State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Solicitation

NUMBER	PAGE
6614C018	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
CRYSTAL RINK
304-558-2306

VENDOR
*709052118 03 304-487-0474
BOXLEY CONCRETE PRODUCTS OF VA
101 WESTVIEW AVE

PRINCETON WV 24740

SHIP TO
DIVISION OF HIGHWAYS
VARIOUS LOCALES AS INDICATED
BY ORDER

DATE PRINTED
11/25/2013

BID OPENING DATE: 12/18/2013 BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001		CY		750-70		

READY-MIX CONCRETE

REQUEST FOR QUOTATION
(OPEN-END CONTRACT)

THE WEST VIRGINIA STATE PURCHASING DIVISION FOR THE AGENCY, THE WEST VIRGINIA DIVISION OF HIGHWAYS, IS SOLICITING BIDS TO PROVIDE THE AGENCY WITH AN OPEN-END CONTRACT FOR READY MIXED PORTLAND CEMENT CONCRETE AND CONTROLLED LOW-STRENGTH MATERIAL (CLSM) PER THE ATTACHED SPECIFICATIONS.

****** THIS IS THE END OF RFQ 6614C018 ****** TOTAL:

12/17/13 10:26:26AM
West Virginia Purchasing Division

SIGNATURE [signature] TELEPHONE 304-487-0474 DATE 12/16/13

TITLE Sales Manager FEIN 54-1763598 ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

INSTRUCTIONS TO VENDORS SUBMITTING BIDS

1. **REVIEW DOCUMENTS THOROUGHLY:** The attached documents contain a solicitation for bids. Please read these instructions and all documents attached in their entirety. These instructions provide critical information about requirements that if overlooked could lead to disqualification of a Vendor's bid. All bids must be submitted in accordance with the provisions contained in these instructions and the Solicitation. Failure to do so may result in disqualification of Vendor's bid.

2. **MANDATORY TERMS:** The Solicitation may contain mandatory provisions identified by the use of the words "must," "will," and "shall." Failure to comply with a mandatory term in the Solicitation will result in bid disqualification.

3. **PREBID MEETING:** The item identified below shall apply to this Solicitation.

☑ A pre-bid meeting will not be held prior to bid opening.

☐ A **NON-MANDATORY PRE-BID** meeting will be held at the following place and time:

☐ A **MANDATORY PRE-BID** meeting will be held at the following place and time:

All Vendors submitting a bid must attend the mandatory pre-bid meeting. Failure to attend the mandatory pre-bid meeting shall result in disqualification of the Vendor's bid. No one person attending the pre-bid meeting may represent more than one Vendor.

An attendance sheet provided at the pre-bid meeting shall serve as the official document verifying attendance. The State will not accept any other form of proof or documentation to verify attendance. Any person attending the pre-bid meeting on behalf of a Vendor must list on the attendance sheet his or her name and the name of the Vendor he or she is representing. Additionally, the person attending the pre-bid meeting should include the Vendor's E-Mail address, phone number, and Fax number on the attendance sheet. It is the Vendor's responsibility to locate the attendance sheet and provide the required information. Failure to complete the attendance sheet as required may result in disqualification of Vendor's bid.

All Vendors should arrive prior to the starting time for the pre-bid. Vendors who arrive after the starting time but prior to the end of the pre-bid will be permitted to sign in, but are charged with knowing all matters discussed at the pre-bid.

Questions submitted at least five business days prior to a scheduled pre-bid will be discussed at the pre-bid meeting if possible. Any discussions or answers to questions at the pre-bid meeting are preliminary in nature and are non-binding. Official and binding answers to questions will be published in a written addendum to the Solicitation prior to bid opening.

4. **VENDOR QUESTION DEADLINE:** Vendors may submit questions relating to this Solicitation to the Purchasing Division. Questions must be submitted in writing. All questions must be submitted on or before the date listed below and to the address listed below in order to be considered. A written response will be published in a Solicitation addendum if a response is possible and appropriate. Non-written discussions, conversations, or questions and answers regarding this Solicitation are preliminary in nature and are non-binding.

Question Submission Deadline:	December 6, 2013 at 5:00 PM EST
Submit Questions to:	Crystal Rink 2019 Washington Street, East Charleston, WV 25305 Fax: 304-558-4115 Email: crystal.g.rink@wv.gov

5. **VERBAL COMMUNICATION:** Any verbal communication between the Vendor and any State personnel is not binding, including that made at the mandatory pre-bid conference. Only information issued in writing and added to the Solicitation by an official written addendum by the Purchasing Division is binding.

6. **BID SUBMISSION:** All bids must be signed and delivered by the Vendor to the Purchasing Division at the address listed below on or before the date and time of the bid opening. Any bid received by the Purchasing Division staff is considered to be in the possession of the Purchasing Division and will not be returned for any reason. The bid delivery address is:

Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

The bid should contain the information listed below on the face of the envelope or the bid may not be considered:

SEALED BID
BUYER: _____
SOLICITATION NO.: _____
BID OPENING DATE: _____
BID OPENING TIME: _____
FAX NUMBER: _____

In the event that Vendor is responding to a request for proposal, the Vendor shall submit one original technical and one original cost proposal plus _____ convenience copies of each to the Purchasing Division at the address shown above. Additionally, the Vendor should identify the bid type as either a technical or cost proposal on the face of each bid envelope submitted in response to a request for proposal as follows:

BID TYPE: ☐ Technical
☐ Cost

7. **BID OPENING:** Bids submitted in response to this Solicitation will be opened at the location identified below on the date and time listed below. Delivery of a bid after the bid opening date and time will result in bid disqualification. For purposes of this Solicitation, a bid is considered delivered when time stamped by the official Purchasing Division time clock.

Bid Opening Date and Time: December 18, 2013 at 1:30 PM EST

Bid Opening Location: Department of Administration, Purchasing Division
2019 Washington Street East
Charleston, WV 25305-0130

8. **ADDENDUM ACKNOWLEDGEMENT:** Changes or revisions to this Solicitation will be made by an official written addendum issued by the Purchasing Division. Vendor should acknowledge receipt of all addenda issued with this Solicitation by completing an Addendum Acknowledgment Form, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

9. **BID FORMATTING:** Vendor should type or electronically enter the information onto its bid to prevent errors in the evaluation. Failure to type or electronically enter the information may result in bid disqualification.

GENERAL TERMS AND CONDITIONS:

1. **CONTRACTUAL AGREEMENT:** Issuance of a Purchase Order signed by the Purchasing Division Director, or his designee, and approved as to form by the Attorney General's office constitutes acceptance of this Contract made by and between the State of West Virginia and the Vendor. Vendor's signature on its bid signifies Vendor's agreement to be bound by and accept the terms and conditions contained in this Contract.

2. **DEFINITIONS:** As used in this Solicitation/Contract, the following terms shall have the meanings attributed to them below. Additional definitions may be found in the specifications included with this Solicitation/Contract.

   2.1 "Agency" or **"Agencies"** means the agency, board, commission, or other entity of the State of West Virginia that is identified on the first page of the Solicitation or any other public entity seeking to procure goods or services under this Contract.

   2.2 "Contract" means the binding agreement that is entered into between the State and the Vendor to provide the goods and services requested in the Solicitation.

   2.3 "Director" means the Director of the West Virginia Department of Administration, Purchasing Division.

   2.4 "Purchasing Division" means the West Virginia Department of Administration, Purchasing Division.

   2.5 "Purchase Order" means the document signed by the Agency and the Purchasing Division, and approved as to form by the Attorney General, that identifies the Vendor as the successful bidder and Contract holder.

   2.6 "Solicitation" means the official solicitation published by the Purchasing Division and identified by number on the first page thereof.

   2.7 "State" means the State of West Virginia and/or any of its agencies, commissions, boards, etc. as context requires.

   2.8 "Vendor" or **"Vendors"** means any entity submitting a bid in response to the Solicitation, the entity that has been selected as the lowest responsible bidder, or the entity that has been awarded the Contract as context requires.

3. **CONTRACT TERM; RENEWAL; EXTENSION:** The term of this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below:

☑ **Term Contract**

Initial Contract Term: This Contract becomes effective on upon award

and extends for a period of 1 year(s).

Renewal Term: This Contract may be renewed upon the mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). Any request for renewal must be submitted to the Purchasing Division Director thirty (30) days prior to the expiration date of the initial contract term or appropriate renewal term. A Contract renewal shall be in accordance with the terms and conditions of the original contract. Renewal of this Contract is limited to 2 successive one (1) year periods. Automatic renewal of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases. Attorney General approval may be required for vendor terms and conditions.

Reasonable Time Extension: At the sole discretion of the Purchasing Division Director, and with approval from the Attorney General's office (Attorney General approval is as to form only), this Contract may be extended for a reasonable time after the initial Contract term or after any renewal term as may be necessary to obtain a new contract or renew this Contract. Any reasonable time extension shall not exceed twelve (12) months. Vendor may avoid a reasonable time extension by providing the Purchasing Division Director with written notice of Vendor's desire to terminate this Contract 30 days prior to the expiration of the then current term. During any reasonable time extension period, the Vendor may terminate this Contract for any reason upon giving the Purchasing Division Director 30 days written notice. Automatic extension of this Contract is prohibited. Notwithstanding the foregoing, Purchasing Division approval is not required on agency delegated or exempt purchases, but Attorney General approval may be required.

Release Order Limitations: In the event that this contract permits release orders, a release order may only be issued during the time this Contract is in effect. Any release order issued within one year of the expiration of this Contract shall be effective for one year from the date the release order is issued. No release order may be extended beyond one year after this Contract has expired.

☐ **Fixed Period Contract:** This Contract becomes effective upon Vendor's receipt of the notice to proceed and must be completed within days.

☐ **One Time Purchase:** The term of this Contract shall run from the issuance of the Purchase Order until all of the goods contracted for have been delivered, but in no event shall this Contract extend for more than one fiscal year.

☐ **Other:** See attached.

