DOCUMENT REVIEW/APPROVAL

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When separated from the referenced document, this coversheet is : UNCLASSIFIED

Procurement Specification Revision History Sheet

1. Specification No Designing, Furnishing and Delivery of Ready Mixed Concrete, Grout and CLSM C-SPS-G-00096			2. Revision 3	3. Page 2 of 26
4. Date	5. Revision No.	6. Paragraph No.	7. Description of Changes	
05/16/2012	0	N/A	Issue for Bid	
3/2/2015	1	N/A	Complete Rewrite for Issue of Bid, No Revision Bars Used	
August 2015	2	a) Cover Sheet	Functional Classification Change to GS and PS. The Specification Remains Procurement Level 2	
		b) 4.2.1.7, 4.2.2.5, 4.2.2.6, 4.2.2.7	Change frequency of testing for select ASTM test from monthly to every six (6) months	
		c) 3.2.1.12.1	Added Additional Supplier for Synthetic Fiber Reinforcement	
		d) Attachment 5.5	Functional Classification change from SS to PS	
		e) Attachment 5.6	Complete Revision to Supplier's Quality Assurance Program Requirements	
		f) 4.2.1.2 & 4.2.2.2	Added retest options	
September 2015	3 Revision Bars Utilized	Page 2	Clarify that Sections 4.2.1.2 & 4.2.2.2 retest options were added in Revision 2; no change to body of spec	

TABLE OF CONTENTS

1.0 SCOPE

Design, furnish and deliver ready mixed concrete, grout and Controlled Low Strength Material (CLSM) in accordance with the requirements provided in this document.

Requirements for acceptance and documentation of mix delivery by the CORE and SRNS are also provided in this document.

1.1 Work Included

1.1.1 Supplier shall provide material components that conform to the requirements of this document for the production of the concrete, grout and CLSM.

1.1.2 Supplier shall obtain and retain documentation in accordance with the frequencies outlined in this document for production, examination and testing of material components for production mixes. Material component documentation shall, as a minimum, be obtained and retained during the time period or time periods of the actual production.

1.1.3 Supplier shall provide sufficient facilities and equipment to store and protect the material components necessary for the production of the concrete, grout and CLSM.

1.1.4 Supplier shall qualify, operate and maintain the necessary production facility or facilities and equipment utilized for batching, mixing and delivery of the production concrete, grout and CLSM to the Savannah River Site (SRS) for Savannah River Nuclear Solutions (SRNS) or the Contractually Obligated Receiving Entity (CORE).

1.1.5 Supplier shall design the various mixes for the concrete, grout and CLSM utilizing the SRNS provided attributes (compressive strength, slump, utilized material components and air entrainment) or engage the services of an organization capable of designing the various mixes for the concrete, grout and CLSM for acceptance by SRNS. Designs for the various concrete, grout and CLSM mixes shall utilize materials, material amounts and material identifications determined by the Supplier in order to meet the SRNS provided.

1.1.6 Supplier shall adjust the various mixes for the concrete, grout and CLSM utilizing the SRNS provided attributes (compressive strength, slump, utilized material components and air entrainment) or engage the services of an organization capable of adjusting the various mixes for the concrete, grout and CLSM for acceptance by SRNS. Adjusting the various mixes for the concrete, grout and CLSM may require modification to the material components, material amounts or material identifications provided by SRNS in order to maintain the required SRNS attributes of a specific mix utilizing currently available materials.

1.1.7 Supplier shall qualify the various designed or adjusted mixes for the concrete, grout and CLSM or engage the services of an organization capable of qualifying the various designed or adjusted mixes for the concrete, grout and CLSM for acceptance by SRNS.

1.1.8 Supplier shall provide testing laboratory services that conform to the requirements of this document.

1.1.9 Supplier shall provide a quality program that conforms to the requirements of this document.

1.1.10 Supplier shall cooperate with SRNS representatives or CORE representatives in emergency situations in order to meet the pending need.

1.1.11 Supplier shall provide waste disposal services at their facility for rejected and excess concrete.

1.2 Related Work Not Included By The Supplier

1.2.1 Transport from the point of delivery to the placement site of the production concrete, grout or CLSM performed by SRNS or the CORE.

1.2.2 Forming, placing, consolidating, finishing, curing or protection at the placement site for the production concrete, grout or CLSM performed by SRNS or the CORE.

1.2.3 SRNS or CORE performed acceptance and production testing at the point of delivery for the production concrete, grout or CLSM.

1.2.4 SRNS performed surveillance testing of the material components.

1.2.5 SRNS performed surveillance testing of the design or production concrete, grout or CLSM.

2.0 REFERENCES

2.1 Terms and Definitions

2.1.1 AEA - Air-Entraining Admixture

2.1.2 CLSM - Controlled Low Strength Material

2.1.3 CORE - Contractually Obligated Receiving Entity (An SRNS organization, a Subcontractor organization or an organization responsible for the construction/receiving activities at the point of delivery)

2.1.4 EDR - Engineering Document Requirements

2.1.5 HRWR - High Range Water Reducing Admixture

2.1.6 QVDR - Quality Verification Document Requirements

2.1.7 RA - Retarding Admixture

2.1.8 SDDR - Supplier Deviation Disposition Request

2.1.9 SRNS - Savannah River Nuclear Solutions

2.1.10 SRS - Savannah River Site

2.1.11 WRA - Water Reducing Admixture

2.1.12 Centerra-SRS - SRS Site Protection Force

2.2 Codes/Standards/Orders/Regulations

Other editions of Codes and Standards may not be used without prior written acceptance of a Supplier submitted SDDR.

2.2.1 American Concrete Institute (ACI)

211.1-91(R2009)	Standard Practice for Selecting Proportions for Normal, Heavyweight, and Mass Concrete
229R-13	Report on Controlled Low-Strength Materials
301-10 (E 2012)	Specifications for Structural Concrete
304.2R-96 (R2008)	Placing Concrete by Pumping Methods
305R-10	Guide to Hot Weather Concreting
305.1-14	Specification for Hot Weather Concreting
306R-10	Guide to Cold Weather Concreting
306.1-90 (R2002)	Standard Specification for Cold Weather Concreting

2.2.2 American Society of Mechanical Engineers (ASME)

NQA-1—08/09a	Quality Assurance Requirements for Nuclear Facility Applications

2.2.3 American Society for Testing and Materials (ASTM)

C29/C29M-09	Standard Test Method for Bulk Density (“Unit Weight”) and Voids in Aggregate
C31/C31M-12	Standard Practice for Making and Curing Concrete Test Specimens in the Field
C33/C33M-13	Standard Specification for Concrete Aggregates
C39/C39M-14a	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens

C40/C40M-11	Standard Test Method for Organic Impurities in Fine Aggregates for Concrete
C88-13	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
C94/C94M-14b	Standard Specification for Ready-Mixed Concrete
C109/C109M-13	Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens)
C114-13	Standard Test Methods for Chemical Analysis of Hydraulic Cement
C117-13	Standard Test Method for Materials Finer than 75-μm (No. 200) Sieve in Mineral Aggregates by Washing
C127-12	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Coarse Aggregate
C128-12	Standard Test Method for Density, Relative Density (Specific Gravity), and Absorption of Fine Aggregate
C136-06	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
C131/C131M	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
C138/C138M-14	Standard Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete
C142/C142M-10	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
C143/C143M-12	Standard Test Method for Slump of Hydraulic-Cement Concrete
C150/C150M-12	Standard Specification for Portland Cement
C172/C172M-14	Standard Practice for Sampling Freshly Mixed Concrete
C173/C173M-14	Standard Test Method for Air Content of Freshly Mixed Concrete by Volumetric Method
C191-13	Standard Test methods for Time of Setting of Hydraulic Cement by Vicat Needle
C231/C231M-14	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method
C232/C232M-14	Standard Test Method for Bleeding of Concrete
C233/C233M-14	Standard Test Method for Air-Entraining Admixtures for Concrete
C260/C260M-10a	Standard Specification for Air-Entraining Admixtures for Concrete
C266-13	Standard Test Method for Time of Setting of Hydraulic-Cement Paste by Gillmore Needles
C295/C295M-12	Standard Guide for Petrographic Examination of Aggregates for Concrete
C403/C403M-08	Standard Test Method for Time of Setting of Concrete Mixtures by Penetration Resistance
C465-10	Standard Specification for Processing Additions for Use in the Manufacture of Hydraulic Cements
C470-09	Standard Specification for Molds for Forming Concrete Test Cylinders Vertically

C494/C494M-13	Standard Specification for Chemical Admixtures for Concrete
C511-13	Standard Specification for Mixing Rooms, Moist Cabinets, Moist Rooms, and Water Storage Tanks Used in the Testing of Hydraulic Cements and Concretes
C535-12	Standard Test Method for Resistance to Degradation of Large-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
C566-13	Standard Test Method for Total Evaporable Moisture Content of Aggregate by Drying
C617/C617M-12	Standard Practice for Capping Cylindrical Concrete Specimens
C618-12a	Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete
C637-14	Standard Specification for Aggregates for Radiation-Shielding Concrete
C1064/C1064M-12	Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete
C1077-14	Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation
C1116/C1116M-10a	Standard Specification for Fiber-Reinforced Concrete
C1602/C1602M-12	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
C1611-14	Standard Test Method for Slump Flow of Self-Consolidation Concrete
D4791-10	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
D4832-10	Standard Test Method for Preparation and Testing of Controlled Low Strength Material (CLSM) Test Cylinders
D5971-13	Standard Practice for Sampling Freshly Mixed Controlled Low-Strength Material
D6023-07	Standard Test Method for Density (Unit Weight), Yield, Cement Content, and Air Content (Gravimetric) of Controlled Low-Strength Material (CLSM)
D6024-07	Standard Test Method for Ball Drop on Controlled Low Strength Material (CLSM) to Determine Suitability for Load Application
E329-14a	Standard Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection

2.2.4 National Ready-Mixed Concrete Association (NRMCA)

QC3	Section 3 of QC Manual, “Plant Certification Checklist”, Eleventh Revision, 2011

2.2.5 Occupational Safety and Health Administration (OSHA)

CFR 29, Part 1926	Safety and Health Regulations for Construction

2.3 Documents

OSR 45-4 Supplier Deviation Disposition Request (SDDR)

3.0 ITEM REQUIREMENTS

3.1 Performance Requirements

3.1.1 Production Facility

3.1.1.1 Each Production Facility utilized for the production of concrete, grout or CLSM shall meet the NRMCA QC3 Check List Certification requirements for material storage and handling, batching and mixing.

All scales at each Production Facility utilized shall be checked for accuracy at intervals not exceeding six (6) months.

All volumetric admixture dispensers and all volumetric water batching devices at each Production Facility utilized shall be checked for accuracy at intervals not exceeding six (6) months.

If automated aggregate moisture devices are used at a Production Facility, the automated aggregate moisture devices shall be checked for accuracy at intervals not exceeding six months).

For each Production Facility utilized, submit a copy of the current NRMCA QC3 Check List Certification and copies of subsequent NRMCA QC3 Check List Certifications.

Certification for each Production Facility utilized shall be maintained through completion of the contract.

For each Production Facility utilized, submit a copy of the current accuracy check for each Production Facility utilized scales, volumetric admixture dispensers, volumetric water batching devices, and automated aggregate moisture devices and copies of subsequent accuracy checks.

Accuracy checks for each Production Facility utilized shall be performed through completion of the contract.

3.1.1.2 Monitor and record the moisture content of the fine and coarse aggregates used in producing the production concrete, grout and CLSM. The Supplier shall adjust the quantity of the mix water based upon the fine and coarse aggregate moisture contents such that the total quantity of water in the batch of production concrete, grout or CLSM does not exceed the quantity specified for that mix. See Section 4.2.1.1 and Section 4.2.2.1 of this document for moisture content document submittal requirements.

3.1.1.3 Measuring material components and batching of all production concrete, grout and CLSM shall be in accordance with the requirements of ASTM C94/C94M unless noted otherwise in this document.

3.1.1.4 Production Facility mixer shall conform to the requirements of ASTM C94/C94M.

3.1.1.5 Production Facility mixing, utilizing central-mixed concrete or shrink-mixed concrete, shall conform to the requirements of ASTM C94/C94M.

3.1.2 Transporting Equipment

3.1.2.1 Each piece of Transporting Equipment utilized for the production concrete, grout and CLSM shall meet the NRMCA QC3 Check List Certification requirements for a delivery fleet.

For all pieces of Transporting Equipment, submit a copy of the current NRMCA QC3 Checklist Certification and copies of subsequent NRMCA QC3 Checklist Certifications.

Certification for each piece of Transporting Equipment utilized shall be maintained through completion of the contract.

3.1.2.2 Transporting Equipment shall be truck mixers, truck mixers acting as agitators, or truck agitators based upon the method of mixing utilized.

