areas shall be investigated and repaired. Unless otherwise directed by the Architect, the finished mortar surface shall be given a flash coat, 1/8 inch thick.

J. Special care shall be taken to obtain a slightly rough appearance on all exposed surfaces suitable for the placement of a plaster or ceramic tile swimming pool finish where indicated on drawings

K. Do not place subsequent lifts until previous lift of shotcrete is capable of supporting new shotcrete.

L. Do not permit shotcrete to sag, slough, or dislodge.

M. Remove hardened overspray, rebound, and laitance from shotcrete surfaces to receive additional layers of shotcrete; dampen surfaces before shotcreting.

N. At the end of each day's work, or similar stopping periods requiring construction joints, the mortar shall be sloped off to a thin edge.

O. Do not disturb shotcrete surfaces before beginning finishing operations.

P. Remove ground wires or other alignment-control devices after shotcrete placement.

Q. Shotcrete Core Grade: Apply shotcrete to achieve mean core grades not exceeding 2.5 according to ACI 506.2, with no single core grade exceeding 3.0.

R. Installation Tolerances: Place shotcrete without exceeding installation tolerances permitted by ACI 117, increased by a factor of two.

S. Cold-Weather Shotcreting: Mix, place, and protect shotcrete according to ACI 306.1 and as follows. Protect shotcrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
1. Discontinue shotcreting when ambient temperature is 40 deg F (4.4 deg C) and falling.
2. Uniformly heat water and aggregates before mixing to obtain a shotcrete shooting temperature of not less than 50 deg F (10 deg C) and not more than 90 deg F (32 deg C).
3. Do not use frozen materials or materials containing ice or snow.
4. Do not place shotcrete on frozen surfaces or surfaces containing frozen materials.
5. Do not use calcium chloride, salt, or other materials containing antifreeze agents.

T. Hot-Weather Shotcreting: Mix, place, and protect shotcrete according to recommendations of ACI 305R when hot-weather conditions and high temperatures would seriously impair quality and strength of shotcrete, and as follows:
1. Cool ingredients before mixing to maintain shotcrete temperature at time of placement below 100 deg F (38 deg C) for dry mix or 90 deg F (32 deg C) for wet mix.
2. Reduce temperature of reinforcing steel and receiving surfaces below 100 deg F (38 deg C) before shotcreting.

3.9 PROTECTION OF ADJACENT SURFACES

A. Contractor shall take every possible precaution to protect adjacent concrete surfaces, equipment, etc., from being damaged by overshooting concrete. Overshot concrete and rebound materials deposited shall be removed at the Contractor's expense.

3.10 SURFACE FINISHES

A. General: Finish shotcrete according to descriptions in ACI 506R.

B. Natural Finishes:
1. Gun Finish: Natural undisturbed finish as sprayed.
2. Rod Finish: Rough-textured finish obtained by screeding or cutting exposed face of shotcrete to plane with cutting rod, edge of trowel, or straightedge after initial set. Do not push or float with flat part of trowel.
3. Broom Finish: Rough-textured finish obtained by screeding or cutting exposed face of shotcrete to plane with cutting rod, edge of trowel, or straightedge after initial set; followed by uniform brooming.

C. Flash-Coat Finish: After screeding or cutting exposed face of shotcrete to plane after initial set, apply up to 1/4-inch (6-mm) coat of shotcrete using ACI 506R, Grading No. 1, fine-screened sand modified with maximum aggregate size not exceeding No. 4 (4.75-mm) sieve to provide a finely textured finish.

D. Flash-Coat with Final Finish: After screeding or cutting exposed face of shotcrete to plane after initial set, apply up to 1/4-inch (6-mm) coat of shotcrete using ACI 506R, Grading No. 1, fine-

screened sand modified with maximum aggregate size not exceeding No. 4 (4.75-mm) sieve, and apply wood-float finish.

3.11 CURING

A. Protect freshly placed shotcrete from premature drying and excessive cold or hot temperatures.

B. Begin curing immediately after placing and finishing but not before free water, if any, has disappeared from shotcrete surface.

C. Curing Exposed Surfaces: Cure shotcrete by one of the following methods:
   1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
      a. Water.
      b. Continuous water-fog spray.
      c. Water-saturated absorptive covers or moisture-retaining covers. Lap and seal sides and ends of covers with 12-inch (300-mm) lap over adjacent covers.

   2. Curing Compound: Apply uniformly in continuous operation by power spray according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
      a. Apply curing compound to natural gun finish or flash-coat shotcrete at rate of 1 gal./100 sq. ft. (1 L/2.5 sq. m).

D. Curing Formed Surfaces: Cure formed shotcrete surfaces by moist curing with forms in place for full curing period or until forms are removed. If forms are removed, continue curing by methods specified above, as applicable.

3.12 FORM REMOVAL

A. Forms not supporting weight of shotcrete may be removed after curing for 24 consecutive hours at not less than 50 deg F (10 deg C), provided shotcrete is hard enough not to be damaged by form-removal operations and provided curing and protecting operations are maintained.
   1. Leave forms supporting weight of shotcrete in place until shotcrete has attained design compressive strength. Determine compressive strength of in-place shotcrete by testing representative field-cured specimens of shotcrete.
   2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.

B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing materials are unacceptable for exposed surfaces. Apply new form-coating compound as specified for new formwork.

3.13 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to sample materials, visually grade cores, perform tests, and submit reports during shotcreteing.

B. Air Content: ASTM C 173/C 173M, volumetric method or ASTM C 231, pressure method; one test for each compressive-strength test for each mixture of air-entrained, wet-mix shotcrete measured before pumping.

C. Shotcrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F (4.4 deg C) and below and when 80 deg F (27 deg C) and above, and one test for each set of compressive-strength specimens.

D. Test Panels: Make a test panel, reinforced as in structure, for each shotcrete mixture and for each workday or for every 50 cu. yd. (38 cu. m) of shotcrete placed, whichever is less. Produce test panels with dimensions of 24 by 24 inches (600 by 600 mm) minimum and of thickness and reinforcing layout of shotcrete work on project. Testing agency will obtain sets of test specimens from each test panel.
   1. Compressive Strength Testing: One set of three unreinforced specimens. Test each set of unreinforced specimens for compressive strength according to ASTM C 1140 and construction testing requirements in ACI 506.2.
   2. Visual Core Grading: One set of three reinforced specimens. Visually inspect each set of reinforced shotcrete cores taken from test panels and determine mean core grades according to ACI 506.2.

E. In-Place Shotcrete Testing: Only if samples obtained in item D indicate unsatisfactory shotcrete, and only if directed by Owner, Architect or Engineer, take a set of 3 unreinforced cores for each mix and for each workday or for every 50 cu. yd. (38 cu. m) of shotcrete placed; whichever is less. Do not cut steel reinforcement.

F. Strength of shotcrete will be considered satisfactory according to the following:
   1. Specimen Cores: Mean compressive strength of each set of three unreinforced cores equals or exceeds 85 percent of specified compressive strength, with no individual core less than 75 percent of specified compressive strength. Specimen Cubes: Mean compressive strength of each set of three unreinforced cubes shall equal or exceed design compressive strength with no individual cube less than 88 percent of specified compressive strength.

3.14 REPAIRS

A. Cut out, remove and replace, or repair to the satisfaction of the Architect, shotcrete not meeting minimum strength, not true, plumb or level, not to required elevations, containing cracks detrimental to performance or appearance, containing shavings, debris or with honeycombs or voids.

B. Promptly perform Work required to repair, patch, replace, render properly cleaned surfaces (by sandblasting if necessary) or otherwise make good any defective shotcrete at Contractor's expense, including all expense of additional inspection, tests, or supervision made necessary as a result of defective shotcrete.

C. Remove and replace shotcrete that is delaminated or exhibits laminations, voids, or sand/rock pockets exceeding limits for specified core grade of shotcrete.
   1. Remove unsound or loose materials and contaminants that may inhibit bond of shotcrete repairs.
   2. Chip or scarify areas to be repaired to extent necessary to provide sound substrate. Cut edges square and 1/2 inch (13 mm) deep at perimeter of work, tapering remaining shoulder at 1:1 slope into cavity to eliminate square shoulders.
   3. Dampen surfaces and apply new shotcrete.

D. Repair core holes from in-place testing according to repair provisions in ACI 301, except do not use shotcrete. Match adjacent color and finish.

3.15 CLEANING

A. Immediately remove and dispose of rebound and overspray materials from final shotcrete surfaces and areas not intended for shotcrete placement

3.16 WATER TESTING

A. Upon completion of the proper curing period, the containment vessel shall be water tested to confirm a water-tight structure has been achieved. A full-pool water test shall be maintained for a minimum of 72 hours and the vessel shall be deemed to be watertight after the testing process. Allowances for evaporative loss must be verified based upon air temperature, humidity and any anticipated impact from prevailing winds.

B. The General Contractor shall be responsible for all water required for this test and consult with the Owner for the draining of the pool upon completion of the test. In the event the Owner elects to utilize this test water for irrigation of the existing site, coordination for the pool draining should be coordinated with the General Contractor and the Owner to avoid a negative impact on the Construction Schedule.

END OF SECTION

SECTION 13 11 26 - EXPOSED AGGREGATE POOL FINISH (Enhanced Plaster)

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Preparation of pool surfaces.

B. Exposed aggregate pool finish.

C. Pool start-up, including filling, adjusting chemistry, and brushing for specified initial start-up period.

1.2 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Refer to Section 13 11 00 - Summary of The Swimming Pool Work for additional information regarding the Work of this Section.

1.3 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Selection Samples: Physical color samples showing manufacturer's full selection.

C. Manufacturer's installation instructions.

D. One copy of each of the following, for Owner's use:
   1. National Plasterers Council "Start-Up Do's and Don'ts for Newly Plastered Swimming Pools."
   2. National Plasterers Council "Care Tips for New Swimming Pool Plaster."

E. Submit batch numbers of bags used to Owner for warranty purposes.

1.4 RELATED WORK

A. Shotcrete Construction

B. Interior ceramic tile finish systems

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Experienced in installation of pool plasters and trained by coating manufacturer and shall be a licensed Southern Grout and Mortar Inc. Pool Finish Applicator.

1.6 WARRANTY

A. Provide manufacturer's limited 10-year commercial warranty to pool owner.

B. The pool contractor shall record batch numbers of the plaster bags and provide water sample tests of pool fill water.

C. Krystalkrete Commercial Colors have a 10-year commercial warranty. The base colors are Ivory and all other colors derived from this base color.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Pool Coating: C. L. Industries Inc., PO Box 593704, 8188 South Orange Avenue, Orlando, FL, 32859-3704, Tel. (800) 333-2660, (407) 851-2660, or equal.

2.2 MATERIALS

A. Krystalkrete Exposed Aggregate Pool Finish; Blends of enriched Portland cement with factory-blended crystalline aggregates enhanced with colored quartz.
   1. Color: As selected from manufacturers 10-year warranty color line.

B. Water: Potable water without detrimental minerals, metals, hardness, or alkalinity; if in doubt, verify quality with coating manufacturer. Water shall be clean, fresh potable and free of oils, acids, alkalis and organic matter injurious to a cementitious material.

C, Bonding Coat: C. L. Industries Inc. Permakote

2.3 MIXING

A. Krystalkrete blend shall be mixed in mechanical mixers. Caked or lumped material shall not be used. Re-tempering will not be permitted and Krystalkrete material that has begun to “set” prior to application will be discarded.

B. Mix Proportions:
   1. Using standard mixing equipment, it is important to blend each batch with the same amount of water and to mix each batch for the same amount of time.
   2. Mix Krystalkrete® with approximately 1½ to 1¾ gallons of potable water per 80 lb. bag.
   3. Start the mixing procedure by adding approximately two thirds of the total water requirements to the mixer, add Krystalkrete ® then the balance of water.
   4. Mix the completed batch for at least 8 minutes to ensure a proper blend of all ingredients.
   5. Before using any jobsite additives, please consult your C.L.Industries Product Service Representative.

PART 3 - EXECUTION

3.1 PREPARATION

A. Examine pool surfaces to identify conditions that might interfere with proper bonding of coating.
   1. Look for algae, mold, or mildew.
   2. Look for dirt, paint, mortar droppings, patching compounds, loose tile, cracked plaster, etc.
   3. Identify hollow spots in plaster by sounding.

B. Clean pool surfaces of all material that might interfere with proper bonding of coating.
   1. Clean with high pressure water.
   2. Wash oil and grease spots using trisodium phosphate and water, soak if necessary.

C. Stop water penetration from outside pool. Plug cracks and leaks around fittings using hydraulic cement (pool patch). Ardex 8+9 waterproofing membrane is a suitable material for bridging any shrinkage cracks and to stop migration of ground water if any imperfections in the containment structure are encountered.

D. Etch cleaned surface with muriatic acid solution. Use concentration necessary to clean and roughen surface; smooth surfaces may require higher concentration. Neutralize surface with solution of baking soda or soda ash, and water. Thoroughly rinse with water.

E. Plug pool inlets and outlets to prevent clogging.

F. Mark location of fittings using tape on coping or on a measured drawing.

G. Provide sump pump at main drain to remove all running and standing water.

3.2 INSTALLATION

A. Do not begin installation until concrete pool shell has cured at least 28 days.

B. Apply coating in accordance with coating manufacturer's instructions and recommendations.

C. Krystalkrete ® may be applied by either spray or conventional methods. Apply Krystalkrete® over a lightly dampened (no standing water) surface to a uniform thickness of approximately 1/2 inch.

D. The ambient temperature shall be above 40 degrees Fahrenheit 3 days prior to and during application.

E. Care should be taken to protect Krystalkrete® from rapid drying conditions such as high wind, high temperature, low humidity. Such precautions may include fogging or misting the surface or placing a protective covering over the pool. Cover should not be placed on the plaster surface.

3.3 START-UP

A. Filter pool water using a carbon tank and sequestering agent to remove contaminants that might cause staining.

B. Fill pool without interruption of fill water. Fill pool as rapidly as possible. All fill hoses should have a sock or cloth on the end. Do not allow main hose length to lay on the pool surface as it will leave a mark. Start circulation system when water level is above return inlets; circulate water continuously for the first 3 days.

C. Water chemistry should be maintained within +/- 0.3 on the Langelier Saturation Index. Chlorine should not exceed 3 PPM and Cyanuric acid levels should not exceed manufacturers' 40 to 60 PPM recommendations. For more information on chemical balance and the Saturation Index see recommendations from the NPC, National Plasterers' Council, www.npconline.org and APS P, Association of Pool & Spa Professionals, www.theapsp.org. Failure to monitor and maintain proper chemical balance will result in equipment damage as well as surface deterioration. Maintaining proper chemical balance is essential during the initial curing phase as well as routine maintenance to maximize the life of the pool surface.

D. Brush entire coated surface twice a day for the first 3 days. Thereafter, brush entire surface once a day for 2 weeks.

E. Chemistry is for preservation of the finish and additional chemistry for sanitation is recommended. PH and alkalinity **MUST** be checked and adjusted to the recommended level every other day for the first thirty (30) days.

END OF SECTION

SECTION 13 11 29 - CERAMIC TILE SWIMMING POOL FINISH

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Refer to Section 13 11 00 - Summary of The Swimming Pool Work for additional information regarding the Work of this Section.

1.2 SUMMARY

A. The extent of ceramic tile finish and related work is indicated on the Drawings, and in general includes, but is not limited to:
   1. Safety stripe.
   2. Lane markings; floor and wall.
   3. Swimming pool perimeter band, 8” wide with contrasting tile depth markings.
   4. Stair nosings
   5. Bench edge nosing
   6. Swimming pool beach access

B. The appropriate provisions of the 2016 Tile Council of America (TCA) Handbook for Ceramic Tile Installation (or latest edition). Section P601-09 shall apply and be incorporated in this Section the same as if written out in full herein.

1.3 QUALIFICATIONS OF TILE CONTRACTOR

A. Tile Contractor must have had at least three (3) years’ experience in the construction of the type of swimming pool finish system specified and shall provide a list of at least five (5) pools of this type each with a water surface area of not less than this pool which he has constructed and which upon investigation, would be found to be completed in a satisfactory manner and in operation at least two (2) years.

B. The Tile Contractor's foreman and mechanics must have at least three (3) years’ experience in the installation of setting bed and ceramic mosaic tile finishes on concrete pool decks associated with swimming pool structures. Satisfactory written evidence of such experience shall be presented to the Owner upon request.

C. The ceramic tile installation must be performed by an appropriately skilled Tile Contractor with supervision by the Pool Builder's own personnel. This portion of the work may be subcontracted if all requirements set forth herein are met by the subcontractor and its personnel. The Architect and Aquatic Consultant must be notified if this portion of the work is to be subcontracted.

D. The Owner reserves the right to reject any Tile Contractor if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such Tile Contractor is properly qualified to carry out the obligations of the contract and to complete the work described, or if the Tile Contractor does not meet the qualifications stated herein.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's specifications, details and installation instructions for the products used in conjunction with the Swimming Pool.

B. Submit samples of full color line of proposed ceramic tile prior to initiating ceramic tile installation. All colors and layouts must be reviewed and approved by the Architect prior to installation.

1.5 WARRANTY

A. Pool Builder warrants that all materials used in completing the installation contracted for are new and of high quality; that all work has been done in a competent and workmanlike manner; that if any substantial defect occurs in the workmanship or materials it will be remedied without cost to the Owner if written notice thereof is given to the Pool Builder within one (1) year from the Date of Substantial Completion. Assemblies or units (such as deck inserts, ladders, etc.) and standard fittings or accessories purchased by the Pool Builder for use in this installation are subject only to the extent of the manufacturer's warrantee.

B. The Pool Builder shall warrantee for ten (10) years repair of the Ceramic Tile covering any defects, cracks and/or delamination in the ceramic tile caused by defective workmanship or material, exclusive of damages due to subsurface hydrostatic conditions, provided the pool is kept full of water at all times except for required cleaning and that during such cleaning the pool does not remain entirely empty for more than a ninety-six (96) hour period. The Ardex System one tile setting methodology is the standard for this specification to obtain a 10-year warranty against delamination.

1.6 QUALITY ASSURANCE

A. Pool Builder will be responsible for checking measurements in the field prior to the preparation of Shop Drawings and actual fabrication of the system. Field fitting may be allowed only if measurements will delay the fabrication process.

PART 2 - PRODUCTS

2.1 BOND/LEVELING/GAUGING COAT*

A. Ardex AM 100™ Smoothing and Ramping Mortar, 1” to 1-1/4” (thicker application rate permitted by manufacturer provided substrate is examined by the manufacturer prior to installation).

2.2 WATERPROOFING MEMBRANE*

A. Ardex AM 8+9™ Waterproofing and Crack Isolations Membrane, 3 coat application to provide 10 year waterproof warranty.

2.3 INTERIOR SETTING BED*

A. Ardex X77 TM Microtec Fiber Reinforced Thin set mortar. Polymer modified trowel applied thin set setting bed. Install in strict compliance for ceramic mosaic tile in a wet environment.

2.4 GROUT*

A. Ardex FLTM Rapid Set Flexible Grout. Color to be selected by Architect.

2.5 SEALANT*

A. Ardex SX ™ 100% Silicone Sealant for Tile and Stone for all areas not in contact with or immersed in pool water. Color to be selected by Architect.

B. Latasil 100% Silicone sealant for all areas of sealant immersed, or in direct contact with pool water.

2.6 CERAMIC TILE

A. Basis-of-Design: Dal-Tile Corporation, 800-993-TILE
   1. Approved equal: American Olean

B. Type: Color body porcelain, floor and wall tile.

C. Size:
   1. 1” x 1” x 1/4"

D. Colors:
   1. Color selection by Architect from manufacturer’s full range.

E. Furnish and install all required shapes, coves, caps, and stretchers to provide uniform complete impervious ceramic tile interior swimming pool finish. No rough or sharp edges will be accepted.

PART 3 - EXECUTION

3.1 INSTALLATION

A. The ceramic tile finish shall not be applied until:
   1. All work by others in the pool area including finish grade, deck work, exterior painting, etc. have been completed.
   2. Swimming pool has been tested for watertight integrity.

B. Prior to application of finish, the surfaces to be coated shall be thoroughly cleaned of dust, oil, paint, loose materials, and any foreign matter.

C. Trowel setting bed to be thinset and to a smooth, dense, impervious surface. Take extreme care to avoid staining the surface of the finish during troweling operations. Tile to flush with plaster finish.

D. Set ceramic tile as indicated elsewhere in these specifications. All ceramic tiles shall be installed over a floated leveling course of setting bed material to produce a smooth and level installation. All transition areas shall be free of any tripping hazards and produce a smooth level joint between finishes. Install ceramic tile finish in strict compliance with manufacturer's written recommendations. Curing shall be performed in strict compliance with TCA guidelines. Precautions shall be taken during filling pool structure with water to avoid damage to new grouted surfaces caused by direct flow of make-up water. Protective coating can be removed once sufficient depth of water has been reached to avoid damage to grout.

E. Monitor water chemistry to allow for proper curing of grout and ceramic tile. Consult manufacturer for proper pH range, total calcium hardness and total alkalinity during the curing period.

END OF SECTION

SECTION 13 11 40 - POOL TRENCH DRAIN

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Refer to Section 13 11 00 - Summary of The Swimming Pool Work for additional information regarding the Work of this Section.

1.2 SUMMARY

A. A factory fabricated trench drain system consisting of curved stainless steel channel covered by a curved UV protected HDPE grating according to the details shown on the project drawings shall be supplied and installed as a floor drain at beach access. System shall conform exactly to architect's pool plan.

B. Stainless steel drain manufacturer must provide stainless steel certificate showing type of stainless and chemical composition. Stainless certificate will show stainless steel used for manufacturing of this gutter to be purchased from a U.S. owned and U.S. located mill. System shall be manufactured by Paddock Pool Equipment Company, Inc., of Rock Hill, South Carolina, or approved equal.

C. The basis of design for this Project is the Paddock deck drain assembly manufactured by Paddock Pool Equipment Company, Rock Hill, SC. This is a product that is only available from the listed manufacturer. Deviation from the specification is permitted for this component, provided the performance of the substitute product meets the intent of the design.

D. Coordinate all anchors for trench drain with the new tile finish work and corresponding floor slopes.

E. Furnish and install all specified items as indicated in the Drawings and Specifications to provide a complete and fully functioning and operational facility.