4. **NOTICE TO PROCEED:** Vendor shall begin performance of this Contract immediately upon receiving notice to proceed unless otherwise instructed by the Agency. Unless otherwise specified, the fully executed Purchase Order will be considered notice to proceed

5. **QUANTITIES:** The quantities required under this Contract shall be determined in accordance with the category that has been identified as applicable to this Contract below.

☑ **Open End Contract:** Quantities listed in this Solicitation are approximations only, based on estimates supplied by the Agency. It is understood and agreed that the Contract shall cover the quantities actually ordered for delivery during the term of the Contract, whether more or less than the quantities shown.

☐ **Service:** The scope of the service to be provided will be more clearly defined in the specifications included herewith.

☐ **Combined Service and Goods:** The scope of the service and deliverable goods to be provided will be more clearly defined in the specifications included herewith.

☐ **One Time Purchase:** This Contract is for the purchase of a set quantity of goods that are identified in the specifications included herewith. Once those items have been delivered, no additional goods may be procured under this Contract without an appropriate change order approved by the Vendor, Agency, Purchasing Division, and Attorney General's office.

6. **PRICING:** The pricing set forth herein is firm for the life of the Contract, unless specified elsewhere within this Solicitation/Contract by the State. A Vendor's inclusion of price adjustment provisions in its bid, without an express authorization from the State in the Solicitation to do so, may result in bid disqualification.

7. **EMERGENCY PURCHASES:** The Purchasing Division Director may authorize the Agency to purchase goods or services in the open market that Vendor would otherwise provide under this Contract if those goods or services are for immediate or expedited delivery in an emergency. Emergencies shall include, but are not limited to, delays in transportation or an unanticipated increase in the volume of work. An emergency purchase in the open market, approved by the Purchasing Division Director, shall not constitute of breach of this Contract and shall not entitle the Vendor to any form of compensation or damages. This provision does not excuse the State from fulfilling its obligations under a One Time Purchase contract.

8. **REQUIRED DOCUMENTS:** All of the items checked below must be provided to the Purchasing Division by the Vendor as specified below.

☐ **BID BOND:** All Vendors shall furnish a bid bond in the amount of five percent (5%) of the total amount of the bid protecting the State of West Virginia. The bid bond must be submitted with the bid.

☐ **PERFORMANCE BOND:** The apparent successful Vendor shall provide a performance bond in the amount of . The performance bond must be issued and received by the Purchasing Division prior to Contract award. On construction contracts, the performance bond must be 100% of the Contract value.

☐ **LABOR/MATERIAL PAYMENT BOND:** The apparent successful Vendor shall provide a labor/material payment bond in the amount of 100% of the Contract value. The labor/material payment bond must be issued and delivered to the Purchasing Division prior to Contract award.

In lieu of the Bid Bond, Performance Bond, and Labor/Material Payment Bond, the Vendor may provide certified checks, cashier's checks, or irrevocable letters of credit. Any certified check, cashier's check, or irrevocable letter of credit provided in lieu of a bond must be of the same amount and delivered on the same schedule as the bond it replaces. A letter of credit submitted in lieu of a performance and labor/material payment bond will only be allowed for projects under $100,000. Personal or business checks are not acceptable.

☐ **MAINTENANCE BOND:** The apparent successful Vendor shall provide a two (2) year maintenance bond covering the roofing system. The maintenance bond must be issued and delivered to the Purchasing Division prior to Contract award.

☐ **WORKERS' COMPENSATION INSURANCE:** The apparent successful Vendor shall have appropriate workers' compensation insurance and shall provide proof thereof upon request.

☐ **INSURANCE:** The apparent successful Vendor shall furnish proof of the following insurance prior to Contract award and shall list the state as a certificate holder:

☐ **Commercial General Liability Insurance:**
or more.

☐ **Builders Risk Insurance:** builders risk – all risk insurance in an amount equal to 100% of the amount of the Contract.

☐

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The apparent successful Vendor shall also furnish proof of any additional insurance requirements contained in the specifications prior to Contract award regardless of whether or not that insurance requirement is listed above.

☐ **LICENSE(S) / CERTIFICATIONS / PERMITS:** In addition to anything required under the Section entitled Licensing, of the General Terms and Conditions, the apparent successful Vendor shall furnish proof of the following licenses, certifications, and/or permits prior to Contract award, in a form acceptable to the Purchasing Division.

☐

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☐

☐

The apparent successful Vendor shall also furnish proof of any additional licenses or certifications contained in the specifications prior to Contract award regardless of whether or not that requirement is listed above.

9. **LITIGATION BOND:** The Director reserves the right to require any Vendor that files a protest of an award to submit a litigation bond in the amount equal to one percent of the lowest bid submitted or $5,000, whichever is greater. The entire amount of the bond shall be forfeited if the hearing officer determines that the protest was filed for frivolous or improper purpose, including but not limited to, the purpose of harassing, causing unnecessary delay, or needless expense for the Agency. All litigation bonds shall be made payable to the Purchasing Division. In lieu of a bond, the protester may submit a cashier's check or certified check payable to the Purchasing Division. Cashier's or certified checks will be deposited with and held by the State Treasurer's office. If it is determined that the protest has not been filed for frivolous or improper purpose, the bond or deposit shall be returned in its entirety.

10. **ALTERNATES:** Any model, brand, or specification listed herein establishes the acceptable level of quality only and is not intended to reflect a preference for, or in any way favor, a particular brand or vendor. Vendors may bid alternates to a listed model or brand provided that the alternate is at least equal to the model or brand and complies with the required specifications. The equality of any alternate being bid shall be determined by the State at its sole discretion. Any Vendor bidding an alternate model or brand should clearly identify the alternate items in its bid and should include manufacturer's specifications, industry literature, and/or any other relevant documentation demonstrating the equality of the alternate items. Failure to provide information for alternate items may be grounds for rejection of a Vendor's bid.

11. **EXCEPTIONS AND CLARIFICATIONS:** The Solicitation contains the specifications that shall form the basis of a contractual agreement. Vendor shall clearly mark any exceptions, clarifications, or

other proposed modifications in its bid. Exceptions to, clarifications of, or modifications of a requirement or term and condition of the Solicitation may result in bid disqualification.

12. LIQUIDATED DAMAGES: Vendor shall pay liquidated damages in the amount N/A for N/A

This clause shall in no way be considered exclusive and shall not limit the State or Agency's right to pursue any other available remedy.

13. ACCEPTANCE/REJECTION: The State may accept or reject any bid in whole, or in part. Vendor's signature on its bid signifies acceptance of the terms and conditions contained in the Solicitation and Vendor agrees to be bound by the terms of the Contract, as reflected in the Purchase Order, upon receipt.

14. REGISTRATION: Prior to Contract award, the apparent successful Vendor must be properly registered with the West Virginia Purchasing Division and must have paid the $125 fee if applicable.

15. COMMUNICATION LIMITATIONS: In accordance with West Virginia Code of State Rules §148-1-6.6, communication with the State of West Virginia or any of its employees regarding this Solicitation during the solicitation, bid, evaluation or award periods, except through the Purchasing Division, is strictly prohibited without prior Purchasing Division approval. Purchasing Division approval for such communication is implied for all agency delegated and exempt purchases.

16. FUNDING: This Contract shall continue for the term stated herein, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise made available, this Contract becomes void and of no effect beginning on July 1 of the fiscal year for which funding has not been appropriated or otherwise made available.

17. PAYMENT: Payment in advance is prohibited under this Contract. Payment may only be made after the delivery and acceptance of goods or services. The Vendor shall submit invoices, in arrears, to the Agency at the address on the face of the purchase order labeled "Invoice To."

18. UNIT PRICE: Unit prices shall prevail in cases of a discrepancy in the Vendor's bid.

19. DELIVERY: All quotations are considered freight on board destination ("F.O.B. destination") unless alternate shipping terms are clearly identified in the bid. Vendor's listing of shipping terms that contradict the shipping terms expressly required by this Solicitation may result in bid disqualification.

20. INTEREST: Interest attributable to late payment will only be permitted if authorized by the West Virginia Code. Presently, there is no provision in the law for interest on late payments.

21. PREFERENCE: Vendor Preference may only be granted upon written request and only in accordance with the West Virginia Code § 5A-3-37 and the West Virginia Code of State Rules. A Resident Vendor Certification form has been attached hereto to allow Vendor to apply for the preference. Vendor's

failure to submit the Resident Vendor Certification form with its bid will result in denial of Vendor Preference. Vendor Preference does not apply to construction projects.

22. **SMALL, WOMEN-OWNED, OR MINORITY-OWNED BUSINESSES:** For any solicitations publicly advertised for bid on or after July 1, 2012, in accordance with West Virginia Code §5A-3-37(a)(7) and W. Va. CSR § 148-22-9, any non-resident vendor certified as a small, women-owned, or minority-owned business under W. Va. CSR § 148-22-9 shall be provided the same preference made available to any resident vendor. Any non-resident small, women-owned, or minority-owned business must identify itself as such in writing, must submit that writing to the Purchasing Division with its bid, and must be properly certified under W. Va. CSR § 148-22-9 prior to submission of its bid to receive the preferences made available to resident vendors. Preference for a non-resident small, women-owned, or minority owned business shall be applied in accordance with W. Va. CSR § 148-22-9.

23. **TAXES:** The Vendor shall pay any applicable sales, use, personal property or any other taxes arising out of this Contract and the transactions contemplated thereby. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.

24. **CANCELLATION:** The Purchasing Division Director reserves the right to cancel this Contract immediately upon written notice to the vendor if the materials or workmanship supplied do not conform to the specifications contained in the Contract. The Purchasing Division Director may cancel any purchase or Contract upon 30 days written notice to the Vendor in accordance with West Virginia Code of State Rules § 148-1-7.16.2.

25. **WAIVER OF MINOR IRREGULARITIES:** The Director reserves the right to waive minor irregularities in bids or specifications in accordance with West Virginia Code of State Rules § 148-1-4.6.

26. **TIME:** Time is of the essence with regard to all matters of time and performance in this Contract.