3.1.2.3 Truck mixers, truck mixers acting as agitators, and truck agitators shall conform to ASTM C94/94M.

3.1.2.4 Truck mixing shall conform to the requirements of ASTM C94/C94M.

3.1.3 Mix Temperature

3.1.3.1 Production concrete, grout and CLSM, unless noted otherwise, shall be provided within a temperature range between fifty (50) and ninety (90) degrees Fahrenheit at the point of delivery.

3.1.3.2 Production low shrinkage concrete and grout mixes may be placed as normal concrete at ninety (90) degrees Fahrenheit or less and may be placed as mass concrete at seventy (70) degrees Fahrenheit or less. Minimum temperature at time of placement shall not be less than fifty (50) degrees Fahrenheit.

3.1.3.3 Production extended set low shrinkage concrete and grout mixes may be placed as normal concrete at ninety (90) degrees Fahrenheit or less and may be placed as mass concrete at seventy (70) degrees Fahrenheit or less. Minimum temperature at time of placement shall not be less than fifty (50) degrees Fahrenheit.

3.1.3.4 Production mass structural concrete mixes shall be provided within a temperature range between fifty (50) and seventy (70) degrees Fahrenheit at the point of delivery.

3.1.3.5 ACI 306.1 shall be used during cold weather concreting and ACI 305.1 shall be used during hot weather concreting. Use ACI 306R as additional guidance for cold weather concreting and ACI 305R as additional guidance for hot weather concreting.

3.1.3.6 Supplier shall make a business decision on which means and methods are to be utilized to meet the criteria for hot weather concreting. The CORE will be available for communication with the Supplier in order to assist in the decision of means and methods for meeting the criteria for hot weather concreting.

3.1.4 Batch Ticket

3.1.4.1 Supplier shall provide batch tickets in accordance with Section 14.1 of ASTM C94/C94M. The additional information for certification purposes as listed in Section 14.2 of ASTM C94/C94M will be supplied when requested. Material components of the concrete, grout or CLSM require traceability to the material components previously accepted by SRNS. Documentation, if not provided in accordance with Section 14.2 of ASTM C94/C94M, shall be provided by the Supplier that identifies the material components by brand, type, class, grade or source of the material components corresponding to Supplier material identification numbers for the material components.

3.1.4.2 The batch ticket shall designate the start time for mixing when all the solid materials are in the drum for central-mixed concrete. The batch ticket shall designate the revolutions on the truck drum revolution counter at the end of discharge from the stationary mixer into the truck.

If truck mixing is utilized, the batch ticket shall designate the start time for mixing as the time of the first addition of water to the dry material components. The batch ticket shall designate the revolutions on the truck drum revolution counter at the first addition of water to the dry material components.

The batch ticket shall designate the amount of water in gallons, not exceeding the water-to-cementitious material ratio for the production mix, available for addition at the direction of the CORE at the point of delivery.

3.1.4.3 Supplier's representative shall verify that the CORE has indicated the amount of water to be added, if any, at the point of delivery on the batch ticket and shall initial the batch ticket.

3.1.5 Additional Items

3.1.5.1 The CORE shall establish a designated area at the point of delivery for washing of Supplier operated truck chutes.

3.1.5.2 The Supplier shall provide a radio communication system that is acceptable to the CORE between each Production Facility utilized and the points of delivery for the production concrete, grout, or CLSM.

3.2 Design Requirements

3.2.1 Material Components

3.2.1.1 Portland Cement

3.2.1.1.1 Supplier shall provide Portland Cement that meets the requirements of ASTM C150/C150M, Type I or Type II.

3.2.1.1.2 For each shipment received, Supplier shall obtain and retain Manufacturer's Certification Reports showing conformance to the standard composition requirements and the standard physical requirements of ASTM C150/C150M for the Type I or Type II Portland Cement.

Additionally, the following information, optional composition requirements and optional physical requirements identified shall be provided on the Manufacturer's Certification for the Type I or Type II Portland Cement.

- Nature, amount and identity of any organic or inorganic processing additions and test data showing compliance with ASTM C465.
- Equivalent alkalies determined in accordance with ASTM C114. The supplied Portland Cement shall contain no more than 0.60 percent, by weight, of equivalent alkalies calculated as: $Na_2O + 0.658K_2O$.
- Time of setting determined in accordance with ASTM C266 if not determined in accordance with ASTM C191.

Submit Manufacturer's Certification for the Portland Cement in accordance with Section 4.1.1.1 of this document.

3.2.1.2 Air-Entraining Admixture (AEA)

3.2.1.2.1 Supplier shall provide air-entraining admixture that meets the requirements of ASTM C260/C260M.

3.2.1.2.2 For each shipment received, Supplier shall obtain and retain documentation, such as laboratory test results or Manufacturer's Certification Reports, showing conformance to the physical requirements of ASTM C260/C260M. Documentation shall state the chloride content of the air-entraining admixture and whether or not chloride has been added to the air-entraining admixture during the manufacture of the air-entraining admixture.

Submit Manufacturer's documentation for the air-entraining admixture in accordance with Section 4.1.2.1 of this document.

3.2.1.3 Fly Ash

3.2.1.3.1 Supplier shall provide fly ash that meets the requirements of ASTM C618, Class F. The supplied fly ash shall have a loss on ignition not exceeding six (6) percent.

3.2.1.3.2 For each shipment received, Supplier shall obtain and retain documentation, such as laboratory test results or Manufacturer's Certification Reports, showing conformance to the chemical requirements and physical requirements of ASTM C618 for the Class F fly ash.

Submit Manufacturer's documentation for the fly ash in accordance with Section 4.1.3.1 of this document.

3.2.1.4 Slag: THIS SECTION IS RESERVED

3.2.1.5 Silica Fume: THIS SECTION IS RESERVED

3.2.1.6 Fine Aggregate

3.2.1.6.1 Supplier shall provide fine aggregate that meets the requirements of ASTM C33/C33M for fine aggregates.

3.2.1.6.2 Supplier shall obtain and retain documentation, such as laboratory test results, showing conformance to the grading requirements and limits for deleterious substances of ASTM C33/C33M for fine aggregates. The limit for 75 µm (No.200 sieve) shall be 3.0% passing and the limit for coal and lignite shall be 1.0% of the mass of the total sample.

Additionally, the following information identified shall be provided on the documentation for the fine aggregate.

- Bulk density and voids, as calculated in accordance with ASTM C29/C29M, shall be provided.

- Base fineness modulus, as calculated in accordance with ASTM C136, shall be in accordance with Section 6.2 of ASTM C33/C33M.
- Fineness modulus, as calculated in accordance with ASTM C136, for continuing shipments shall not vary from the base fineness modulus more than provided in Section 6.4 of ASTM C33/C33M.
- Organic impurities, as determined in accordance with ASTM C40/C40M, shall be limited in accordance with Section 7.2 of ASTM C33/C33M.
- Soundness, as determined in accordance with ASTM C88 using magnesium sulfate, shall be limited in accordance with Section 8.1 of ASTM C33/C33M.
- Alkali-silica reactivity shall be in accordance with Section 7.3 of ASTM C33/C33M. The expansion limit for the alkali-silica reaction for acceptance is 0.10% at sixteen (16) days utilizing the method of Appendix X1, Section X1.3.4 of ASTM C33/C33M,
- Specific gravity and absorption as determined in accordance with ASTM C128.

Submit Supplier's documentation of the fine aggregate in accordance with Section 4.1.6.1 of this document.

3.2.1.6.3 Supplier shall obtain and retain documentation of a petrographic examination of the fine aggregate performed in accordance with ASTM C295/C295M.

Submit Supplier's documentation of the petrographic examination of the fine aggregate in accordance with Section 4.1.6.2 of this document.

3.2.1.7 Coarse Aggregate

3.2.1.7.1 Supplier shall provide coarse aggregate that meets the requirements of ASTM C33/C33M or ASTM C637 as applicable for coarse aggregates.

3.2.1.7.2 Supplier shall obtain and retain documentation, such as laboratory test results, showing conformance to the grading requirements and limits for deleterious substances and physical property requirements of ASTM C33/C33M or ASTM C637 for coarse aggregates. The limit for clay lumps and friable particles, chert (less than 2.40 sp gr SSD), sum of clay lumps, friable particles, and chert (less than 2.40 sp gr SSD), material finer than 75 µm (no. 200) sieve, coal and lignite, abrasion and magnesium sulfate soundness (5 cycles) shall be for Class Designation 3M.

Additionally, the following information identified shall be provided on the documentation for the coarse aggregate.

- Bulk density and voids, as calculated in accordance with ASTM C29/C29M, shall be provided.
- Alkali-silica reactivity shall be in accordance with Section 11.2 of ASTM C33/C33M. The expansion limit for the alkali-silica reaction for acceptance is 0.10% at sixteen (16) days utilizing the method of Appendix X1, Section X1.3.4 of ASTM C33/C33M.
- The average expansion limits for the alkali-carbonate reaction is 0.015% at three (3) months and 0.025% at six (6) months utilizing the method of Appendix X1, Section X1.4.2 of ASTM C33/C33M.
- Specific Gravity and Absorption shall be in accordance with ASTM C127.
- Flat and elongated particles shall be in accordance with ASTM D4791.
- Results of Abrasion testing per shall be provided in accordance with ASTM C131 or ASTM C535.

Submit Supplier's documentation of the coarse aggregate in accordance with Section 4.1.7.1 of this document.

3.2.1.7.3 Supplier shall obtain and retain documentation of a petrographic examination of the coarse aggregate performed in accordance with ASTM C295/C295M.

Submit Supplier's documentation of the petrographic examination of the coarse aggregate in accordance with Section 4.1.7.2 of this document.

3.2.1.8 Water and Ice

3.2.1.8.1 Supplier shall provide potable water and ice generated from a potable water source. Potable water and ice generated from a potable water source do not require testing in accordance with ASTM C1602/C1602M.

Submit Supplier's Statement of Compliance for the Potable Water Source in accordance with Section 4.1.8.1 of this document.

3.2.1.8.2 If potable water or ice generated from a potable water source is not available, Supplier shall provide water and ice that meets the requirements of ASTM C1602/C1602M for mixing water. Supplier shall obtain and retain documentation, such as laboratory test results, showing conformance to the concrete performance requirements for mixing water.

Additionally, the optional chemical limits for combined mixing water identified shall be provided on the documentation for the water or ice.

- Chloride, as Cl, shall be limited to 1000 ppm as determined in accordance with ASTM C114.
- Sulfate, as SO_4, shall be limited to 3000 ppm as determined in accordance with ASTM C114.
- Alkalies, as $Na_2 + 0.658K_2O$, shall be limited to 600 ppm as determined in accordance with ASTM C114.

Submit the documentation for the water and ice in accordance with Section 4.1.8.2 of this document.

3.2.1.8.3 Water from concrete production operations shall not be used for batching production mixes.

3.2.1.9 Water Reducing Admixture (WRA)

3.2.1.9.1 Supplier shall provide water reducing admixture that meets the requirements of ASTM C494/C494M, Type A or D.

3.2.1.9.2 For each shipment received, Supplier shall obtain and retain documentation, such as laboratory test results or Manufacturer's Certification Reports, showing conformance to the physical requirements of ASTM C494/C494M. Documentation shall state the chloride content of the water reducing admixture and whether or not chloride has been added during the manufacture of the water reducing admixture.

Submit documentation for the water reducing admixture in accordance with Section 4.1.9.1 of this document.

3.2.1.10 High Range Water Reducing Admixture (HRWR)

3.2.1.10.1 Supplier shall provide high range water reducing admixture that meets the requirements of ASTM C494/C494M, Type F or G.

3.2.1.10.2 For each shipment received, Supplier shall obtain and retain documentation, such as laboratory test results or Manufacturer's Certification Reports, showing conformance to the physical requirements of ASTM C494/C494M. Documentation shall state the chloride content of the high range water reducing admixture and whether or not chloride has been added during the manufacture of the high range water reducing admixture.

Submit documentation for the high range water reducing admixture in accordance with Section 4.1.10.1 of this document.

3.2.1.11 Retarding Admixture (RA)

3.2.1.11.1 Supplier shall provide retarding admixture that meets the requirements of ASTM C494/C494M, Type B, D or G.

3.2.1.11.2 For each shipment received, Supplier shall obtain and retain documentation, such as laboratory test results or Manufacturer's Certification Reports, showing conformance to the physical requirements of ASTM C494/C494M. Documentation shall state the chloride content of the retarding admixture and whether or not chloride has been added during the manufacture of the retarding admixture.

Submit documentation for the retarding admixture in accordance with Section 4.1.11.1 of this document.

3.2.1.12 Synthetic Fiber Reinforcement

3.2.1.12.1 Fiber reinforcement shall be synthetic and shall be Fibermesh 300 as manufactured by Propex Concrete Systems, BASF F70/M70 Fibers, or approved equal.