F. Provide all necessary supervision, templates, manuals of operation, and turnover instructions.

G. Electrical Contractor shall ground/bond the new trench drain in accordance with the National Electrical Code and all local codes and ordinances.

1.3 SUBMITTALS

A. Manufacturer's Data:

B. Submit six (6) copies of bound Contractor's specifications and installation instructions for products supplied for installation. Include certified laboratory test reports on components as specified or required by regulatory agencies.

C. Assemble information into one (1) coordinated submittal.

D. Shop Drawings:
   1. The Contractor shall prepare shop drawings indicating the materials and size of all equipment to be furnished. Shop drawings to be submitted to Architect for Owner's review/approval.
   2. Submit six (6) copies of bound shop drawings. Show anchors, reinforcement, accessories, grounding lugs, and installation details and methods.
   3. Assemble information into one (1) coordinated submittal.

PART 2 - PRODUCTS

A. Manufacturer: Subject to compliance with requirements, provide products from:
   1. Paddock Pool Equipment Company, Inc., Rock Hill, South Carolina, or equal.

B. Materials:
   1. Drain sections shall be fabricated entirely from Type 316L stainless steel. All angle anchors and support brackets shall be stainless steel and pre-fabricated and welded. Grating shall be textured HDPE, 3/4" thick.

C. Drainage Connections:
   1. Drain sections with plumbing connections shall have a pre-fabricated stainless steel dropout (throat) centered within the section, 2" in diameter. Pool contractor shall connect 2" pipe to the dropout with a Fernco® connection piece, or similar at discretion of the contractor. Manufacturer shall include a stainless-steel mesh guard to cover every 2" dropout to protect it from debris. Manufacturer shall provide extras for the customer.

F. Drain Channel and Grating
   1. Drain channel shall be curved and pre-fabricated. All areas of drain channel shall be accessible for inspection and cleaning. Channel shall be covered by a curved protective grating formed of pre-fabricated, textured HDPE, 3/4" thick, with slots designed to drain water and reduce slipping hazard. Grating shall be identical throughout entire drain system. Grating shall be white unless otherwise specified on plans.

G. Anchorage
   1. Manufacturer shall provide adjustable anchoring system to support the deck drain sections, with which the height and level of the drain trough can be field-adjusted by installing contractor. Manufacturer shall provide all coupling support brackets, threaded rods, epoxy, epoxy gun, caulk, and rivets.
   2. Entire trench drain system section shall be anchored to concrete pads or strip footings at the contractor's option with commercial quality threaded rods and leveling nuts installed as shown on plans. Anchor assemblies shall be provided by Paddock placed at every corner elbow and a typical eight-foot on center layout. Every section of drain shall be pre-fabricated to fit within pre-fabricated angle support brackets. Brackets shall be identical in size, and allow for adjusting and leveling in the field. Drain sections shall be caulked into each anchor to form a water-tight seal, and the excess wiped clean from the trough to prevent any pooling within the drain sections.

PART 3 - EXECUTION

3.1. INSTALLATION

A. The manufacturer shall coordinate the delivery of all necessary anchors and fittings to the respective contractors in order to avoid any delays in the scheduling of the Project. Contractor shall provide verification within fourteen (14) days of award of Contract that all long lead time items have been ordered. Furnish shop submittals for all specified equipment.

B. The manufacturer shall supply all templates in a timely manner to facilitate a smooth progress of construction. A representative from the manufacturer will be present at the site to supervise the installation of his products, and to allocate a minimum of two (2) working days to supervise the start-up and turnover of the facility as well as instructing the Owner's representatives in the operation and maintenance of all equipment.

C. Install all associated mechanical and electrical work to produce a fully functioning system in compliance with applicable codes and accessibility standards.

D. Installation: All work covered under this section shall be performed by a licensed, qualified and insured installing contractor, or by manufacturer acting as a subcontractor. Contractor responsible for quality of alignment and level of trench drain, and will coordinate placement with GC and A/E.

E. Installation Requirements: (Typical deck drain sections)

1. Trench shall be created wide enough for 12” wide concrete strip footer to be poured, and for contractor to work on the sides. Trench shall be continuous everywhere the drain will be. Plumbing pipe shall connect to pre-fabricated 2” dropouts on drain sections, which are placed as specified in the drawings. Drain ships in standard 8’ sections. Corner elbows shall be pre-fabricated and already welded to their own support brackets.
2. A 2” drain pipe (by others) shall connect to plumbing dropouts using a Fernco® connection, or similar water-tight connection determined by the plumbing contractor. This plumbing will not have a concrete pad beneath it, so supporting the drain pipe is the responsibility of the installer.
3. Drain shall be aligned with a laser or string line, and support coupling brackets (provided) shall be used as templates to drill holes in the concrete pad for the threaded rod. Drill holes and remove debris from the holes before installing threaded rods and epoxy. Once threaded rods are installed, coupling brackets shall be placed on top of leveling nuts on threaded rods as shown on drawings. Adjust as necessary to obtain level throughout the length of drain. Once level, secure bracket position by tightening nuts above the bracket to hold it in place on the threaded rods. Repeat for all sections, ensuring entire deck drain system is level.
4. Each 8’ section of drain will connect to the next by sitting on the support bracket (coupling) as shown in drawings. Caulk to create water-tight seal with the caulk provided, and wipe clean if excess gets into the trough. Once caulked, drill anchoring hole into the trough from the outside through the pre-drilled hole on the support bracket, and pop-rivet the deck drain to the support bracket (coupling). There shall be a total of four (4) rivets per coupling bracket. Repeat for every coupling bracket in the drain system.
5. After the plumbing connections are complete, encase in concrete. Ensure entire system is secured before pouring concrete.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Refer to Section 13 11 00 - Summary of The Swimming Pool Work for additional information regarding the Work of this Section.

1.2 SUMMARY

A. The extent of the recirculating system is indicated on the Drawings. This Contractor shall supply and install all anchors, skimmer assemblies, return and suction outlet and inlets, and all piping and hook up to the filtration system.

B. The recirculation system shall include ABS plastic skimmer units complete with float valves, equalizer lines and strainer baskets, directional ABS plastic adjustable filtered water inlets, no leak flanges for all filtered water return inlets, all required Schedule 80 PVC piping, valves, extension keys and all related equipment required for a fully functioning swimming pool recirculation system. All piping shall be installed in strict compliance with the established flow rates, suction and return line velocities and operational perimeters established in the construction documents. All installation techniques shall be performed in compliance with industry standards and all aspects of the skimmer recirculation system shall meet or exceed all requirements of applicable State codes and all Local jurisdictions having authority over the Project.

C. Filtered water return inlets and related imbeds.

D. Hydrotherapy (Water Jet) inlets, required fittings, and related imbeds. (if requested)

1.3 QUALIFICATIONS OF CONTRACTOR

A. The Contractor must have had at least three (3) years experience in the construction of the type of swimming pool recirculating system herein specified and shall provide a list of at least five (5) pools of this type each with a water surface area of not less than this pool which he has constructed and which upon investigation, would be found to be completed in a satisfactory manner and in operation at least two (2) years.

B. The Owner reserves the right to reject any Contractor if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such Contractor is properly qualified to carry out the obligations of the Contract and to complete the work described, or if the Contractor does not meet the qualifications stated herein.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's specifications, anchor details and installation instructions for the product used in this assembly.

B. Where materials or fabrication are indicated, comply with requirements to ensure proper water circulation rate, material properties. Supply complete information to the Architect.

C. Shop Drawings: Submit for each type of recirculating skimmer system. Include sections of typical skimmer with all applicable dimensions. Show anchors, reinforcement, accessories, grounding lugs, and installation details and methods.

1.5 WARRANTY

A. The Contractor warrants that all materials used in completing the installation contracted for are new and of high quality; that all work has been done in a competent and workmanlike manner; that if any substantial defect occurs in the workmanship or materials, it will be remedied without cost to the Owner if written notice thereof is given to the Contractor within one (1) year from the Date of Substantial Completion.

B. The Contractor shall warrant repair of any defective material or repair or correction of improper installation of the recirculation system (exclusive of all valves and interconnecting pipe fittings and the filter chamber) due to defective workmanship or materials not caused by deliberate or abusive action by person(s) not employed by the Contractor or attributable to normal wear and usage. This warranty shall remain in force one (1) year from the Date of Substantial Completion. It is also understood that the entire system must be continuously maintained according to service procedures and directions issued by the manufacturer and that this warranty does not cover damage to the system or its components caused by corrosive or improper water treatment procedures implemented by person other than those employed by the Contractor.

1.6 QUALITY ASSURANCE

A. Field Measurements: The Contractor will be responsible for checking measurements in the field prior to the preparation of Shop Drawings and actual fabrication of the system. Field fitting may be allowed only if measurements will delay the fabrication process.

PART 2 - PRODUCTS

2.1 PIPING MATERIAL

A. General: Schedule 80 PVC piping specified throughout the Project for underground piping shall conform to ASTM D 1785, D2241 and D2672.

B. Converter Piping: Swimming pool piping which is used for connection of the filter plant to the skimmer units shall be polyvinyl chloride (PVC) plastic pipe, Type 1-220, Schedule 80 IPS.

C. Fittings for plastic pipe: Wherever PVC plastic pipe is used, all fittings shall be ASTM D 2466 and F438, of the same manufacturer as PVC pipe used by the Contractor. Fit of fittings and pipe shall be proper and capable of developing full strength of the piping system.

D. Skimmer units: Skimmer units shall be Hayward (or equal), Model 1082 FVE Auto-Skim PVC construction, with float valve, equalizer valve and 2” slip fittings suitable for use with schedule 80 PVC interconnecting piping. The skimmer body shall be NSF listed in a white color. Aquastar Flowstar, SKR1401xxx white color with flush face 4” extension, polymer and PVC construction rate from 15 to 90 GPM is an approved equal.

PART 3 - EXECUTION

3.1 GENERAL

A. Pipe and accessories shall be handled in such a manner as to insure delivery to the site in sound, undamaged condition.

B. Cutting of pipe shall be done in a neat and workmanlike manner without damage to the pipe. Cutting shall be done by means of mechanical cutter.

C. Before installation, pipe and converters shall be inspected for defects. The interior of the pipe shall be thoroughly cleaned of foreign matter and shall be kept clean during laying operation.

D. No installation shall be made that will provide a cross connection or inter-connection between a distributing supply for drinking purposes and the swimming pool that will permit a backflow of water into the pool water system.

E. Pipe openings shall be closed with caps or plugs during installation. Equipment and pool fittings shall be tightly covered and protected against dirt, water and chemical or mechanical injury. At the completion of the work, the fittings, materials, and equipment shall be thoroughly cleaned and adjusted for proper operation.

F. Install all imbeds and finish fittings flush with adjacent finished surfaces. Provide proper exposure of threaded fittings to enable trim rings and associated fittings to be installed in a workman like manner without gaps or irregularities at junction points with the specified pool finish (plaster or ceramic tile). All directional fitting shall be adjusted to provide proper flow of filtered water in each pool vessel and properly tightened upon completion of the work to produce a fully functioning recirculation system.

3.2 JOINTS

A. Mechanical joints: Assemble all mechanical joints by washing the socket and plain ends of the pipe with soapy water. Then the gland and gasket shall be slipped over the plain end in such manner that the small side of the gasket and the lip side of the gland face the socket. The gasket shall then be painted with soapy water. Insert the plain end into the socket and push the gasket into position so that it is evenly seated. Slide the gland into position, insert stainless steel bolts and tighten stainless steel nuts by hand. Using a ratchet wrench, tighten stainless steel bolts alternately bottom and top and continue around pipe until the joint is bottle-tight under all working pressures.

B. Solvent-welded joints: Solvent-welded joints shall be made in accordance with the manufacturer's recommendations. However, the following directions are considered minimum standards. All fittings shall fit easily on the pipe before applying cement. The outer surface area of pipe and inner wall of fitting shall be clean and dry. Thinner is to be applied to the outer surface of the pipe and to the inner surface of the fittings. Cement is to be applied to the outer surface of the pipe, or on the male section of fitting only. When the outside surface area of the pipe end is satisfactorily covered with cement, allow ten (10) seconds open time to elapse before inserting pipe into fittings, turn fitting about the pipe end approximately 1/8 to 1/4 of a turn. Wipe off excess cement at the joint in a neat cover bead. Use only approved cement and thinners for making joints.

C. All joints shall remain completely undisturbed for a minimum of ten (10) minutes from time of joining the pipe and fitting. If necessary to apply pressure to a newly made joint, limit of ten (10) percent of rated pipe pressure, four (4) hours after joining, for the first twenty-four (24) hours after the joint has been made.

D. Carefully handle all pipe and move as little as possible so that the cement seal shall not be broken before it is completely dry and for a time of at least twenty-four (24) hours.

E. Full working pressure shall not be applied until the joints have set for a twenty-four- (24) hour period.

F. Installation during hot weather shall provide for expansion by snaking in ditch or running line on open discharge until it contracts to operating length.

G. Protect plastic pipe from exposure to aromatic hydrocarbons, halogenated hydrocarbons and most of esters and ketones that attack the material. Protect all pipe from mechanical damage and long exposure to sunlight during storage.

H. All connections between PVC and metal pipes must be flanged, plastic flange to metal flange. DO NOT use threaded connections between plastic and metal pipe, except where specifically noted otherwise and in which case the PVC pipe shall be Class 200 weight regardless of size.

3.3 FLUSHING OF LINES

A. All pipe lines leading to the pool shall be thoroughly flushed clean before the pool is filled and placed in use. All gutter chambers shall be thoroughly flushed clean before the pool is filled and placed in use.

3.4 INSPECTION SERVICES

A. The Contractor shall supply the services of a competent and experienced field engineer for a period of at least one (1) day to inspect the completed installation, clean and adjust the skimmers, place the system into operation, and give operative instructions to the Owner's staff relative to its proper care and use.

END OF SECTION

SECTION 13 11 46 - SWIMMING POOL ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Base Bid applies to this Section.

1.2 SUBMITTALS

A. Manufacturer’s Data:

B. Submit six (6) copies of bound Contractor’s specifications and installation instructions for products supplied for installation. Include certified laboratory test reports on components as specified or required by regulatory agencies.

C. Assemble information into one (1) coordinated submittal.

D. Shop Drawings:

1. The Contractor shall prepare shop drawings indicating the materials and size of all equipment to be furnished. Shop drawings to be submitted to Architect for Owner's review/approval.

2. Submit six (6) copies of bound shop drawings for each type of filtration system. Show anchors, reinforcement, accessories, grounding lugs, and installation details and methods. Include piping and wiring diagrams for recirculation, filtration, and chemical treatment systems.

3. Assemble information into one (1) coordinated submittal.

1.3 SUMMARY

A. Coordinate all anchors for deck equipment with the new tile finish work.

B. Furnish and install all specified items as indicated in the Drawings and Specifications to provide a complete and fully functioning and operational facility.

C. Provide all necessary supervision, templates, manuals of operation, and turnover instructions.

D. Ground/bond the new deck equipment in accordance with the National Electrical Code and all local codes and ordinances.

PART 2 - PRODUCTS

2.1 GENERAL

A. Manufacturer: Subject to compliance with requirements, provide products from one of the following:
1. S.R. Smith, LLC
2. Keifer Pool Equipment
3. Spectrum Pool Products
4. KDI Paragon

~~5. Myrtha Pools, USA~~
6. Recreonics, Incorporated
7. Swimtime Lincoln Equipment, Incorporated

B. General Equipment: The following list of specific equipment is provided to establish the overall scope of this Section. Confirm complete list and quantities with schedules on the Architectural Pool Drawings. Not all items are identified herein. Specific mounting equipment, anchors, fasteners, sleeves, etc., shall be furnished with each piece of specified equipment to insure a fully functioning competitive swimming facility. Color of lap lane line will be finalized during the submittal process. The floating lane line shall be furnished with the appropriate color coordinated markers to identify distances from wall for lap swimming.
1. 6" diameter custom length lane line, 25-yard configuration (75'-1"); Pool Alternate No. 3 - 6 required, Competitor, Medina, OH or Anti wave quelling lane lines, or approved equal. (Pool Add Alternate No. 3)
2. 6 SR Smith Velocity Track-start starting blocks see drawings for configuration; Pool Add Alternate No. 4. Furnish and install six (6) the "Rock-Solid" anchors in base bid regardless of Owner's acceptance of Alternate No. 8. (Pool Add Alternate No. 4)
3. Safety rope with floats 45'-0" pool width.
~~4. Automatic Pool Cleaner - Wave 120 2x2 Gyro Pro, as manufactured by Maytronics, Include wireless remote control and deck cart. (Base Bid)~~
5. Bronze Anchor Socket - Accommodates 1.90" outside diameter tubing for back stroke stanchions, recall lines, etc.
6.* Cleaning Supplies:
   a. Algae Brush
   b. All-purpose Brush
   c. Aluminum Telescoping Handle
   d. Commercial Hose Reel
   e. Fireman Type Brass Nozzle
   f. Flat Sheet Spray Nozzle
   g, Heavy Duty Water Hose
   h. Indestructible Squeegee
7. Escutcheon Plates
8. Lane Line Anchors; specific to pneumatically placed concrete pool system of sufficient number for Base Bid - (12 required)
9.* Pool Thermometer
10. Racing Lane Storage Reel to accommodate 6 total lane lines (Pool Alternate No. 3)
11. Recycled Plastic Lifeguard Chair(s), see Architectural pool drawings for count and location
12.* Standard Pole Hangers
13.* Water Shutoff Petcock
14.* Safety Equipment:
   a. Backboard/ Spine Board and Straps
   b. Blood Borne Kit
   c. CPR Mask
   d. Eyewash Kit
   e. First Aid Kit
   f. Head Immobilizer and Adhesive Fastener
   g. Professional Complete Chlorine Test Kit
   h. Protective Apron
   i. PVC Gloves
   j. Rescue Blanket
   k. Rescue tube
   l. Shepherd's Crook and Pole with "Spring Type" pole Clamps
   m. Signage (pool and deck) - See Schedule

n. Splash Goggles
o. Throw Rope
p. USCG Ring Buoy and Holder

~~15. Winter cover, Meyco custom mesh pool winter cover. Provide in sections to cover lap pool, leisure, and beach access zones to simplify labor associated with installation and removal and enhance off-season storage. (Pool Add-Alternate No. 7).~~

2.2 SPECIFIC PRODUCT LIST

A. See Schedules on Construction Documents for Specific Product list and product quantities.

B. All items indicated with a * are to be purchased by the Owner (Culpeper County Department of Parks and Recreation) under a separate agreement. All such items shall remain on the drawings for coordination purposes and are not to be priced by the bidding contractors. Imbedded component for any items requiring permanent attachment to the pool decks or building shall be furnished by the Owner to the successful general or swimming pool contractors for installation.

C. All items indicated with a ~~strikethrough~~ have been eliminated from the contract for swimming pool construction. The items remain in the bidding documents for clarification and coordination purposes.

PART 3 - EXECUTION

3.1 INSTALLATION

A. The manufacturer shall coordinate the delivery of all necessary anchors and fittings to the respective contractors to avoid any delays in the scheduling of the Project. Contractor shall provide verification within fourteen (14) days of award of Contract that all long lead time items have been ordered. Furnish shop submittals for all specified equipment.

B. The manufacturer shall supply all templates in a timely manner to facilitate a smooth progress of construction. A representative from the manufacturer will be present at the site to supervise the installation of his products, and to allocate a minimum of two (2) working days to supervise the start up and turnover of the facility as well as instructing the Owner's representatives in the operation and maintenance of all equipment.

C. Install all associated mechanical and electrical work to produce a fully functioning system in compliance with applicable codes and accessibility standards.

END OF SECTION

SECTION 13 15 10 - POOL CAULKING AND SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Provide all sealants and caulking including, but not limited to expansion joint filler, and interior caulking.

1.3 QUALITY ASSURANCE

A. General sealer performance requirements: Select material for compatibility with joint surfaces and other indicated exposures. Select modulus of elasticity and hardness of grade recommended by manufacturer for each application indicated.

B. Provide colors as indicated, or if not indicated, color as selected by the Architect from manufacturer's standard colors.

1.4 SUBMITTALS

A. Manufacturer's Data:
   1. Submit a PDF copy of manufacturer's specifications and installation instructions for products supplied for installation. Include certified laboratory test reports on components as specified or required by regulatory agencies.
   2. Assemble information into one (1) coordinated submittal.

PART 2 - PRODUCTS

2.1 SEALANTS

A. Sealant No. 1 (interior sealant caulk): Sikaflex 1a, as manufactured by Sika Corporation, Lyndhurst, New Jersey For use in filter room if required to seal gaps at piping penetrations

B. Sealant No. 2 (control joint, dissimilar materials, and joints in contact with pool water): Sikaflex 2C-NS, one-part, polyurethane sealant as manufactured by Sika Corporation, Lyndhurst, New Jersey. Color selected by Architect. (for use in vertical and horizontal surfaces)

C. Sealant No. 3 (expandable sealant): Adeka Ultra Seal, P-201 expandable, one part elastic sealant, as manufactured by Asahi Denka Kogyo K.K., Tokyo, Japan. Manufacturer's standard color.

D. Sealant No. 4 (for use at pool skimmer, concrete coping, and ceramic tile edges if tile engages a dissimilar material): Thiokol 2235M as manufactured by Thiokol Corporation, Trenton, New Jersey. Color selected by Architect. Contractor's option for sealants 4 and 5.

E. Sealant No. 5 (for use at pool skimmer, concrete coping, and ceramic tile edges if tile engages swimming pool water): Latasil 100% Silicone sealant as manufactured by Laticrete International, Inc. Bethany, CT. Color selected by Architect. Contractor's option for sealants 4 and 5.

F. Sealant No. 6 (for use in keyways and cold joints): Greenstreak Swellstop 1”x ¾” expanding water stop, as manufactured by Greenstreak, Inc., St. Louis, Missouri.

G. Bond Breaker: 3M 226, 48, 710 as manufactured by 3M Corporation.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Comply with manufacturer’s printed instruction except where more stringent requirements are specified and except where manufacturer’s technical representative directs otherwise.
   1. Elastomeric Sealant Installation Standard: Comply with ASTM C 962.
   2. Solvent-Release-Curing Sealant Installation Standard: Comply with ASTM C 804.
   3. Latex Sealant Installation Standard: Comply with ASTM C 790.
   4. Acoustical Sealant Application Standard: Comply with ASTM C 919 for use of joint sealants in acoustical applications.
   5. Installation of Fire-Stopping Sealant: Install sealant, including forming, packing and other accessory materials to fill openings around mechanical and electrical services penetrating floors and walls to provide fire-stops with fire resistance ratings indicated.