27. **APPLICABLE LAW**: This Contract is governed by and interpreted under West Virginia law without giving effect to its choice of law principles. Any information provided in specification manuals, or any other source, verbal or written, which contradicts or violates the West Virginia Constitution, West Virginia Code or West Virginia Code of State Rules is void and of no effect.

28. **COMPLIANCE**: Vendor shall comply with all applicable federal, state, and local laws, regulations and ordinances. By submitting a bid, Vendors acknowledge that they have reviewed, understand, and will comply with all applicable law.

29. **PREVAILING WAGE:** On any contract for the construction of a public improvement, Vendor and any subcontractors utilized by Vendor shall pay a rate or rates of wages which shall not be less than the fair minimum rate or rates of wages (prevailing wage), as established by the West Virginia Division of Labor under West Virginia Code §§ 21-5A-1 et seq. and available at http://www.sos.wv.gov/administrative-law/wagerates/Pages/default.aspx. Vendor shall be responsible for ensuring compliance with prevailing wage requirements and determining when prevailing wage

requirements are applicable. The required contract provisions contained in West Virginia Code of State Rules § 42-7-3 are specifically incorporated herein by reference.

30. **ARBITRATION:** Any references made to arbitration contained in this Contract, Vendor's bid, or in any American Institute of Architects documents pertaining to this Contract are hereby deleted, void, and of no effect.

31. **MODIFICATIONS**: This writing is the parties' final expression of intent. Notwithstanding anything contained in this Contract to the contrary, no modification of this Contract shall be binding without mutual written consent of the Agency, and the Vendor, with approval of the Purchasing Division and the Attorney General's office (Attorney General approval is as to form only). **No Change shall be implemented by the Vendor until such time as the Vendor receives an approved written change order from the Purchasing Division.**

32. **WAIVER:** The failure of either party to insist upon a strict performance of any of the terms or provision of this Contract, or to exercise any option, right, or remedy herein contained, shall not be construed as a waiver or a relinquishment for the future of such term, provision, option, right, or remedy, but the same shall continue in full force and effect. Any waiver must be expressly stated in writing and signed by the waiving party.

33. **SUBSEQUENT FORMS:** The terms and conditions contained in this Contract shall supersede any and all subsequent terms and conditions which may appear on any form documents submitted by Vendor to the Agency or Purchasing Division such as price lists, order forms, invoices, sales agreements, or maintenance agreements, and includes internet websites or other electronic documents. Acceptance or use of Vendor's forms does not constitute acceptance of the terms and conditions contained thereon.

34. **ASSIGNMENT**: Neither this Contract nor any monies due, or to become due hereunder, may be assigned by the Vendor without the express written consent of the Agency, the Purchasing Division, the Attorney General's office (as to form only), and any other government agency or office that may be required to approve such assignments. Notwithstanding the foregoing, Purchasing Division approval may or may not be required on certain agency delegated or exempt purchases.

35. **WARRANTY**: The Vendor expressly warrants that the goods and/or services covered by this Contract will: (a) conform to the specifications, drawings, samples, or other description furnished or specified by the Agency; (b) be merchantable and fit for the purpose intended; and (c) be free from defect in material and workmanship.

36. **STATE EMPLOYEES:** State employees are not permitted to utilize this Contract for personal use and the Vendor is prohibited from permitting or facilitating the same.

37. **BANKRUPTCY**: In the event the Vendor files for bankruptcy protection, the State of West Virginia may deem this Contract null and void, and terminate this Contract without notice.

38. [RESERVED]

39. CONFIDENTIALITY: The Vendor agrees that it will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the Agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the Agency's policies, procedures, and rules. Vendor further agrees to comply with the Confidentiality Policies and Information Security Accountability Requirements, set forth in http://www.state.wv.us/admin/purchase/privacy/default.html.

40. DISCLOSURE: Vendor's response to the Solicitation and the resulting Contract are considered public documents and will be disclosed to the public in accordance with the laws, rules, and policies governing the West Virginia Purchasing Division. Those laws include, but are not limited to, the Freedom of Information Act found in West Virginia Code § 29B-1-1 et seq.

If a Vendor considers any part of its bid to be exempt from public disclosure, Vendor must so indicate by specifically identifying the exempt information, identifying the exemption that applies, providing a detailed justification for the exemption, segregating the exempt information from the general bid information, and submitting the exempt information as part of its bid but in a segregated and clearly identifiable format. Failure to comply with the foregoing requirements will result in public disclosure of the Vendor's bid without further notice. A Vendor's act of marking all or nearly all of its bid as exempt is not sufficient to avoid disclosure and WILL NOT BE HONORED. Vendor's act of marking a bid or any part thereof as "confidential" or "proprietary" is not sufficient to avoid disclosure and WILL NOT BE HONORED. In addition, a legend or other statement indicating that all or substantially all of the bid is exempt from disclosure is not sufficient to avoid disclosure and WILL NOT BE HONORED. Vendor will be required to defend any claimed exemption for nondisclosure in the event of an administrative or judicial challenge to the State's nondisclosure. Vendor must indemnify the State for any costs incurred related to any exemptions claimed by Vendor. Any questions regarding the applicability of the various public records laws should be addressed to your own legal counsel prior to bid submission.

41. LICENSING: In accordance with West Virginia Code of State Rules §148-1-6.1.7, Vendor must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agency or political subdivision. Upon request, the Vendor must provide all necessary releases to obtain information to enable the Purchasing Division Director or the Agency to verify that the Vendor is licensed and in good standing with the above entities.

42. ANTITRUST: In submitting a bid to, signing a contract with, or accepting a Purchase Order from any agency of the State of West Virginia, the Vendor agrees to convey, sell, assign, or transfer to the State of West Virginia all rights, title, and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the State of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired

by the State of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to Vendor.

43. VENDOR CERTIFICATIONS: By signing its bid or entering into this Contract, Vendor certifies (1) that its bid was made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership, person or entity submitting a bid for the same material, supplies, equipment or services; (2) that its bid is in all respects fair and without collusion or fraud; (3) that this Contract is accepted or entered into without any prior understanding, agreement, or connection to any other entity that could be considered a violation of law; and (4) that it has reviewed this RFQ in its entirety; understands the requirements, terms and conditions, and other information contained herein. Vendor's signature on its bid also affirms that neither it nor its representatives have any interest, nor shall acquire any interest, direct or indirect, which would compromise the performance of its services hereunder. Any such interests shall be promptly presented in detail to the Agency.

The individual signing this bid on behalf of Vendor certifies that he or she is authorized by the Vendor to execute this bid or any documents related thereto on Vendor's behalf; that he or she is authorized to bind the Vendor in a contractual relationship; and that, to the best of his or her knowledge, the Vendor has properly registered with any State agency that may require registration.

44. PURCHASING CARD ACCEPTANCE: The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract unless the box below is checked.

☐ Vendor is not required to accept the State of West Virginia's Purchasing Card as payment for all goods and services.

45. VENDOR RELATIONSHIP: The relationship of the Vendor to the State shall be that of an independent contractor and no principal-agent relationship or employer-employee relationship is contemplated or created by this Contract. The Vendor as an independent contractor is solely liable for the acts and omissions of its employees and agents. Vendor shall be responsible for selecting, supervising, and compensating any and all individuals employed pursuant to the terms of this Solicitation and resulting contract. Neither the Vendor, nor any employees or subcontractors of the Vendor, shall be deemed to be employees of the State for any purpose whatsoever. Vendor shall be exclusively responsible for payment of employees and contractors for all wages and salaries, taxes, withholding payments, penalties, fees, fringe benefits, professional liability insurance premiums, contributions to insurance and pension, or other deferred compensation plans, including but not limited to, Workers' Compensation and Social Security obligations, licensing fees, *etc.* and the filing of all necessary documents, forms and returns pertinent to all of the foregoing. Vendor shall hold harmless the State, and shall provide the State and Agency with a defense against any and all claims including, but not limited to, the foregoing payments, withholdings, contributions, taxes, Social Security taxes, and employer income tax returns.

46. INDEMNIFICATION: The Vendor agrees to indemnify, defend, and hold harmless the State and the Agency, their officers, and employees from and against: (1) Any claims or losses for services rendered

by any subcontractor, person, or firm performing or supplying services, materials, or supplies in connection with the performance of the Contract; (2) Any claims or losses resulting to any person or entity injured or damaged by the Vendor, its officers, employees, or subcontractors by the publication, translation, reproduction, delivery, performance, use, or disposition of any data used under the Contract in a manner not authorized by the Contract, or by Federal or State statutes or regulations; and (3) Any failure of the Vendor, its officers, employees, or subcontractors to observe State and Federal laws including, but not limited to, labor and wage and hour laws.

47. PURCHASING AFFIDAVIT: In accordance with West Virginia Code § 5A-3-10a, all Vendors are required to sign, notarize, and submit the Purchasing Affidavit stating that neither the Vendor nor a related party owe a debt to the State in excess of $1,000. The affidavit must be submitted prior to award, but should be submitted with the Vendor's bid. A copy of the Purchasing Affidavit is included herewith.

48. ADDITIONAL AGENCY AND LOCAL GOVERNMENT USE: This Contract may be utilized by and extends to other agencies, spending units, and political subdivisions of the State of West Virginia; county, municipal, and other local government bodies; and school districts ("Other Government Entities"). This Contract shall be extended to the aforementioned Other Government Entities on the same prices, terms, and conditions as those offered and agreed to in this Contract. If the Vendor does not wish to extend the prices, terms, and conditions of its bid and subsequent contract to the Other Government Entities, the Vendor must clearly indicate such refusal in its bid. A refusal to extend this Contract to the Other Government Entities shall not impact or influence the award of this Contract in any manner.

49. CONFLICT OF INTEREST: Vendor, its officers or members or employees, shall not presently have or acquire any interest, direct or indirect, which would conflict with or compromise the performance of its obligations hereunder. Vendor shall periodically inquire of its officers, members and employees to ensure that a conflict of interest does not arise. Any conflict of interest discovered shall be promptly presented in detail to the Agency.