3.2.1.12.2 Supplier shall obtain and retain documentation, such as manufacturer's material data sheets, showing conformance to the Type III requirements of ASTM C1116/C1116M.

Submit documentation for the synthetic fiber reinforcement in accordance with Section 4.1.12.1 of this document.

3.2.1.13 Synthetic Red Iron Oxide or Liquid Red Pigment

3.2.1.13.1 Supplier shall provide synthetic red iron oxide or Liquid Red Pigment.

3.2.1.13.2 Supplier shall obtain and retain documentation, such as manufacturer's material data sheets, showing composition of the synthetic red iron oxide or liquid red pigment.

Submit documentation for the synthetic red iron oxide or liquid red pigment in accordance with Section 4.1.13.1 of this document.

3.2.2 Design Mixes

3.2.2.1 General

3.2.2.1.1 Specific production mix requirements are identified by the production mix identifiers contained in Attachment 5.3 and within the Tables of Attachment 5.5. For design mix identifiers, the production mix identifiers shall be used.

3.2.2.1.2 When applicable, submittal of historical data or field test data meeting the requirements of Section 4 of ACI 301, for the class or classes of similar mixes which support the design mixes of Attachment 5.5, will be evaluated. Submittals shall be made after award for evaluation.

3.2.2.1.3 Concrete, grout or CLSM names, as used in this Section, are provided in the General Guide of the Table of Attachment 5.5.

3.2.2.1.4 For special projects at SRNS, submittal of design mixes by the Supplier, other than the production mixes of Attachment 5.5, shall be reviewed and approved by SRNS.

3.2.2.1.5 Supplier shall develop and qualify the concrete, grout and CLSM design mixes utilizing fine and coarse aggregate material components available locally near the point of production unless specified otherwise.

3.2.2.1.6 Design mixes that contain cementitious material, other than Portland Cement, shall be qualified individually.

3.2.2.1.7 When calculating the water-to-cement ratio, the total weight of cement equals the weight of the Portland Cement plus the weight of the additional cementitious material.

3.2.2.1.8 All concrete, grout and CLSM design mixes shall be tested at a temperature within ten(10) degrees Fahrenheit of the maximum value of the allowable temperature range at the point of delivery.

3.2.2.1.9 For design mixes not containing pozzolan(s) and testing of the design mixes performed in accordance with Section 4 of ACI 301, the minimum compressive strength, f_c', at twenty-eight (28) days shall be determined in accordance with ASTM C39/C39M and shall be met.

3.2.2.1.10 For design mixes containing pozzolan(s) and testing of the design mixes performed in accordance with Section 4 of ACI 301, the minimum compressive strength, f_c', at twenty-eight (28) days shall be determined in accordance with ASTM C39/C39M and shall be met. In addition, the minimum compressive strength, f_{c90}', at ninety (90) days shall be determined in accordance with ASTM C39/C39M and shall be provided for information.

3.2.2.1.11 All concrete, grout and CLSM design mixes shall be designed and proportioned to allow for pumping of the design mixes in accordance with ACI 304.2R. Pump cells to be used for designing, proportioning and testing shall be comparable to Putzmeister Boom Pump Models 24Z, 28Z, 32Z, 36Z, 38Z and 52Z.

3.2.2.1.12 Subsequent to contract award, all initial design mixes shall be submitted to SRNS for review and acceptance. Submittal of the initial design mixes and any subsequent design mix submittals shall include the following for each design mix:

- Dry weights of the cementitious materials.
- Saturated dry surface weights of the fine and coarse aggregates.
- Quantities of material components in the Table of Attachment 5.5.
- Documentation associated with the material components as outlined in Section 3.2.1 of this Specification.
- Compressive strength test data used to develop the design mix.
- Air content.
- Slump or flow as required.
- Record set times for Regular and Extended Range design mixes

Upon acceptance of a design mix by SRNS, the design mix shall be considered a production mix.

3.2.2.1.13 Adjustments to the production mixes shall not be made without prior approval of SRNS. If an adjustment to a production mix is required, the production mix shall be deemed a design mix and re-qualification in accordance with this document is required. The design mix shall be resubmitted to SRNS for acceptance.

3.2.2.1.14 The material components of a production mix shall not be changed without prior approval of SRNS. If a change in a material component of a production mix is required, the production mix shall be deemed a revised design mix and re-qualification in accordance with this document is required. The design mix shall be resubmitted to SRNS for acceptance.

3.2.2.1.15 The source of material components shall not be changed without prior approval of SRNS. If a change in the source of a material component is required, the production mix shall be deemed a revised design mix and re-qualification in accordance with this document is required. The design mix shall be resubmitted to SRNS for acceptance.

3.2.2.2 Concrete

3.2.2.2.1 Regular concrete design mixes are non-retarded.

3.2.2.2.2 Extended set concrete design mixes are retarded.

3.2.2.2.3 Concrete and extended set concrete design mixes, at the request of the Supplier and concurrence of SRNS, may have Portland Cement substituted with cementitious material.

3.2.2.2.4 All concrete design mixes shall be designed, proportioned and tested in accordance with ACI 211.1 and Section 4 of ACI 301.

3.2.2.2.5 All extended set concrete design mixes shall be designed, proportioned and tested in accordance with ACI 211.1 and Section 4 of ACI 301. In addition to the required testing in ACI 211.1 and Section 4 of ACI 301, the extended set concrete design mixes shall be tested in accordance with ACI 211.1 and Section 4 of ACI 301 at a discharge time of one hundred and

eighty (180) minutes. The extended set concrete design mixes shall be initially mixed and then agitated until the discharge time is reached.

3.2.2.2.6 The total air content of each of the concrete and extended set concrete design mixes shall be within the limits of three (3) to six (6) percent of the concrete or the extended set concrete volume. Shielding concrete and extended set shielding concrete design mixes do not contain AEA and are exempt from the total air content requirements of this document.

3.2.2.2.7 Shielding concrete and extended set shielding concrete design mixes shall have a maximum water-to-cementitious material ratio of 0.45.

3.2.2.2.8 Shielding concrete and extended set shielding concrete design mixes shall have a minimum dry unit weight of one hundred and forty-seven (147) pounds per cubic foot. The procedure for determining the dry unit weight of the shielding concrete and the extended set shielding concrete design mixes shall be based on a standard seven (7) day laboratory cured cylinder, oven dried for twenty-four (24) hours at a temperature of two hundred and twenty-one (221) to two hundred and thirty (230) degrees Fahrenheit and allowed to cool in conditioned dry air to a temperature of sixty (60) to seventy-seven (77) degrees Fahrenheit. For design mix submittals, testing to determine the dry unit weight of the shielding concrete and extended set shielding concrete design mixes shall be performed by the Supplier and the results shall be submitted to SRNS. In order to verify that the minimum dry unit weight requirement for the shielding concrete and extended set shielding concrete is met during production, SRNS may perform a check test for dry unit weight.

Submit dry unit weight results for the shielding concrete and extended set shielding concrete design mixes.

3.2.2.2.9 Low shrinkage concrete and extended set low shrinkage concrete design mixes shall have a maximum water-to-cementitious material ratio of 0.38.

3.2.2.2.10 Low shrinkage concrete and extended set low shrinkage concrete design mixes shall have a minimum unit weight of one hundred and thirty (130) pounds per cubic foot. Unit weight of the low shrinkage concrete and the extended set low shrinkage concrete design mixes shall be determined in accordance with ASTM C138/C138M. For design mix submittals, testing to determine the unit weight of the low shrinkage concrete and extended set low shrinkage concrete design mixes shall be performed by the Supplier and the results shall be submitted to SRNS. In order to verify that the unit weight requirement for the low shrinkage concrete and extended set low shrinkage concrete design mixes is met during production, SRNS may performed a check test for unit weight.

Submit unit weight results for the low shrinkage concrete and extended set low shrinkage concrete design mixes.

3.2.2.2.11 Non-structural and structural red dye concrete design mixes for electrical duct banks shall be colored red by mixing synthetic iron oxide at twenty (20) to thirty (30) pounds per cubic yard of the design mix. Liquid injection dye infused at a rate specified by the manufacturer may be used in lieu of synthetic iron oxide powder.

3.2.2.2.12 Non-structural fibermesh concrete design mix shall have the synthetic fiber reinforcement added at the rate of one and a half (1.5) pounds per cubic yard of the design mix. Fibermesh shall be incorporated into the design mix in accordance with the manufacturer's written instructions. Acceptance of the non-structural fibermesh concrete design mix shall be based upon compressive strength and other salient properties. Post-crack flexural performance and flexural strength are not considered salient properties for the identified use of this design mix.

3.2.2.2.13 Production concrete mixes, except those containing red dye, may be batched without water for delivery for use in non-structural work and disposal by environmental encapsulation. When inclusion of latex paint rinse water or other neutralizing (non-hazardous) wastewater is stipulated, the following shall apply:

- Concrete produced shall be used only where no structural requirements are placed on the concrete.

- No air entrainment is required.
- No testing is required.
- Any requirement listed in this document does not apply after delivery.
- Amount of water added to be the sole responsibility of the CORE.

3.2.2.3 Grout

3.2.2.3.1 Regular grout design mixes are non-retarded.

3.2.2.3.2 Extended set grout design mixes are retarded.

3.2.2.3.3 Grout and extended set grout design mixes, at the request of the Supplier and concurrence of SRNS, may have Portland Cement substituted with cementitious material.

3.2.2.3.4 All grout design mixes shall be designed, proportioned and tested in accordance with Section 4 of ACI 301 with the exception of the coarse aggregate. No coarse aggregate shall be used.

3.2.2.3.5 All extended set grout design mixes shall be designed, proportioned and tested in accordance with Section 4 of ACI 301 with the exception of the coarse aggregate. No coarse aggregate shall be used. In addition to the required testing in Section 4 of ACI 301, the extended set grout design mixes shall be tested in accordance with Section 4 of ACI 301 at a discharge time of one hundred and eighty (180) minutes. The extended set grout design mixes shall be initially mixed and then agitated until the discharge time is reached.

3.2.2.3.6 The total air content of each of the grout and extended set grout design mixes shall be within the limits of three (3) to six (6) percent of the grout or extended set grout volume.

3.2.2.3.7 Low shrinkage grout and extended set low shrinkage grout design mixes shall have a maximum water-to-cementitious material ratio of 0.38.

3.2.2.3.8 Low shrinkage grout and extended set low shrinkage grout design mixes shall have a minimum unit weight of one hundred and thirty (130) pounds per cubic foot. Unit weight of the low shrinkage grout and the extended set low shrinkage grout design mixes shall be determined in accordance with ASTM C138/C138M. For design mix submittals, testing to determine the unit weight of the low shrinkage grout and extended set low shrinkage grout design mixes shall be performed by the Supplier and the results submitted to SRNS. In order to verify that the unit weight requirement for the low shrinkage grout and extended set low shrinkage grout design mixes is met during production, SRNS may perform a check test for unit weight.

Submit unit weight results for the low shrinkage grout and extended set low shrinkage grout design mixes.

3.2.2.4 Controlled Low Strength Material (CLSM)

3.2.2.4.1 All CLSM design mixes shall be designed and proportioned in accordance with Chapter 5 of ACI 229R.

3.2.2.4.2 Material component batching of CLSM shall be per ASTM C94/C94M, Section 9.1, except the order of weighing cement before pozzolan may be reversed.

3.2.2.4.3 The CLSM shall have a twenty-eight (28) day compressive strength of thirty (30) to one hundred and fifty (150) psi. In place wet density is in the range of 115 to 145 pcf after the material has set.

3.2.2.4.4 The water content of as-placed CLSM shall be between sixty (60) and sixty-six (66) gallons per cubic yard unless noted otherwise by the engineer. Batches of CLSM may be produced by the Supplier with less water provided it is adjusted at the point of delivery to meet these requirements. Water addition at the point of delivery shall be done within one hundred and five (105) minutes, prior to any discharge and shall be mixed by a minimum of thirty (30) drum revolutions. Any water added to the batch at the point of delivery shall be recorded on the batch ticket.

3.2.2.4.5 Slump Flow and Flow Consistency testing will be performed per ASTM C1611/C1611M. Testing values will be recorded for information purposes.

3.2.2.5 Structural Flowable Fill Zero Bleed Concrete

3.2.2.5.1 The initial Structural Flowable Fill Zero Bleed Concrete Mix shall be provided as described in Attachment 5.5, Table 3.

3.2.2.5.2 Material component batching of Structural Flowable Fill Zero Bleed Concrete shall be per ASTM C94/C94M, Section 9.1, except the order of weighing cement before pozzolan may be reversed.

3.2.2.5.3 High Range Water Reducing Admixture (HRWR) will be provided per the manufacturer's written instructions. Additional HRWR may be added by the CORE at the point of delivery to meet the working range requirements at the point of discharge,

3.2.2.5.4 The Structural Flowable Fill Zero Bleed Concrete shall have a twenty-eight (28) day minimum compressive strength of fifty (50) psi.