B. Do not proceed with installation of liquid sealants under unfavorable weather conditions. Install elastomeric sealants when temperature is in lower third of temperature range recommended by manufacturer for installation.

C. Clean joint surfaces immediately before installation of sealant or caulking compound. Remove dirt, insecure coatings, moisture and other substances which could interfere with bond of sealant or caulking compound. Etch concrete and masonry joint surfaces as recommended by manufacturer. Roughen vitreous and glazed joint surfaces as recommended by manufacturer.

D. Set joint filler units at proper depth or position in joint to coordinate with other work, including installation bond breakers, backer rods and sealants. Do not leave voids or gaps between ends of joint filler units.

E. Install sealant backer rod for liquid elastomeric sealants, except where required by manufacturer's recommendations, to ensure that sealant will perform properly.

F. Install bond breaker tape where indicated and where required by manufacturer's recommendations to ensure that elastomeric sealant will perform properly.

G. Employ only proven installation techniques, which will ensure that sealants are deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of joint bond surfaces equally on opposite sites. Except as otherwise indicated, fill sealant rabbit to a slightly concave surface, slightly below adjoining surfaces. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cover, so that joint will not trap moisture and dirt.

H. Install sealant to depths as shown or, if not shown, as recommended by sealant manufacturer but within the following general limitations measured at center (thin) section of bead:
   1. Pool decks, pavements and similar joints sealed with elastomeric sealants, subject to traffic and other abrasion and indentation exposures, fill joints to a depth equal to 75% or joint width, but neither more than 5/8" deep nor less than 3/8" deep.
   2. For normal moving joints sealed with elastomeric sealants but not subject to traffic, fill joints to a depth equal to 50% of joint width, but neither more than 1/2" deep nor less than 1/4" deep.

3. For joints sealed with non-elastomeric sealants and caulking compounds, fill joints to a depth in range or 75% to 125% of joint width.

I. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces, or to migrate into voids of adjoining surfaces. Clean adjoining surfaces by whatever means may be necessary, as recommended by manufacturer, to eliminate evidence of spillage.

J. Recess exposed edges of gasket and exposed joint fillers slightly behind adjoining surfaces, unless otherwise shown, so that compressed units will not protrude from joints.

K. Bond ends of gaskets together with adhesive or "weld" by other means as recommended by manufacturer to ensure continuous water-tight and air-tight performance. Miter cut and bond ends at corners unless molded corner units are provided.

3.2 CURE AND PROTECTION

A. Cure sealants and caulking compounds in compliance with manufacturer's instructions and recommendations, to obtain high early bond strength, internal cohesive strength, and surface durability. Comply with manufacturer's procedures required for cure and protection of joint sealers during construction period, so that they will be without deterioration or damage, (other than normal wear and weathering), at time of Substantial Completion.

END OF SECTION

SECTION 13 15 90 - SWIMMING POOL HEATER

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Furnish and install all specified items as indicated in the Drawings and Specifications to provide a complete and fully functioning swimming pool heater system including but not limited to:
   1. The swimming pool heater shall be bid as **Pool Add-Alternate No. 2**.
   2. All required heater system taps.
   3. Installation supervision, testing and certification.
   4. Labor, material, and equipment to complete the installation.
   5. LPG supply piping from existing storage tank to swimming pool filter room.
   6. The swimming pool heater venting and exhaust systems.

B. Provide all necessary supervision, templates, manuals of operation, and turnover instructions.

C. Pool Builder shall provide all required piping, fittings, and related recirculation equipment to be connected to the swimming pool heater.

D. Venting system shall be provided and installed by pool builder. Penetrations, fire stopping, and weather proofing shall be by others.

1.3 WARRANTY

A. All work of this Section shall be warranted against all defects of material and/or application for a period of five (5) years from the date of substantial completion (acceptance). Any failures that may occur within this warranty period, due to defective installation and/or materials, shall upon written notification of such failure, be immediately repaired or replaced.

B. Pool builder shall provide owner with one year bi-annual preventive maintenance agreement.

1.4 SUBMITTALS

A. Manufacturer's Data:
   1. Submit a PDF copy of manufacturer's specifications and installation instructions for products supplied for installation. Include certified laboratory test reports on components as specified or required by regulatory agencies.
   2. Assemble information into one (1) coordinated submittal.
   3. Include Heater BTU capacity, gas requirements, electrical requirements, clearance requirements, supply/exhaust requirements & configuration, maintenance access, utility requirements.

B. Maintenance Manuals
   1. Include four (4) full maintenance and operating instructions, parts list(s), recommended spare parts and emergency parts inventory, sources of purchase and similar information with the maintenance manual for entire filtration system. Coordinate this data with the information

provided by the successful manufacturer of the pool heating system.
2. Assemble information into one (1) coordinated submittal.

1.5 REGULATORY AGENCY REQUIREMENTS

A. The entire system shall be designed to meet all applicable State and local codes.

B. Nationally recognized standards, as applicable, shall be adhered to.

PART 2 - PRODUCTS

2.1 GENERAL DESCRIPTION - Swimming Pool Heater - Pool Alternate No. 2

A. Boiler Manufacturer: U.S. Boiler or approved equal.

B. Pool Builder shall verify all elements and quantities as listed on the Drawings and provide required count of each item to have a fully functional and operational installation.

C. Items listed on the Drawings include the following elements:
1. Pool Builder shall furnish a fully functional auxiliary swimming pool heating system for uses shown on the construction drawings.
2. Complete installation of auxiliary swimming pool heater by the Pool Builder. All utility service to the auxiliary swimming pool heater and electrical service shall be by others.

2.2 AUXILIARY SWIMMING POOL HEATER

A. The pool auxiliary heater Basis of Design shall be an US Boiler (Lochinvar Aquas) high-efficiency gas condensing mod-con boilers indirect Pool Heating System:

1. Total system volume design is based on 930,000 gallons, 13,227 SF water surface area. Maximum water temperature 82 degrees F., minimum water temperature 78 degrees F.

B. The heater shall be US Boiler (Lochinvar Aquas), or equal:
1. Pool Auxiliary Heaters: One (1) ANP600 7:1 turndown ratio, having a modulating input rating of 602,000 Btu/hr., and output rating of 689,000 Btu/hr. and shall be operated on Liquified Petrolium Gas, 98% efficiency.
2. The package system shall be made of a single boiler plant with a Shell and Tube or Plate and Frame pool heat exchanger array. The design of the system shall be such that pool water shall be heated indirectly through the pool heat exchanger array and is never directly heated by the boiler plant. The boiler and the pool heat exchanger shall be completely modular and shall include a circulating pump, expansion tank, flow switch, and or manual reset low water cut off, manual reset high limit, ASME Certified pressure relief valve set for 30psi, automatic fill valve with pressure reducer and a temperature / pressure gauge. The entire package shall be skid and/or rack mounted, pre-piped, assembled, and pressure tested and ready for installation.

C. A high efficiency, condensing boiler(s) shall be piped to a dedicated Pool Heat Exchanger(s). The boiler side piping shall be copper or stainless pipe with a Circulating Pump, and appropriate components and fittings for safe and efficient delivery of indirect heat transfer to the pool water.

D. The Circulating Pump shall be constructed of cast iron and operate on a 120-volt, 60 Hz, 1 phase power supply (unless otherwise specified). The pump shall be factory wired to run with intermittent pump operation. The Expansion Tank shall be of a bladder type design and shall be sized

adequately to allow for the expansion of the boiler water when heated. The Flow Switch shall be of a paddle type design and shall be wired to the internal boiler control safety circuitry so as not to allow the boiler to operate when there is not sufficient flow. The Automatic Fill Valve with Pressure Reducer shall be factory set for 12 psi and shall allow fresh water to be added to the boiler system only when the water pressure has fallen below the pressure setting. The Pressure Relief Valve shall be ASME Certified and have a setting of 30 psi. The Temperature and Pressure Gauge shall be capable of reading temperature in both degrees Fahrenheit and degrees Celsius. The Pressure units shall be read in pounds per square inch (psi).

E. The Titanium Pool Heat Exchanger Array shall consist of multiple heat exchanger(s) with a total rating of 120% of boiler(s) output. Heat exchanger shall be rack mounted on a 316 stainless steel frame and shall be configured in a way for ease of service and replacement. Each shall be constructed of Titanium Tubes with Titanium Bodies. Inner tubes shall be helically wound tubes and shall have a maximum operating pressure of 190psi, operating temperature range 18° - 240° psi and carry a limited lifetime warranty. It shall be capable so that heat can be transferred into the pool water with an efficiency of up to 99%.

F. The Boiler shall bear the ASME "H" stamp for 160 psi working pressure and shall be National Board listed. There shall be no banding material, bolts, gaskets, or "O" rings in the header configuration. The 316L stainless steel combustion chamber shall be designed to drain condensation to the bottom of the heat exchanger assembly. A built-in trap shall allow condensation to drain from the heat exchanger assembly to the adjacent floor drain. The Boiler heat exchanger assembly shall carry a ten (10) year limited warranty.

G. The Boiler shall be certified and listed by C.S.A. International under the latest edition of the harmonized ANSI Z21.13 test standard for the U.S. and Canada. The Boiler shall comply with the energy efficiency requirements of the latest edition of the ASHRAE 90.1 Standard and the minimum efficiency requirements of the latest edition of the BTS2000 Standard. All models shall operate up to 98% thermal efficiency with pool water temperatures below 100°F. The Boiler shall be certified for indoor installation.

H. The Boiler shall be constructed with a heavy gauge steel jacket assembly, primed and pre-painted on both sides. The combustion chamber shall be sealed and completely enclosed, independent of the outer jacket assembly, so that integrity of the outer jacket does not affect a proper seal. A burner/flame observation port shall be provided. The burner shall be a premix design and constructed of high temperature stainless steel with a woven metal fiber outer covering to provide modulating firing rates. The Boiler shall be supplied with a gas valve designed with negative pressure regulation and be equipped with a variable speed blower system, to precisely control the fuel/air mixture to provide modulating boiler firing rates for maximum efficiency. The Boiler(s), on indoor packages, with 600,0000 through 850,000 Btu/hr. input shall be capable of full modulation firing with a turndown ratio of 7:1. The Boiler shall operate in a safe condition at a de-rated output with gas supply pressures +/-10 inches of water column. (Verify de-rated output in submittal package.)

I. The Boiler(s) shall utilize a 24 VAC control circuit and components. The control system shall have an electronic display for boiler set-up, boiler status, and boiler diagnostics. All components shall be easily accessed and serviceable from the front and top of the jacket.

J. The Boiler(s) with 100,000 through 850,000 Btu/hr. input shall feature the “SAGE” control with an LCD display and touch navigation panel. The Boiler shall have password security, pump delay with freeze protection, pump exercise, domestic hot water prioritization and PC port connection. The Boiler shall allow 0-10 VDC and/or 4-20ma input connection for BMS control and have built-in “Cascade” to sequence and rotate while maintaining modulation of up to eight packages without utilization of an external controller. Supply voltage shall be 120 volt/60 hertz/ single phase.

K. The Boiler shall be equipped with two terminal strips for electrical connection. A low voltage connection board for safety and operating controls. A high voltage terminal strip shall be provided for Supply voltage.

L. The Boiler shall be installed and vented with a Direct Vent Sidewall system with a horizontal sidewall termination of both the vent and combustion air. The flue shall be Centrotherm or other UL-1738 approved polypropylene vent system or Stainless-Steel AL-294C sealed vent material terminating at the sidewall with the manufacturers specified vent termination. A separate pipe shall supply combustion air directly to the Boiler from the outside. The air inlet pipe shall be the same as the vent system. The air inlet must terminate on the same sidewall with the manufacturer's specified air inlet cap. The Boiler's total combined air intake length shall not exceed 100 equivalent feet. The Boiler's total combined exhaust venting length shall not exceed 100 equivalent feet.

M. The Firing Control System shall be Direct Spark Ignition with Electronic Supervision (Standard).

PART 3 - EXECUTION

3.1 GENERAL

A. The installing contractor shall facilitate smooth construction progress by supplying all templates to the Pool Contractor in a timely manner. A representative from the Manufacturer, whose cost shall be the responsibility of the Pool Contractor, will be present at the site to supervise the installation of his products, and to allocate a minimum of two (2) working days to supervise the startup and turnover of the facility as well as instructing the Owner's representatives in the operation and maintenance of all equipment.

B. All gas pipping, regulators, and interconnection to the existing LPG storage tank shall be performed by a certified plumbing or mechanical contractor properly licensed and skilled in the installation of Natural Gas and/or Liquefied Petroleum gas (LPG) heating systems. All interconnecting piping from the pool heater to the swimming pool filtered water return system shall be installed in schedule 80 CPVC by the pool contractor. All final venting and make-up air ductwork shall be installed by the mechanical contractor with supervision furnished by the pool contractor and the pool heater manufacturer's representative.

C. Prior to installation of the work of this Section, carefully inspect the installed work of other trades and verify that all such work is complete to the point where this installation may properly commence.

D. Fabrication and Installation:
1. Fabricate and install swimming pool heating system tie-in connections in strict accordance with the manufacturer's written instructions, reviewed Shop Drawings and applicable referenced standards.
2. Provide all required supports and anchors to support the connection piping from surrounding structures. See drawings for exact location and mounting height.

E. Clean Up:
1. Upon completion of the work of this Section, immediately remove all debris and rubbish occasioned by this work to the approval of the Architect and the Owner and at no additional cost to the Owner.

E. Heater Base:
1. Install heater base in accordance with manufacturer's instructions and securely fasten as recommended. Bearing shall be completely on structural floor; bridging over openings is

~~prohibited.~~

~~END OF SECTION~~

SECTION 13 16 50 - AQUATIC PLAY STRUCTURES

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, under separate specification, apply to this Section.

B. Products shall be specifically designed for use by children and adults and follow the ASTM F2461-09 norm. The manufacturer should have the following standards and certifications: ISO 9001:2015, EN 1090-1, CWB / CSA W47.1, UL 508A, FCC, EN 17232, EN 1069-1, CE, CSA Z614, ASTM F2376, GB/T 18168, GB 8408 and AS 4685. In addition, products shall be manufactured by a company that has at least five (5) years of experience in the design and engineering of children's aquatic play areas.

C. Any aquatic play product belonging to a new product line or series should demonstrate meeting the effective norm or show the conformity and resistance of the prescribed materials if it is proposed equivalency. The contractor or manufacturer must demonstrate meeting specifications by providing technical documents and drawings to be included in their bid proposal.

1.2 SUMMARY OF SCOPE

A. All features, water management and flow, including pumps and piping, wiring and controls shall be provided by the Swimming Pool Contractor. Basis of design is Vortex International. Acceptable alternatives are Waterplay, Rain Drop, or other approved manufactures provided they meet the safety requirement outlined in Section 1.1 B. The Swimming Pool Contractor will be responsible for any additional costs associated with use of approved equal products. Costs may include, but are not limited to, the following: additional engineering review time, additional material and labor costs to all Contractors, and any other costs that may result from a change in the design.

B. The Vortex aquatic play structures or equal shall be suitable for installation in aquatic facilities and public play areas. They shall be specifically designed for use by children and adults and be manufactured by a company that has at least five (5) years of experience in the design and engineering of children's aquatic play areas.

C. Electrical Contractor shall provide grounding for all aquatic play areas.

1.3 PRODUCT CATEGORY

A. Amusement park structures and equipment.

B. Aquatic park facilities.

1.4 REFERENCES (Standard Compliance)

A. ASTM International Standards:
1. ASTM F 2461-09 Standard Practice for Classification, Design, Manufacture, Construction, and Operation of Aquatic Play Equipment.
2. ASTM F 1487 Standard Consumer Safety Performance Specification for Playground Equipment for Public Use.
3. ISO 9001:2015
4. EN 1090-1, CWB

5. CSA W47.1
6. UL 508A
7. FCC
8. EN 17232, EN 1069-1
9. CE
10. CSA Z614
11. ASTM F2376
12. GB/T 18168
13. GB 8408
14. AS 4685

1.5 SUBMITTALS

A. Documentation:

1. The manufacturer shall furnish the purchaser with complete installation and operation manuals. Submit under provisions of Section 01 33 00. The installation manual will illustrate the installation of the entire system. The operation manual shall describe the start-up procedure and day-to-day operation of the system.

1.6 PRODUCT CONSTRUCTION

A. Play Products: All aquatic play structural posts installed above ground shall be manufactured from 304/304L stainless steel. The anchoring system shall be manufactured from 304/304L stainless steel. Please refer to individual product specifications for play product material information.

B. Mounting and Assembly Hardware: All hardware and anchoring systems shall be 304/304L or 316 stainless steel. All play products and ground spray systems shall include an integrated anchoring and leveling system facilitating installation and a flush surface finish. Exposed and accessible hardware shall be tamper resistant, requiring a special tool for removal to deter vandalism and theft.

C. Spray nozzles, caps, and heads: Shall be manufactured from lead free brass, UHMWPE or Polyurethane and shall use tamper resistant tools for installation and removal. PVC, Nylon, and Delrin™, shall not be utilized. All grade level play products are to be furnished with appropriate winterization caps.

D. Painted Finish: Shall be a polyester smooth glossy heat-cured powder coat that is UV and chemical resistant and suitable for public spaces.

E. Elastomer: The Toeguard™ and other accessories shall be made of elastomers resistant to chlorinated water and be ultraviolet stabilized to inhibit sunlight fading.

F. Safety & Craftsmanship: All accessible edges shall be machined to a rounded finish. All welds shall be watertight, buffed smooth or polished to a non-visible finish and factory pressure tested. Accessible nozzles and spray heads shall be recessed to ensure a completely safe play environment with no pinch points, head entrapments or protrusion hazards. All products shall be designed in accordance with ASTM F1487, ASTM F-2461 and CSA Z614-98 regulations for public playgrounds.

G. Seeflow™ Polymer: The Seeflow™ Polymer shall be specially selected for aquatic play products and shall have the following characteristics: translucent, highly resistant to shock and impact vandalism, and non-flammable. The polymer shall present dimensional stability, high

resistance towards chemical products, and ultra violets rays. All reachable Seeflow™ components (under 8 feet) are permeated with color and are manufactured with up to 40% pre-consumer recycled materials.

1.7 PRODUCT INSTALLATION

A. When applicable, templates shall be supplied to facilitate the installation of embedded anchoring equipment.

B. All posts shall have electrical grounding studs incorporated into their associated anchoring equipment. All play products shall be grounded by the Electrical Contractor per local codes.

C. All control wiring including control panel, conduit, PVC connections, piping, elbows, tees, play product assembly if required and other items relating to the installation shall be supplied by the General Contractor.

D. Drawings and Instructions: Product drawings and installation manuals shall be supplied by the manufacturer for ease of installation.

1.8 SPLASHPAD® QUALITY ASSURANCE

A. Provide evidence of commitment of quality craftsmanship as demonstrated by the following: Splashpad® Manufacturer Qualifications:
   1. The products shall be designed and produced at a facility owned and directly supervised by the manufacturer.
   2. All products shall be shipped from a single source.
   3. All play product designs are verified by a licensed engineer.
   4. All play product anchoring systems are designed to withstand a maximum of 125MPH (200KMH) wind load.
   5. A full-time licensed engineer must be on-staff.
   6. A full-time quality control manager must be on staff.
   7. All play products shall be designed, developed and water tested following a rigorous process.

1.9 START UP

A. Upon completion of construction, the general contractor shall provide the Owner’s Representative adequate training on the Vortex aquatic play structure operations and maintenance or equal. The Contractor may need to adjustment the overall flow and/or distribution to the play features.

1.10 QUALITY ASSURANCE

A. General Contractor shall provide evidence of commitment of quality craftsmanship as demonstrated by the following:
   1. Vortex aquatic structure and features Manufacturer Qualifications or equal.
   2. Products shall be designed and produced at a facility owned and directly supervised by the supplier.
   3. A full-time licensed engineer must be on staff.
   4. A full-time quality control manager must be on staff.

1.11 EQUIVALENCIES CLAUSES

A. To enable all tenders to be judged equitably, they shall be based on the specified products in this document and shown on the drawings.
   1. The proposal for any substitute products must be attached to the bid or tender separately, identifying the substitute product by its trade name along with any savings it may represent for the client.
   2. Following the opening of the bid or tender, only those substitutes proposed by the lowest bidder for the specified products will be considered.
   3. All substitute approval requests shall be accompanied by manufacturing drawings, including spray zones, sequencing, plumbing and electrical schematics and complete salt spray resisting testing data produced by an independent laboratory for coatings and a written warranty from the manufacturer.
   4. No substitution or equivalency submitted will be considered if the products proposed are not part of manufacturers standard existing product line. Written proof that the product has been manufactured previously by the substitute manufacturer and pictures of the manufactured product must be provided. Please refer to General Clauses 1.1.
   5. Each substitute sample must be presented to the owner/consultant within seven days following the opening of tenders. The sample must be completely operational. After this time period, the bidder will be required to supply the original specified product.
   6. The owner/consultant reserves the right to grant or deny approval for proposed substitutions without prejudice to his rights and his decision shall be final. The above conditions apply to this section independently of any other clauses on the subject found in this document.
   7. If applicable the products must be interchangeable and of equivalent quality to the materials already installed.

1.12 PRODUCT DELIVERY, STORAGE AND HANDLING

A. All Vortex aquatic play structures or equal and associated equipment must be properly wrapped and secured in place while in transport to the project site. Care shall be observed during offloading and handling to prevent excessive stress and abrasions.

B. At the site, the Vortex aquatic structures or equal and associated equipment are to be stored in safe areas, out of the way of traffic and other construction activities, until the actual time of the installation. If required, safety barricades or other like precautions must be taken for the protection of public and adjacent property.

C. Protective wrapping on the Vortex aquatic play structures or equal must be left in place until construction work is complete (unless noted on the product or the package).

1.10 WARRANTY

A. A 25-year warranty on stainless steel tubing.

B. A Ten (10) years warranty on structural stainless steel (stainless steel used for climbable structures or used to hold a minimum weight of 240 lbs.), weld workmanship, and Spraylink™ underground system.