50. REPORTS: Vendor shall provide the Agency and/or the Purchasing Division with the following reports identified by a checked box below:

☑ Such reports as the Agency and/or the Purchasing Division may request. Requested reports may include, but are not limited to, quantities purchased, agencies utilizing the contract, total contract expenditures by agency, etc.

☐ Quarterly reports detailing the total quantity of purchases in units and dollars, along with a listing of purchases by agency. Quarterly reports should be delivered to the Purchasing Division via email at purchasing.requisitions@wv.gov.

51. BACKGROUND CHECK: In accordance with W. Va. Code § 15-2D-3, the Director of the Division of Protective Services shall require any service provider whose employees are regularly employed on the grounds or in the buildings of the Capitol complex or who have access to sensitive or critical information

to submit to a fingerprint-based state and federal background inquiry through the state repository. The service provider is responsible for any costs associated with the fingerprint-based state and federal background inquiry.

After the contract for such services has been approved, but before any such employees are permitted to be on the grounds or in the buildings of the Capitol complex or have access to sensitive or critical information, the service provider shall submit a list of all persons who will be physically present and working at the Capitol complex to the Director of the Division of Protective Services for purposes of verifying compliance with this provision.

The State reserves the right to prohibit a service provider's employees from accessing sensitive or critical information or to be present at the Capitol complex based upon results addressed from a criminal background check.

Service providers should contact the West Virginia Division of Protective Services by phone at (304)558-9911 for more information.

52. PREFERENCE FOR USE OF DOMESTIC STEEL PRODUCTS: Except when authorized by the Director of the Purchasing Division pursuant to W. Va. Code § 5A-3-56, no contractor may use or supply steel products for a State Contract Project other than those steel products made in the United States. A contractor who uses steel products in violation of this section may be subject to civil penalties pursuant to W. Va. Code § 5A-3-56. As used in this section:

a. "State Contract Project" means any erection or construction of, or any addition to, alteration of or other improvement to any building or structure, including, but not limited to, roads or highways, or the installation of any heating or cooling or ventilating plants or other equipment, or the supply of and materials for such projects, pursuant to a contract with the State of West Virginia for which bids were solicited on or after June 6, 2001.

b. "Steel Products" means products rolled, formed, shaped, drawn, extruded, forged, cast, fabricated or otherwise similarly processed, or processed by a combination of two or more or such operations, from steel made by the open heath, basic oxygen, electric furnace, Bessemer or other steel making process.

The Purchasing Division Director may, in writing, authorize the use of foreign steel products if:

a. The cost for each contract item used does not exceed one tenth of one percent (.1%) of the total contract cost or two thousand five hundred dollars ($2,500.00), whichever is greater. For the purposes of this section, the cost is the value of the steel product as delivered to the project; or

b. The Director of the Purchasing Division determines that specified steel materials are not produced in the United States in sufficient quantity or otherwise are not reasonably available to meet contract requirements.

53. PREFERENCE FOR USE OF DOMESTIC ALUMINUM, GLASS, AND STEEL: In Accordance with W. Va. Code § 5-19-1 et seq., and W. Va. CSR § 148-10-1 et seq., for every contract or subcontract, subject to the limitations contained herein, for the construction, reconstruction, alteration, repair, improvement or maintenance of public works or for the purchase of any item of machinery or equipment to be used at sites of public works, only domestic aluminum, glass or steel products shall be supplied unless the spending officer determines, in writing, after the receipt of offers or bids, (1) that the cost of domestic aluminum, glass or steel products is unreasonable or inconsistent with the public interest of the State of West Virginia, (2) that domestic aluminum, glass or steel products are not produced in sufficient quantities to meet the contract requirements, or (3) the available domestic aluminum, glass, or steel do not meet the contract specifications. This provision only applies to public works contracts awarded in an amount more than fifty thousand dollars ($50,000) or public works contracts that require more than ten thousand pounds of steel products.

The cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than twenty percent (20%) of the bid or offered price for foreign made aluminum, glass, or steel products. If the domestic aluminum, glass or steel products to be supplied or produced in a "substantial labor surplus area", as defined by the United States Department of Labor, the cost of domestic aluminum, glass, or steel products may be unreasonable if the cost is more than thirty percent (30%) of the bid or offered price for foreign made aluminum, glass, or steel products.

This preference shall be applied to an item of machinery or equipment, as indicated above, when the item is a single unit of equipment or machinery manufactured primarily of aluminum, glass or steel, is part of a public works contract and has the sole purpose or of being a permanent part of a single public works project. This provision does not apply to equipment or machinery purchased by a spending unit for use by that spending unit and not as part of a single public works project.

All bids and offers including domestic aluminum, glass or steel products that exceed bid or offer prices including foreign aluminum, glass or steel products after application of the preferences provided in this provision may be reduced to a price equal to or lower than the lowest bid or offer price for foreign aluminum, glass or steel products plus the applicable preference. If the reduced bid or offer prices are made in writing and supersede the prior bid or offer prices, all bids or offers, including the reduced bid or offer prices, will be reevaluated in accordance with this rule.

REQUEST FOR QUOTATION
6614C018
Ready Mixed Portland Cement Concrete
And Controlled Low-Strength Material

SPECIFICATIONS

1. **PURPOSE AND SCOPE:** The West Virginia Purchasing Division is soliciting bids on behalf of the West Virginia Division of Highways to establish an open-end contract for Ready Mixed Portland Cement Concrete and Controlled Low-Strength Material (CLSM).

2. **DEFINITIONS:** The terms listed below shall have the meanings assigned to them below. Additional definitions can be found in section 2 of the General Terms and Conditions.

   2.1 **"Contract Item"** or **"Contract Items"** means the list of items identified in Section III, Subsection 2 below.

   2.2 **"Pricing Pages"** means the schedule of prices, estimated order quantity, and totals attached hereto as Exhibit A and used to evaluate the RFQ.

   2.3 **"RFQ"** means the official request for quotation published by the Purchasing Division and identified as 6614C018.

   2.4 **"WVDOH"** used through this RFQ means the West Virginia Division of Highways.

   2.5 **"Contractor"** or **"Vendor"** used throughout this RFQ and in any cited sections of the West Virginia Department of Transportation, Division of Highways Standard Specifications, Roads and Bridges, adopted 2010, as modified by the January 1, 2011 Supplemental Specifications, the January 1, 2012 Supplemental Specifications and the January 1, 2013 Supplemental Specifications are interchangeable.

3. **GENERAL REQUIREMENTS:**

   3.1. **Specifications:** The following section of the West Virginia Department of Transportation, Division of Highways Standard Specifications, Roads and Bridges, adopted 2010, as modified by the January 1, 2011 Supplemental Specifications and the January 1, 2012 Supplemental Specifications, shall apply to the administration of this contract: sections 101, 102.4, 102.5, 105.1, 105.3, 105.4, 105.10, 105.11, 105.12, 105.13, 106.3, 106.4, 106.5, 106.6, 106.7, 106.9, 107.1, 107.2, 107.3, 107.14, 107.19, 107.20, 108.8, 108.9, 109.1, 109.2 and 109.20. Please see copies attached.

Materials and equipment shall conform to the requirements of Section 219 and 601. Please see copies attached.

A complete copy of these Standard Specifications and Supplements may be obtained from:

West Virginia Division of Highways
Contract Administration
Building 5, Room 722
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305
(Phone) 304-558-2885
http://www.transportation.wv.gov/highways/contractadmin/specifications/2010StandSpec/Pages/default.aspx

3.2 **Contract Items and Mandatory Requirements:** Vendor shall provide Agency with the Contract Items listed below on an open-end and continuing basis. Contract Items must meet or exceed the mandatory requirements as shown below.

3.2.1 **Ready Mixed Portland Cement Concrete**

3.2.2 **Controlled Low-Strength Material (CLSM)**

3.2.3 **Certified Plant:** Vendors must source a certified plant from the certified plant list with the WVDOH, Materials Control, Soils and Testing Division. This certified plant list establishes a list of certified plants that have met the acceptable level of quality and is not intended to reflect a preference or favor to any plant or Vendor. Any plant meeting the established level of quality may be added to the certified plant list in accordance with the approved procedures found in IM-18, copy attached. Most recent published list, dated 09/05/2013, is attached. These procedures may be obtained at:

West Virginia Division of Highways
Materials Control, Soils and Testing Division
190 Dry Branch Drive
Charleston, West Virginia 25306
304-558-9846
http://www.transportation.wv.gov/highways/mcst/pages/materialprocedures.aspx

If a plant's certification expires during the life of this Contract, the plant will remain non-certified until the appropriate renewal certification information is provided to the Materials Control, Soils and Testing Division according to IM-18.

3.2.4 **Material Testing:** The Vendor will conduct all tests required by the specifications to be performed at the certified plant. Any job site testing

required by the Standard Specifications will be performed by the WVDOH.

3.2.5 **Temperature Control:** The Vendor is required to meet the temperature requirements as set forth in the Standard Specifications.

3.2.6 **Admixtures:** All concrete shall be air-entrained. The cost of air-entraining shall be included in the Unit Bid Price of the concrete on the Pricing Pages and no additional charge for air-entraining agent will be allowed under Item N, Admixture, on the Pricing Pages.

4. CONTRACT AWARD:

4.1 **Contract Award:** The Contract is intended to provide Agencies with a purchase price on all Contract Items. The Contract shall be awarded to all responsible Vendors that provide the Contract Items meeting the required specifications.

The Vendor providing pricing and information for a plant on the Pricing Pages that is NOT currently certified shall be issued a Contract; however, an Agency Release will not be issued for Contract Items UNTIL such time that the plant becomes certified in accordance with IM-18.

4.2 **Pricing Pages:** Vendor should complete the Pricing Pages by providing a unit price for each Contract Item bid. Vendor may bid any or all Contract Items on the Pricing Pages.