3.2.3 Production Mix Identifier

3.2.3.1 An example of the production mix identifier is provided in Attachment 5.3.

3.2.3.2 The unique production mix identifier assigned to each production mix shall be used on all documentation when orders are made to the production facility.

3.3 Service Conditions

3.3.1 Perform all work in compliance with CFR 29, Part 1926 (OSHA) Standards.

3.3.2 Certain facilities and areas at SRNS require Area Specific Training for personnel access. This training shall be conducted as necessary. Any production concrete, grout or CLSM dispatched to the point of delivery with drivers not meeting the training requirements may be rejected by SRNS, CENTERRA-SRS or the CORE.

3.4 Fabrication and Assembly Requirements

Not Used

3.5 Installation Requirements

Not Used

3.6 Quality Requirements

3.6.1 SRNS Surveillance

3.6.1.1 All mix component and production facilities may be subject to inspection by SRNS. The Supplier shall cooperate with SRNS or its representative by providing reasonable access for making necessary checks of the production facilities and for obtaining mix component samples.

3.6.1.2 SRNS, at its option, may review production quality records at the Suppliers facilities in accordance with this document.

3.6.1.3 SRNS, at its option, may witness production testing at the point of delivery or placement site in accordance with this document.

3.6.1.4 SRNS, at its option, may sample fresh concrete and test it at the point of delivery or placement site in accordance with this document.

3.6.1.5 SRNS, at its option, may sample fresh concrete and test it during the design of the concrete, grout or CLSM mixes in accordance with this document. The Supplier shall provide prior notification to SRNS of the design batches. This notification shall be, at a minimum, five (5) days prior to design batching.

3.6.1.6 SRNS may increase or decrease the testing frequencies of the production concrete, grout or CLSM as it sees fit for SRNS surveillances. Neither an increased nor decreased testing frequency affects the basis for rejection described in this document.

3.6.2 Quality Assurance Program

3.6.2.1 Documented Program

3.6.2.2 Address the elements identified in Attachment 5.6.

3.6.3 Supplier Records

3.6.3.1 Retain the following documents and records generated in association with this document.

- Contract documents, including this document and associated Supplier Deviation Disposition Requests (SDDR)
- Engineering documentation submittals
- Documents identified in this document as retained records.
- Any document generated in association with this document (e.g. procedures, reports, certifications, qualifications, letters, etc.) not required as a submittal.

3.6.3.2 Supplier shall retain records for a minimum of one (1) year beyond the closure of the contract.

3.6.3.3 Supplier shall provide retained records to SRNS upon request.

3.6.3.4 Supplier may dispose of retained records after the retention period.

3.6.4 Testing Laboratories

3.6.4.1 Supplier shall design or procure the services of a testing laboratory for designing of the ready-mixed concrete, grout and CLSM mixes. Mix Design testing will be performed in a laboratory that conforms to ASTM E329 and ASTM C1077.

Submit documentation for the testing laboratory showing compliance with ASTM E329 and ASTM C1077.

3.6.4.2 CORE will procure, as required, the services of a testing laboratory for production testing of ready-mixed concrete, grout and CLSM mixes. The testing laboratory shall conform to ASTM E329 and ASTM C1077, or be approved by SRNS. Documents shall be submitted in accordance with the requirements identified in Section 4.3 and Section 4.4 of this document. CORE will provide compressive strength data to SRNS or SRNS representative for historical strength data.

3.6.4.2.1 Should SRNS be required to upgrade the production mix through an internal process, the CORE will be responsible to perform additional testing on the fine and coarse aggregates. Sieve Analysis testing per ASTM C33 will be performed within one week of placement and Moisture Content Determinations per ASTM C566 will be performed the day of the placement.

3.6.4.3 SRNS will procure, as required, the services of a testing laboratory for surveillance and audit testing of design and production ready-mixed concrete, grout, CLSM and mix components for designing of the ready-mixed concrete, grout and CLSM mixes. The testing laboratory shall conform to ASTM E329 and ASTM C1077, or be approved by SRNS.

3.7 SRNS Furnished Material, Equipment, and Services

Not Used

3.8 Schedule

3.8.1 Provide the production concrete, grout and CLSM with a notice of order to the Supplier based on the following criteria as a guide:

- For orders of less than one hundred (100) Cubic Yards – Minimum of twelve (12) hours notification.

- For orders of one hundred (100) Cubic Yards or greater – Minimum of one (1) week notification.
- For any placements that SRNS intends to upgrade to Safety Class through an internal process – Minimum of (1) week notification.

3.9 Personnel Qualifications/Certifications

Not Used

3.10 Deliverables and Submittals

3.10.1 Deliverable

3.10.1.1 Deliver to the CORE, at the point of delivery, production concrete, grout or CLSM as defined in the purchase order.

3.10.1.2 Deliver to the CORE, at the point of delivery, a batch ticket with each delivery in accordance with this document.

3.10.2 Submittals

3.10.2.1 Reference the following information on transmittals, submittals, and other correspondence:

Date of transmittal,
Sequence page number and total number of pages on each page,
Subcontractor Name,
SRNS Purchase Order No.: _____ (Defined on Award)
Project Number: No.: _____ (Defined on Award)
SRNS Project Title: _____ (Defined on Award)
Supplier's Order No.: _____

3.10.2.2 Provide documentation in unprotected Adobe Acrobat - Portable Document Format (PDF), unless specifically directed otherwise by the STR or CORE.

3.10.2.2.1 Use the latest version available at time of subcontract award.

3.10.2.2.2 Files shall print legibly on 8.5 inch by 11 inch, 11 inch by 17 inch, or 22 inch by 34 inch.

3.10.2.2.3 Title for PDF file: "SRS PO ..."

- Append the SRS PO number to end of file name.
- No symbols such as "&" or "," (comma) can be in the pdf file name.

3.10.2.2.4 Include only 1 PO related information per email.

- Do not send in multiple PO numbers in a single email.
- Each email is converted to a single vendor package number and assigned to one PO number.

3.10.2.2.5 Only pdfs will be accepted by the email account noted below.

- Excel, Word, Cadd and Tiff formatted files cannot be received.
- Multiple PDF files related to identified SRS PO(s) are acceptable.

3.10.2.2.6 Zip files

- Folders within a zip file are unacceptable.

3.10.2.2.7 Maximum email size limit: 30 megabytes

3.10.2.2.8 Verify each file is virus free.

3.10.2.3 Provide formal transmittal of documentation in Adobe Acrobat Portable Document Format (PDF) attached to an email (unless directed otherwise) sent to vendordocuments@srs.gov for:

- EDR submittals,
- Supplier Deviation Disposition Request forms.

3.10.2.4 When paper copies or CADD drawing files are required, transmit as follows:

3.10.2.4.1 Address transmittals, EDR submittals, and SDDR correspondence to:

Savannah River Nuclear Solutions
Document Control Center, Bldg. 704-1N
SRNS Purchase Order No.: _____ (Defined on Award)
Project Number: No.: _____ (Defined on Award)
Aiken, SC 29808
Attention: _____ (Defined on Award)

3.10.2.5 Address a copy of transmittal letters and other correspondence to:

Savannah River Nuclear Solutions
Building 730-4B
SRNS Purchase Order No.: _____ (Defined on Award)
Project Number: No.: _____ (Defined on Award)
Aiken, SC 29808
Attention: _____ (Procurement Representative)

3.10.3 QVDR submittals

3.10.3.1 Submit Quality Verification Documents as indicated. (Attachment 5.2)

3.10.4 EDR submittals

3.10.4.1 Submit Engineering Documents. (Attachment 5.1)

3.10.4.2 SRNS review will result in a status as follows:

Status 1: Work may proceed
Status 2: Submit final documentation
Work may proceed
Status 3: Revise and re-submit
Work may proceed subject to resolution of indicated comments
Status 4: Revise and re-submit
Work may not proceed
Status 5: Permission to proceed not required

3.10.4.3 Results of SRNS review returned within twenty (20) working days from the date of receipt.

3.10.4.4 Revise documents with a status of 2, 3 or 4 to incorporate SRNS comments.

3.10.4.5 Submit revised documents within fifteen (15) calendar days from the date of Supplier receipt.

3.10.4.6 Notify SRNS prior to changing Status 1 or Status 5 Engineering Documents.

3.10.4.7 Assignment of Status 1 or Status 5 to the Engineering Documents by SRNS shall not relieve the Supplier of any of their obligation:

- To meet the requirements defined in this document.
- For the correctness of such Engineering Documents.
- For the adequacy and suitability of material and equipment represented.

3.11 Packaging, Handling, Shipping, and Storage Requirements

3.11.1 Supplier Standards are acceptable for packaging, handling, shipping and storage for the material components associated with this document.

3.12 Marking and Identification Requirements

Not Used

3.13 Deviations

3.13.1 Supplier Deviation Disposition Request (SDDR) Preparation

3.13.1.1 Prepare a SDDR for each Supplier proposed deviation from the requirements of this document

- Applies to proposed deviations after award of contract.

3.13.2 Perform the following for each deviation:

- Identify the specification and revision number.
- Identify the criteria that cannot be met by item and specification section number.
- Present an explanation for the deviation.
- Present a proposal for resolution of the deviation.
- Present a price and schedule adjustment for the proposed resolution of the deviation.
- Do not perform any work on or make delivery of any item for which an SDDR is submitted until written disposition of the SDDR is received from SRNS.
- Submit SDDR to SRNS for disposition.

3.13.3 Nonconformance

- Identify on a SDDR.
- Include supporting technical justification when requesting acceptance of a "Use-As-Is" or "Repair" disposition.

4.0 ACCEPTANCE OF ITEMS

4.1 Initial Examination/Testing of Material Components for Design Mixes

4.1.1 Portland Cement

4.1.1.1 For each shipment received, submit Manufacturer’s Certificate for the standard composition requirements and standard physical requirements for each source of Portland Cement used.

4.1.2 Air-Entraining Admixture (AEA)

4.1.2.1 Submit documentation for the physical requirements and chloride content for each source of air-entraining admixture used.

4.1.3 Fly Ash

4.1.3.1 For each shipment received, submit documentation for the chemical requirements and physical requirements for each source of fly ash used.

4.1.4 Slag: THIS SECTION IS RESERVED

4.1.5 Silica Fume: THIS SECTION IS RESERVED

4.1.6 Fine Aggregate

4.1.6.1 Submit documentation for the grading requirements and limits for deleterious substances of ASTM C33/C33M for fine aggregates for each source of fine aggregate used.

4.1.6.2 Submit documentation for the petrographic examination of the fine aggregate for each source of fine aggregate used.

4.1.7 Coarse Aggregate

4.1.7.1 Submit documentation for the grading requirements and limits for deleterious substances and physical property requirements of ASTM C33/C33M for coarse aggregates for each source of coarse aggregate used.

4.1.7.2 Submit documentation for the petrographic examination of the coarse aggregate for each source of coarse aggregate used.

4.1.8 Water and Ice

4.1.8.1 Submit documentation that water and ice used in the mix is from a potable source.

4.1.8.2 Submit documentation for non-potable water and ice generated from a non-potable water source for each source of water and ice used.

4.1.9 Water Reducing Admixture (WRA)

4.1.9.1 Submit documentation for the physical requirements and chloride content for each source of water reducing admixture used.

4.1.10 High Range Water Reducing Admixture (HRWR)

4.1.10.1 Submit documentation for the physical requirements and chloride content for each source of high range water reducing admixture used.

4.1.11 Retarding Admixture (RA)

4.1.11.1 Submit documentation for the physical requirements and chloride content for each source of retarding admixture used.

4.1.12 Synthetic Fiber Reinforcement

4.1.12.1 Submit documentation for each source of synthetic fiber reinforcement.

4.1.13 Synthetic Red Iron Oxide or Liquid Red Pigment

4.1.13.1 Submit documentation for each source of synthetic red iron oxide.

4.2 Production Examination/Testing of Aggregates for Production Mixes and Frequency

4.2.1 Fine Aggregate

4.2.1.1 Moisture content shall be determined in accordance with ASTM C566 daily prior to production. Additional testing may be performed as the condition of the stockpiles change.

4.2.1.2 Gradation shall be determined in accordance with ASTM C136 every week during production.

If the aggregate sampled for gradation and material finer than #200 sieve tests are not within the specification limits, two additional samples shall be obtained from the same location and tested. If both of the retest samples are within specification limits, the aggregate is acceptable. If either or both of the retest samples are outside the specification limits, the three test results shall be averaged. This test result shall be averaged with the previous five aggregate test results. If the average of the six tests is within specification limits, the remaining aggregate is acceptable.
If the average of the six tests is outside the specification limits, the remaining aggregate shall be adjusted to bring the aggregate within limits or the aggregate shall be rejected. If the aggregate sampled for the other quality control tests is outside the specification limits, two additional aggregate samples shall be obtained from the same location and tested. If both samples are within the specification limits, the aggregate is acceptable.