C. A Five (5) year warranty on aluminum, brass, polymer panels, and spray nozzles.

D. A Two (2) year warranty on finishes, galvanized steel structures, plumbing components, mechanism and hardware, polymer, and elastomer.

E. A Two (2) year warranty on Stainless steel hardware, Bearings and Rotational joints and Paint adhesion.

F. A One (1) year warranty on Fiberglass & fiberglass themed structures, EVA close cell foam, concrete components, electrical components, paint graphic and decal, and fiberglass composite.

G. All warranties are to be managed by the equipment supplier.

PART 2 - PRODUCTS

2.1 VORTEX AQUATIC PLAY FEATURES

A. Description:
1. Aquatic play feature including, in deck sprays, fixed play features and interactive water play features.
a. Refer to project drawing for footprint, model dimensions, colors, and water requirements.
b. Refer to installation overview drawings for post anchoring details and plumbing connection locations.
c. Refer to PART 1: VORTEX GENERAL CLAUSES for all Play Product construction and installation information.

B. Manufacturer:
1. The Basis-of-design shall provide and install the following Vortex Aquatic Play features as manufactured by VORTEX Aquatic Structure Intl, 7800 Trans Canada, Pointe-Claire, Quebec, Canada H9R 1C5, (514) 694-3868, www.vortex-intl.com, or equal.
2. The Swimming Pool Contractor will be responsible for any additional costs associated with use of approved equal products. Costs may include, but are not limited to, the following: additional engineering review time, additional material and labor costs to all Contractors, and any other costs that may result from a change in the design.

C. Materials:
1. List of standard Vortex materials, except when noted inside product specification:
a. Stainless-Steel Structural Tubing and Supports: Shall be type 304/304L stainless steel pipes, schedule 10 (0.120” (3.0mm)) minimum thickness, structurally strong, durable, and highly resistant to corrosive environments. Rigid fiber reinforced polymer (FRP) and/or molded fiberglass, PVC, filaments wound tubing, Galvanized Steel, or Aluminum shall not be utilized for components above or below the water level neither above nor below grade.
b. Spray heads and Spray caps: Spray heads and Spray caps shall be manufactured from corrosion resistant solid Ultra-High Molecular Weight Polyethylene (UHMW) plastic, rigid UV treated polyurethane, Lead-Free Brass or 304/304L Stainless-Steel. Exposed hardware shall be tamper-resistant. PVC, Nylon, and Delrin™ material shall not be utilized.
f. Nozzles: Shall be manufactured from corrosion resistant Lead-Free Brass or 304/304L Stainless Steel material and shall use tamper resistant tools for installation and removal.
g. Protective Painted Finish: All stainless-steel parts, except noted shall be cleaned and treated before the painting process. All stainless-steel parts, except noted, shall be coated with a multi-layer Super Durable grade heat-cured protective powder coating that offers superior UV, gloss and chemical resistance; and is suitable for high traffic environments.
h. Soft-touch elastomer: Twirltec™ Rotating spheres & Toe Guards™ or equals shall be constructed of Soft-touch elastomer developed exclusively for the aquatic play environment and designed to safely cover accessible post bases, anchoring hardware, and rotating mechanism. Soft-touch elastomer shall have flexible rubber-like characteristics, a matte highly durable and slip-resistant

finish. The Soft-touch elastomer shall be UV and chemical resistant with color impregnated through the material.

i. Seeflow Polymer: The Seeflow Polymer material shall be highly translucent and colorful plastic, flat or molded to different shapes, creating colorful reflections and shadows. It shall have been developed exclusively for the aquatic play environment shall have high impact resistance and be flame retardant. The Seeflow Polymer shall have outstanding dimensional stability, chemical resistance, UV stability, and exceptional translucence.

D. Mounting And Assembly Hardware:

1. All hardware and anchoring systems shall be using 316/316L stainless steel corrosion resistant hardware, except when noted inside product specification.

E. Water Distribution Manifold:

1. Water distribution system consists of a standalone post connected to an embedded Safeswap™ anchor or equal and linked to the play structure via flexible water hoses. The Water Distribution Manifold shall be located is a building specifically designed to house the Vortex equipment. The number of manifold fittings per structure depends on the amount of water features and the required water flow. The Water Distribution Manifold consists of a main pipe divided into multiple water outputs and valves to permit water flow adjustment for each output line.
   a. Main Body: Shall be constructed of stainless-steel structural tubing with an outside diameter of 4.50 (1143 mm) and a wall thickness of 0.120" (3 mm) minimum. The Main Pipe shall have a bottom flange to connect to a Safeswap™ embedded anchor. The output water connection shall be 1.5 (38 mm) NPT female stainless steel coupling welded to the main body.
   b. Valves: Valve shall be commercial grade 1.5 (38 mm) PVC union ball valve suitable for swimming pool/chlorinated water environment. One valve shall be connected to each output coupling.
   c. Painted finish: All stainless-steel parts, except noted, shall be cleaned, and treated before the paint process. All parts shall have a heat-cured primer powder coating for corrosion protection and all parts shall be top coated with a heat-cured powder coating that is UV, chemical resistant and suitable for public spaces.
   d. Hardware: All hardware shall be constructed of 316/316L marine grade stainless steel.
   e. Hydraulic: The total hydraulic capacity shall be 180-200 gpm (681-757 lpm) @ 20 psi (1.38 bar) at connection points.

F. Play Features and Water Play Features:

1. See drawings for specific products, model numbers and quantities.
   a. Parts: All the parts shall be constructed of stainless-steel structural tubing of appropriate diameter for rewired flow.
   b. Hydraulic: The hydraulic requirements are defined on the drawings.
2. Specific Water Play Elements:
   a. Tube No. 1 102260-304L 2 Req'd. (Pool Alternate No.2 / furnish Unit Price)
   b. Alto No.1 104671-304L
   c. Aquadome No.2 104589-304L
   d. Spray Loop 102524-304L 2 Req'd.
   e. Arch 104567-304L 2 Req'd.
   f. Jet Stream No. 2 101125-304L 8 Req'd.
   g. HOP N°1 (EM, PC) 101176-304L
   h. HOP N°2 (EM, PC) VOR- 7134-4008
   i. Bobble No.1 101672-304L (Pool Alternate No.2 / furnish Unit Price)
   j. Fumbling Five 101277-304L (Pool Alternate No.2 / furnish Unit Price)
   k. Fountain Spray Nº2 103777-304L 2 Req'd.
   l. Helico No. 6 103633-304L (Pool Alternate No.2 / furnish Unit Price)

m. Twin Splash100241-304L (Pool Alternate No.1 / furnish Unit Price)

G. Safety and Craftsmanship:
1. All exposed edges of play products shall be machined to a rounded edge.
2. All welds shall be grinded, polished, watertight, and factory pressure tested.
3. Nozzles and Spray heads shall be recessed, flat or rounded to provide no protrusion hazard.
4. All assembly and interactive play components shall be designed and built to ensure a completely safe play environment with no pinch point, entrapment, or protrusion hazard.
5. All accessible posts and support posts shall have rubber material Toe Guards installed and covering the anchoring assembly hardware from pinch points and protrusions.
6. All products shall be designed in accordance with the latest ASTM and EN standards for aquatic play equipment.

H. Playsafe™ Drain Nº4, VOR-1004 consists of a basin and a removable cover. The basin shall be constructed in Polyethylene (PE) 22.5" (57 cm) outside diameter X 10" (25.4cm) height. The deck grating cover shall be stainless steel and constructed with 22" (56 cm) diameter and 1/4" (0.63cm) thickness. The gaps of the openings are 1/4 in (0.6 cm). The open area of the Playsafe™ Drain Nº4 is 66 sq.in. This removable cover has an anti-kid surface. The Playsafe™ Drain Nº4 has also an optional strainer basket. A concrete levelling base (supplied by installer) with the Playsafe™ drain which has the capabilities to be levelled shall be inserted in the hole to create a concrete drain box pit. The Water line outlet connected to the drain basin shall be a maximum of 6" in diameter at a minimum slope of 1%. The drainage recommended capacity is 240 GPM, 300 GPM max (recommended 908 LPM, 1135 LPM max).

I. Tube No1 VOR-220.2008 (Pool Alternate No.2 / furnish Unit Price) shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 3½" (8.9cm) and a wall thickness of .120" (3mm). The unit is constructed into two sections. The upper section is a pivoting arm with an integrated and recessed nozzle housing welded into the front nose cap shall be threaded to accept a spray nozzle. A brass spray head nozzle shall be mounted flush with the surface of the nose cap. The bottom section is a fixed structural support for the top. TURNTEC™ allows the upper section to rotate 360°. The rotational joint shall be free of pinch points and contain no flexible hoses. The center point of the 80° spray zone shall be adjustable. The SAFESWAP™ anchoring and leveling system shall be used.
1. Overall play product dimensions: The above ground height of the Play Product shall be no less than 46” (118cm).
2. Play Product Interactivity: The rotational joint allows users to rotate the product 360 degrees and spray water in different directions in an 80-degree range.
3. Hydraulic Activity/Components: The water effect for the Tube No1 will be a laminar water jet effect. The water effect can be rotated 360 degree around the feature.
4. Hydraulic Requirements: The hydraulic requirements shall be 4-6 gpm (15-23 lpm) @ 5-7 psi (0.3-0.5 bar).

J. Jet Stream N°2 VOR-0325 shall be constructed of 304/304L stainless steel with an outside diameter of 4½" (11.4cm). The lead-free brass spray cap shall be fastened to the body using tamper-resistant fasteners. A Tamper resistant brass winter cap shall be included. The embedded anchoring and leveling system shall be used. Ground sprays are compatible with many nozzles each producing different water effects. The spray zone of each chosen nozzle varies according to its respective water effect. When many ground sprays are connected to the same water line, they must have the same hydraulic requirements.
1. Overall play product dimensions: The above ground height of the Play Product shall be 0”.
2. Play Product Interactivity: Users can play with the various levels of tactile experience created by the water effect. As well as admire the volume it creates when the laminar jet is at its peak prior to falling down.

3. Hydraulic Activity/Components: The spray cap shall have one (1) groove of 1/16'' (0.2cm) by 2'' (5cm). The groove creates a thin laminar jet and a volume of water when it falls down.
4. Hydraulic Requirements: The hydraulic requirements shall be 3-5 gpm (11-19 lpm) @ 3-5 psi (0.2-0.3 bar)

K. The Spray Loop VOR-519.2008 shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 3½" (8.9cm) and a wall thickness of 0.120" (3mm). The loop shall be constructed of one continuous piece of tubing rolled to no less than a 72" (183cm) diameter with no joints or ripples. The loop shall be mounted on a reinforced base plate to facilitate installation. The SAFESWAP™ anchoring and leveling system shall be used.
1. Overall play product dimensions: The above ground height shall be 64" (162 cm).
2. Play Product Interactivity: Users can enjoy the spray mist from all directions inside the loop.
3. Hydraulic Activity/Components: The loop shall have five (5) stainless steel nozzles that produce misty water effect.
4. Hydraulic Requirements: The combined hydraulic requirements of all five (5) spray nozzles shall be 5-10 gpm (18-38 lpm) @ 10-25 psi (0.7-1.7 bar). The nozzle can be set in a -high flow- position in the case of water recirculation system to prevent clogging.

L. Alto N°1 (SW, PC) VOR- 7130-2008 R01 shall have an overall height of 23'' (58 cm) above surface, a width of 50'' (127cm) and a length of 51'' (130cm). A soft polymer molded HAT™ is attached atop a molded polymer main body. The HAT™ has an integrated housing to accept one (1) Water Jelly brass nozzle assembly. All nozzles are free of finger entrapment hazards. Attached to the main body are three (3) soft polymer molded PINs and one (1) ROTATING DIVERTER™ allowed to spin freely by means of a mechanism of low friction polymer bushings. Four (4) steel hex Inserts are molded into the main body, used to attach the body to its four (4) stainless steel anchoring plates using tamper-resistant fasteners. An integrated surface mounted manifold with kink-free flexible pipes provides water distribution to the play feature. The SAFESWAP™ anchoring and leveling system shall be used.
1. Overall play product dimension: Overall height of 23'' (58 cm) above surface, a width of 50'' (127cm) and a length of 51'' (130cm).
2. Play product interactivity: Kids can discover the play product through touch and enjoy the flow of water released from the top Water Jelly nozzle onto the texturized surface. The ROTATING DIVERTER™ can be manipulated by kids to divert, splash and scoop water along the molded path on the main body. The three (3) molded PINs can be spun and manipulated by kids. Kids can also contemplate the bell-shaped spray, touch the laminar texture of the water, and affect the shape of the dome by blocking the slot from where water exits.
3. Overall hydraulic activity: The water effect produced is an inverted laminar bell spray effect descending from the top of the HAT™. The inverted bell shape breaks as it falls down the walls of the main body.
4. Hydraulic requirements: The hydraulic requirements shall be 5-8 gpm (18.9-30.3 lpm) @ 1.27-2.2 psi (0.1-0.2 bar).

M. HOP N°1 (EM, PC) VOR- 7133-4008 R01 shall have an overall height of 0.875'' (2.2 cm) above surface, a width of 28'' (71cm) and a length of 30'' (76cm). Three (3) HOP™ textured pads are embedded to the ground and are hydraulically connected to each other with a PVC distribution manifold in a circular pattern. Each HOP™ releases three (3) water streams. The soft polymer molded cover is assembled with a painted stainless-steel frame onto a stainless-steel base using tamper-resistant fasteners. A winter cap for each HOP™ shall be included. The embedded anchoring and leveling system shall be used.
1. Play product interactivity: Kids can affect the three (3) water streams on each HOP™ by interacting with skipping and stepping on the textured pads, encouraging

collaborative play. Using multiple Hop no.1 and Hop no.2 in tandem can create winding paths to play with.

2. Overall hydraulic activity: Soft water streams spray from the three (3) holes on the side of each of the three (3) HOP™ textured pads.
3. Hydraulic requirements: The hydraulic requirements shall be 8-12 gpm (30.3-345.4lpm) @ 4-6 psi (0.3-0.4 bar).

N. HOP N°2 (EM, PC) VOR- 7134-4008 R01 shall have an overall height of 0.875'' (2.2 cm) above surface, a width of 15' (38cm) and a length of 48'' (122cm). Three (3) HOP™ textured pads are embedded to the ground and are hydraulically connected to each other with a PVC distribution manifold in a linear pattern. Each HOP™ releases three (3) water streams. The soft polymer molded cover is assembled with a painted stainless-steel frame onto a stainless-steel base using tamper-resistant fasteners. A winter cap for each HOP™ shall be included. The embedded anchoring and leveling system shall be used.

1. Play product interactivity: Kids can affect the three (3) water streams on each HOP™ by interacting with skipping and stepping on the textured pads, encouraging collaborative play. Using multiple Hop no.1 and Hop no.2 in tandem can create winding paths to play with.
2. Overall hydraulic activity: Soft water streams spray from the three (3) holes on the side of each of the three (3) HOP™ textured pads.
3. Hydraulic requirements: The hydraulic requirements shall be 8-12 gpm (30.3-345.4lpm) @ 4-6 psi (0.3-0.4 bar).

O. Bobble no.1 VOR-7232 (Pool Alternate No.2 / furnish Unit Price) consists of curved tubing made of 304/304L stainless steel with an outside diameter of 3.50" (8.9cm) and a wall thickness of 0.12" (3.0mm). All bending shall have no joint or ripples. One (1) molded dome is attached to the structure using an HDPE disk and tamper-resistant fasteners. The dome is 21.75" (55cm) in diameter and made of transparent SEEFLOW™ polymer. The HDPE disk has two (2) openings that feed water to fill the dome. Assembled to the structure is one (1) molded polymer ORB attached to a stainless-steel cap using tamper-resistant fasteners. The ORB spins freely by means of a mechanism of low friction polymer bushings and is propelled to spin by the force of the movement of the water in the bowl. All nozzles are free of finger entrapment hazards. The SAFESWAP™ anchoring and leveling system shall be used. The TOEGUARD™ will then be added to protect children's toes from anchoring hardware.

1. Overall play product dimensions: The overall height of the Play Product shall be 31" (78 cm) above surface.
2. Play Product Interactivity: One (1) ORB floats in the dome and spins with the movement of the water. Kids can twist, stop, dunk, and otherwise manipulate the ORB in the water.
3. Hydraulic Activity/Components: There are two (2) water feeds inside the dome.
4. Hydraulic Requirements: The hydraulic requirements shall be 6-9 gpm (22-34 lpm) @ 3-5 psi (0.2-0.3 bar).

P. Helio no.6 VOR-7241 (Pool Alternate No.2 / furnish Unit Price) is constructed into two sections. The bottom section is a fixed structural support for the top, and consists of tubing made of 304/304L stainless steel with an outside diameter of 3.50" (8.9cm) and a wall thickness of 0.300" (7.6mm). The upper section consists of tubing made of 304/304L stainless steel with an outside diameter of 3.50" (8.9cm) and a wall thickness of 0.216" (5.4mm). The top section is assembled to the bottom section with a triple stainless steel bearing system named TWIRLTEC™. The TWIRLTEC™ consists of one (1) soft-touch rotating sphere, fastened at the joint of the posts with tamper resistant hardware. The ring-shaped section of the structure has two stainless steel housings welded into the sides machined to accept stainless steel pins. A stainless-steel shaft is assembled to these two stainless steel pins. One (1) molded polymer MEGA ORB is attached to the stainless-steel shaft with stainless steel caps using tamper-resistant fasteners. The MEGA ORB spins freely by means of a mechanism of low friction polymer bushings. Six (6) integrated nozzle housings threaded to accept stainless steel spray nozzles directed at the

MEGA ORB, are welded to the inside of the ring-shaped section. Four (4) stainless steel nozzles are inserted to the outside of the ring-shaped section. All nozzles are free of finger entrapment hazards. The SAFESWAP™ anchoring and leveling system shall be used. The TOEGUARD™ will then be added to protect children's toes from anchoring hardware.

1. Overall play product dimensions: The overall height of the Play Product shall be 147" (373 cm) above surface with a head clearance no less than 102" (259 cm).
2, Play Product Interactivity: A cloud of fine water droplets is created for users to refresh themselves as the six (6) water jets collide with the MEGA ORB and cause it to spin. Users can spin the TWIRLTEC™ soft-touch rotating sphere, creating twirling water jets from the four (4) water nozzles on the outside of the ring-shaped section for kids to play with, run through, or play to avoid.
3, Hydraulic Activity/Components: A cloud of fine water droplets is created as the six (6) water jets collide with the MEGA ORB and cause it to spin. Four (4) water nozzles create a twirling water jets pattern when users spin the TWIRLTEC™ soft-touch rotating sphere.
4, Hydraulic Requirements: The hydraulic requirements shall be 10-16 gpm (37-60 lpm) @ 8-11 psi (0.6-0.7 bar).

Q. TwinSplash VOR 7242.2008 (Pool Alternate No.1 for pool beach access area) shall be constructed of steel structural tubing with an outside diameter of 4 ½" (11.4cm) and wall thickness of 0.237" (6 mm). The roof paneling shall be fabricated from ½" (12.7 mm) SEEFLOW™ Polymer and shall be fastened to the roof frame with tamper resistant hardware. The roof frame shall be constructed from ¼" (6.35mm) stainless steel sheet. The TwinSplash bucket shall be fabricated from a high-density fiberglass outer shell. The bucket shall pivot on two (2) UHMWPE bushing inserted in the shaft. An incorporated drain pilot hole shall prevent the accumulation of stagnate water during non-operational hours. The SAFESWAP™ anchoring and leveling system shall be used on one post and a surface mount for the other post.

1. Overall Play Product Dimensions: The overall height of the structure shall be no less than 182" (463 cm) with a head clearance of no less than 119" (302 cm). The width shall be 57" (144 cm) and the depth 45" (114 cm).
2. Play Product Interactivity: The TwinSplash shall create visual interest and build anticipation as the bucket fills and then dumps water over the roof so it's create two successive waves onto the immediate play area.
3. Hydraulic Activity / Components: The fiberglass bucket shall filled to a maximum and to not exceed 15 gallons of water. Once the water has reached the 15 gallons point the bucket will tip backward and release the water onto the roof, causing a large diameter of two successive waves.

R. Fumbling Five VOR-7384.0000 (Pool Alternate No.2 / furnish Unit Price) shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 4½" (11.4cm) and a wall thickness of .120" (3mm). There shall be (5) five horizontal, interchangeable, support arms with a total of (5) five dumping buckets. Each interchangeable spray arm shall be attached to the main structure using a watertight, tamper resistant joint. There shall be (1) one dumping bucket per arm. Each bucket shall be mounted to the support arm using a tamper resistant stainless-steel shaft. Each bucket shall be constructed of high-density fiberglass and include an integrated non-visible counter-weight system. The counterweight system and selectable mounting orientation will determine the bell's main dumping direction. The SAFESWAP™ anchoring and leveling system shall be used.

1. Overall play product dimensions: The overall height of the structure shall be 129" (328cm) with a head clearance of no less than 105" (266cm).
2. Play Product Interactivity: Users can try to predict which bucket will spill next and which direction the bucket will pour.
3. Hydraulic Activity/Components: Each bucket shall have a 1" (2.5cm) stainless steel fill spout and an incorporated drain pilot hole to prevent an accumulation of stagnant water during non-operational hours. The volume of water dumped from each bucket shall be

no less than ¾ of a US gallon (2.84 liters) and no greater than 1½ US gallons (5.68 liters).

4. Hydraulic Requirements: The combined hydraulic requirements of all five (5) buckets shall be 15-25 gpm (57-95 lpm), 5-10 psi (0.3-0.7 bar).

S. Aqua Dome No.2 VOR-7530.2000 shall be constructed of 304/304L stainless steel structural straight tubing with an outside diameter of 4½" (11.4cm) and a wall thickness of .120" (3mm). The SAFESWAP™ anchoring and leveling system shall be used.

1. Overall play product dimensions: The above ground height of the structure shall be no less than 72" (183cm).
2. Play Product Interactivity: Users can watch the bell-shaped spray and touch the laminar texture of the water.
3. Hydraulic Activity/Components: The spray effect shall be a clear, laminar bell shaped, sheet descending from the top of the post towards grade.
4. Hydraulic Requirements: The hydraulic requirements shall be 10-18 gpm (38 – 68 lpm) @ 5-10 psi (0.4 – 0.7 bar).