The unit price quoted for Items A through J shall include delivery within five miles of the Vendor's plant. Additional Haul, Item K, has two bid options, Option A and Option B. Vendor may bid either or both options. If both options are bid by the Vendor, the WVDOH will select the most cost effective option when determining low bid for each project/job based on the lowest overall total cost of the material, Items A through J, plus the additional haul cost, Item K, plus any additional charges, Items L through P.

Item Q, the Vendor shall provide the source provider/plant name and physical address for the Contract Items bid, per District. It shall not be assumed by the Vendor that the WVDOH or any other State of WV representative will provide the information required in Item Q for the Vendor.

Item R, the Vendor should provide the Certified Plant Code Number and whether the plant's certification is current with IM-18 for each plant bid, per District.

The Vendor shall submit a separate set of Pricing Pages for each source provider/plant bid, per District.

Notwithstanding the foregoing, the Purchasing Division may correct errors at its discretion. Vendor should type or electronically enter the information into the Pricing Pages to prevent errors in the evaluation. The Pricing Pages were created as a Microsoft Excel document and Vendor can request an electronic copy for bid purposes by sending an email request to the following address: crystal.g.rink@wv.gov.

5. **DETERMING LOW BID PER PROJECT:** The WVDOH District Engineer will calculate the lowest overall total cost of the material, Items A through J, plus any additional haul cost, Item K, plus any additional charges, Items L though P.

The Additional Haul distances, in excess of five miles from the Vendor's plant, Item K, will be over suitable routes selected by the WVDOH District Engineer. The route shall be measured from the Vendor's plant to the job site. All such chosen routes shall have acceptable load limits for both roads and bridges.

The WVDOH District Engineer will calculate the in-state distance utilizing the WVDOH Straight Line Diagrams. These Diagrams for WV Primary Route and WV Secondary Routes are available in each WVDOH's District Office and the WVDOH Central Office. The WVDOH will determine the route to be taken due to bridge and/or road restrictions.

Out-of-state delivery route mileage will be calculated by the WVDOH utilizing "Google Maps" or a similar source for routing from the Vendor's plant location to the WV State line at which time, the Straight Line Diagrams will be sourced to the WVDOH job site.

6. **ORDERING AND PAYMENT:**

6.1 **Ordering:** Vendor shall accept orders by regular mail, facsimile, e-mail, or any other written forms of communication. Vendor may, but is not required to, accept on-line orders through a secure internet ordering portal/website. If Vendor has the ability to accept on-line orders, it should include in its response a brief description of how Agencies may utilize the on-line ordering system. Any on-line ordering system must have the capability to restrict prices and available items to conform to the Catalog originally submitted with this RFQ. Vendor shall ensure that its on-line ordering system is properly secured prior to processing Agency orders on-line.

6.2 Payment: Vendor shall accept payment in accordance with the payment procedures of the State of West Virginia. The State of West Virginia currently utilizes a Purchasing Card program, administered under contract by a banking institution, to process payment for goods and services. The Vendor must accept the State of West Virginia's Purchasing Card for payment of all orders under this Contract.

7. DELIVERY AND RETURN:

7.1 Delivery Time: Vendor shall deliver standard orders within the number of working days provided on the Agency Release after orders are received. Vendor shall deliver emergency orders within an agreed upon delivery date between the WVDOH and the Vendor after orders are received. Vendor shall ship all orders in accordance with the agreed schedule and shall not hold orders until a minimum delivery quantity is met.

7.2 Late Delivery: The Agency placing the order under this Contract must be notified in writing if orders will be delayed for any reason. Any delay in delivery that could cause harm to an Agency will be grounds for cancellation of the delayed order, and/or obtaining the items ordered from a third party.

Any Agency seeking to obtain items from a third party under this provision must first obtain approval of the Purchasing Division.

7.3 Delivery Payment/Risk of Loss: Standard order delivery shall be F.O.B. destination to the Agency's location. Vendor shall include the cost of standard order delivery charges in its bid pricing/discount and is not permitted to charge the Agency separately for such delivery. The Agency will pay delivery charges on all emergency orders provided that Vendor invoices those delivery costs as a separate charge with the original freight bill attached to the invoice.

7.4 Return of Unacceptable Items: If the Agency deems the Contract Items to be unacceptable, the Contract Items shall be returned to Vendor at Vendor's expense and with no restocking charge. Vendor shall either make arrangements for the return within five (5) days of being notified that items are unacceptable, or permit the Agency to arrange for the return and reimburse Agency for delivery expenses. If the original packaging cannot be utilized for the return, Vendor will supply the Agency with appropriate return packaging upon request. All returns of unacceptable items shall be F.O.B. the Agency's location. The returned product shall either be replaced, or the Agency shall receive a full credit or refund for the purchase price, at the Agency's discretion.

7.5 **Return Due to Agency Error:** Items ordered in error by the Agency will be returned for credit within 30 days of receipt, F.O.B. Vendor's location. Vendor shall not charge a restocking fee if returned products are in a resalable condition. Items shall be deemed to be in a resalable condition if they are unused and in the original packaging. Any restocking fee for items not in a resalable condition shall be the lower of the Vendor's customary restocking fee or 5% of the total invoiced value of the returned items.

8. MISCELLANEOUS:

8.1 **No Substitutions:** Vendor shall supply only Contract Items submitted in response to the RFQ unless a contract modification is approved in accordance with the provisions contained in this Contract.

8.2 **Vendor Supply:** Vendor must carry sufficient inventory of the Contract Items being offered to fulfill its obligations under this Contract. By signing its bid, Vendor certifies that it can supply the Contract Items contained in its bid response.

8.3 **Reports:** Vendor shall provide quarterly reports and annual summaries to the Agency showing the Agency's items purchased, quantities of items purchased, and total dollar value of the items purchased. Vendor shall also provide reports, upon request, showing the items purchased during the term of this Contract, the quantity purchased for each of those items, and the total value of purchases for each of those items. Failure to supply such reports may be grounds for cancellation of this Contract.

8.4 **Contract Manager:** During its performance of this Contract, Vendor must designate and maintain a primary contract manager responsible for overseeing Vendor's responsibilities under this Contract. The Contract manager must be available during normal business hours to address any customer service or other issues related to this Contract. Vendor should list its Contract manager and his or her contact information below.

Contract Manager: Sammy Geso
Telephone Number: 304-320-6194
Fax Number: 304-392-5828
Email Address: sgeso@boxley.com

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 1 - Boone County, Clay County, Kanawha County, Mason County and Putnam County (CY = Cubic Yard)

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete				
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete				
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A				
I	CLSM Type B				
J	CLSM Type C				
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A		Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes			see below	
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:				
			Cost per CY		
M	Charge per bag for increased cement content above the target value			Cost per CY	
N	Admixture:				
	1) Water-reducing set retarder			Cost per CY	
	2) Water reducer			Cost per CY	
	3) Calcium chloride based accelerator			Cost per OZ	
	(HE-122 or approved equal _____)				
	4) Non-calcium chloride based accelerator			Cost per OZ	
	(Darex Set accelerator or approved equal _____)				
	5) Super plasticizer (Eucon 37 or			Cost per CY	
	approved equal _____)				
	6) Fiber			Cost per CY	
	7) Heated Concrete			Cost per CY	
	8) Ice			Cost per pound	

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 1 - Boone County, Clay County, Kanawha County, Mason County and Putnam County

(CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor		Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH		Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.		per truck minute	
Q	Source/Provider/Plant Name			
	Physical Address			
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?		YES	NO
	If YES, please provide the Certified Plant Code Number:			
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 2 - Cabell County, Lincoln County, Logan County, Mingo County and Wayne County (CY = Cubic Yard)

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete				
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete				
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A				
I	CLSM Type B				
J	CLSM Type C				
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A		Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes		see below		
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:		Cost per CY		
M	Charge per bag for increased cement content above the target value		Cost per CY		
N	Admixture:				
	1) Water-reducing set retarder		Cost per CY		
	2) Water reducer		Cost per CY		
	3) Calcium chloride based accelerator		Cost per OZ		
	(HE-122 or approved equal _____)				
	4) Non-calcium chloride based accelerator		Cost per OZ		
	(Darex Set accelerator or approved equal _____)				
	5) Super plasticizer (Eucon 37 or		Cost per CY		
	approved equal _____)				
	6) Fiber		Cost per CY		
	7) Heated Concrete		Cost per CY		
	8) Ice		Cost per pound		

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 2 - Cabell County, Lincoln County, Logan County, Mingo County and Wayne County

(CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor		Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH		Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.		per truck minute	
Q	Source/Provider/Plant Name			
	Physical Address			
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?		YES	NO
	If YES, please provide the Certified Plant Code Number:			
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 3 - Calhoun County, Jackson County, Pleasants County, (CY = Cubic Yard)
Ritchie County, Roane County, Wirt County and Wood County

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete				
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete				
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A				
I	CLSM Type B				
J	CLSM Type C				
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A		Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes			see below	
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:				
			Cost per CY		
M	Charge per bag for increased cement content above the target value			Cost per CY	
N	Admixture:				
	1) Water-reducing set retarder			Cost per CY	
	2) Water reducer			Cost per CY	
	3) Calcium chloride based accelerator			Cost per OZ	
	(HE-122 or approved equal _____)				
	4) Non-calcium chloride based accelerator			Cost per OZ	
	(Darex Set accelerator or approved equal _____)				
	5) Super plasticizer (Eucon 37 or			Cost per CY	
	approved equal _____)				
	6) Fiber			Cost per CY	
	7) Heated Concrete			Cost per CY	
	8) Ice			Cost per pound	

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 3 - Calhoun County, Jackson County, Pleasants County, Ritchie County, Roane County, Wirt County and Wood County (CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor		Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH		Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.		per truck minute	
Q	Source/Provider/Plant Name			
	Physical Address			
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?		YES	NO
	If YES, please provide the Certified Plant Code Number:			
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 4 - Doddridge County, Harrison County, Marion County, (CY = Cubic Yard)
Monongalia County, Preston County and Taylor County