4.2.1.3 Fineness modulus shall be determined in accordance with ASTM C136 every week.

4.2.1.4 Percentage of clay lumps and friable particles shall be determined in accordance with ASTM C142 every six (6) months.

4.2.1.5 Amount of material finer than 75-μm shall be determined in accordance with ASTM C117 every week.

4.2.1.6 Presence of organic impurities shall be determined in accordance with ASTM C40 every six (6) months.

4.2.1.7 Specific Gravity and Absorption shall be determined in accordance with ASTM C128 every six (6) months.

4.2.2 Coarse Aggregate

4.2.2.1 Moisture content shall be determined in accordance with ASTM C566 each day.

4.2.2.2 Gradation shall be determined in accordance with ASTM C136 each week.

If the aggregate sampled for gradation and material finer than #200 sieve tests are not within the specification limits, two additional samples shall be obtained from the same location and tested. If both of the retest samples are within specification limits, the aggregate is acceptable. If either or both of the retest samples are outside the specification limits, the three test results shall be averaged. This test result shall be averaged with the previous five aggregate test results. If the average of the six tests is within specification limits, the remaining aggregate is acceptable. If the average of the six tests is outside the specification limits, the remaining aggregate shall be adjusted to bring the aggregate within limits or the aggregate shall be rejected. If the aggregate sampled for the other quality control tests is outside the specification limits, two additional aggregate samples shall be obtained from the same location and tested. If both samples are within the specification limits, the aggregate is acceptable.

4.2.2.3 Percentage of clay lumps and friable particles shall be determined in accordance with ASTM C142 every six (6) months.

4.2.2.4 Amount of material finer than 75-μm shall be determined in accordance with ASTM C117 every week.

4.2.2.5 Specific Gravity and Absorption shall be determined in accordance with ASTM C127 every six (6) months.

4.2.2.6 Standard testing for flat and elongated particles shall be determined in accordance with ASTM D4791 every six (6) months.

4.2.2.7 Abrasion testing per shall be performed per ASTM C131 or ASTM C535 every six (6) months.

4.3 Initial Inspection and Acceptance of Production Mixes

4.3.1 The initial inspection and acceptance requirements of the production mixes received by the CORE under this document are as follows:

- Water shall be added to the truck mixer (truck mixer or truck mixer acting as an agitator) only at the direction of the CORE provided the added water does not exceed the water-to-cementitious material ratio for the production mix. The CORE shall record on the batch ticket any water added to the truck mixer. The CORE shall ensure that the Supplier's representative has reviewed the batch ticket for the amount of water added and the CORE representative has initialed the batch ticket.
- The slump at the truck discharge for production concrete mixes shall be within the "working range" as shown in Attachment 5.5. Acceptance slump test(s) shall be performed in accordance with the testing frequencies and requirements for the slump test(s) per Attachment 5.4.

  Informational slump test(s) may be taken from the top of any batch at the discretion of the CORE in order to determine the delivered slump of the production concrete mix. If the delivered slump indicates a slump below the maximum working range and the batch ticket indicates water can be added (not to exceed water-to-cementitious material ratio), water may be added at the discretion of the CORE. Prior to discharge of the batch, an additional informational slump test shall be performed to ensure that the slump is within the working range or an acceptance slump test may be performed of the production concrete mix at the discretion of the CORE.
- Discharge of the production concrete mixes shall be completed within ninety (90) minutes or before the drum has revolved three hundred (300) revolutions, whichever comes first. These limits may be exceeded up to 10% provided the production concrete mix is of such slump that it can be placed without the addition of water to the batch. Batches exceeding these limits shall be rejected.

Discharge of the production grout mixes shall be completed within ninety (90) minutes or before the drum has revolved three hundred (300) revolutions, whichever comes first. These limits may be exceeded up to 10% provided the production grout mix can be placed without the addition of water to the batch. Batches exceeding these limits shall be rejected.

Discharge of the production extended set concrete shall be completed within one hundred and eighty (180) minutes or before the drum has revolved four hundred (400) revolutions, whichever comes first. Batches exceeding the time limit shall be rejected. The drum revolution limit may be exceeded as necessary but every effort should be made to minimize the number of revolutions.

Discharge of the production extended set grout shall be completed within one hundred and eighty (180) minutes or before the drum has revolved four hundred (400) revolutions, whichever comes first. Batches exceeding the time limit shall be rejected. The drum revolution limit may be exceeded as necessary but every effort should be made to minimize the number of revolutions.

The CORE shall record the discharge completion time and number of drum revolutions from the drum revolution counter at the completion time of discharge on the batch ticket. The CORE shall also record the total time (start of mixing time to the discharge completion time) plus the total number of drum revolutions and record this information on the batch ticket(s).

- Discharge of the production CLSM shall be completed within ninety (90) minutes. The time limit may be exceeded up to 10% providing the production CLSM is sufficiently flowing to facilitate its placement. Batches exceeding the time limit shall be rejected.
- The batch ticket(s) shall be reviewed and accepted by the CORE at the point of delivery.
- The CORE is required to ensure that the production concrete, grout or CLSM is in accordance with the requirements outlined in this document.
- The CORE shall ensure that the inspection and testing requirements outlined in Section 4.4 of this document are performed.

4.3.2 The batch ticket(s) accepted by the CORE shall be provided to SRNS or SRNS representative.

4.3.3 Production concrete, grout or CLSM rejected due to Supplier's error shall be returned to the Supplier's facility for disposal. The Supplier will not be compensated for rejected concrete, grout or CLSM.

4.3.4 Production concrete, grout or CLSM rejected due an error by the CORE shall be disposed of at the Supplier’s facility.

4.3.5 Excess production concrete, grout or CLSM shall be disposed of at the Supplier’s facility.

4.3.6 Washing of chutes shall be in a designated area at the point of delivery site. All mixer drums shall be washed and cleaned at the production facility.

4.4 Inspection/Testing Requirements for Production Mixes

4.4.1 Unless otherwise directed by design documents, inspection and testing of production concrete, grout and CLSM mixes shall be in accordance with Attachment 5.4 of this document and be performed at the point of delivery. If pumping is used for placement of the concrete, grout or CLSM mixes, additional inspection and testing shall be performed at the point of placement in accordance with Attachment 5.4.

4.4.2 The CORE may increase the testing frequencies of the production concrete, grout or CLSM mixes as it sees fit. An increased testing frequency affects the basis for rejection described in this document.

4.4.3 If the temperature of a production concrete, grout or CLSM batch falls outside the specified limits of this document, a check test will be made immediately on another portion of the same sample. In the event of a second failure, the production concrete, grout or CLSM batch shall be considered to have failed the requirements of this document and shall be rejected.

4.4.4 If the slump of a production concrete batch falls outside the specified limits of this document, a check test will be made immediately on another portion of the same sample. In the event of a second failure, the production concrete batch shall be considered to have failed the requirements of this document and shall be rejected.

4.4.5 If the flow of a production CLSM batch falls outside the specified limits of this document, a check test will be made immediately on another portion of the same sample. In the event of a second failure, the production CLSM batch shall be considered to have failed the requirements of this document and shall be rejected.

4.4.6 The total air content of a production concrete or grout batch shall be within the specified limits of this document with an inadvertency allowance of one (1) percent above or below these limits provided prompt corrective action is taken to bring the air content within the specified limits for subsequent trucks.

4.4.7 Compressive strength cylinders shall be cast of each production concrete and CLSM mix delivered in any continuous twenty-four (24) hour period (day) to SRS under the requirements of this document as provided in Attachment 5.4.

4.4.8 Compressive strength cubes shall be cast of each production grout mix delivered in any continuous twenty-four (24) hour period (day) to SRS under the requirements of this document as provided in Attachment 5.4. Testing of the production grout mix for compressive strength in accordance with ASTM C109/C109M does not require flow tests and the production grout mix shall be flowed into the compressive strength cubes. Consolidation of the production grout mix in the compressive strength cubes shall be by hand tamping the cube mold or by a qualified alternate method.

4.4.9 If compressive strength cylinders, six (6) inch in diameter by twelve (12) inch in length, are to be used for compressive strength testing, five (5) compressive strength cylinders shall be cast. One (1) cylinder shall be tested at seven (7) days, two (2) cylinders at twenty-eight (28) days and two (2) cylinders placed on “hold”. If early compressive strength requires verification, one (1) additional cylinder shall be cast to ensure strength test requirements are met. If the twenty-eight (28) day compressive strength test meets the design requirements, the “hold” cylinders may be discarded unless required for testing at ninety (90) days due to the production concrete or CLSM mix containing pozzolan. Note: Consideration should be given to request additional cylinders for the purpose of information breaks and for extra cylinders of mixes containing pozzolan.

4.4.10 If compressive strength cylinders, four (4) inch in diameter by eight (8) inch in length, are to be used for compressive strength testing, seven (7) compressive strength cylinders shall be cast. One (1) cylinder shall be tested at seven (7) days, three (3) cylinders at twenty-eight (28) days and three (3) cylinders placed on “hold”. If early compressive strength requires verification, two (2) additional cylinders shall be cast to ensure strength test requirements. If the twenty-eight (28) day compressive strength test meets the design requirements, the “hold” cylinders may be discarded unless required for testing at ninety (90) days due to the production concrete or CLSM mix containing pozzolan. . Note: Consideration should be given to request additional cylinders for the purpose of information breaks and for extra cylinders of mixes containing pozzolan.

4.4.11 For compressive strength cubes, two (2) inch by two (2) inch by two (2) inch, nine (9) compressive strength cubes shall be cast. Three (3) cubes shall be tested at seven (7) days, three (3) cubes shall be tested at twenty-eight (28) days and three (3) cubes shall be placed on “hold”. If early compressive strength requires verification, three (3) additional cubes shall be cast to ensure strength test requirements. If the twenty-eight (28) day compressive strength test meets the design requirements, the “hold” cubes may be discarded unless required for testing at ninety (90) days due to the production grout mix containing pozzolan. . Note: Consideration should be given to request additional cubes for the purpose of information breaks and for extra cylinders of mixes containing pozzolan.

4.4.12 For production concrete, grout and CLSM mixes containing pozzolan, the “hold” compressive strength cylinders/cubes shall be maintained and tested at ninety (90) days.

4.4.13 Compressive strength test breaks for production concrete and CLSM mixes shall be performed within the permissible test age tolerance provided in ASTM C39/C39M.

4.4.14 Compressive strength test breaks for production grout mixes shall be performed within the permissible test age tolerance provided in ASTM C109/C109M. Ninety (90) day compressive strength test breaks shall be performed with a permissible tolerance of ±2 days.

4.4.15 Compressive strength tests utilizing cylinders or cubes shall be evaluated in accordance with ASTM C94/C94M by the CORE. The number of compressive strength cylinders utilized in a compressive strength test shall be based upon the size of the compressive strength cylinders. The Supplier shall provide support to the CORE in determining the cause of questionable production concrete, grout or CLSM. If it is determined that the production concrete, grout or CLSM was not in accordance with this document, measures such as drilling, non-destructive testing, repair of defective material or other corrective action as determined by the CORE shall be at the Supplier's expense.

4.4.16 Production concrete, grout or CLSM yield checks shall be made as described in Attachment 5.4 by the CORE in order to check the quantity of production concrete, grout or CLSM shown on the Supplier's batch ticket(s) is the actual quantity of production concrete, grout or CLSM received. If the production concrete, grout or CLSM, checked by the CORE based on methods prescribed by ASTM C138, does not agree with the Supplier's batch ticket(s), payment will be made for actual cubic yards by volume that were received for that particular delivery. The Supplier shall have the prerogative to review and verify a placement volume.

4.5 Final Acceptance of Production Mixes

4.5.1 The CORE shall provide batch ticket(s), inspection report(s), and test result(s) outlined in this document for final acceptance by SRNS.