T. Fountain Spray N°2 VOR-7676.4000 shall be constructed of 304/304L stainless steel structural tubing with an outside diameter of 3" (7.6cm). The lead-free brass spray cap shall be threaded into the stainless-steel spray head housing using a tamper-resistant tool. Tamper resistant brass winter cap shall be included. The Embedded anchoring and leveling system shall be used.

1. Overall play product dimensions: The above ground height of the Play Product shall be 0" (0 cm).
2. Play Product Interactivity: Creates excitement as a blast of water erupts from the Fountain Spray N°2, shooting up a stream of water. Users can move a hand or leg through the water to feel the power.
3. Hydraulic Activity/Components: A lead-free brass spray head nozzle shall be mounted flush with the surface of the volcano nose cap and shall produce six (6) particularized, soft stream spray effects.
4. Hydraulic Requirements: The hydraulic requirements shall be 1-5 gpm (4 – 19 lpm) @ 5-10 psi (0.4 – 0.7 bar).

U. Programmable Controller VOR-704.000X - 4 outputs Controller:

1. The programmable logic controller has a 6 lines LCD screen (1.5'' diagonal) with 16 characters per line and buttons for settings.
2. The programmable logic controller shall be factory programmed with a set duration, which can be customized by the end user.
3. The programmable logic controller shall allow the user to set the operational hours of the facility.
4. The programmable logic controller 704.0000 shall contain a 120 VAC primary / 24 VAC secondary transformer with built- in electrostatic shield protection. The controller 704.0001 shall contain a 240 VAC primary / 24 VAC secondary transformer with built-in electrostatic shield protection.
5. The programmable logic controller shall be supplied with multi-positions switches for main power, activator, and each 4 outputs (valves STD and FAV, dynamic bypass, UV, and pump). These selector settings allow the user to select the operational mode of the components (i.e. Manual, Off and Automatic).
6. The programmable logic controller shall be housed in a corrosion resistant molded fiberglass NEMA 4X rated enclosure. All exposed hardware shall be 304/304L stainless steel and shall include a lockable access door.
7. The programmable logic controller shall have the capacity to receive signals from an activation device, operating on 24VAC.
8. The programmable logic controller shall have the capacity to control Fast Acting Valves (FAV). Standard sequence for FAV is open for 0.3 seconds then closed for 0.9 seconds while another one realizes the same cycle alternatively.

9. For WR application, the programmable logic controller shall have the capacity to control up to 1 pump and/or up to 1 bypass and/or UV. According to the solution, available output quantity for solenoids will be reduced. The controller contains in total 4 outputs.
10. Installation Characteristics:
11. Electrical Connections: All main power electrical connections to the Splashpad Controller are to be performed per local codes.
12. Drawings and Instructions: Product drawings and installation manuals shall be supplied by the manufacturer for ease of installation.
13. As per Electrical Construction and Safety Codes: Controller and/or LED power panels and/or any other electrical equipment must be hard-wired to a ground fault circuit interrupter (GFCI) from the input power source. All electrical work should be performed by a licensed electrician in accordance with local electrical construction and safety codes.

V. Debris Trap with Rain Diverter Valve VOR 5322.0000 shall consist of one (1) access door, one (1) vault, one (1) basket and one (1) rain diverter valve. The access door shall be constructed of Aluminum. The door shall include a lockable access hatch. The exterior dimensions of the door are 42" X 42". The Vault shall be constructed of High-Density Polyethylene and shall be 30" inside diameter and an overall height of 47" and suitable for public spaces. The basket shall be constructed of 304/304L, structurally strong, durable, and resistant to corrosive environments. The Debris trap shall act as the second stage of the filtration process. The debris trap is grade sensitive due to gravity drainage. 1 % grade minimum. The Water containment system elevation of the Debris Trap cannot exceed the deck elevation. The maximum flow rate of the 10” main drain lies is 1000 gallon per minute. The rain diverter port shall be used to drain rain and the system purge water. The maximum flow rate of the rain diverter valve is 50 gallon per minute. The Stainless-Steel anchoring system shall have an integrated levelling system facilitating installation and a flush finished to the concrete slab surface without any protruding bolts or hardware. The water treatment product shall be fastened directly to the Anchoring system.

1. Overall play product dimensions: The overall height of the structure shall be no less than 50 3/8" (127 cm)

W. Nozzles and Spray heads shall be recessed, flat or rounded to provide no protrusion hazard

1. All assembly and interactive play components shall be designed and built to ensure a completely safe play environment with no pinch point, entrapment, or protrusion hazard.
2. All accessible posts and support posts shall have rubber material Toe Guards installed and covering the anchoring assembly hardware from pinch points and protrusions.
3. All products shall be designed in accordance with the latest ASTM and EN standards for aquatic play equipment.

PART 3 - EXECUTION

3.1 PROTECTION

A. Ensure crates and pallets are stored in a safe location to prevent damage, vandalism, and stealing.

B. Follow product storage and handling instructions shown in assembly manuals and product packaging after unpacking crates and pallets.

C. Protect products until completion of the project.

D. Touch-up, repair or replace damaged products before Substantial Completion.

3.2 EXAMINATION

A. Make sure surfaces, concrete and substrates have been properly prepared, cured and approved by the Architect, Owner, or Swimming Pool and General Contractor prior beginning the installation.

B. If substrate preparation is the responsibility of another installer, notify the Architect and Owner of unsatisfactory preparation before proceeding.

3.3 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using manufacturers recommended methods to achieve the best result for the substrate under the project conditions.

3.4 INSTALLATION

A. The Swimming Pool Contractor is responsible for furnishing and installing aquatic play structures, including all features, water management and flows, pumps and piping, wiring, and controls.

B. The Electrical Contractor is responsible for providing grounding for all aquatic play areas.

C. Install in accordance with the manufacturer's instructions and manuals.

D. Follow best construction practices and use adequate scaffolding, lifting cranes or machinery for the erection of high and heavy components.

E. Make sure that water flows to water features are accurately adjusted to provide maximum play value and play experience to end users. Refer to product cut sheets and product 3D renderings for visual references of water effects and interactions.

3.5 VORTEX PLAY PRODUCT INSTALLATION

A. Safeswap™ Anchoring and Leveling Systems: The stainless steel Safeswap™ anchoring system shall provide the ability to add/remove/interchange select play products without having to incur any additional infrastructure costs. The anchoring system shall have an integrated leveling system facilitating installation and a flush finished to the activity deck surface without any protruding bolts or hardware. The play product shall be fastened directly to the Safeswap™ anchoring system. The dead and live loads shall be distributed onto the Safeswap™ anchoring system flange plate. A neoprene sealing gasket shall provide a watertight seal between the play product flange and Safeswap™ flange. Mechanical fastening of the play products to the activity deck slab shall be prohibited unless used on Elevations™ with Toeguards.

B. The Electrical Contractor is responsible for providing grounding for all aquatic play areas.

C. Ground sprays and leveling systems: The anchoring system shall have an integrated leveling system facilitating installation, ensuring product is plumb and installed at the desired height.

D. When applicable, templates shall be supplied to facilitate the installation of embedded anchoring equipment.

E. All stainless-steel play products shall have electrical grounding studs incorporated into their associated anchoring equipment. All stainless-steel play products shall be grounded by the installer per local codes. Earth grounding and bonding is not recommended for Spraylink™ systems due to their polymer encapsulation. Please refer to individual product specifications for further requirements.

F. All installation conduit wiring including electrical supply panel, PVC connections, piping, elbows, tees, play product assembly if required and other items relating to the installation shall be supplied by the general contractor.

G. Drawings and Instructions: Product drawings and installation manuals shall be supplied by the manufacturer for ease of installation.

3.6 INSTALLATION

A. A Vortex Certified Installer or an installer with previous experience with this manufacturer on at least (5) similar installations is required.

3.7 COMMISSIONING OF THE SPLASHPAD®

A. Upon construction completion of a Vortex Recirculation water management system, the manufacturer shall provide start up and training services by a Vortex Technician.

B. Start up and training services are available for Vortex SmartFlow™ water management systems upon request.

END OF SECTION 13 16 50

PART 1 - GENERAL

1.1 SECTION INCLUDES
A. Solid surface material commercial lavatory units.
B. Lavatory faucets.
C. Soap dispensers.

1.2 RELATED SECTIONS:
A. Countertops and lavatories are specified herein as a convenience since the Family Changing Room Countertops are a custom fabrication and they and the single bowl lavatories in the Men's and Women's locker rooms ARE NOT specified separately in the Plumbing Schedules. Items and components specified herein shall be ordered, provided and installed by the appropriate entity/subcontractor in order to provide a complete, hygienic, code compliant and functional plumbing fixture and fittings system.

1.3 REFERENCES:

American Society of Sanitary Engineering (ASSE):
A. ASSE 1070 - Water Temperature Limiting Devices.

American Society of Mechanical Engineers (ASME):
B. ASME A112.18.1 Plumbing Supply Fittings.

ASTM International (ASTM):
C. ASTM C 170 - Standard Test Method for Compressive Strength of Dimension Stone.
D. ASTM D 570 - Standard Test Method for Water Absorption of Plastics.
E. ASTM D 785 - Standard Test Method for Rockwell Hardness of Plastics and Electrical Insulating Materials.
F. ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
G. ASTM E 84 - Standard Test Method for Surface Burning Characteristics of Building Materials.

Canadian Standards Association (CSA):
H. CSA B125 - (See ASME A112.18.1 - Plumbing Fixture Fittings).

GREENGUARD Environmental Institute (GEI):
I. GREENGUARD listed and certified low emitting products.

International Association of Plumbing and Mechanical Officials (IAPMO):
J. Universal Plumbing Code (cUPC both U.S. and Canada).

International Code Council (ICC):
K. ICC/ANSI A117.1 – Accessible and Usable Buildings and Facilities.

National Fire Protection Association (NFPA):
L. NFPA 70 – National Electrical Code.

State of Texas:
M. Texas Accessibility Standards (TAS).

Underwriters Laboratories, Inc. (UL):
N. UL 723 - Test For Surface Burning Characteristics of Building Materials.
O. UL 1951 - Electric Plumbing Accessories.

United States Green Building Council (USGBC):
P. LEED Green Building Rating System (LEED).

US Federal Government:
Q. Public Law 102-486 - Energy Policy Act. 1992 (EPACT).
R. U.S. Architectural & Transportation Barriers Compliance Board. Americans with Disabilities Act (ADA), Accessibility Guidelines for Buildings and Facilities (ADAAG).

1.4 ACTION SUBMITTALS

A. Product Data: For each product:
B. Manufacturer's data sheets indicating operating characteristics, materials and finishes.
C. Include details of electrical and mechanical operating parts.
D. Provide mounting requirements and rough-in dimensions.
E. Mark each sheet with product drawing designation.
F. Product Test Reports: Indicating compliance of products with requirements, from a qualified independent testing agency, when requested by Architect.
G. Shop Drawings: Prepared by manufacturer. Include mounting and rough-in requirements and power, signal, and control wiring diagrams. Include details of electrical and mechanical operating parts.
H. Verification countertop sample

1.5 INFORMATION SUBMITTALS

A. Sample warranty.
B. Manufacturer's Certificates.
C. Indoor environmental quality certificates.

1.6 MAINTENANCE SUBMITTALS

A. Furnish indicated spare parts that are packaged with identifying labels listing associated products.
B. Provide operation, care and cleaning instructions.

1.7 QUALITY ASSURANCE

A. Manufacturer Qualifications: Approved manufacturer listed in this section, with minimum 5 years experience in the manufacture of plumbing fixtures. Manufacturers seeking approval must submit the following:
B. Product data, including test data from qualified independent testing agency indicating compliance with requirements.
C. Samples of each component of product specified.
D. List of successful installations of similar products available for evaluation by Architect.
E. Submit substitution request not less than 15 days prior to bid date.
F. Source Limitations: Obtain each type of plumbing fixture and compatible accessories through one source from a single approved manufacturer.
G. Laminar Flow, Faucet Spout Outlets:
H. NSF Standard: Comply with NSF 372 for faucet spout outlet materials that will be in contact with potable water.
I. Product shall meet a weighted average of not more than 0.25 percent lead as required by the U.S. Safe Drinking Water Act.
J. Description: Chrome-plated brass, faucet spout outlet that produces non-aerating, laminar stream. Include external or internal thread that mates with faucet outlet for attachment to faucets where indicated and flow rate range that includes flow of faucet.
K. Accessibility Requirements: Comply with requirements of ADA \ ANSI 117.1 and with requirements of authorities having jurisdiction.
   1. 306 Knee and Toe Clearance.
   2. 308 Reach Range.
   3. 606.5 Exposed Pipes & Surfaces with access panels.
   4. 309.4 Operation.
   5. 606.4 Faucets.
L. Water Flow and Consumption Requirements: Comply with EPACT.
M. Drinking Water Standard: Comply with NSF/ANSI 372.
N. Electrical Components: Listed and labeled per NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction.
O. Comply with Public Law 102-486, Energy Policy Act.

P. Indoor Environmental Quality Certification: Provide certificate indicated that lavatory deck materials have been certified under the following programs, or a comparable certification acceptable to Owner:
Q. GREENGUARD Indoor Air Quality Certified.
R. GREENGUARD Certified for Children and Schools.

1.8 COORDINATION
A. Field Measurements: Verify locations of lavatory decks and adjacent walls prior to fabrication.

1.9 WARRANTY: Special Manufacturer's Warranty: Provide manufacturer's standard form in which manufacturer agrees to repair or replace commercial lavatory decks that fail in materials or workmanship.
A. Solid surface material: 10 years.
B. Faucets: 1 year.
C. Soap Dispenser: Three years.
D. Faucets: Three years.
E. WashBar: 1 year (applies to Models LD-5010, LD-3010-WB-TR1 only)

PART 2 - PRODUCTS

2.1 MANUFACTURERS
A. Basis-of-Design Product: Subject to compliance with requirements, provide commercial lavatory decks and faucets manufactured by Bradley Corporation, Menomonee Falls, WI 53051, (800)272-3539, fax (262)251-5817; Email info@BradleyCorp.com; Website www.bradleycorp.com.
B. Submit requests for substitution in accordance with Instructions to Bidders and Division 01 General Requirements.
C. The Bradley Terreon product is the BOD and is the preferred product and **shall be bid as part of the base work.** Substitutions will be considered but the specified product must be bid and shall be a contributing part of the basis for determining the lowest responsible bidder. Any alternative cost(s) positive or negative shall not be included as part of the bid response. Substitutions shall be in conformance with requirements of 01 10 00 and any proposed substitution shall, in the Architect's sole and final opinion, be equal to or better in every respect than the specified product and shall be in conformance with all aspects of the project's design intent.
D. Solid Surface Material: Where indicated as constructed of solid surface material, fabricate plumbing fixtures from thermoset modified bio-based resin certified by approved independent testing agency as complying with the requirements of CSA B45.5/IAPMO Z124, **[**with minimum 25 percent preconsumer recycled content and **]**with the following minimum properties:
E. Basis of Design Product: Bradley, Terreon
F. Thickness: 1/2 inch (13 mm), minimum.

2.2 LAVATORY DECKS, SINGLE STATION
A. ADA/ABA Compliant Wall-Mounted, Single-Station Lavatory Fixture.
B. MARK CTOP-3; FAMILY CHANGING ROOMS
C. LD-3010 OMNIDECK SERIES CTOP WITH LAV AND WASTE RECEPTACLE PER THE DRAWINGS. CTOP LENGTH IS CUSTOM; SINK BOWL IS #WB-TR1, QTY (1) WITH MOUNTING BRACKET (IN CONFORMANCE WITH ANSI A117.1 KNEE CLEARANCES), 9" SQUARE #SW WASTE OPENING; WASTE RECEPTACLE #WR-377-363700 21 GAL CAP OR AS OTHERWISE SPECIFIED/NOTED IN OTHER SCHEDULES; CUSTOM BOWL PLACEMENT, #EE-EASED EDGE; #BS-BACKSPLASH, 3" HIGH; #FA-FRONT APRON, 3" HEIGHT.
D. PLUMBING COMPONENTS: FAUCET #S53-3300 VERGE METRO, POL CHROME,#AC POWER FAUCET SUPPLY , S6-3300 VERGE METRO DECK-MOUNT SOAP DISPENSOR WITH TOUCH-FREE ACTIVATION, LIQUID SOAP, SINGLE-FILL TOP SPOUT, POL CHROME FINISH, #AC POWER

SOAP POWER SUPPLY; MOUNT-TYPE #BRKT; SWING-DOWN STAINLESS STEEL ACCESS PANEL #STAIN, DR-1 TRENCH DRAIN CAP, T-THERMOSTATIC MIXING ASSEMBLY, 0.50 GPM FLOW, WITH 1 ½" TAILPIECE.

E. THIS IS A SUBMITTAL ITEM AND REQUIRES A SHOP DRAWING AS PART OF THE SUBMITTAL. THE BOD IS BRADLEY TERREON SINGLE BOWL EXTENDED COUNTERTOP WITH A WASTE RECEPTACLE CUT OUT, SINK BOWL, FAUCET, EXPOSED AND DRESSED EDGE, UNDER SINK ACCESS PANEL/SHROUD AND WALL SUPPORT AT THE SIDE NEAR THE SHOWER. NOTE THAT THE CTOP IS CONTINUOUS FROM INSIDE CORNER TO WITH IN 3" OF THE SHOWER OPENING. THIS IS A SIDE APPROACH SHOWER AND THE CTOP MAY PROJECT INTO THE REQUIRED SPACE BUT MUST HAVE A MINIMUM OF 27" CLEAR BELOW (WITH THE CTOP TOP SET AT 34") AND THE KNEE CLEARANCES REQUIRED FOR A STD LAV. A 'BOOMERANG' SHAPED SUPPORT BRACKET IS ACCEPTABLE IF IT CONFORMS WITH KNEE CLEARANCE REQUIREMENTS.

F. SEE PLUMBING SCHEDULE FOR ADDITIONAL INFORMATION AND 1/A806 FOR BOD LAYOUT DRAWING. SET CTOP HEIGHT AT 34" AFF

G. FINISHES:

H. TERREON: DESIGNER WHITE

I. FITTINGS: POLUISHED CHROME

2.3 LAVATORY DECKS-CUSTOM

A. ADA/ABA Compliant Wall-Mounted, Custom Lavatory Fixture

B. MARK CTOP-4; MEN'S AND WOMEN'S LOCKER ROOMS

C. LD-3010 OMNIDECK SERIES INTEGRAL SINK BOWL AND CTOP. CTOP LENGTH IS 30"; SINK BOWL IS #WB-TR1, QTY (1) WITH MOUNTING BRACKET (IN CONFORMANCE WITH ANSI A117.1 KNEE CLEARANCES); #EE-EASED EDGE; #BS BACKSPLASH, 3" HIGH; #FA FRONT APRON, 3" HEIGHT.

D. PLUMBING COMPONENTS: FAUCET #S53-3300 VERGE METRO,POL CHROME,#AC POWER FAUCET SUPPLY , S6-3300 VERGE METRO DECK-MOUNT SOAP DISPENSOR WITH TOUCH-FREE ACTIVATION, LIQUID SOAP, SINGLE FILL TOP SPOUT, POL CHROME FINISH, #AC POWER SOAP POWER SUPPLY; MOUNT-TYPE #BRKT; SWING-DOWN STAINLESS STEEL ACCESS PANEL #STAIN, DR-1 TRENCH DRAIN CAP, T-THERMOSTATIC MIXING ASSEMBLY, 0.50 GPM FLOW, WITH 1 ½" TAILPIECE.

E. THIS IS A SUBMITTAL ITEM AND MAY HAVE BUT DOES NOT REQUIRE A SHOP DRAWING AS PART OF THE SUBMITTAL. THE BOD IS BRADLEY TERREON SINGLE BOWL STANDARD 30" LAVATORY WITH SINK BOWL, FAUCET, EXPOSED AND DRESSED EDGE, UNDER SINK ACCESS PANEL/SHROUD AND WALL SUPPORT(S).

F. SET CTOP HEIGHT AT 34" AFF

G. FINISHES:

H. TERREON: DESIGNER WHITE

I. FITTINGS: POLUISHED CHROME

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine conditions and verify opening measurements prior to commencing installation. Proceed with installation once conditions meet requirements.

3.2 INSTALLATION

A. Assemble fixtures and associated fittings and trim in accordance with manufacturer's instructions.

B. At time of Substantial Completion:

C. Clean unit surfaces per manufacturer's care instructions, test fixtures and leave in ready-to-use condition.

D. Install new batteries in battery operated devices.

E. Fill soap dispensers.

F. Turn over keys, tools, maintenance instructions and maintenance stock to Owner.

G. Install Single-Point Connections:
   1. Install water supply piping to unit. Provide stop on each supply in readily serviced location. Fasten supply piping to supports or substrate.
   2. Install trap and waste piping to unit.

H. Install escutcheons at exposed piping penetrations in finished locations and within cabinets.

I. Seal joints between fixtures and walls, floors, and countertops with joint sealant specified in Division 07 Section "Joint Sealants."

J. As necessary, mount soap dispenser in 1-3/8 inches (35 mm) diameter hole in lavatory or countertop 1-1/2 inches (38 mm) from edge of sink. Shank will accommodate a maximum counter thickness of 1-1/2 inches (38 mm).

3.3 CLEANING AND PROTECTION

A. Repair or replace defective work, including damaged fixtures and components.

B. Clean unit surfaces, test fixtures, and leave in ready-to-use condition.

C. Install new batteries in battery-operated devices at time of Substantial Completion.

D. Turn over keys, tools, maintenance instructions, and maintenance stock to Owner.

E. Protect units with water-resistant temporary covering. Do not allow temporary use of plumbing fixtures unless approved in writing by Architect. Remove protection at Substantial Completion and dispose.

3.4 TESTING AND ADJUSTING

A. Set field-adjustable temperature set points of temperature-actuated water mixing valves. Adjust set point within allowable temperature range.

B. Test and adjust installation.

C. Remove and replace malfunctioning thermostatic mixing valves and retest.

END OF SECTION 22 42 16.04

SECTION 22 51 13 - SWIMMING POOL PIPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

B. Base Bid applies to this Section.

1.2 SUMMARY

A. The extent of the interconnecting piping from the main drain boxes, filtered water return inlets, and return piping is indicated on the Drawings. The Pool Contractor shall supply and install all piping to hook up to the filtration system and all related water feature distribution systems.