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete				
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete				
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A				
I	CLSM Type B				
J	CLSM Type C				
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A		Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes		see below		
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:		Cost per CY		
M	Charge per bag for increased cement content above the target value		Cost per CY		
N	Admixture:				
	1) Water-reducing set retarder		Cost per CY		
	2) Water reducer		Cost per CY		
	3) Calcium chloride based accelerator		Cost per OZ		
	(HE-122 or approved equal _____)				
	4) Non-calcium chloride based accelerator		Cost per OZ		
	(Darex Set accelerator or approved equal _____)				
	5) Super plasticizer (Eucon 37 or		Cost per CY		
	approved equal _____)				
	6) Fiber		Cost per CY		
	7) Heated Concrete		Cost per CY		
	8) Ice		Cost per pound		

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 4 - Doddridge County, Harrison County, Marion County, Monongalia County, Preston County and Taylor County (CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor		Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH		Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.		per truck minute	
Q	Source/Provider/Plant Name			
	Physical Address			
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?		YES	NO
	If YES, please provide the Certified Plant Code Number:			
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 5 - Berkeley County, Grant County, Hampshire County, (CY = Cubic Yard)
Hardy County, Jefferson County, Mineral County and Morgan County

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete				
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete				
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A				
I	CLSM Type B				
J	CLSM Type C				
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A		Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes		see below		
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:				
		Cost per CY			
M	Charge per bag for increased cement content above the target value		Cost per CY		
N	Admixture:				
	1) Water-reducing set retarder		Cost per CY		
	2) Water reducer		Cost per CY		
	3) Calcium chloride based accelerator		Cost per OZ		
	(HE-122 or approved equal _____)				
	4) Non-calcium chloride based accelerator		Cost per OZ		
	(Darex Set accelerator or approved equal _____)				
	5) Super plasticizer (Eucon 37 or		Cost per CY		
	approved equal _____)				
	6) Fiber		Cost per CY		
	7) Heated Concrete		Cost per CY		
	8) Ice		Cost per pound		

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 5 - Berkeley County, Grant County, Hampshire County, Hardy County, Jefferson County, Mineral County and Morgan County (CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor		Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH		Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.		per truck minute	
Q	Source/Provider/Plant Name			
	Physical Address			
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?		YES	NO
	If YES, please provide the Certified Plant Code Number:			
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 6 - Brooke County, Hancock County, Marshall County, Ohio County, Tyler County and Wetzel County (CY = Cubic Yard)

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete				
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete				
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A				
I	CLSM Type B				
J	CLSM Type C				
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A		Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes		see below		
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:		Cost per CY		
M	Charge per bag for increased cement content above the target value		Cost per CY		
N	Admixture:				
	1) Water-reducing set retarder		Cost per CY		
	2) Water reducer		Cost per CY		
	3) Calcium chloride based accelerator		Cost per OZ		
	(HE-122 or approved equal _____)				
	4) Non-calcium chloride based accelerator		Cost per OZ		
	(Darex Set accelerator or approved equal _____)				
	5) Super plasticizer (Eucon 37 or		Cost per CY		
	approved equal _____)				
	6) Fiber		Cost per CY		
	7) Heated Concrete		Cost per CY		
	8) Ice		Cost per pound		

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 6 - Brooke County, Hancock County, Marshall County, Ohio County, Tyler County and Wetzel County (CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor		Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH		Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.		per truck minute	
Q	Source/Provider/Plant Name			
	Physical Address			
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?		YES	NO
	If YES, please provide the Certified Plant Code Number:			
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 7 - Barbour County, Braxton County, Gilmer County, Lewis County, Upshur County and Webster County (CY = Cubic Yard)

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete				
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete				
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A				
I	CLSM Type B				
J	CLSM Type C				
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A		Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes		see below		
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:				
		Cost per CY			
M	Charge per bag for increased cement content above the target value		Cost per CY		
N	Admixture:				
	1) Water-reducing set retarder		Cost per CY		
	2) Water reducer		Cost per CY		
	3) Calcium chloride based accelerator		Cost per OZ		
	(HE-122 or approved equal _____)				
	4) Non-calcium chloride based accelerator		Cost per OZ		
	(Darex Set accelerator or approved equal _____)				
	5) Super plasticizer (Eucon 37 or		Cost per CY		
	approved equal _____)				
	6) Fiber		Cost per CY		
	7) Heated Concrete		Cost per CY		
	8) Ice		Cost per pound		

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 7 - Barbour County, Braxton County, Gilmer County, Lewis County, Upshur County and Webster County (CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor		Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH		Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.		per truck minute	
Q	Source/Provider/Plant Name			
	Physical Address			
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?		YES	NO
	If YES, please provide the Certified Plant Code Number:			
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 8 - Pendleton County, Pocahontas County, (CY = Cubic Yard)
Randolph County and Tucker County

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete				
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete				
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A				
I	CLSM Type B				
J	CLSM Type C				
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A		Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes		see below		
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:				
		Cost per CY			
M	Charge per bag for increased cement content above the target value		Cost per CY		
N	Admixture:				
	1) Water-reducing set retarder		Cost per CY		
	2) Water reducer		Cost per CY		
	3) Calcium chloride based accelerator		Cost per OZ		
	(HE-122 or approved equal _____)				
	4) Non-calcium chloride based accelerator		Cost per OZ		
	(Darex Set accelerator or approved equal _____)				
	5) Super plasticizer (Eucon 37 or		Cost per CY		
	approved equal _____)				
	6) Fiber		Cost per CY		
	7) Heated Concrete		Cost per CY		
	8) Ice		Cost per pound		

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 8 - Pendleton County, Pocahontas County, Randolph County and Tucker County

(CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor		Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH		Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.		per truck minute	
Q	Source/Provider/Plant Name			
	Physical Address			
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?		YES	NO
	If YES, please provide the Certified Plant Code Number:			
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 9 - Fayette County, Greenbrier County, Monroe County, Nicholas County and Summers County (CY = Cubic Yard)

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete				
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete				
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A				
I	CLSM Type B				
J	CLSM Type C				
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A		Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes			see below	
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:				
			Cost per CY		
M	Charge per bag for increased cement content above the target value			Cost per CY	
N	Admixture:				
	1) Water-reducing set retarder			Cost per CY	
	2) Water reducer			Cost per CY	
	3) Calcium chloride based accelerator			Cost per OZ	
	(HE-122 or approved equal _____)				
	4) Non-calcium chloride based accelerator			Cost per OZ	
	(Darex Set accelerator or approved equal _____)				
	5) Super plasticizer (Eucon 37 or			Cost per CY	
	approved equal _____)				
	6) Fiber			Cost per CY	
	7) Heated Concrete			Cost per CY	
	8) Ice			Cost per pound	

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 9 - Fayette County, Greenbrier County, Monroe County, Nicholas County and Summers County (CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor		Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH		Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.		per truck minute	
Q	Source/Provider/Plant Name			
	Physical Address			
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?		YES	NO
	If YES, please provide the Certified Plant Code Number:			
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 10 - McDowell County, Mercer County, (CY = Cubic Yard)
Raleigh County and Wyoming County

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete	124.00	118.75	113.50	111.75
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete	147.25	141.50	137.75	135.50
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A	89.75	88.00	86.25	84.50
I	CLSM Type B	94.75	93.00	91.25	89.50
J	CLSM Type C	97.75	96.00	94.25	92.50
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A	2.10	Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes	Yes	see below		
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:				
		18.00	Cost per CY		
M	Charge per bag for increased cement content above the target value		7.50	Cost per CY	
N	Admixture:				
	1) Water-reducing set retarder		5.50	Cost per CY	
	2) Water reducer		3.50	Cost per CY	
	3) Calcium chloride based accelerator 1%		4.50	Cost per OZ	
	(HE-122 or approved equal ____ 2%		5.5		
	4) Non-calcium chloride based accelerator 1%		6.00	Cost per OZ	
	(Darex Set accelerator or approved equal 2%		8.25		
	5) Super plasticizer (Eucon 37 or		6.50	Cost per CY	
	approved equal _____)				
	6) Fiber		7.50	Cost per CY	
	7) Heated Concrete		4.00	Cost per CY	
	8) Ice		0.50	Cost per pound	

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 10 - McDowell County, Mercer County, Raleigh County and Wyoming County

(CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor	40.00	Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH	30.00	Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.	1.00	per truck minute	
Q	Source/Provider/Plant Name Physical Address	(P197A) 101 Westview Avenue Princeton, WV 24740		
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?	Yes YES		NO
	If YES, please provide the Certified Plant Code Number:		P197A	
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 10 - McDowell County, Mercer County, (CY = Cubic Yard)
Raleigh County and Wyoming County

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete	124.00	118.75	113.50	111.75
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete	147.25	141.50	137.75	135.50
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A	89.75	88.00	86.25	84.50
I	CLSM Type B	94.75	93.00	91.25	89.50
J	CLSM Type C	97.75	96.00	94.25	92.50
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A	2.10	Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
		Yes	Yes	see below	
		No			
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:				
		18.00	Cost per CY		
M	Charge per bag for increased cement content above the target value		7.50	Cost per CY	
N	Admixture:				
	1) Water-reducing set retarder		5.50	Cost per CY	
	2) Water reducer		3.50	Cost per CY	
	3) Calcium chloride based accelerator 1%		4.50	Cost per OZ	
	(HE-122 or approved equal ____ 2%		5.5		
	4) Non-calcium chloride based accelerator 1%		6.00	Cost per OZ	
	(Darex Set accelerator or approved equal 2%		8.25		
	5) Super plasticizer (Eucon 37 or		6.50	Cost per CY	
	approved equal _____)				
	6) Fiber		7.50	Cost per CY	
	7) Heated Concrete		4.00	Cost per CY	
	8) Ice		0.50	Cost per pound	

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 10 - McDowell County, Mercer County, Raleigh County and Wyoming County

(CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor	40.00	Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH	30.00	Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.	1.00	per truck minute	
Q	Source/Provider/Plant Name	(L144C) HC 64 Box 107		
	Physical Address	Welch, WV 24801		
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?	Yes	YES	NO
	If YES, please provide the Certified Plant Code Number:		L144C	
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

Pricing Pages 6614C018 Unit Bid Price for Items A through J shall include
Exhibit A delivery within five (5) miles of Vendor's Plant.