5.0 ATTACHMENTS

5.1 Engineering Document Requirements (2 Pages)

5.2 Quality Verification Document Requirements (4 Pages)

5.3 Production Concrete/Grout/CLSM Mix Identification Number (1 Page)

5.4 Inspection and Testing of Production Concrete/Grout/CLSM (2 Pages)

5.5 Production Concrete/Grout/CLSM Mix Components (4 Pages)

5.6 Supplier Quality Assurance Program Requirements (1 Page)

Engineering Document Requirements

Attachment No. 5.1
Revision No. 3
Spec/Req'n No. C-SPS-G-00096

1. Document Category Number	2. Specification Paragraph Reference	3. Document Description	4. Permission to Proceed Required		5. Submittal Schedule	6. Quantity Required		7. Kind of copies	8. Remarks
			Yes	No		Initial	Final		
13.0	3.1.1.1	NRMCA Certification for Production Facilities	X		Subsequent Certifications	2	1	Repro	
13.0	3.1.1.1	Accuracy Checks for Production Facilities	X		Subsequent Accuracy Checks	2	1	Repro	
13.0	3.1.2.1	NRMCA Certification for Transporting Equipment	X		Subsequent Certifications	2	1	Repro	
8.0	3.2.2.1.2	Historical Data or Field Test Data of Similar Mixes	X		After Award	2	1	Repro	
8.0	3.2.2.1.12	Design Mixes	X		40 Days after Award for Initial and 2 Weeks after Completion of Testing for Subsequent	2	1	Repro	
10.1	3.2.2.2.8	Shielding Concrete Dry Unit Weight Test Results	X		2 Weeks after Completion of Testing	2	1	Repro	
10.1	3.2.2.2.10	Low Shrinkage Concrete and Extended Set Low Shrinkage Concrete Unit Weight Test Results	X		2 Weeks after Completion of Testing	2	1	Repro	
10.1	3.2.2.3.8	Low Shrinkage Grout and Extended Set Low Shrinkage Grout Unit Weight Test Results	X		2 Weeks after Completion of Testing	2	1	Repro	
28.0	3.6.4.1	Document Compliance with ASTM E329/C1077 for the Supplier's Testing Laboratory	X		45 Days after Award	2	1	Repro	

Engineering Document Requirements Form Instructions

Purpose The Engineering Document Requirements (EDR) form is prepared by the originator, establishes a basis for actions required of a Supplier and provides the schedule for the submittal of engineering documents by the Supplier.

Legend Entry No. **Information Required**

1 Document category number – see below.
2 Applicable specification number and appropriate paragraph.
3 Description corresponding to document category number.
4 Permission to proceed with fabrication or other specific processes is marked yes, if required.
5 List a milestone after award i.e., prior to fabrication, prior to test, prior to shipment, or with shipment that the listed document is to be submitted by Supplier.
6 Number of copies required for submittal.
7 Reproducible, Mylar, Vellum, etc.
8 Enter remarks when appropriate.

Document Category Number and Descriptions

1.0 Drawings
- 1.1 Outline Dimensions, Services, Foundations and Mounting Details – Drawings providing external envelope, including lugs, centerline(s), location and size for electrical cable, conduit, fluid, and other service connections, isometrics and details related to foundations and mountings.
- 1.2 Assembly Drawings – Detailed drawings indicating sufficient information to facilitate assembly of the component parts of an equipment item.
- 1.3 Shop Detail Drawings – Drawings which provide sufficient detail to facilitate fabrication, manufacture, or installation. This includes pipe spool drawings, internal piping and wiring details, cross-section details and structural and architectural details.
- 1.4 Wiring Diagrams – Drawings which show schematic diagram equipment, internal wiring diagrams, and interconnection wiring diagram for electrical items.
- 1.5 Control Logic Diagrams – Drawings which show paths which input signals must follow to accomplish the required responses.
- 1.6 Piping and Instrumentation Diagrams – Drawings which show piping system scheme and control elements.

2.0 Parts Lists and Costs – Sectional view with identified parts and recommended spare parts for one year's operation and specified with unit cost.

3.0 Complete SRS Data Sheets – Information provided by Supplier on data sheets furnished by SRS.

4.0 Instructions
- 4.1 Erection/Installation – Detailed written procedures, instructions, and drawings required to erect or install material or equipment.
- 4.2 Operations – Detailed written instructions describing how an item or system should be operated.
- 4.3 Maintenance – Detailed written instructions required to disassemble, reassemble and maintain items or systems in an operating condition.
- 4.4 Site Storage and Handling – Detailed written instructions, requirements and time period for lubrication, rotation, heating, lifting or other handling requirements to prevent damage or deterioration during storage and handling at jobsite. This includes shipping instruction for return.

5.0 Schedules: Engineering and Fabrication/Erection – Bar charts or critical path method diagram which detail the chronological sequence of activities, i.e., Engineering submittals, fabrication and shipment.

6.0 Quality Assurance Manual/Procedures – The document(s) which describe(s) the planned and systematic measures that are used to assure that structures, systems, and components will meet the requirements of the procurement documents.

7.0 Seismic Data Reports – The analytical or test report which provides information and demonstrates suitability of material, component or system in relation to the conditions imposed by the stated seismic criteria.

8.0 Analysis and Design Reports – The analytical data (stress, electrical loading, fluid dynamics, design verification reports, etc.) which demonstrate that an item satisfies specified requirements.

9.0 Acoustic Data Reports – The noise, sound and other acoustic vibration data required by the procurement documents.

10.0 Samples
- 10.1 Typical Quality Verification Documents – A representative data package which will be submitted for the items furnished as required in the procurement documents.
- 10.2 Typical Material Used – a representative example of the material to be used.

11.0 Material Descriptions – The technical data describing a material which a Supplier proposes to use. This usually applies to architectural items, e.g., metal siding, decking, doors, paints, coatings.

12.0 Welding Procedures and Qualifications – The welding procedure, specification and supporting qualification records required for welding, hard facing, overlaying, brazing and soldering.

13.0 Material Control Procedures – The procedures for controlling issuance, handling, storage and traceability of materials such as weld rod.

14.0 Repair Procedures – The procedures for controlling materials removal and replacement by welding, brazing, etc., subsequent thermal treatments, and final acceptance inspection.

15.0 Cleaning and Coating Procedures – The procedures for removal of dirt, grease or other surface contamination, and preparation and application of protective coatings.

16.0 Heat Treatment Procedures – The procedures for controlling temperatures and time at temperature as a function of thickness, furnace atmosphere, cooling rate and methods, etc.

19.0 UT – Ultrasonic Examination Procedures – Procedures for detecting discontinuities and inclusions in materials by the use of high frequency acoustic energy.

20.0 RT – Radiographic Examination Procedures – Procedures for detecting discontinuities and inclusions in materials by x-ray or gamma ray expose of photographic film.

21.0 MT – Magnetic Particle Examination Procedures – Procedures for detecting surface or near surface discontinuities in magnetic materials by the distortion of an applied magnetic field.

22.0 PT – Liquid Penetrant Examination Procedures – Procedures for detecting discontinuities in materials by the application of a penetrating liquid in conjunction with suitable developing materials.

23.0 Eddy Current Examination Procedures – Procedures for detecting discontinuities in materials by distortion of an applied electromagnetic field.

24.0 Pressure Test – Hydro, Air, Leak, Bubble or Vacuum Test Procedures – Procedures for performing hydrostatic or pneumatic structural integrity and leakage tests.

25.0 Inspection Procedures – Organized process followed for the purpose of determining that specified requirements (dimensions, properties, performance results, etc.) are met.

26.0 Performance Test Procedures – Test performed to demonstrate that functional design and operational parameters are met.
- 26.1 Mechanical Tests – e.g., pump performance, data, valve stroking, load, temperature rise, calibration, environmental, etc.
- 26.2 Electrical Test – e.g., impulse, overload, continuity, voltage, temperature rise, calibration, saturation, loss, etc.

27.0 Prototype Test Reports – Reports of a test which is performed on a standard or typical examination of equipment or item, and which is not required for each item produced in order to substantiate the acceptability of equal items. This may include tests which result in damage to the item(s) tested.

28.0 Personnel Qualification Procedures – Procedures for qualifying welders, inspectors and other special process personnel.

29.0 Supplier Shipping Preparation Procedures – Procedures used by a Supplier to prepare finished materials or equipment for shipment from its facility to the jobsite.

Quality Verification Document Requirements

Attachment No. 5.2
Revision No. 3
Spec/Req'n No. C-SPS-G-00096

1. Document Category Number	2. Specification Paragraph Reference	3. Document Description	4. SSR Release	5. SRS Receipt Inspection Check-In	6. Remarks	7. DOC Supplier Page Count
17.1	4.1.1.1	Manufacturer's Certification for Portland Cement Standard Requirements			Retain and Submit when requested	
17.1	4.1.2.1	Documentation for Air Entraining Admixture Requirements and Chloride Content			Retain and Submit when requested	
17.1	4.1.3.1	Documentation for Fly Ash Requirements			Retain and Submit when requested	
17.1	4.1.6.1	Documentation for Fine Aggregate Grading Requirements			Retain and Submit when requested	
17.1	4.1.6.2	Documentation for Fine Aggregate Petrographic Examination			Retain and Submit when requested	
17.1	4.1.7.1	Documentation for Coarse Aggregate Grading Requirements			Retain and Submit when requested	
17.1	4.1.7.2	Documentation of Coarse Aggregate Petrographic Examination			Retain and Submit when requested	
17.1	4.1.8.1	Statement of Compliance for Water from a Potable Water Source			Retain and Submit when requested	
17.1	4.1.8.2	Documentation for Non-Potable Water			Retain and Submit when requested	

8. Supplier's Order No.	9. Supplier's Part	10. Supplier's Part Name	11. Quantity

12. PO No.	13. SRS Line/Equip Tag or Code No.	14. SRS Part Name

15. Supplier's Conformance Statement

We certify that the work and required documents meet the requirements of the procuring documents.

Authorized Supplier Signature _____ Title _____ Date _____

16. Source Surveillance Representative at Supplier's Facility

Work was released based on satisfactory completion of quality surveillance and review of documentation.

☐ With Authorized Deviations Noted in Column 6

☐ No Deviations

Signature of SSR _____ Date _____

17. Receiving Inspection at SRS

This form and the quality verification documents referenced hereon have been received and their relationship to the hardware verified.

Signature of SRS Inspector _____ Date _____

Quality Verification Document Requirements

1. Document Category Number	2. Specification Paragraph Reference	3. Document Description	4. SSR Release	5. SRS Receipt Inspection Check-In	6. Remarks	7. DOC Supplier Page Count
17.1	4.1.9.1	Documentation for Water Reducing Admixture Requirements and Chloride Content			Retain and Submit when requested	
17.1	4.1.10.1	Documentation for High Range Water Reducing Admixture Requirements and Chloride Content			Retain and Submit when requested	
17.1	4.1.11.1	Documentation for Retarding Admixture Requirements and Chloride Content			Retain and Submit when requested	
17.1	4.1.12.1	Documentation for Synthetic Fiber Reinforcement			Retain and Submit when requested	
17.1	4.1.13.1	Documentation for Synthetic Red Iron Oxide			Retain and Submit when requested	
17.1	4.2.1.1	Documentation for Fine Aggregate Moisture Content			Retain and Submit when requested	
17.1	4.2.1.2	Documentation for Fine Aggregate Gradations			Retain and Submit when requested	
17.1	4.2.1.3	Documentation for Fine Aggregate Fineness Modulus			Retain and Submit when requested	
17.1	4.2.1.4	Documentation of Fine Aggregate Clay Lumps and Friable Particles			Retain and Submit when requested	
17.1	4.2.1.5	Documentation of Fine Aggregate for Material Finer than 75-µm			Retain and Submit when requested	

8. Supplier's Order No.	9. Supplier's Part	10. Supplier's Part Name	11. Quantity

12. PO No.	13. SRS Line/Equip Tag or Code No.	14. SRS Part Name

15. Supplier's Conformance Statement

We certify that the work and required documents meet the requirements of the procuring documents.

Authorized Supplier Signature | Title | Date

16. Source Surveillance Representative at Supplier's Facility

Work was released based on satisfactory completion of quality surveillance and review of documentation.

☐ With Authorized Deviations Noted in Column 6
☐ No Deviations

Signature of SSR | Date

17. Receiving Inspection at SRS

This form and the quality verification documents referenced hereon have been received and their relationship to the hardware verified.

Signature of SRS Inspector | Date

Quality Verification Document Requirements

Attachment No. 5.2
Revision No. 3
Spec/Req'n No. C-SPS-G-00096

1. Document Category Number	2. Specification Paragraph Reference	3. Document Description	4. SSR Release	5. SRS Receipt Inspection Check-In	6. Remarks	7. DOC Supplier Page Count
17.1	4.2.1.6	Presence of Organic Impurities in Fine Aggregate			Retain and Submit when requested	
17.1	4.2.2.1	Documentation of Coarse Aggregate Moisture Content			Retain and Submit when requested	
17.1	4.2.2.2	Documentation for Coarse Aggregate Gradations			Retain and Submit when requested	
17.1	4.2.2.3	Documentation for Coarse Aggregate for Clay Lumps and Friable Particles			Retain and Submit when requested	
17.1	4.2.2.4	Documentation of Coarse Aggregate for material Finer than 75 µm (No. 200) Sieve			Retain and Submit when requested	

8. Supplier's Order No.	9. Supplier's Part	10. Supplier's Part Name	11. Quantity

12. PO No.	13. SRS Line/Equip Tag or Code No.	14. SRS Part Name

15. Supplier's Conformance Statement

We certify that the work and required documents meet the requirements of the procuring documents.

Authorized Supplier Signature | Title | Date

16. Source Surveillance Representative at Supplier's Facility

Work was released based on satisfactory completion of quality surveillance and review of documentation.