B. The Drawings indicate the general arrangement of all recirculation piping. The Pool Contractor shall carefully examine the Drawings and shall be responsible for the proper fitting and materials and equipment as indicated, without substantial alteration.

C. All connection work to the filter installation is to be provided by the Pool Contractor.

D. The recirculation piping work includes providing all pipe fittings, gaskets, and flanged pipe connections from each element of the specified system.

E. Any item of equipment or materials obviously a part of the recirculation system and necessary to its operation, but not specifically mentioned in the Specifications or shown on the Drawings shall be furnished and installed by the Pool Contractor as a part of his work at no extra cost.

F. Coordinate all grounding/bonding of the system and other similar and related items with the Electrical Contractor.

G. The Pool Contractor shall bond in accordance with the National Electrical Code and all local codes and ordinances.

1.3 QUALIFICATIONS OF CONTRACTOR

A. The Pool Contractor must have had at least five (5) years' experience in the construction of the type of recirculation piping herein specified and shall provide a list of at least five (5) projects of this type which he has constructed and which upon investigation, would be found to be completed in a satisfactory manner and in operation at least two (2) years. The Commonwealth of Virginia requires Pool Contractors to maintain a Class B or Class A license, if work is not performed under a General Contractor's Class A license.

B. The Owner reserves the right to reject any Contractor if the evidence submitted by, or investigation of, such bidder fails to satisfy the Owner that such Contractor is properly qualified to carry out the obligations of the Contract and to complete the work described, or if the Contractor does not meet the qualifications stated herein.

C. Installation shall be performed by mechanics with industry certification for all Schedule 80 PVC and Schedule 80 CPVC piping 2" diameter and larger, including adhesive applications.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's specifications, anchor details and installation Instructions for the products used in this assembly. Submit detailed shop drawings for the different service applications, pipe size, and joint type along with compatible cement and primer per service application, size applicable for service, and curing instructions.

B. Where materials or fabrication are indicated, comply with requirements to ensure proper water circulation rate, material properties. Supply complete information to the Architect.

1.2 WARRANTY

A. The Pool Contractor warrants that all materials used in completing the installation contracted for are new and of high quality; that all work has been done in a competent and workmanlike manner; that if any substantial defect occurs in the workmanship or materials, it will be remedied without cost to the Owner if written notice thereof is given to the Pool Contractor within one (1) year from the Date of Substantial Completion.

1.3 QUALITY ASSURANCE

A. Field Measurements: The Pool Contractor will be responsible for checking measurements in the field prior to the preparation of Shop Drawings and actual fabrication of the system. Field fitting may be allowed only if measurements will delay the fabrication process.

PART 2 - PRODUCTS

2.1 PIPING MATERIALS

A. General: Schedule 80 PVC piping specified throughout the Project for all piping. Any piping in contact with the pool heating elements, (flat plate heat exchangers and heat recovery compressor) shall be Schedule 80 CPVC extending from the main recirculation return piping back to the source of the heating equipment. All CPVC piping shall be adequately supported to prevent heat related sag in strict accordance with the manufacturer’s written recommendations.

B. Fittings for plastic pipe: Wherever PVC plastic pipe is used, all fittings shall be heavy weight Class 200, Schedule 80 PVC of the same manufacturer as PVC pipe used by the Pool Contractor. Assembly of fittings and pipe shall be proper and capable of developing full strength of the piping system. No schedule 40 PVC will be permitted in any application subject to exposure to pool water

C. Wall penetration fitting to accept threaded connections: All transition fittings are to be produced by Spears Manufacturing Company form PVC Type I, Cell Classification 12454, or CPVC Type IV, Cell Classification 23447. All transition fittings shall contain a mounded in place threaded metal inset conforming to ANSI B1.20.1 internal tapered pipe thread dimensions with internal O-rings seal. For use with all new water feature returns, reflecting line termination, etc.

2.2 PIPE MARKERS

A. Degrease and clean surfaces to receive adhesive for identification materials.

B. Install pipe markers per manufacturer’s instructions.

C. Identify fluid being conveyed, and include direction of flow arrows as indicated:
   1. Language: English
   2. Lettering: Size and color in accordance with ASME A13.1

D. Identify piping 20 mm (3/4 inch) diameter and smaller with tags.

E. Provide wrap-around vinyl self-adhesive pipe markers:
   1. Vinyl: Factory fabricated vinyl, 0.13mm (5 mil) thick, preformed to fit around pipe or pipe covering. Model: Opti-Code by Seton.

F. Install wrap-around pipe markers completely around pipe.

G. Install in clear view and align with axis of piping.

H. Locate identification at maximum 48” centers on straight runs including risers and drops, adjacent to each valve and Tee, at each side of penetration of structure or enclosure, and at each obstruction.

2.3 FINISH FITTINGS

A. Return Outlet: Aquastar Flush Mount Return Fitting with Waterstop, Eyeball and Nut, Model #JE3101B, or equal.

B. Reflecting Line Cover: Aquastar 1.5” Safety Grate Insert, Model CFM101, or equal.

C. Skimmer Units: Hayward SP-1082 FVE or Aquastar Flowstar SKR1401xxx white color with flush face 4” extension, polymer and PVC construction rate from 15 to 90 GPM or approved equal.

PART 3 - EXECUTION

3.1 GENERAL

A. Pipe and accessories shall be handled in such a manner as to insure delivery to the trench in sound, undamaged condition.

B. Cutting of pipe shall be done in a neat and workmanlike manner without damage to the pipe. Cutting shall be done by means of mechanical cutter.

C. Before installation, pipes and converters shall be inspected for defects. The interior of the pipe shall be thoroughly cleaned of foreign matter and shall be kept clean during laying operation. Pipe shall not be laid in water or when trench or weather conditions are unsuitable for the work. Water shall be kept out of the trench until the pipe is installed. When work is not in progress, open ends of pipe and fittings shall be securely closed so that no trench water, earth, or other substance will enter the pipes or fittings.

D. No installation shall be made that will provide a cross connection or inter-connection between a distributing supply for drinking purposes and the water recirculation system that will permit a backflow of water into the domestic water system.

E. Pipe openings shall be closed with caps or plugs during installation. Equipment and fittings shall be tightly covered and protected against dirt, water and chemical or mechanical injury. At the completion of the work, the fittings, materials, and equipment shall be thoroughly cleaned and adjusted for proper operation.

F. All pipe hangers shall be stainless steel.

3.2 JOINTS

A. Mechanical joints: Assemble all mechanical joints by washing the socket and plain ends of the pipe with soapy water. Then the gland and gasket shall be slipped over the plain end in such manner that the small side of the gasket and the lip side of the gland face the socket. The gasket shall then be painted with soapy water. Insert the plain end into the socket and push the gasket into position so that it is evenly seated. Slide the gland into position, insert stainless steel bolts and tighten stainless steel nuts by hand. Using a ratchet wrench, tighten stainless steel bolts alternately bottom and top and continue around pipe until the joint is bottle-tight under all working pressures.

B. Solvent-welded joints: Solvent-welded joints shall be made in accordance with the manufacturer's recommendations. However, the following directions are considered minimum standards. All fittings shall fit easily on the pipe before applying cement. The outer surface area of pipe and inner wall of fitting shall be clean and dry. Thinner is to be applied to the outer surface of the pipe and to the inner surface of the fittings. Cement is to be applied to the outer surface of the pipe, or on the male section of fitting only. When the outside surface area of the pipe end is satisfactorily covered with cement, allow ten (10) seconds open time to elapse before inserting pipe into fittings, turn fitting about the pipe end approximately 1/8 to 1/4 of a turn. Wipe off excess cement at the joint in a neat cover bead. Use only approved cement and thinners for making joints.

C. All joints shall remain completely undisturbed for a minimum of ten (10) minutes from time of joining the pipe and fitting. If necessary to apply pressure to a newly made joint, limit of ten (10) percent of rated pipe pressure, four (4) hours after joining, for the first twenty-four (24) hours after the joint has been made.

D. Carefully handle all pipe and move as little as possible so that the cement seal shall not be broken before it is completely dry and for a time of at least twenty-four (24) hours.

E. Full working pressure shall not be applied until the joints have been set for a twenty-four (24) hour period.

F. Installation made during hot weather shall provide for expansion by snaking in ditch or running line on open discharge until it contracts to operating length.

G. Protect plastic pipe from exposure to aromatic hydrocarbons, halogenated hydrocarbons and most esters and ketones that attack the material. Protect all pipe from mechanical damage and long exposure to sunlight during storage.

H. All connections between PVC and metal pipes must be flanged, plastic flange to metal flange. DO NOT use threaded connections between plastic and metal pipe, except where specifically noted otherwise and in which case the PVC pipe shall be Class 200 weight regardless of size.

3.3 FLUSHING OF LINES

A. All system piping lines shall be thoroughly flushed clean before the filtration system is placed in use.

3.4 INSPECTION SERVICES

A. The Pool Contractor shall supply the services of a competent and experienced field engineer for a period of at least two (2) days to inspect the completed installation, place the system into operation, and give operative instructions to the Owner's staff relative to its proper care and use.

END OF SECTION

SECTION 22 51 16 - SWIMMING POOL PUMPS

PART 1 - GENERAL

1.1 INTENT

A. To install a complete filtration and recirculation system for the proposed swimming pool. It is the intent of the specification to limit the bidding to a style of product and company that has a proven history and record of performance, availablility, and rapid delivery of replacement components.

B. Base Bid applies to this Section.

C. Due to the specialized nature of certain components required for this project, these specifications, in some instances, refer to various components by trade or manufacturers name.

D. Whenever a proprietary (trade) name is used within this specification section, it is used for informational purposes to describe a standard of required function, dimension, appearance and quality. References to materials by trade name, make or model number shall not be construed as limiting competition. All bidders are required to bid on the named manufacturer in the base bid. The Contractor may at his option, elect to propose products and/or services of alternate manufacturers if the proceedures for substitution as outline in these specifications are properly followed.

1.2 SUBSTITUTIONS

A. Other recirculation pump systems will be considered only if a complete set of drawings and specifications detailing such equipment as it pertains to this project are submitted for evaluation ten (10) days prior to the bidding. The submission should include a list of five (5) operating installations within a reasonable distance of the jobsite. List should include the names and telephone numbers of the operating personnel. The technical contents of the submittal shall include hydraulic calculations, equipment fabrication details, filter room layout in plan and elevation views, warranties, installation and operating instructions.

B. Substitutes meeting the terms and conditions of the bidding documents will be acknowledged prior to bidding by addendum. No substitutions will be considered after the bid.

C. For any and all substitutes approved in accordance with the above conditions, state the amount to be DEDUCTED from the BASE BID if a substitute filtration system is being offered. No provision has been or will be made for ADDITIVE bids.

D. No substitutions will be considered unless the specified product becomes unavailable due to no fault of the Contractor.

1.3 QUALITY ASSURANCE

A. Due to the specialized nature of the specified work and products, all bidders shall be required to have a minimum of five (5) years of operating history. The equipment described herein shall be products of a manufacturer regularly engaged in the fabrication of filtration and recirculating systems for at least fifteen (15) years and shall be a professional engineering corporation.

1.4 GUARANTEE

A. The equipment supplier shall guarantee that the equipment to be furnished is of the correct capacity, that the various parts are designed to operate correctly and in conjunction with each other, that if the installation is made in accordance with the project drawings and operated in accordance with the suppliers instructions, the system will perform the prescribed functions correctly, the water entering the pool will be clear, bright, free from suspended matter visible to the unaided eye, and will be sanitary to the satisfaction of all authorities having jurisdiction.

1.5 SUBMITTALS

A. Provide detailed shop drawings of the items of equipment being provided, indicating the dimensions, material of the equipment, valves, actuators, RMF programmer & accessory componentsif applicable.

B. Provide a complete set of operating instructions, embracing the operational functions and recurring maintenance processes involved in connection with the complete filtration system.

1.6 WARRANTIES

A. Unless otherwise specified, workmanship is to be guaranteed first class and carry a one (1) year warranty.

PART 2 - PRODUCTS

2.1 PUMPS AND STRAINERS

A. Pump and Motor - Base Bid 25 yard, 6-lane lap pool and beach access leisure pool, variable depth, total system volume 131,660 gallons, 550 GPM, 4-hour turnover, TDH 62.5’ to TDH 64’.
   1. Furnish and install one (1) Speck vertical Badu Block pump, model number: 100/250 with integral strainer, 15 HP, 208 V, 60 cycle, 3 phase pump, desired flow 550 GPM, stainless steel impeller (verify), 6” suction, and 4” discharge. Provide Neptune Benson “Greendrive”, Pentair “Accudrive”, or Speck independent variable frequency drive to match specific pump requirements, or equal.

B. Pump and Motor - Water play area filtration system, constant depth holding tank, total system volume 1,220 gallons, 63 GPM, twenty (20) - minute turnover (maximum filter flow capacity), TDH 20’.
   1. Furnish and install one (1) Speck horizontal Badu pump, model number: Badu Pro-III UVS with integral strainer, 1.65 HP, 208 V, 60 cycle, 1 phase pump, desired flow 63 GPM, stainless steel impeller (verify), 2” suction, and 2” discharge. Integral variable frequency drive to match specific pump requirements, or equal.

C. Pump and Motor - Water play area feature pump, pump fed from holding tank when in service, total active timer-controlled system flow rate, 124 GPM (low volume) to 233 GPM high volume), TDH 25’ - 30’. Recommended flow rate: 180 GPM average of low and high Vortex projected feature volumes.
   1. Furnish and install one (1) Speck horizontal Badu pump, model number: Badu 95-VIII with integral strainer, 4.0 HP, 208 V, 60 cycle, 1 phase pump, desired flow 156 GPM to 256 GPM, stainless steel impeller (verify), 4” suction, and 4” discharge. Provide Neptune Benson

"Greendrive", Pentair "Accudrive", or Speck independent variable frequency drive to match specific pump requirements, or equal.

2.2 ADJUSTABLE PUMP BASE

A. The adjustable pump base shall be designed with an adjustment range from 7" to 11 1/2", adjustment in .5" increments.

B. The pump bases shall be fabricated of 8-gauge T304 stainless steel.

C. All stainless-steel hardware shall be included for height adjustment, motor mounting and floor anchors.

D. A rubber vibration isolator shall be included for installation between motor and motor base.

E. The pump base shall be coated in 20-25 mils of electrostatically applied powder coat.

PART 3 - EXECUTION

3.1 GENERAL

A. Equipment shall be handled in such a manner as to ensure delivery to the field of work in sound, undamaged condition.

B. Cutting of pipe shall be done in a neat and workmanlike manner without damage to the pipe. Cutting shall be done by means of mechanical cutter.

C. Before installation, pipe shall be inspected for defects. The interior of the pipe shall be thoroughly cleaned of foreign matter and shall be kept clean during laying operation. Pipe shall not be laid in water or when trench or weather conditions are unsuitable for the work. Water shall be kept out of the trench until the pipe is installed. When work is not in progress, open ends of pipe and fittings shall be securely closed so that no trench water, earth, or other substance will enter the pipes/fittings.

D. No installation shall be made that will provide a cross connection or inter-connection between a distributing supply for drinking purposes and the swimming pool that will permit a backflow of water into the pool water system.

E. Pipe openings shall be closed with caps or plugs during installation. Equipment and pool fittings shall be tightly covered and protected against dirt, water and chemical or mechanical injury. At the completion of the work, the fittings, materials, and equipment shall be thoroughly cleaned and adjusted for proper operation.

3.2 JOINTS

A. Mechanical joints: Assemble all mechanical joints by washing the socket and plain ends of the pipe with soapy water. Then the gland and gasket shall be slipped over the plain end in such manner that the small side of the gasket and the lip side of the gland face the socket. The gasket shall then be painted with soapy water. Insert the plain end into the socket and push the gasket into position so that it is evenly seated. Slide the gland into position, insert bolts and tighten nuts

by hand. Using a ratchet wrench, tighten bolts alternately bottom and top and continue around pipe until the joint is bottle-tight under all working pressures.

B. Threaded joints: After cutting and before threading pipe, shall be reamed and shall have burrs removed. Screw joints shall be made with graphite or inert filter and oil or with an approved graphite compound applied to male threads only. Threads shall be full-cut and not more than three threads on the pipe remain exposed. Caulking of threaded joints to stop or prevent leaks will not be permitted. Unions shall be provided where required for disconnection of exposed piping. Unions will be permitted where access is possible.

C. Solvent-welded joints: Solvent-welded joints shall be made in accordance with the manufacturer's recommendations. However, the following directions are considered minimum standards. All fittings shall fit easily on the pipe before applying cement. The outer surface area of pipe and inner wall of fitting shall be clean and dry. Thinner is to be applied to the outer surface of the pipe and to the inner surface of the fittings. Cement is to be applied to the outer surface of the pipe, or on the male section of fitting only. When the outside surface area of the pipe end is satisfactorily covered with cement, allow ten (10) seconds open time to elapse before inserting pipe into fittings, turn fitting about the pipe end approximately 1/8 to 1/4 of a turn. Wipe off excess cement at the joint in a neat cover bead...

D. Joints shall remain completely undisturbed for a minimum of ten (10) minutes from time of joining the pipe and fitting. If necessary to apply pressure to a newly made joint, limit of 10% of rated pipe pressure, four (4) hours after joining, for the first twenty-four (24) hours after the joint has been made.

E. Carefully handle all pipe and move as little as possible so that the cement seal shall not be broken before it is completely dry and for a time of at least twenty-four (24) hours.

F. Full working pressure shall not be applied until the joints have been set for a twenty-four (24) hour period.

G. Installation made during hot weather shall provide for expansion by snaking in ditch or running line on open discharge until it contracts to operating length.

H. Protect plastic pipe from exposure to aromatic hydrocarbons, halogenated hydrocarbons and most esters and ketones that attack the material. Protect all piping from mechanical damage and long exposure to sunlight during storage.

I. Make threaded pipe joints with Permatex #2 compound or approved equal, applied sparingly to the male threads only.

J. All connections between PVC and metal pipes must be flanged, plastic flange to metal flange. DO NOT use threaded connections between plastic and metal pipe, except where specifically noted otherwise and in which case the PVC pipe shall be Class 200 weight regardless of size.

K. Label all filtration equipment and piping. No painting of non- ferrous PVC piping is required.

3.3 FLUSHING OF LINES

A. All piping lines leading to the pool shall be thoroughly flushed clean prior to filling the pool.

3.4 POOL START UP

A. The Contractor shall supply the services of an experienced Manufacturer representative for a period of not less than three (3) days after the filtration and recirculation system has been initially placed in operation. The Contractor shall be on hand during all manufacturer directed training in the event any modification or alteration to the system is required. During this period, the Owner's designated representatives shall be thoroughly instructed in all phases of the pool's operation.

B. Prior to this Manufacturer leaving the job, the Contractor shall obtain written certification from the Owner's designated representative acknowledging that the instruction period has been completed and all necessary operating information provided.

C. The Contractor shall, in his contract, include the cost of three (3) days of an on-site technician during the instruction and operational check-out performed by a qualified Manufacturer’s representative during the first season’s operation. One inspection shall be performed within the one- year anniversary date of the established date of substantial completion.

D. Written reports of each of these three (3) visits outlining the pool's operation, competence and performance of the pool's operating personnel and other pertinent comments shall be submitted to the Owner and Architect within one (1) week after each visit.

END OF SECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 RELATED WORK

A. Filtration system for the pool, including recirculation pumps (see Section 22 51 16), chlorine treatment system, ~~supplemental advanced hydroxyl radical oxidation sanitation~~, ORP/pH controller, flow meters, including all piping, gauges, and valves.

B. pH balance equipment.

C. Water service for pool.

D. The General Contractor's licensed electrical contractor shall be responsible for the installation of all line and high voltage electrical circuits associated wit his section. All low voltage connections and line voltage "plug and play" connections shall be by the swimming pool contractor for all related equipment furnished and installed within this contract.

1.3 GENERAL REQUIREMENTS

A. Furnish and install all specified items as indicated on the Drawings and Specifications to provide a complete and fully functioning and operational facility. This specification covers the products and execution of fabrication and installation of equipment utilized in maintaining proper water chemistry (ORP & pH) for use in sanitizing water. The entire system and all related components shall be of modular design and shall be supplied as one integrated package from a single source to the greatest extent possible.

B. The sanitation system shall consist of a liquid sanitizing delivery system, programmable automated water chemistry controller with modem capabilities. All controls, fuses, switches, gauges, valves, piping, and tubing for these components shall be included. In addition, a hydroxyl radical advanced oxidation system shall be installed on the filtered water return line between the filter bank and the pool perimeter recirculation system. All required valves, bypass configurations, electrical low-voltage service and connections shall be furnished by the contractor. This equipment shall effectively remove and eliminate combined chlorine compounds within the recirculation system.

C. All sanitation equipment shall be safety interlocked with the swimming pool recirculation pump. In the event of a loss of flow, all sanitation equipment shall immediately be placed in a non-functional state using dry contactors or other appropriate electronic controls. This function is to protect all bathers, staff and temperature sensitive equipment and sanitizing chemical feed equipment.

D. The sanitation system is to be a part of a combined and integrated disinfection/control system including chlorination, ~~wafer style uV secondary sanitation~~, pH adjustment, and ORP/pH control.

E. Provide all necessary supervision, templates, manuals of operation, and turnover instructions.

1.4 SUBSTITUTIONS

A. The Paddock Regenerator, a comparable pressure regneretive filter is an approved alternative system for consideration. However, all bids shall include the Base Bid Neptune Benson Defender filter system for comparision. Other equipment will be considered only if a complete set of drawings and specifications detailing such equipment as it pertains to this project are submitted for evaluation ten (10) days prior to the bidding. The submission should include a list of five (5) operating installations within a reasonable distance of the jobsite. List should include the names and telephone numbers of the operating personnel. The technical contents of the submittal shall include hydraulic calculations, equipment fabrication details, filter room layout in plan and elevation views, warranties, installation and operating instructions.

B. Substitutes meeting the terms and conditions of the bidding documents will be acknowledged prior to bidding by addendum. No substitutions will be considered after the bid.

C. For any and all substitutes approved in accordance with the above conditions, state the amount to be DEDUCTED from the BASE BID if a substitute filtration system is being offered. No provision has been or will be made for ADDITIVE bids.

D. No substitutions will be considered unless the specified product becomes unavailable due to no fault of the Contractor.