DISTRICT 10 - McDowell County, Mercer County, (CY = Cubic Yard)
Raleigh County and Wyoming County

Item	Item Description	Cost per 2-2.99 CY	Cost per 3-3.99 CY	Cost per 4-4.99 CY	Cost per 5 CY & Over
A	Class A Concrete				
B	Class B Concrete	124.00	118.75	113.50	111.75
C	Class C Concrete				
D	Class D Concrete				
E	Class K Concrete				
F	Class H Concrete	147.25	141.50	137.75	135.50
G	Modified Class K Concrete, 8 1/2 Bag Mix, Siliceous Sand				
H	CLSM Type A	89.75	88.00	86.25	84.50
I	CLSM Type B	94.75	93.00	91.25	89.50
J	CLSM Type C	97.75	96.00	94.25	92.50
K	Additional Haul: Vendor may bid either or both options; however, the WVDOH will select the most cost effective option:				
	Option A	2.10	Cost per CY per mile over five (5) miles		
	Option B		Cost per truck load per mile over five (5) miles		
L	Will Class B Concrete, supplied at the price quoted above, contain limestone sand?				
	Yes	Yes	see below		
	No				
	If Yes, state additional charge to provide Class B Concrete using siliceous sand:				
	18.00	Cost per CY			
M	Charge per bag for increased cement content above the target value	7.50	Cost per CY		
N	Admixture:				
	1) Water-reducing set retarder	5.50	Cost per CY		
	2) Water reducer	3.50	Cost per CY		
	3) Calcium chloride based accelerator 1%	4.50	Cost per OZ		
	(HE-122 or approved equal ____ 2%	5.5			
	4) Non-calcium chloride based accelerator 1%	6.00	Cost per OZ		
	(Darex Set accelerator or approved equal 2%	8.25			
	5) Super plasticizer (Eucon 37 or	6.50	Cost per CY		
	approved equal _____)				
	6) Fiber	7.50	Cost per CY		
	7) Heated Concrete	4.00	Cost per CY		
	8) Ice	0.50	Cost per pound		

Pricing Pages (cont.) 6614C018
Exhibit A

DISTRICT 10 - McDowell County, Mercer County, Raleigh County and Wyoming County

(CY = Cubic Yard)

O	Due to time constraints, the cement may have to be added to the transit mixer at the project site using Division of Highways personnel. Please state any additional charges as follows:			
	1) Cement provided and transported to project site by Vendor	40.00	Cost per CY	
	2) Cement provided by Vendor and transported from the Vendor's plant to project sight by WVDOH	30.00	Cost per CY	
P	Penalty Charge for unloading time in excess of ten (10) minutes per cubic yard.	1.00	per truck minute	
Q	Source/Provider/Plant Name	(U017B) 191 St Clair's Crossing		
	Physical Address	Bluefield, VA 24605		
R	Is Plant currently certified in accordance with IM-18 as specified in Section 3.2.3 of this contract?	Yes	YES	NO
	If YES, please provide the Certified Plant Code Number:	U017B		
	If NO, a Contract will be issued for this plant; however, an Agency Release will not be issued for material until such time that the plant becomes certified in accordance with IM-18 as specified in Section 3.2.3. Please contact Materials Control, Soils and Testing.			

NOTE: According to Section 4.2, if the Vendor is supplying materials from more than one source provider/plant, a separate Pricing Page ***MUST*** be submitted for each plant, per District.

SECTION 101
DEFINITION OF TERMS

101.1-ABBREVIATIONS:

Whenever the following abbreviations are used in these Specifications, Plans or Contract Documents, they are to be construed the same as the respective expressions represented:

AAN	American Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AIA	American Institute of Architects
AISC	American Institute of Steel Construction, Incorporated
AISI	American Iron and Steel Institute
AMA	Automotive Manufacturer's Association
AMS	Aerospace Material Specification
ANSI	American National Standards Institute
ARA	American Railway Association
AREA	American Railway Engineering Association
AREMA	American Railway Engineering and Maintenance of Way Association
ASCE	American Society of Civil Engineers
ASD	Aluminum Standards & Data-Aluminum Association
ASLA	American Society of Landscape Architects
ASTM	American Society for Testing and Materials
ATSSA	American Traffic Safety Services Association
AWWA	American Water Works Association
AWS	American Welding Society
FHWA	Federal Highway Administration
FSS	Federal Specifications and Standards, General Services Administration
IEEE	Institute of Electronic and Electrical Engineers
IPCEA	Insulated Power Cable Engineers Association
ISA	Instrument Society of America
MIL	Military Specification
MP	Materials Procedure (see 101.2 in definition)
NBFU	National Board of Fire Underwriters
NEC	National Electric Code
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
PEI-ALS	Porcelain Enamel Institute: Aluminum Standards
UL	Underwriters Laboratories
SAE	Society of Automotive Engineers
SSPC	Society for Protective Coatings
TTE-TTP	Federal Specifications and Standards

The Division may at its discretion issue to a Contractor a Proposal requiring prequalification in excess of the amount allotted the Contractor provided it considers that this Contractor is particularly fitted by reason of their experience or equipment, or both, to perform work of this type involved in an amount exceeding their prequalification limits and further provided that the prospective bidder furnish the Division with a letter from a reputable Surety advising of their willingness to furnish bond to the Contractor for the project.

When more than one project is advertised, Proposals will be issued on as many projects as the Contractor requests, providing the Contractor is qualified as above for each individual project, but no contracts will be awarded exceeding the permissible limit of the Contractor's prequalification rating except as otherwise provided in 103.1.

102.4-INTERPRETATION OF APPROXIMATE ESTIMATES:

The quantities appearing in the proposal form are approximate only and are prepared for the comparison of bids. Payment to the Contractor will be made only for the work accepted, or for materials furnished in accordance with the Contract. If upon completion of the construction the actual quantities show either increase or decrease, the unit bid prices offered in the Proposal will prevail except as further provided.

102.5-EXAMINATION OF PLANS, SPECIFICATIONS, AND SITE OF WORK:

The bidder is required to examine carefully the Plans, Specifications, Supplemental Specifications, contract forms, and the site of the work contemplated. The submission of a bid shall be considered prima facie evidence that the bidder has made such examination and has judged for and satisfied themselves as to the character, quality, and quantity of work to be performed and material required to be furnished under the Contract.

102.6-PREPARATION OF PROPOSAL:

The bidders Proposal must be submitted through the Division's Bid Express Website. The bidder must furnish a unit price or a lump sum price as called for in the Proposal, in numerical figures, for each pay item listed, except that in the case of alternates, the bid may be made on only one alternate if so desired.

The Contractor or qualified and authorized agent shall use a digital signature as provided at law for the Proposal submission.

The proposal shall comply with West Virginia Contractor Licensing Act, Chapter 21, Article 11 Code of West Virginia, except that on Federal-Aid Projects a Contractor's license is not required at time of bid, but will be required before work can begin.

102.7-IRREGULAR PROPOSALS:

Proposals will be considered irregular and will be rejected for any of the following reasons:

SECTION 105
CONTROL OF WORK

105.1-AUTHORITY OF THE ENGINEER:

The Engineer will decide all questions which may arise as to the quantity, quality, and acceptability of materials furnished and work performed, and as to the rate of progress of the work; all questions which may arise as to the interpretation of the Plans and Specifications; and all questions as to the acceptable fulfillment of the Contract on the part of the Contractor. The decision of the Engineer will be final.

The Engineer will have the authority to suspend the work wholly or in part due to the failure of the Contractor to correct conditions unsafe for the employees or the general public, for failure to carry out orders, for such periods as the Engineer may deem necessary due to unsuitable weather, for conditions considered unsuitable for the prosecution of the work, or for any other condition or reason deemed to be in the public interest. All such suspension orders will be directed to the Contractor in writing.

The Engineer is not authorized to increase the obligation of the Division to any Contract except as provided.

105.2-PLANS AND WORKING DRAWINGS:

Approved Plans will show the location, profile, typical cross section, structures, except as specified, incidental items, and a summary of all items appearing in the Proposal. Any deviations which may be required by the exigencies of the construction will be determined by the Engineer and authorized by the Engineer in writing. The Contractor shall keep one set of approved Plans available on the work at all times.

Plans will show such details as are necessary to give a comprehensive idea of the construction contemplated. Any information which may be shown on drawings regarding results obtained from test piles or borings will be a record of conditions encountered at the place where such test piles were driven or borings were made, as nearly as these conditions could be interpreted by the Engineer observing the operations. The Contractor shall interpret the data in the light of their own experience. The Contractor is not bound to accept or rely on the data shown on the drawings, but may make such additional borings and investigations, including test piles, as the Contractor may desire in order to satisfy themselves concerning the lengths of piles and the conditions governing or entering into the construction of foundations.

The Plans will show the foundation depths and dimensions on which the estimate of quantities is based. These depths and foundation dimensions, however, are subject to such variations as may be necessary to secure a foundation satisfactory to the Engineer, and the right is expressly reserved to increase or diminish the dimensions and depths of the foundations as the Engineer may determine.

The Contractor shall submit to the Engineer all stress sheets, shop drawings, erection plans, falsework plans, framework plans, cofferdam plans, bending diagrams for reinforcing steel, or any other supplemental plans or similar data for the Engineers use.

any submittal which does not comply with the requirements of this Special Provision. The verification and distribution or rejection of Contractor approved shop drawings will normally require seven (7) calendar days after receipt of the drawings.

Additional certifications and/or slightly different wording of the above tow certification may be used if approval is given by the Legal Division. This approval must be obtained prior to any submission of contractor approved shop drawings. This approval may take up to thirty (30) days to be obtained. If this approval is obtained, a copy of the approval letter must be submitted with the first submission of shop drawings for distribution.