☐ With Authorized Deviations Noted in Column 6
☐ No Deviations

Signature of SSR | Date

17. Receiving Inspection at SRS

This form and the quality verification documents referenced hereon have been received and their relationship to the hardware verified.

Signature of SRS Inspector | Date

Quality Verification Document Requirements

Purpose: The Quality Verification document Requirements (QVDR) is initiated by SRS and completed by the Supplier when providing quality verification documents. The QVDR is a multipurpose form to

Transmit quality verification documents from the Supplier,
Provide evidence of SSR release of documentation and /or work, and
Provide evidence of an SRS inspection check of documentation received at SRS.

SRS Entries

Entry No.	Information Required
1	Enter Document Category Number – see below.
2	Enter Specification Number and Paragraph Reference.
3	Enter Description corresponding to the Document Category Number.
4	SSR to initial upon item release.
6	Enter "Remarks: as appropriate.
16	SSR and dates release.

Field Entries

Entry No.	Information Required
5	SRS inspector at the jobsite to complete check-in.
17	The SRS inspector will review the quality verification documentation package. If found satisfactory, he signs and dates the check-in statement.

Supplier Entries

Entry No.	Information Required
7	Enter number of pages of quality verification document being submitted.
8	Enter information required.
9	Enter information required.
10	Enter information required.
11	Enter the quantity of units covered by the documents submitted. For each item on Entry No. 12 being released, provide a separate copy of this completed form and the supporting quality verification documents.
12	Enter information required.
13	Enter information required.
14	Enter information required.
15	Supplier – Signature of an employee authorized to sign such documents.

Document Category Numbers and Descriptions

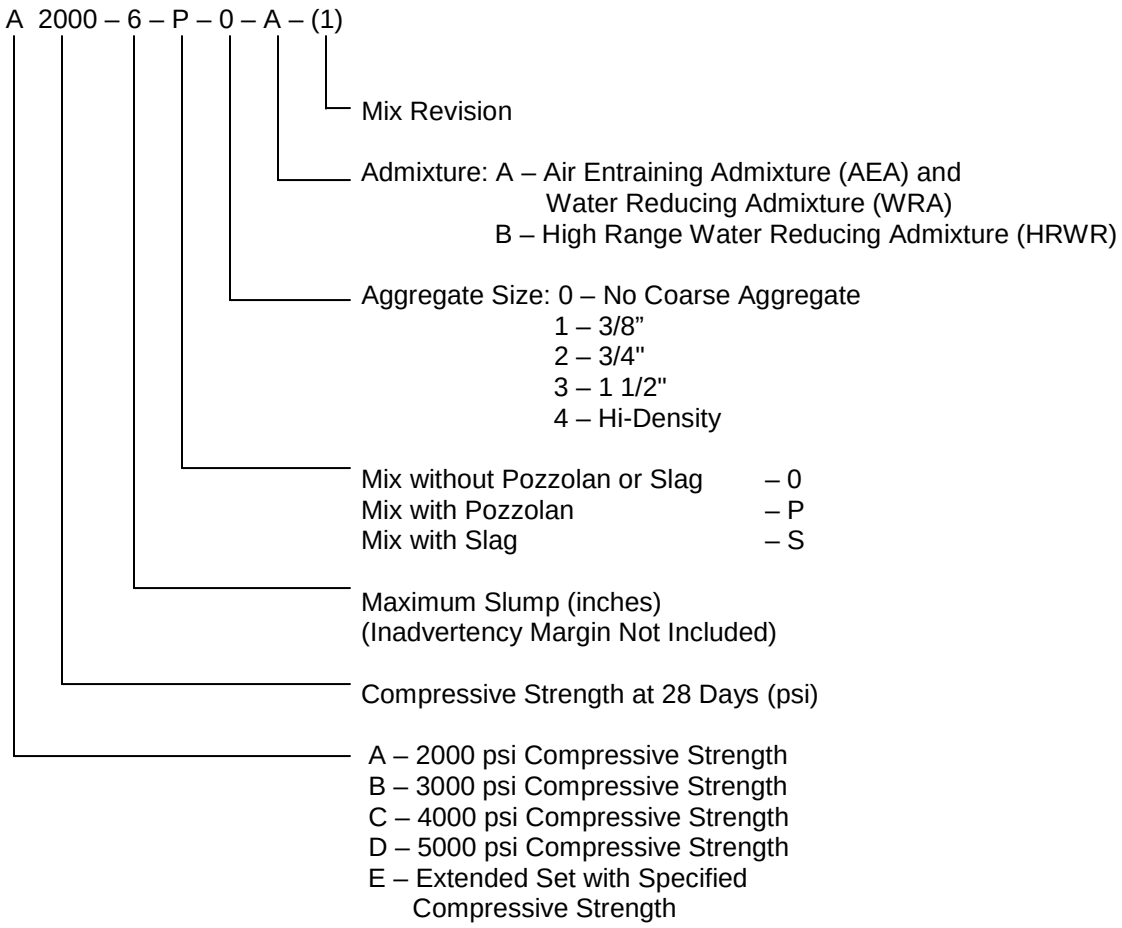
12.0 Welding Verification Reports – Reports of welding performed to include weld identification, and certification that qualified welding procedures and welders were used.
13.0 Material Verification Reports – Reports relative to material which confirm, substantiate or assure that an activity or condition has been implemented in conformance with code and material specifications imposed by the procurement documents.
14.0 Major Repair Verification Reports – Reports may include weld repair locations (maps), material test reports for filler metal, pre- and post-weld heat treatment records, NDE records, etc. The resolution of whether a repair is major or not is an SRS responsibility.
15.0 Cleaning and Coating Verification Reports – Reports include a certification of visual examination for surface preparation, surface profile, materials, etc.; and also humidity data, temperature data and coating thickness data as required by the procurement documents.
16.0 Heat Treat Reports – Reports normally include furnace charts and similar records which identify and certify the item(s) treated, the procedure used, furnace atmosphere, time at temperature, cooling rate, etc.
17.0 Material Property Reports
- 17.1 MTR (Material Test Reports) – These reports include all chemical, physical, mechanical, and electrical property test data required by the material specification and applicable codes. These are applicable to cement, concrete, metals, cable jacket materials, rebar, rebar splices, etc.
- 17.2 Impact Test Data – Reports of Charpy or drop weight tests including specimen configuration, test temperature and fracture data.
- 17.3 Ferrite Data – Reports of the ferrite percentage for stainless steel materials used, including castings and welding filler metals as deposited.
- 17.4 Materials Certificate of Conformance – Documents which certify conformance to the requirements of the applicable material specification.
- 17.5 Electrical Property Reports – Reports of electrical characteristics, e.g., dielectric, impedance, resistance, flame tests, corona, etc.

18.0 Code Compliance – Verifying documents (such as data Forms U-1, M-2, State, etc.), which are prepared by the manufacturer or installer and certified by the Authorized Code Inspector.
19.0 UT – Ultrasonic Examination and Verification Reports – Examination results of certain characteristics of discontinuities and inclusions in material by the use of high frequency acoustic energy.
20.0 RT – Radiographic Examination and Verification Reports – Examination results of certain characteristics of discontinuities and inclusions in materials by x-ray or gamma ray exposure of photographic film, including film itself.
21.0 MT – Magnetic Particle Examination and Verification Reports – Examination results of surface (or near surface) discontinuities in magnetic materials by distortion of an applied magnetic field.
22.0 PT – Liquid Penetrant Examination and Verification Reports – Examination results of surface discontinuities in materials by application of a penetrating liquid in conjunction with suitable developing techniques.
23.0 Eddy Current Examination and Verification Reports – Examination results of discontinuities in material by distortion of an applied electromagnetic field.
24.0 Pressure Test – Hydro, Air, Leak, Bubble or Vacuum Test and Verification Reports – Results of hydrostatic or pneumatic structural integrity and leakage tests.
25.0 Inspection and Verification Reports – Documented findings resulting from an inspection.
26.0 Performance Test and Verification Reports – Reports of Test Results
- 26.1 Mechanical Test, e.g., pump, performance data, valve stroking, load, temperature rise, calibration, environment, etc.
- 26.2 Electrical Tests, e.g., load, impulse, overload, continuity, voltage, temperature rise, calibration, saturation, loss, etc.

27.0 Prototype Test Report – Report of the test which is performed on a standard or typical example of equipment, material or item, and which is not required for each item produced in order to substantiated the acceptability of equal items. This normally includes tests which may, or could be expected to, result in damage to the item(s) tested.
28.0 Certificate of Conformance – A document signed or otherwise authenticated by an authorized individual certifying the degree to which items or services meet specified requirements.

Production Concrete/Grout/CLSM Mix Identification Number

Example of Production Concrete/Grout/CLSM Mix Identification Number



Note: Utilize "X" where digit or letter is not applicable

Production Structural Flowable Fill Zero Bleed Concrete ZB-FF-8-D
See Attachment 5.5 for mix details

Inspection and Testing of Production Concrete/Grout/CLSM

Material and Requirement	Test Method	Test Frequency
Production Concrete:		
Sampling Method	ASTM C172/C172M	As required.
Molding Cylinders	ASTM C31/31M	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Compressive Strength	ASTM C39/39M	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Slump	ASTM C143/143M	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Air content	ASTM C173/C173M or ASTM C231/C231M	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Temperature	ASTM C1064/C1064M	One test for first Batch of each mix delivered each day and one random test for every 100 cubic yards thereafter.
Unit Weight/Yield	ASTM C138/138M	One test for first batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Compressive strength, slump, air content, temperature, and molding of cylinders are not required for the following types of placements unless specified by design documents: • Sidewalks/curb and gutters/steps - external to buildings • Splash blocks/drainage ditches • Working slabs/mud mats • Un-reinforced duct banks/encasements • Fence, bumper, and protection posts		
Production Grout:		
Sampling Method	ASTM C109/C109M	One test for first Batch of each mix delivered each day, and one random test for every 50 cubic yards thereafter.
Molding Cubes	ASTM C109/C109M	One test for first Batch of each mix delivered each day, and one random test for every 50 cubic yards thereafter.
Compressive Strength	ASTM C109/C109M	One test for first Batch of each mix delivered each day, and one random test for every 50 cubic yards thereafter.
Air Content	ASTM C173/C173M or ASTM C231/C231M	One test for first Batch of each mix delivered each day, and one random test for every 50 cubic yards thereafter.
Temperature	ASTM C1064/C1064M	One test for first Batch of each mix delivered each day, and one random test for every 50 cubic yards thereafter.
Unit Weight/Yield	ASTM C138/C138M	One test for first Batch of each mix delivered each day, and one random test for every 50 cubic yards thereafter.
Production CLSM:		
Sampling Method	ASTM D5971	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Molding Cylinders	ASTM D4832	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Compressive Strength	ASTM D4832	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Temperature	ASTM C1064/C1064M	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Air Content	ASTM D6023	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Slump Flow and Flow Consistency	ASTM C1611/C1611M	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Unit Weight/Yield	ASTM D6023	One test for first Batch of each mix delivered each day, and one random test for every 100 cubic yards thereafter.
Suitability for Load Application	ASTM D6024	One test for each area required to support portions of a structure (footing, slab, base mat, or other structural component)

Production Structural Flowable Fill Zero Bleed Concrete		
Materials and Requirements	**Test Method Evaluation**	**Test Frequency**
Sampling Method	ASTM D5971 See Note 1	As Required
Molding Cylinders	ASTM D4832	One test for first batch delivered each day, and on random test for the second 100 cubic yards delivered. Thereafter, SRNS or CORE will direct when additional test samples will be taken.
Compressive Strength	ASTM D4832	One test for first batch delivered each day, and on random test for the second 100 cubic yards delivered. Thereafter, SRNS or CORE will direct when additional test samples will be taken.
Slump Flow and Flow Consistency	ASTM C1611/C1611M	One test for first batch delivered each day, and on random test for the second 100 cubic yards delivered. Thereafter, SRNS or CORE will direct when additional test samples will be taken.
Temperature	ASTM C1064/C1064M	One test for first batch delivered each day, and on random test for the second 100 cubic yards delivered. Thereafter, SRNS or CORE will direct when additional test samples will be taken.
Unit Weight/Yield	ASTM C138/C138M	One test for first batch delivered each day, and on random test for the second 100 cubic yards delivered. Thereafter, SRNS or CORE will direct when additional test samples will be taken.
Specimen Curing	ASTM D4832 See Note 2	One test for first batch delivered each day, and on random test for the second 100 cubic yards delivered. Thereafter, SRNS or CORE will direct when additional test samples will be taken.
Bleeding	ASTM C232/C232M See Note 3	One test for first batch delivered each day, and on random test for the second 100 cubic yards delivered. Thereafter, SRNS or CORE will direct when additional test samples will be taken.
Sample Capping	ASTM C617/C617M	One test for first batch delivered each day, and on random test for the second 100 cubic yards delivered. Thereafter, SRNS or CORE will direct when additional test samples will be taken.
Air Content	ASTM C231/C231M	One test for first batch delivered each day, and on random test for the second 100 cubic yards delivered. Thereafter, SRNS or CORE will direct when additional test samples will be taken.