1.5 SUBMITTALS

A. Manufacturer's Data:
   1. Submit a PDF copy of bound Manufacturer's specifications and installation instructions for products supplied for installation. Include certified laboratory test reports on components as specified or required by regulatory agencies.
   2. Assemble information into one (1) coordinated submittal.

B. Maintenance Manuals
   1. Include four (4) full maintenance and operating instructions, parts lists, recommended spare parts and emergency parts inventory, chemical treatment and supply list and recommended stock, sources of purchase and similar information with the maintenance manual for entire filtration system. Coordinate this data with the information provided by the successful manufacturer of the filtration system.
   2. Assemble information into one (1) coordinated submittal.

1.6 WARRANTY

A. Filter shall carry a five (5) year limited warranty as regularly offered by the tank manufacturer.

B. Internal piping shall carry a three (3) year warranty.

C. Valve bodies shall carry a five (5) year fully rated warranty.

D. Valve operators and system accessories including the RMF controller, quick exhaust valve, and solenoid valve shall carry a one-year warranty as provided by the product manufacturer.

E. Unless otherwise specified, workmanship is to be guaranteed first class and carry a one (1) year warranty.

F. The automated chemistry control system shall carry a one-(1) year warranty on all components. The warranty on related equipment shall also carry a one-(1) year limited warranty. A detailed warranty shall be supplied.

G. A factory trained representative of the manufacturer shall perform all warranty work.

H. Manufacturers must maintain spare or replacement parts in the USA for same day or no longer than next day's delivery.

I. A Service Agreement from a qualified factory certified distributor shall be provided to initiate and maintain the five-year warranty.

1.7 REGULATORY AGENCY REQUIREMENTS

A. The entire system shall be designed and installed to meet all applicable State and Local codes.

B. Nationally recognized standards, as applicable, shall be adhered to including applicable provision of the Model Aquatic Health Code (MAHC), pending adoption.

PART 2 - PRODUCTS

2.1 BASIS-OF-DESIGN FILTER SYSTEM

A. The filter system under this section shall be a Neptune Benson Defender Model SP33-48-732 as detailed in the drawings.

B. It is the intent of these specifications to describe a filter system complete with all accessory items supplied and warranted by one manufacturer.

C. The primary components of the system consist of the main filter tank, flex tube filter elements, element assembly, bump mechanism, vacuum transfer system, sight glass, pressure gauge panel, inspection (viewing) window, valves, pressure transducers & RMF system controller.

D. All components and related subassemblies shall be factory assembled and tested prior to shipment.

2.2 FILTER SYSTEM CAPACITY

A. The filter system shall have a capacity of filtering 131,669 gallons in 4.0 hours at a rate of 495 gallons per minute.

B. The system shall consist of One SP-33-48-732 Defender filter tank with a total effective filter surface area of 572 square feet and operate at a rate of 1.04 gallons per minute per square foot of filter area.

C. The filter area shall be provided as specified and as listed in NSF-Standard 50 to provide the specific filter rate. No modification, manipulation or interpretation of these values shall be permitted.

D. Filter system shall be designed to maximize sq. ft. of filter area while minimizing operating weight. Systems that operate more than 11 lbs. per sq. ft. of filter area shall not be considered.

2.3 FILTER TANKS

A. The filter tank shall not be less than 40” in diameter with a 60” side shell, suitable for 50 psi working pressure and hydrostatically tested to 75 psi. Tank shell shall be not less than ¼” thick. Bottom dished head shall be not less than ¼” thick. Top flat head shall be not less than 1 1/2” thick. All material shall be Type A-36 carbon steel.

NOTE: Tanks constructed of alternate materials shall not be considered.

B. All welding shall be performed by qualified operators. Joints shall be butt or fillet welded inside and out by manual or automatic process. Welded joints shall have complete penetration and fusion with little or no reduction of the thickness of the base metal. Welds shall be free of coarse ripples, grooves, overlaps, abrupt ridges, or valleys. All welded surfaces shall be chipped and brushed clean, when necessary, leaving no slag or splatter.

C. Tank legs shall be constructed of 6” x 2 ½” channel legs ¼” thick. 33" filter shall have (3) legs. The material shall be Type A-36 carbon steel. Bearing plates shall be 10” x 5” x 1/2” type 304L stainless steel. Each bearing plate shall have (2) 11/16" drilled holes to secure to the floor with the 5/8”x 8 ½” stainless steel concrete anchors provided. The legs shall be designed with bolted connections to minimize overall tank height for shipping and access into the mechanical room.

D. The tank head shall be bolted to the shell with 7/8” diameter T304 stainless steel bolts, nuts, and washers, 9” on center around the tank perimeter.

E. Tank shall be equipped with a UL listed grounding lug.

F. Tank shall incorporate connections for 8” filter influent, 8” effluent, 3” drain; 1-1/2” vacuum transfer piping. Tank shall include a 12” diameter access port with cover, 6” viewing window, hardware to facilitate cleaning of tube elements and interior inspection of filter and lift shaft gland.

G. Tank shall include brackets for mounting of RMF System controller, gauge panel, filter / regulator, vacuum transfer blower, and vacuum hose rack.

H. Tank shall include an integrally mounted hydraulic lifting device (davit). The davit assembly shall be designed to lift the filter head and include a pivot mechanism allowing the head to rotate 180°, for access to the tube sheet.

2.4 FLEXSOL 3000 INTERIOR LINING

A. All interior surfaces shall be grit blasted to white metal condition with a 3-4 mil profile. Blasted surfaces shall be cleaned of all dust or blast residue. Lining shall be applied as soon as is practical on the same day blasting is done.

B. Flexsol 3000® shall be a urethane, 100% solid plural component lining. Hardness shall be 75 durometer on the shore D scale. Break tensile strength shall be 4000 psi with elongation of less than 10%. Adhesion shall be greater than 2500 psi.

C. Application of Flexsol 3000® lining shall be done by experienced applicators using a high pressure, high temperature plural component system. All wetted surfaces including flange faces, manway rings and manway covers shall be lined to 100 mils +/- 10 mils WFT.

D. Hardness shall be verified after curing to ASTM D 2240 standard.

E. Manufacturer shall submit for approval a sample piece of coated steel to determine flexibility, abrasion tolerance and adhesion integrity.

F. Flexsol 3000® lining shall meet the NSF toxicity standard unconditionally and shall be approved for use with the NSF approved filter.

G. Flexsol 3000® lined vessels shall carry a ten (10) year limited non-prorated warranty.

H. The filter manufacturer shall bear the responsibility for suitability of lining and shall be the sole source for the specified warranty.

2.5 EXTERIOR COATINGS

A. All exterior surfaces shall be grit blasted to white metal condition with a 2-3 mil profile. Blasted surfaces shall be cleaned of all dust or blast residue.

B. Two coats of high solids enamel shall be applied for a total developed film thickness of 5-8 mils.

C. Manufacturer is to supply min.16 oz of high solids enamel touch-up paint.

2.6 INTERNAL COMPONENTS

A. The filter shall consist of flex tube elements, filter tube sheet, stainless steel lift shaft and internal flow diversion assembly.

B. The filter elements shall be flexible tubes that provide the support structure for the media. The outer wall of each element shall be fabricated of multi-filament high strength polyester braid. Each element shall have an internal T316 stainless steel spring, which acts as a support structure for the braided filament.

C. The filter element tube sheet shall be fabricated of T304 stainless steel and provide both support for the top of the element assembly as well as watertight seal to prevent media from escaping the filter tank.

D. The lift shaft shall be fabricated from T304 stainless steel and provide the internal connection between the filter element tube sheet and the external bump mechanism.

E. The filter influent connection shall be fitted with a T304 stainless steel flow diversion assembly to eliminate disturbance to the filter elements during operation.

F. All stainless-steel wetted fasteners shall be Type 304.

2.7 BUMP MECHANISM

A. The bump mechanism shall include a pneumatically operated tire mounted externally on the filter tank head. The tire is alternately pressurized then depressurized causing the connected filter element assembly to move in a downward then upward fashion. This

movement shall provide the means of dislodging the media and accumulated solids, which then recoat the filter element.

NOTE: Systems that do not incorporate a pneumatic bump mechanism shall not be considered.

2.8 VACUUM TRANSFER SYSTEM

A. The vacuum transfer system shall be provided to allow the recharging of media into the filter for either bag or bulk media.

B. The vacuum shall include a 5 peak HP 115V or 230V single phase motor 60 Hz or 50 Hz, cULus listed.

C. Vacuum shall be supplied with mating electrical connections pre-wired into RMF System controller for field final connection in a pre-assembled junction box.

D. Provide three (3) 1-1/2” SCH 80 PVC ball valves: for the vacuum drain line, the blower inlet, and the vacuum hose.

E. The Manufacturer shall provide all necessary pipe, fittings, and hardware for field plumbing of the vacuum transfer system.

F. Provide 1-1/2” vacuum hose with required fittings.

2.9 RMF SYSTEM CONTROLLER

A. The automatic controller shall provide total control of the system's filtration and regeneration cycles and provide all necessary equipment interlocks and timing mechanisms to execute the filter program.

B. The controller shall contain at least two microprocessors that will monitor all functions of the system.

C. The controller shall also contain control the operation of the following functions:

Standard Features

1. Bump cycle / manual or automatic; with or without security interlock for data logging
2. Precoating of the filter elements
3. Stopping and starting of the main recirculation pump
4. Opening and closing of pneumatically operated valving
5. Vacuum transfer system
6. Heater cool down delay
7. Auxiliary contacts to interlock UV lamps, chemical control, or other equipment
8. 7-inch Hi-Res LCD Screen with Tactile Feedback Membrane
9. Last Bump™ and Bump-n-Go™ Features
10. Remote Operation via browser or phone
11. Off Site Real-Time Status
12. Email on change of condition
13. Data logging of process
14. Differential Pressure Monitoring and Bump Control
15. Exporting of process data logs to .csv Excel™ files
16. Modbus Communications for PLC connectivity

D. The controller panel shall display the following functions:

1. Filter status

2. Precoat status
3. Last Bump
4. Recirculating pump status
5. Vacuum transfer pump status
6. System power
7. Low Pressure Alarm
8. Recirculating Pump Off Alarm
9. Pressure Differential
10. Flow Rate (operational feature when interlocked with VFD)
11. Step by step animated graphics

E. The controller enclosure shall be NEMA 4x/IP66 approved system.

F. The RMF controller will provide signal power to the main recirculating pump motor starter. The unit is required to be a variable frequency drive (VFD) and is to be installed with control wiring by the General Contractor's electrical contractor.

G. The RMF shall be 120V/230V, 1 phase, 20 amp rated and shall be UL/CE labeled.

H. NOTE: Systems without programmable, automatic bump/regeneration/filter modes shall not be considered.

I. Options
1. Automated Main Drain and Purge Line Control Package
2. 24/7/365 Data Monitoring and Activity Package
3. Automated EZ Strainer Control for UV Systems.

2.10 VFD

A. One Variable Frequency Drive (VFD) shall be provided with the Defender for control of the filter pump motor. See Section 22 51 16 Swimming Pool Pumps. Features and functions outlined in this Section apply.

B. The Variable Frequency Drives (VFDs) shall be solid state, with a Pulse Width Modulated (PWM) output. The VFD package as specified herein shall be enclosed in a NEMA 12 enclosure, completely assembled, programmed, and tested by the manufacturer. The VFD shall convert incoming fixed frequency three-phase AC power into a variable frequency and voltage for controlling the speed of three-phase AC induction motors. The VFD shall be a six-pulse input design. The VFD shall be of a PWM output design utilizing current IGBT inverter technology and voltage vector control of the output PWM waveform and shall output a waveform that closely approximates a sine wave.

C. Option for Single Phase input: The VFD shall convert incoming fixed frequency single-phase AC power into a variable frequency and voltage for controlling the speed of three-phase AC induction motors. The VFD shall be UL-listed for Single Phase operation. De-rating the VFD for operation on other than UL-labeled voltages shall not be acceptable. The VFD shall be a six-pulse input design. The VFD shall be of a PWM output design utilizing current IGBT inverter technology and voltage vector control of the output PWM waveform and shall output a waveform that closely approximates a sine wave.

D. The VFD shall utilize VVC^{PLUS}, an output voltage-vector switching algorithm, or equivalent, in both variable and constant torque modes. VVC^{PLUS} provides rated RMS fundamental voltage from the VFD. This allows the motor to operate at a lower temperature rise, extending its thermal life. VFD's that cannot produce rated RMS fundamental output voltage or require the input voltage to be increased above motor nameplate value to achieve rated RMS fundamental output voltage are not acceptable. VFD's that utilize Sine-Coded PWM or Look-up tables shall not be acceptable.

E. An Automatic Energy Optimization (AEO) selection feature shall be provided in the VFD to minimize energy consumption in variable torque applications. This feature shall optimize motor magnetization voltage and shall dynamically adjust output voltage in response to load, independent of speed. Output voltage adjustment based on frequency alone is not acceptable for single motor VT configurations.

F. An Automatic Motor Adaptation (AMA) function shall measure motor stator resistance and reactance to optimize performance and efficiency. It shall not be necessary to spin the motor shaft or de-couple the motor from the load to accomplish this optimization. Additionally, the parameters for motor resistance and motor reactance shall be user programmable.

G. Run permissive circuit shall be provided to accept a “system ready” signal to ensure that the VFD does not start until isolation valves, seal water pumps or other types of auxiliary equipment are in the proper state for VFD operation. The run permissive circuit shall also be capable of sending an output signal as a start command to actuate external equipment before allowing the VFD to start.

H. All Green Drive VFDs shall be factory programmed per the unique requirements of each job per Neptune Benson specifications. Programming shall include but shall not be limited to filter pump, remote start/stop requirements, run confirm requirements and PID loop requirements.

I. VFDs and options shall be UL, CUL, and CE labeled as a component.

J. Harmonic Distortion Control:
   1. The VFD shall provide internal DC link reactors to minimize power line harmonics and to provide near unity power factor. DC Link reactor shall be installed so that power fluctuations to the DC Capacitors shall be reduced to increase Capacitor life. VFDs without a DC link reactor shall provide a 5% impedance line side reactor and provide spare capacitors.

K. Specifications:
   1. Input voltage 208, VAC +/- 10%, 3 phase, 48-63 Hz.
   2. Voltage tolerance + 10% or – 15% of specified line voltage.
   3. Output Frequency 0 to 300 Hz. Operation above 60 Hz shall require programming changes to prevent inadvertent high-speed operation.
      a. Environmental operating conditions: -10 to 50°C, 0 to 1000 meters above sea level, less than 90% humidity, non-condensing.
      b. Enclosure shall be rated NEMA 12 or as specifically mentioned elsewhere.

L. The VFD shall be wired into the RMF system controller to provide remote for on/off and run confirm functions. Wiring shall be by electrical contractor.

M. The VFD shall be a Green Drive series or Speck Vacon provided all requirements outlined herein are provided by the Speck Unit.

N. The VFD shall be equipped with a bypass. Bypass option shall send the motor to bypass mode based on an easily accessible door-mounted selector or based on the drive’s programmable relay. A bypass pilot light shall provide indication of the bypass mode. The bypass mode shall provide overload protection. Contactors shall be electrically and mechanically interlocked. An essential services mode shall send the motor to bypass regardless of the selected mode.

O. The bypass enclosure shall be equipped with a circuit breaker/disconnect switch.

2.11 FILTER MEDIA

A. Media shall be expanded perlite with a median particle size of 37 microns. Percentage retained on a +150 Tyler Mesh shall not be less than 8% or more than 25%. Darcy permeability shall be between 1.2-1.85.

B. The media shall contain no more than 1 tenth of one percent (.001) of crystalline silicate.

C. The media shall be certified by the Manufacturer for use in the Defender Filter. The media shall be NSF Std. 50 listed.

D. Filter Media: Aquapearl 25# bags 2.8 CU FT/bag Swimming Pool Perlite Filter Media 45 pounds of media per charge (≤ 2 bags per charge). Provide a total of 10 bags of media for initial start up and operation for the one filter array.
1. Each filter tank shall be provided with the media sizes and quantities as per the manufacturer's recommendations.

2.12 FACE PIPING VALVES

A. Filter manufacturer shall supply piping and valves required in filter tank to carry out all normal functions of filter including bump and pre-coating operations, beginning with a connection for pump discharge and ending with a discharge connection for lines to waste and return to pool. Valves shall be epoxy coated cast iron bodied wafer type butterfly valves with stainless steel shaft and nylon coated disc.

2.13. BACKWASH /WASTE REMOVAL SYSTEM

A. When design flow rate can no longer be maintained, media shall be manually removed from the filter tank to the adjacent floor sump. Backwash flow rate shall be approximately 62 GPM 3" diameter at gravity flow of 3 FPS and shall be directed to waste. Process shall be manual by valved assembly. Model SP-33 has a maximum capacity of the filter vessel of 250 gallons. A sump pit or standpipe is required for dumping spent media and rinsing tube elements.

B. To prevent overflowing the sump, drain piping should be sized for 300 gpm capacity.

2.14 FLOWMETER

A. A digital flowmeter shall be included with a 4-20mA 0-10 VDC analog output.

B. The flowmeter shall be wired into the VFD to provide automatic speed control of the filter pump motor.

C. The VFD shall compensate for varying filter head losses by maintaining the specified flowrate with the 4-20mA output signal of the flowmeter.

2.15 FILTER / REGULATOR

A. Each filter shall include a combination filter / regulator. The regulator shall be adjustable from 0 - 120 p.s.i. 1/2" F.P.T. connections shall be provided for field installation of airlines.

2.16 WATER SEPARATOR

A. One water separator with automatic drain shall be included for each air compressor supplied. 1/2” F.P.T. connections shall be provided for field installation of airlines.

2.17 AIR COMPRESSOR

A. The system will require (1) air compressor per mechanical room. The following is the minimum requirement:
   1. 20-gallon tank, 2 HP 115v, 1 phase, 15-amp, 5.2 CFM @ 90 psi, air pressure gauge, pressure relief valve, belt guard, pressure switch, air filter, tank drain.

2.18 PNEUMATIC ACTUATORS

A. Each filter shall include pneumatic actuators for (1) effluent valve and (1) precoat valve.

B. The actuators shall be double acting with valve mounted drilling to ISO 5211.

C. The actuators shall include (2) 1/8” or 1/4" FPT ports for open / close connections. Flow control valves with quick connect fittings shall be provided at each port to allow speed control adjustment for the open / close function of the actuators.

D. Materials of Construction
   1. Body: aluminum alloy, extruded acc. to ASTM 6063, anodized acc. to UNI 4522
   2. Ends: Die-cast in aluminum alloy acc. To ASTM B179, epoxy-polyester coated
   3. Pistons: Die-cast in aluminum alloy acc. To ASTM B179
   4. Pinion: Nickel-plated steel
   5. Slideways: Acetal resin (LAT LUB 731320T)
   6. Fasteners: AISI 304 Stainless steel
   7. Springs: Zinc phosphate coated steel, pre-compressed
   8. Seals: NBR Nitrile rubber
   9. Lubricant: MoS2

E. The actuators shall be factory lubricated to allow for 1,000,000 maneuvers.

F. The actuators shall have adjustable travel stops for both directions.

G. Working temperature limits: 4ºF to 186ºF. NOTE: Systems utilizing manually operated valves shall not be considered.

H. A tool kit for adjustment of pneumatic actuators shall be provided by the filter manufacturer.

2.19 SOLENOID VALVES

A. Each filter shall include three (3) single solenoid, 4-way valves mounted on a multi-station manifold for operation of the pneumatic actuators and bump mechanism.

B. The solenoids valves shall include lighted DIN connectors.

C. The solenoid valves shall be factory lubricated and shall not require any field lubrication.

D. The solenoid valves with multi-station manifold shall be located on the bottom of the automatic controller, factory wired and include quick connect fittings for attachment to the pneumatic actuators and bump mechanism.

E. The solenoid valves shall be SMC Series SY 7000.

2.20 VALVES

A. All valves 3" – 12" shall be constructed with cast aluminum ASTM B179S12C housing and fully coated with Rilsan on all interior and exterior surfaces. Internal components include EPDM resilient lining, Rilsan coated ductile iron disc and T304 stainless steel shaft. Valves 14" and larger shall be constructed with cast iron housing epoxy coated and with nylon coated ductile iron disc.

B. Valves shall be butterfly valves and shall be provided for the influent, effluent and precoat lines.

2.21 SYSTEM VALVES

A. Each defender filter shall include Five (5) system valves to facilitate system fill after media recharge, precoat/regeneration, influent & effluent for filtering and media dump/drain valve.

D. The precoat/regeneration and effluent valves shall be butterfly type with pneumatic actuators per 2.15.

E. The system fill valve shall be butterfly type with lever operator and shall be the same size as the precoat/regeneration valve.

F. The influent valve shall be a wafer type check valve, ductile iron body w/double disc, SS type 304, epoxy coated.

G. The dump/rinse valve shall be butterfly type, lever operated with SS extension to facilitate operation.

2.22 PACKAGING

A. For loading and unloading, filter tank diameters 24" – 41" shall be bolted to individual wooden pallets. All tanks shall be shrink wrapped to prevent damage during transport. All filter piping and valves shall be factory assembled and knocked down into sub-assemblies for shipment.

B. The components shall be carefully packaged in a totally enclosed wooden crate to prevent damage during transport.

2.23 CARTRIDGE FILTER FOR WATER PLAY AREA

A. The water play area filtration systems shall consist of one independent cartridge filtration systems to accomplish a minimum of a 20-minute (holding vessel) turnover rate for a 24-hour period. Three sets of replaceable cartridges are to be supplied with the filter with one set of cartridges to be used for the initial startup operations and potentially sacrificed in the event of excessive construction dirt and debris the system at startup. All face piping shall be of schedule 80 PVC construction and all associated linkages and equipment shall be of stainless steel or other non-corrosive material. The pool filter shall be Harmsco BF168, 18" diameter, 30" high with 2" NPT connections operating at a maximum flow of 63 GPM (63 GPM is the operational flow rate). Furnish and install all recommended components to produce a fully functioning filtration system. Harmsco Stainless-steel Cartridge Filter: Model Number BF-168 operating at 63 gpm (system maximum), filtering 1,220 gallons of water at a twenty (20) minute turnover rate.