Note 1. Single-Use Cylinder Molds: Plastic single-use (4-in) diameter by (8-in) high molds with tight fitting lids, conforming to Specification ASTM C470 may be used.

Note2. Cure Structural Fill Material in accordance with ASTM C232/C232M with the following exception: Immediately after molding and finishing, the specimens shall be stored for a period of 24 hr. to 48 hr. in a temperature range from 60^0 to 80^0F (18^0 – 27^0C) and in an environment preventing moisture loss from the specimens.

Note 3. Use ASTM C232/C232M Test Method A modified as follows: Do not tamp, rod, or in any way consolidate sample. To determine bleed: 1) Obtain sample per ASTM D5971. 2) Pour sample into a 6-in by 12-in cylinder as on lift to a height of 11 inches and cap. 3) Cure samples with compressive strength test specimens. 4) Measure bleed water after 24 hours +/- 2 hours using a graduated syringe.

Production Concrete/Grout/CLSM Mix Components

TABLE 1: NON-RETARDED PRODUCTION READY-MIX CONCRETE, GROUT AND CLSM MIXES

FUNCTION		MIX ID	SLUMP (INCHES)	WEIGHT OF INGREDIENTS, #/CY				MAX AGGREGATE SIZE			ADMIXTURES OZ/CY			GENERAL GUIDE (SEE DESIGN DRAWINGS FOR CLASS OF CONCRETE)
			WORK	WATER GAL/CY	CEMENT	POZZOLAN	AGGREGATE	3/8 IN	3/4 IN	1-1/2 IN	WRA	AEA	HRWRA	RANGE
(1)	(2)	(3) (4)	(5)	(9a)	(9b)	(9c)	(9d)	(9e)	(9f)	(9g)	(9h)	(9i)	(9j) (10)	(9k)	
M	GS	A2000-6-0-2-A+	3-6				N/A	N/A		N/A	N/A			N/A	NON-STRUCTURAL RED DYE CONCRETE
I	GS	A2000-6-0-2-A	3-6				N/A	N/A		N/A	N/A			N/A	NON-STRUCTURAL CONCRETE
X	PS	B3000-6-0-2-A+	3-6				N/A	N/A		N/A	N/A			N/A	STRUCTURAL RED DYE CONCRETE
	GS	B3000-6-0-2-A#	3-6				N/A	N/A		N/A	N/A			N/A	NON-STRUCTURAL FIBERMESH CONCRETE
	PS	B3000-6-0-2-A	3-6				N/A	N/A		N/A	N/A			N/A	STRUCTURAL CONCRETE
	PS	C4000-X-0-0-A	-				N/A	N/A	N/A	N/A	N/A			N/A	STANDARD GROUT
	PS	C4000-6-0-1-A	3-6				N/A		N/A	N/A	N/A			N/A	STRUCTURAL CONCRETE - HIGHLY CONGESTED (7)
	PS	C4000-6-P-2-A	3-6					N/A		N/A	N/A			N/A	MASS STRUCTURAL CONCRETE
	PS	C4000-6-0-2-A	3-6				N/A	N/A		N/A	N/A			N/A	STRUCTURAL CONCRETE
	PS	C4000-8-0-2-AB	3-8	+1			N/A	N/A	1800	N/A	N/A				STRUCTURAL CONCRETE - CONGESTED
	PS	D5000-X-0-0-A	-	-			N/A	N/A	N/A	N/A	N/A			N/A	STANDARD GROUT
	PS	D5000-6-0-1-A	3-6	-			N/A	1700	N/A	N/A	N/A			N/A	STRUCTURAL CONCRETE - HIGHLY CONGESTED (7)
	PS	D5000-8-0-2-AB	3-8	+1			N/A	N/A	1800	N/A	N/A				STRUCTURAL CONCRETE - CONGESTED
		SPECIAL MIXES													
	B PS	C4000-8-P-4-AB	3-8	+1	600	1142	100	N/A	2000	N/A	N/A	28.0	N/A	28 - 42	SHIELDING CONCRETE (7) (8)
	A PS	A2000-X-0-0-AB	-	-			N/A	N/A	N/A	N/A	N/A		N/A		HIGH FLOW GROUT
	B PS	C4000-8-P-2-AB	3-8	+1	530	1052	175	N/A	1900	N/A	N/A	42.0	AS REQD.	35 - 42	LOW SHRINKAGE CONCRETE (8)
	B PS	C4000-X-P-0-AB	-	-	930	1857	310	N/A	N/A	N/A	N/A	68.0	AS REQD.	62 - 75	LOW SHRINKAGE GROUT (8)
		CLSM MIXES													
	B PS	EXE-X-P-0-X	-	-	50	66.0	2515	600	N/A	N/A	N/A	N/A	N/A	N/A	CLSM (8)

Production Concrete/Grout/CLSM Mix Components

TABLE 2: RETARDED PRODUCTION READY-MIX CONCRETE AND GROUT MIXES

FUNCTION	MIX ID	SLUMP (INCHES)	WEIGHT OF INGREDIENTS, #/CY				MAX AGGREGATE SIZE			ADMIXTURES OZ/CY			GENERAL GUIDE (SEE DESIGN DRAWINGS FOR CLASS OF CONCRETE)
		WORKING RANGE	CEMENT	GAL/CY	SAND	POZZOLAN	3/8 IN	3/4 IN	1-1/2 IN	RANGE	AS REQD.		
(1)	(2)	(3) (4)	(5)	(6)	(9a)	(9b)	(9c)	(9d)	(9e)	(9f)	(9g)	(9h)	(9i)	(9j) (10)	(9k)	
B	PS	E4000-8-P-2-AB	3-8	+1	550	36.0	1104	90	N/A	1780	N/A	25.6	N/A	AS REQD.	25.6	EXTENDED SET STRUCTURAL CONCRETE (8)
B	PS	E4000-8-P-1-AB	3-8	+1	650	42.5	1007	100	1650	N/A	N/A	30.0	N/A	AS REQD.	33.8	EXTENDED SET STRUCTURAL CONCRETE - HIGHLY CONGESTED (8)
B	PS	E4000-8-P-4-AB	3-8	+1	600	37.7	1131	100	N/A	2000	N/A	28.0	N/A	N/A	42.0	EXTENDED SET SHIELDING CONCRETE (8)
B	PS	E5000-8-P-2-AB	3-8	+1	620	36.3	1009	100	N/A	1800	N/A	28.8	N/A	AS REQD.	46.8	EXTENDED SET STRUCTURAL CONCRETE (8)
		GROUT MIXES														
B	PS	E4000-X-0-0-AB														EXTENDED SET STARTER GROUT (11)
B	PS	E5000-X-0-0-AB														EXTENDED SET STARTER GROUT (11)

TABLE 3: PRODUCTION STRUCTURAL FLOWABLE FILL ZERO BLEED CONCRETE

MIX OPTION	FUNCTIONAL CLASS	MIX IDENTIFIER	FLOW/SLUMP (INCHES) WORKING RANGE	FLOW/SLUMP (INCHES) INADV	WEIGHT OF INGREDIENTS, #/CY CEMENT	WATER GAL/CY	SAND	POZZOLAN	MAX AGGREGATE SIZE 3/8 IN	MAX AGGREGATE SIZE 3/4 IN	MAX AGGREGATE SIZE 1-1/2 IN	ADMIXTURES OZ/CY (UNO) RA	WRA	AEA	RANGE HRWR OZ/CY MAX	VMA GRAMS/CY	GENERAL GUIDE (SEE DESIGN DRAWINGS FOR CLASS OF CONCRETE)
(1)	(2)	(3) (4)	(5)	(6)	(9a)	(9b)	(9c)	(9d)	(9e)	(9f)	(9g)	(9h)	(9i)	(9j) (10)	(9k)	(9l)	
B	GS	ZB-FF-8-D	26±6	-	150	50	1850	500	800	N/A	N/A	N/A	N/A	N/A	80	41.25	DRY AREA PLACEMENT ZERO BLEED FLOWABLE FILL w/No. 8 STONE (7) (8)

For the Structural Flowable Fill Zero Mix: the notes of Attachment 5.5, page 4 of 4 apply with exception as listed below.

(4) **N/A**

(5) **Flow/Slump Working Range. Flow/Slump is measured according to ASTM C1611/C1611M**

(9k) **HRWR is W. R. Grace Adva 405.**

(9l) **VMA is W. R. Grace VMA-958**

(1) Option A mix designs are provided by the Supplier utilizing ASTM C94/C94M, Section 6.3. The Supplier assumes responsibility for the mix design and mix components. Upon acceptance of mix designs, SRNS will retain unlimited rights to the data.

Option B mix designs are provided to the Supplier utilizing ASTM C94/C94M, Section 6.4. SRNS assumes responsibility for the mix design but the Supplier is responsible for an initial evaluation of the mix design. Re-evaluation of the mix designs are required when material components are adjusted and whenever changes are necessary due to performance requirements.

(2) Functional Class is the highest Functional Class for which the production mix can be used without implementation of additional measures. SRNS may be required to upgrade the functional classification of the production mix through an internal process as referenced in Section 3.6, Quality Requirements of this specification.

(3) See Attachment 5.3 for an example of the Mix Identifier.

(4) Compressive strength ($f_c^{'}$) at 28 days.

(5) Working Range is the slump range allowed

(6) "Inadv" stands for inadvertency margin. The inadvertency margin is the allowable deviation from the working range for occasional batches provided immediate action is taken to reduce the slump to the working range. Where the inadvertency margin is not listed, no inadvertency is allowed.

(7) Use only as directed by drawing, specification, or SRNS Engineering approval.

(8) Mix component identification for mixes supplied under this specification..

(9) Note: This section will be revised prior to production of Ready-Mixed Concrete.

(9a) Cement is:

(9b) Water is:

(9c) Sand is:

(9d) Pozzolan is:

(9e) 3/8" coarse aggregate is:

(9f) 3/4" coarse aggregate is:

(9g) 3/4" coarse aggregate for the shielding concrete is Vulcan Materials Company, #67 from the Pineville Quarry in Charlotte, North Carolina.

(9h) Retarding Admixture is:

(9i) Water Reducing Admixture is:

(9j) Air-Entraining Admixture is:

(9k) High Range Water Reducing admixture is:

(9l) Viscosity Modifier Admixture (VMA) is: W. R. Grace VMA-958

(10) AEA shall be added as required to maintain the air content limits.

(11) Extended Set Starter Grouts shall developed to have the closely the same proportions of the Extended Set Production Mixes less the Coarse Aggregate, and shall be volumetrically adjusted.

Supplier Quality Assurance Program Requirements

Attachment No. 5.6
Revision No. 3
Spec/Req'n No. C-SPS-G-00096

Note to the CTF/CQF:

Level 1 - Procurements require verification of the supplier's quality program through the performance of an evaluation or audit that compares against the national or international consensus standard designated in Section A.

Level 2 - Procurements that invoke a supplier quality assurance program, may apply the same consensus standard verification process as designated in Section A, otherwise designate evaluation methods in Section C. (Ref. 1Q, 7-2; 1Q, 18-3; and 3E, 1.1)

Section A

National Consensus Standards for Supplier Quality Program Requirements are identified, but not limited, to the ones below:

- [ ] ASME/NQA -1 Part 1 - Nuclear Quality Assurance Program Requirements (Pages 2-4 must be completed)
- [ ] ISO 17025 (Calibration/Testing Standard)
- [ ] ASME Section VIII Division I (Appendix 10)
- [ ] NQA-1, Part II

[ ] 2.1 Fluid/Comp Clean	[ ] 2.5 IIT Con/Steel/Soils/Foundation	[ ] 2.15 Hoist/Rig/Transport
[ ] 2.2 Pack/Ship/Rec/Store/Handle	[ ] 2.7 Software	[ ] 2.18 Maintenance
[ ] 2.3 Housekeeping	[ ] 2.8 IIT Mechanical	[ ] 2.20 Subsurface
[ ] 2.4 IIT Power/Instr/Control Equipment	[ ] 2.14 CGD	

- [ ] Other _____
- [ ] Other _____

NOTE: When necessary, use an attachment to define additional requirements and/or details.

Section B

Clarifications/Exceptions (as needed)

Section C

For Level 2 procurements, methods of evaluating supplier's quality assurance program are:

1. The supplier will provide a copy of their Quality Assurance Manual for an adequacy/concurrence review, and
2. One or more of the boxes marked below will also be applied.

- [ ] Performance of an audit as defined in Section A
- [ ] Submittal of current applicable ASME certificate
- [ ] Supplement audit / evaluation
- [X] Document submittals identified on EDR document (e.g., process procedures, welder qualifications, etc.)
- [X] Supplier surveillance activities
- [X] Receiving Inspection
- [ ] Other _____