2.24 SURGE/BALANCE TANK

A. A field fabricated concrete surge/balancing tank is incorporated in the swimming pool mechanical room. The surge/balancing tank shall be designed as an open atmospheric vessel and contains approximately 5,528 gallons of pool water at maximum surge capacity. The interior of the balance tanks shall be lined with a 60-mil commercial vinyl liner of similar manufacture as the pool lining system. All pipe penetrations shall be fitted with link seal protection and where possible fitted with a schedule 80-PVC water stopped penetration sleeve to minimize interaction with required reinforcing steel. Core drilling may be permitted provided the interior surface of any thru-wall core is permanently waterproofed with BaseCrete or other similar acrylic modified Portland cement waterproofing. Link seal closures will also be required for any cored drilled penetration. All interior piping shall be Schedule 80 PVC, valves shall be suitable for submerged operation of PVC construction with 304L stainless-steel fittings and 304L support hardware suitable for submerged operation.

B. Surge/balancing tank shall be of a size, area, and total height as shown on drawings. Surge/balance tank to be submitted for review and approval during shop drawing process.

C. Surge/balance tank shall be equipped with the necessary flanges and connections for the internal and external piping. Connections shall be constructed of schedule 80 PVC coupling and fiberglass flange. Main drain connection to be fitted with nipple and flange sized to accommodate stainless steel diversion valve. Tank Connections: 10" main drain (1), 2-8” gutter dropouts (2), 8” pump suction (1).

D. Diversion Valve: One (1) 10" PVC body and parts for the surge/balance tank. Unit shall be a dual float diversion valve complete with 1/2" stainless steel straight float arm and installed on the inside of the balancing tank.

E. Pump suction assembly: PVC 8” as indicated.

F. Makeup water shall be introduced into the system through the pool fill line located above surge/balance tank.

2.24 REDUCERS

A. Concentric/Eccentric reducers shall be constructed of Sch. 80 PVC with Sch. 80 PVC van stone flanges. Units shall be equipped with influent/effluent connections as indicated on the Drawings. Fiberglass units by the filter manufacturer are also acceptable.

B. Reducer connections shall be ANSI standard dimension.

C. Reducers shall be designed for 100 psi operating pressure.

2.25 AUTOMATIC MAKE-UP WATER LEVEL CONTROL

A. Make-up Water Level Controller to be mounted in location indicated on the construction drawings.

B. CONTROLLER WLC-200 (2 required; main pool pump and piping manifold pit and waterplay area holding tank)
   1. Water level shall be maintained by an automatic water level controller. Unit shall be Neptune Benson Model WLC-200 water level controller, WCL 100 also

acceptable, or approved equal. Optical water level sensing probes are an acceptable alternative for main pool water level control.

2. Controller package shall consist of a bracket mounted 3 probe sealed housing, 3 stainless steel probes, a 2” clear plastic probe chamber with mounting clamps, to be interfaced with the surge/balance tank to permit water level control within the pool mechanical room. An electronic water level sensor is acceptable and will be considered an equal.
3. Water level shall be controlled by a three-probe electrode system, high level, low level, and ground. A mechanical linkage or float operated system will not be considered equal.
4. A 1.5” PVC line shall be connected to the bottom and top of the sensing chamber affixed to the balance tank wall to reflect the water level in the sensing vessels.
5. Wiring from the probes shall be connected to the relay that is mounted within a corrosion-free, non-metallic NEMA 4X enclosure. The enclosure size shall be no less than 8" wide x 10" high x 5" deep. The access door shall be the entire front face of the enclosure with a vertically mounted stainless-steel hinge equal to the full height of the door. Stainless steel hasps with locking loop latch shall be permanently secured to the enclosure.
6. Mounted within the enclosure shall be a liquid level relay, adjustable delay timer, 24-hour clock/timer and terminal board. Major components shall be plug-in type for instant replacement without wiring. Unit shall be suitable to activate any 110-volt circuit for solenoid valve, for providing domestic makeup water.
7. All wiring connections shall be made through the bottom of the enclosure.
8. Solenoid valve shall be 1½" N.C., slow closing.

2.26 CHEMISTRY CONTROLLER

A. Manufacturer: Subject to compliance with requirements, provide appropriate products from one of the following: controllers, flow cells, flow safety switch, injection equipment and related components shall be by Wallace and Tiernan (Evoqua/Neptune Benson) BECSys, Prominent, or approved equal. Note: Contractor may submit products from other manufacturers provided a price for one of the approved specified controller is provided. i.e., The Pool Warden controller may be considered provided adequate service and maintenance assistance for the Owner is available.

C. True PPM, ORP, pH Automated Controller: Neptune Benson Blue Sentinel SE, or BECSys5 or approved equal. (2 required; main pool balance tank and waterplay area holding tank)

1. Furnish with all required accessories, i.e., automatic chlorine and pH control, flow cell, flow switch, pH and HHR Sensors, etc. Install one controller per pool. Include the following optional features: true ppm sensor; flow meter; surge tank level switch; pH level sensor; Cl2 level sensor; impact motor control variable frequency drive; direct connect, data modem and Ethernet; email alarm notification; remote access and control.

B. Controller shall include the following components:

1. Sensors: The sensor measurements have the following characteristics.
   a. Chemical sensors shall be isolated from each other and from the supply voltage and ground.
   b. pH: 4.22 to 9.78
   c. ORP: 0 to 999 mV
   d. PPM: 0 to 9.99
   e. Temp: 22°F to 212°F
2. Flow switch: When flow is stopped, there shall be no supplied voltage to the sensor and the controller shall turn off all relays.

3. Relays: Include 2 digital inputs, (1 configurable), 3 10A assignable, 2 assignable digital outputs.
4. Display: 2-line 12 Character LCD display, 2 LEDs.
5. Buttons: Include a membrane overlay with 21 built-in touch buttons.
6. Alarm: The chemical alarms shall come on when the measurements are out of tolerance for over a duration of sixteen (16) minutes.
7. Proportional Feed: The feed time shall be reduced as the chemical value approaches the set-point.
8. Data Recording: Automatically record data every three (3) hours.
9. Warranty

D. The manufacturer shall warranty the system for five (5) years. All sensors and flow cells shall have a warranty of two (2) years.

E. Flow Cell (bypass line assembly) 1 required. The Flow Cell shall include the sensors, in-line filter, a flow switch, a visual flow rate indicator, and a sampling valve for water testing.
1. The flow cell shall also include a valve at the inlet and outlet that may be used to adjust or stop the flow.
2. The Flow Cell shall be designed such that it is not possible for the sensors to be exposed to air.

F. Chemical Feed Pump
1. Stenner peristaltic liquid chlorine pump(s), One (1) Model Classic Single Head, rated at up to 85 GPD main pool, One (1) Model Classic Single Head, rated at up to 45 GPD water pay area or equal. Provide (1) extra pump held in reserve. Prominent dosing pumps are an approved equal.

G. Chemical Storage Tank
1. Double Wall Chlorine Storage Tank, 1-200-Gallon capacity as manufactured by Chemtainer Industries, Incorporated.

~~2.27 HYDROLYL RADICAL ADVANCED OXIDATION POOL ADD ALTERNATE NO. 6~~

~~A. General: Advanced Oxidation Process to generate hydroxyl radicals in water plumbing system through a venture. The system produces monoatomic oxygen directly injected into return line of pool before chemical injection point. UV, Ozone, or any combination are not a suitable substitute for direct hydroxyl creation.~~

~~B. The Advanced Oxidation System shall be Clear Comfort Commercial System:~~
~~1. Alternate No. 6: Main Pool - Model CCW300~~
~~2. Alternate No. 6: Water Play Holding Tank - Model CCW50~~
~~3. Both Units suitable for surge tank diffuser insertion~~

~~C. Equipment General Description~~
~~1. The unit and all internal components shall be constructed within Nema 3R rated enclosure with rated hinges, cover, and top drip shield.~~
~~2. Cover latches shall be ¼ turn latches right hand, slotted at center and pad-lockable wing latches to be located at top and bottom.~~
~~3. Within each enclosure contains the Clear Comfort cartridges; one cartridge for the CCW300, constructed of aluminum sleeves, magnetic array, enclosure lamp(s) and supporting lamp holders. Cartridges are where air processing occurs, length varies with lamp size.~~
~~4. Connected to cartridges is specialized blue flexelene tubing that draws air out of the cartridge and into the 1.5" venturi constructed of highly resistant PVDF (no water enters unit).~~

5. ~~Unit shall be permanently connected and is pre-wired for 120V or 240V and is intended for both indoor and outdoor use. Unless specified otherwise, all internal wiring is Listed or R/C (AVLV2), with minimum 1/32-inch-thick insulation.~~
6. ~~The system and booster pump should operate continuously. Clear Comfort system and booster pump shall be interlocked electrically with main pool pump.~~

2.28 CARBON DIOXIDE PH BALANCE SYSTEM

A. Unit shall be single tank CO_2 metering system and take nominal 300 psi pressure from direct reading pressure gauges. One gauge shall read tank pressure 0-160 psi. The other shall read tank pressure 0-400 psi. Units shall be tank mountable and shall connect to $C0_2$ cylinders by 3/16" I.D. braided tubing rated for not less than 1000 psi. Discharge from unit shall be through thick watt 3/8" OD polyethylene tubing to the feed unit.

B. Model as follows: Carbo-Mizer 750

C. CO_2 from the pressure reducing valve shall be brought to the feed unit in thick wall 3/8", OD polyethylene tubing. Feed system shall include 120-volt AC solenoid operated valve for remote on/off control of CO_2 feed. CO_2 feed unit shall also include rate adjusting flow meter scaled from 0-30 SCFH and have a pressure rating of 100 psi.

D. CO_2 from feed unit shall be injected through 1/4" NPT fittings. Unit shall cause CO_2 to be totally diffused and made to go fully into solution without evidence of CO_2 bubbling at any point where water is open to atmosphere. Unit must be equipped with a stainless- steel duckbill type check valve to prevent the flow of water back into the feed unit.

E. The Carbon Dioxide system shall be supplied by MVE, Inc. Carbo-Max, Chart Industries or equal. The Carbon Dioxide system shall include an ASMR rated, single tank CO_2 feed system / regulator kit, (1) - 750-pound bulk storage tank(s) rated to 15 LBS/HR, heaters, including all necessary and required fittings and connections. Bulk CO_2 tank shall be leased by the Owner for use at the pool. All fixed equipment identified herein to support the leased CO_2 bulk storage tank shall be furnished by this contractor to provide a fully functional CO_2 delivery system for the complex.

F. Each carbon dioxide system shall consist of a one (1) - 750-pound capacity low pressure tank(s), independent manifold, solenoid valves, regulator / flow meter, outside fill station, valves, controls, injectors, and all fittings as shown on the contract drawings and necessary for a fully operational CO_2 delivery system.

G. Remote Fill Boxes: Not required, see drawings for location and fill line routing.

H. The system shall be provided with a CO_2 monitoring and alarm system with both visual and auditory alarms to be located within the pool mechanical room, with a visual alarm located outside of the access door to the space. Furnish and install the system to provide complete security for County staff servicing the space. Alarms to be furnished by the Pool Contractor and installed by the General Contractor’s electrical contractor.

I. The CO_2 system shall carry a (1) one-year warranty on all components.

PART 3 - EXECUTION

3.1 GENERAL

A. The manufacturer shall coordinate the delivery of all necessary anchors and fittings to avoid any delays in the scheduling of the Project.

B. The manufacturer shall supply all templates in a timely manner to facilitate the smooth progress of construction. A qualified representative from the manufacturer, whose cost shall be the responsibility of the Pool Contractor, will be present at the site to supervise the installation of his products, and to allocate a minimum of two (2) working days to supervise the start-up and turnover of the facility as well as instructing the Owner's representatives in the operation and maintenance of all equipment.

C. The Manufacturer/Pool Contractor shall supply the necessary materials including all necessary ozone resistant tubing. The standard installation kit shall include a minimum of 25' of tubing, check valves, fittings, and hose clamps, furnish sufficient lengths of tubing to complete the installation at no additional cost to Owner. The Manufacturer shall supply the necessary materials including all necessary ozone resistant tubing.

D. A complete Installation, Operations and Maintenance Manual shall be provided for each element of system.

E. Contractor shall provide all startup chemicals and system balancing as required.

3.2 JOINTS

A. Mechanical joints: Assemble all mechanical joints by washing the socket and plain ends of the pipe with soapy water. Then the gland and gasket shall be slipped over the plain end in such manner that the small side of the gasket and the lip side of the gland face the socket. The gasket shall then be painted with soapy water. Insert the plain end into the socket and push the gasket into position so that it is evenly seated. Slide the gland into position, insert bolts and tighten nuts by hand. Using a ratchet wrench, tighten bolts alternately bottom and top and continue around pipe until the joint is bottle-tight under all working pressures.

B. Threaded joints: After cutting and before threading pipe shall be reamed and shall have burrs removed. Screw joints shall be made with graphite or inert filter and oil or with an approved graphite compound applied to male threads only. Threads shall be full-cut and not more than three threads on the pipe remain exposed. Caulking of threaded joints to stop or prevent leaks will not be permitted. Unions shall be provided where required for disconnection of exposed piping. Unions will be permitted where access is possible.

C. Solvent-welded joints: Solvent-welded joints shall be made in accordance with the manufacturer's recommendations. However, the following directions are considered minimum standards. All fittings shall fit easily on the pipe before applying cement. The outer surface area of pipe and inner wall of fitting shall be clean and dry. Thinner is to be applied to the outer surface of the pipe and to the inner surface of the fittings. Cement is to be applied to the outer surface of the pipe, or on the male section of fitting only. When the outside surface area of the pipe end is satisfactorily covered with cement, allow ten (10) seconds open time to elapse before inserting pipe into fittings, turn fitting about the pipe end approximately 1/8 to 1/4 of a turn. Wipe off excess cement at the joint in a neat cover bead.

D. Joints shall remain completely undisturbed for a minimum of ten (10) minutes from time of joining the pipe and fitting. If necessary, to apply pressure to a newly made joint, limit of 10% of rated pipe pressure, four (4) hours after joining, for the first twenty-four (24) hours after the joint has been made.

E. Carefully handle all pipe and move as little as possible so that the cement seal shall not be broken before it is completely dry and for a time of at least twenty-four (24) hours.

F. Full working pressure shall not be applied until the joints have been set for a twenty-four (24) hour period.

G. Installation made during hot weather shall provide for expansion by snaking in ditch or running line on open discharge until it contracts to operating length.

H. Protect plastic pipe from exposure to aromatic hydrocarbons, halogenated hydrocarbons and most esters and ketones that attack the material. Protect all piping from mechanical damage and long exposure to sunlight during storage.

I. Make threaded pipe joints with Permatex #2 compound or approved equal, applied sparingly to the male threads only.

J. All connections between PVC and metal pipes must be flanged, plastic flange to metal flange. DO NOT use threaded connections between plastic and metal pipe, except where specifically noted otherwise and in which case the PVC pipe shall be Class 200 weight regardless of size.

K. Label all filtration equipment and piping. No painting of non- ferrous PVC piping is required.

3.3 FLUSHING OF LINES

A. All system piping lines leading to the pool shall be thoroughly flushed clean prior to filling the pool.

3.4 POOL START UP

A. The Pool Contractor shall supply the services of an experienced Manufacturer representative for a period of not less than four (4) days after the filtration system has been initially placed in operation. The Pool Contractor shall be on hand during all manufacturer-directed training in the event any modification or alteration to the system is required. During this period, the Owner's designated representatives shall be thoroughly instructed in all phases of the pool's operation.

B. Prior to this Manufacturer leaving the job, the Pool Contractor shall obtain written certification from the Owner's designated representative acknowledging that the instruction period has been completed and all necessary operating information provided.

C. The Pool Contractor shall, in his contract, include the cost of three (3) days of an on-site technician during the instruction and operational check-out performed by a qualified Manufacturer’s representative during the first season’s operation. One inspection shall be performed within the one-year anniversary date of the established date of substantial completion.

D. Written reports of each of these three (3) visits outlining the pool's operation, competence and performance of the pool's operating personnel and other pertinent comments shall be submitted to the Owner and Architect within one (1) week after each visit.

END OF SECTION

SECTION 32 31 19 – ORNAMENTAL FENCE

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. Ornamental rackable welded steel fence system.

1.2 REFERENCES

A. ASTM A123; Hot Dip Electroplating
B. ASTM A500;Seamless Grade A Metal Tubing
C. ASTM B117-97; Salt Spray Corrosion Test
D. ASTM F593; Stainless Steel Fasteners
E. ASTM F2049; Standard Safety Performance for Fence
F. ASTM F2408; Standard Specification for Ornamental Fences

1.3 WARRANTY

A. A 20-year limited warranty, from the date of purchase, for defects in material and workmanship, including protection against cracking, peeling, blistering and corrosion (rusting). Refer to 20 Year Warranty Sheet.

PART 2 - PRODUCT

2.1 MANUFACTURER

A. Fortress Fence Products Versai Commercial V2 is the BOD. Substitutions shall be acceptable subject to the requirements of 01 10 00.

2.2 MATERIALS

A. Rails and Pickets are Grade A cold rolled 45,000 psi steel. Rails are formed U-Channel and Pickets are rolled formed and welded tubing. Both conforming to ASTM A500 with G-60 zinc coating (0.60 oz/ft^2) total inside and outside surfaces in accordance with the ASTM A123 hot dipped electroplating process.

2.3 COMPONENTS

A. Rails: 1 $^9/_{16}$" x 1 $^3/_{16}$" (Leg x Web), 14 gauge formed U-Channel ASTM 500 galvanized steel.
B. Pickets: ¾" square 16 gauge ASTM A500 galvanized welded and formed steel tubing for 4' 5' & 6' tall panels, 14 gauge. ASTM A500 galvanized welded and formed steel tubing for 7' & 8' tall panels.
C. Posts: 2 ½" square 16 gauge, 14 gauge, or 3" square 14 gauge ASTM A500 galvanized formed and welded steel tubing with powder coated factory finish.
D. Fasteners: All nuts, bolts, and sheet metal screws are stainless steel conforming to ASTM F593-02e2 standard.

2.4 STYLE

A. See A201 for additional information. Fortress Fence Product's VERSAI COMMERCIAL (V2) Fence shall be Flat Top Flat Bottom (FT/FB) style, with 3 15/16" maximum clear space between pickets.

2.5 FABRICATION

A. Fence panels shall be fully assembled and fabricated with rail length of 90 ½" and picket heights of 70". All panels shall comply with requirements indicated for materials, thickness, design and details of construction.
B. Pickets shall be welded to the rails with a patented pin hinge system which allows the panel to rake without metal fatigue or damage to the finish.
C. All welded connections shall comply with AWS standards for recommended practice in shop welding.
D. All components shall be accurately cut and drilled to receive hardware, fasteners and accessories.

E. Panels shall be capable of supporting a 300 lb. load (applied at mid-span) without permanent deformation. Panels shall be rackable to a 30” change in grade.

2.6 FINISH

A. Materials shall be coated with the manufacturer’s proprietary process including galvanization, zinc phosphate, electrodeposition (E-coat), and architectural grade powder coat.
B. Metal parts shall be assembled and finished individually prior to shipment.
C. Galvanized steel fence components shall be cleaned with a non-petroleum solvent followed by the application of a sealing zinc phosphate coating.
D. Immediately after sealing, a two-step finishing process shall be used, consisting of:
   1. An electrostatic dipping process in a lead free high corrosion resistant epoxy resin leaving a coating of approximately 20 microns.
   2. A thermosetting carboxyl polyester resin top coat with a minimum dry film thickness of 60 to 70 microns. The second coating will be applied by the electrostatic spray process.

PART 3 - EXECUTION

3.1 PREPARATION

A. Stake layout showing locations of all gates and posts based on the drawings. Confirm layout with Owner and Architect prior to proceeding with the work. Contact “CALL BEFORE YOU DIG” prior to beginning any excavation work.

3.2 INSTALLATION

A. Install fences in accordance with written instructions and in accordance with authorities having jurisdiction.
B. Concrete Set Posts: Drill hole in firm soil. Posts holes will be a minimum of 36” deep (environmental conditions or local codes may require a greater depth). Fence post shall be spaced 95” ± 1/4” on-center to accommodate installation of brackets on 2 ½” square post. For non-level installations, the on-center post spacing must be measured along the grade. C. Installation is to conform to the specifications referenced in Section 1.02 of this specification.
C. Install Fortress brackets onto fence section and posts as indicated in printed instructions for specific fence style. Attach fence sections to brackets with approved fasteners and techniques to insure that fence sections are parallel to grade within ¼” in 12 feet.
D. Gate Installation: Install in accordance with printed instructions. Do not mount gate from wall of a structure. Provide gate post on both sides of a gate. For double drive gate installation, provide concrete center drop to foundation depth and drop rod retainers at center. Lubricate to insure smooth operation and verify proper latch operation.

3.3 CLEANING

A. Remove all cutting and drilling chips that are attached to the fencing, post, brackets or additions to prevent corrosion.
B. Repair scratches and other installation-incurred damage. Using a spray paint of the appropriate color that includes a zinc additive, repaint and seal any scratches or holes drilled in the fencing, post, brackets, or additions to prevent rust from forming. Clean up debris and unused material and remove from site.

Table 1

Minimum Post Sizes for V2 Versai Commercial

Line of Fence Posts	Panel Heights

2.5” x 16ga	Up to & Including 6’ height
2.5” x 14ga	7’ & 8’

Table 2

V2 Versai Commercial Post Spacing by Bracket Type

Spacing	Flat Top, Spear Top, Extended Picket and Curved Top 8’ Nominal (90.5” Rail)					
Post Size	2.5”	3”	2.5”	2.5”	2.5”	3”
Bracket Type	One Direction Flat Mount (Ex-106)		Two direction Line (EX-206)	Three Direction Universal (EX-306)	Swivel Flat Mount (EXS-106)	
Post Settings ± 1/4” O.C.	95”	95.5”	95”	95”	95”	95.5”

Table 3

V2 Versai Commercial Gate Posts Sizes

Gate Leaf	Gate Height		
	Up to & Including 4’	Over 4’ Up to & Including 6’	7’ & 8’
Up to 4’	2.5” x 14ga	3” x 12ga	3” x 12ga
4’1” to 6’	3” x 12ga	3” x 12ga	4” x 11ga
6’1” to 8’	3” x 12ga	4” x 11ga	4” x 11ga

END OF SECTION 32 31 19