The Division shall reserve the right to review any submission of shop drawings or catalog sheets. This review shall not delay the contractor in the construction project or delay the distribution of the approved shop drawings or catalog sheets.

105.3-CONFORMITY WITH PLANS AND SPECIFICATIONS:

All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions and material requirements, including tolerances, shown on the Plans or indicated in the Specifications.

Should the Engineer determine the materials, or the finished product do not conform to the Specifications or the Plans, the Engineer will then make a determination if the work will be accepted and remain in place in accordance with 106.3.1 and 106.7. In this event, the Engineer will document the basis of acceptance by contract modification which will provide for an adjusted payment. All nonconforming material or construction judged to be inadequate for the use intended shall be either reworked or removed and replaced at no expense to the Division.

Each supplemental agreement containing an adjusted price will also have added the sum of Two Hundred Dollars to each adjusted price, for the Divisions administration costs, to be deducted from monies due the Contractor.

105.4-COORDINATION OF PLANS, SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS, AND SPECIAL PROVISIONS:

These Specifications, the Supplemental Specifications, the Plans, Special provisions, and all Supplementary Documents are essential parts of the Contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; Supplemental Specifications will govern over Specifications; Plans will govern over Specifications and Supplemental Specifications; Special Provisions will govern over Specifications, Supplemental Specifications and Plans. When the plans provide that new work is to connect with existing structures, the Contractor must verify all dimensions with the Engineer before proceeding with the work.

The Specifications, Supplemental Specifications, and Special Provisions are in dual units. The first Primary unit is in English with the Metric unit

following in parentheses "( )". The Metric values are considered replacements for the English units and they are not conversions.

The Contractor shall take no advantage of any apparent error or omission in the Plans or Specifications. In the event the Contractor discovers such an error or omission, the Contractor shall immediately notify the Engineer. The Engineer will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the Plans and Specifications.

105.5-COOPERATION BY CONTRACTOR:

The Contractor will be furnished One (1) complete set of plans and profile sheets, and one (1) set of Cross Sections upon request, without charge. The Contractor shall maintain on the Project at all times one complete set of Plans, Specifications, and Special Provisions.

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof, and shall cooperate with the Engineer, their inspectors, other Contractors, and utilities in every way possible.

The Contractor shall have on the work at all times, as an agent, a competent superintendent capable of reading and thoroughly understanding the Plans and Specifications, and thoroughly experienced in the type of work being performed, who shall receive instructions from the Engineer or an authorized representatives. The Superintendent shall have full authority to execute orders or directions of the Engineer without delay, and to promptly supply such materials, equipment, tools, labor, and incidentals as may be required. Such superintendence shall be furnished irrespective of the amount of work sublet.

The Contractor shall furnish to the Engineer a list of addresses and telephone numbers of their personnel who may be reached in case of emergency during hours when no work is to be performed. On weekends, holidays, during suspensions of work, and during storms the Contractor shall alert certain of their personnel to stand by and shall inform the Engineer of arrangements so made.

The Contractor shall provide all reasonable facilities and furnish the Division the information, assistance and samples required by the Engineer and Inspector for proper inspecting or testing of materials and workmanship.

On some contracts it may be necessary, to insure proper coordination between the work of the Contractor and the work of various utilities, to hold a pre-construction utility meeting. The Division will arrange for the affected utilities to be present. The Contractor or their representative, authorized to make decisions for them in regard to the scheduling of the proposed work, is required to attend the meeting. A report of the pre-construction utility meeting will be prepared and distributed by the Engineer to all represented at the meeting.

105.6-COOPERATION WITH UTILITIES:

The Division will notify all utility companies, all pipe line owners, or other parties affected, and endeavor to have all necessary adjustments of the public or private utility fixtures, sewers, pipe lines, and other appurtenances within or adjacent to the limits of construction, made as soon as practicable.

Water lines, gas lines, wire lines, sewer lines, service connections, water and gas meter boxes, water and gas valve boxes, light standards, cableways, signals, and all other utility appurtenances within the limits of the proposed construction which are to be relocated or adjusted are to be moved by the owners

with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

In the event the Engineer finds further coordination effort is necessary, the Engineer shall call a meeting of the Contractors involved. After the meeting has been held, the Engineer may notify the Contractors of the action required of each and the Engineer's decision shall be final.

105.8-CONSTRUCTION STAKES, LINES AND GRADES:

Except when "Construction Layout Stakes", is included in the Contract, the Engineer will set construction stakes establishing lines, slopes and continuous profile-grade, together with necessary reference stakes and bench marks. The Engineer will set sufficient right-of-way stakes to define the right-of-way limits. The Engineer will set stakes to mark centerline and establish bench marks for bridges and special structures as may be considered necessary.

The stakes and marks in the paragraph above shall constitute field control by and in accordance with which the Contractor shall establish all additional stakes and marks necessary to secure a correct layout of all the work. All stakes, except those set by the Engineer, shall be furnished by the Contractor. The Contractor shall not engage the services of any person or person in the employ of the Division for the performance of any of the Contractor's layout work.

The Contractor shall be responsible for having the finished work in reasonably close conformity with the lines, grades, elevations, and dimensions called for on the Plans or established by the Engineer. The Contractor shall be held responsible for the preservation of stakes, marks, and references, and shall have them reset at the Contractor's expense when they are damaged, lost, displaced, or removed.

105.9-AUTHORITY AND DUTIES OF THE PROJECT ENGINEER OR PROJECT SUPERVISOR:

The project Engineer or Supervisor has immediate charge of the engineering details of each construction project. The Engineer or Supervisor are responsible for the administration and satisfactory completion of the project.

The Project Engineer or Supervisor has the authority to reject defective material and to suspend any work that is being improperly performed.

The Project Engineer or Supervisor will have the authority to suspend the work wholly or in part due to the failure of the Contractor to correct conditions unsafe for the employees or the general public; for failure to carry out provisions of the Contract; for failure to carry out orders; for such periods as they may deem necessary due to unsuitable weather. All such suspension orders will be directed to the Contractor in writing. The suspension of the work for the above reasons does no relieve the Contractor of their responsibility according to 107.16.

105.10-AUTHORITY AND DUTIES OF THE INSPECTOR:

Inspectors employed by the Division will be authorized to inspect all work done and materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. The Inspector is not authorized to alter or waive the provisions of the Contract. The Inspector is authorized to call the attention of the Contractor to any failure of the work or materials to conform to the Specifications and Contract.

The Inspector is authorized to reject materials which do not meet specification requirements or suspend the portion of the work involved until any question at issue can be referred to the Project Engineer or Project Supervisor. The Inspector is not authorized to issue instructions contrary to the Plans and Specifications. The Inspector shall not act as foreman or perform other duties for the Contractor, nor interfere with the management of the work by the latter.

105.11-INSPECTION OF WORK AND MATERIALS:

All materials and each part or detail of the work shall be subject to inspection by the Engineer. The Engineer or a representative shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection. To facilitate the inspection of materials, all delivery tickets shall contain as a minimum the information required in MP 700.00.01.

At the Engineer's request, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the Specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed shall be at the Contractor's expense.

Any work done or materials used without supervision or inspection by an authorized Division representative may be ordered removed and replaced at the Contractor's expense. Failure to reject any defective material or work shall not in any way prevent later rejection when such defects are discovered, nor obligate the Division to final acceptance.

When any unit of government or political subdivision or any railroad corporation is to pay a portion of the cost of the work covered by this Contract, its respective representatives shall have the right to inspect the work. Such inspection shall in no sense make any unit of government or political subdivision or any railroad corporation a party to this Contract, and shall in no way interfere with the rights of either party hereunder.

No work shall be done at night, Saturdays, Sundays, or Holidays without documented prior approval of the Engineer.

105.12-REMOVAL OF UNACCEPTABLE AND UNAUTHORIZED WORK:

Except as provided in 105.3, all work which does not conform to the requirements of the Contract will be considered as unacceptable work.

Unaccepted work, whether the result of poor workmanship, use of defective materials, damage through carelessness or any other cause, found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner.

Unacceptable material shall be removed from the job site.

No work shall be done without lines and grades having been given or approved by the Engineer. Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the Plans, or as given, except as specified, or any extra work done without authority, will be considered as

unauthorized and will not be paid for under the provisions of the Contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply promptly with any order of the Engineer, made under the provisions of this Subsection, the Engineer will have authority to cause unacceptable work to be remedied or removed and replaced and unauthorized work to be removed, and to deduct the costs from any monies due or to become due the Contractor.

105.13-LOAD RESTRICTIONS:

The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads. A special permit will not relieve the Contractor of liability for damage which may result from the moving of equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or the roadway or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base or structure before the expiration of the curing period. In no case shall legal load limits be exceeded unless permitted in writing. The Contractor shall be responsible for all damage done by their own equipment.

105.14-MAINTENANCE DURING CONSTRUCTION:

The Contractor shall maintain the work during construction and until the project is accepted except as otherwise provided in 105.16.1. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces to the end that the roadway and structures are kept in satisfactory condition at all times.

In the case of a Contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All cost of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various pay items, and the Contractor will not be paid an additional amount for such work except as otherwise provided in 104.5.

105.15-FAILURE TO MAINTAIN ROADWAY OR STRUCTURE:

If the Contractor, at any time, fails to comply with the provisions of 105.14, the Engineer will immediately notify the Contractor of such non-compliance. If the Contractor fails to remedy unsatisfactory maintenance within 24 hours after receipt of such notice, the Engineer may immediately proceed to maintain the project, and the entire cost of maintenance will be deducted from monies due or to become due the Contractor on their Contract.

105.16-ACCEPTANCE:

105.16.1-Partial Acceptance: If at any time during the prosecution of the project, the Contractor completes a unit or portion of the project, such as a structure, an interchange, or a section of road or pavement, the Contractor may request the Engineer to make final inspection of that unit. If the Engineer finds upon inspection that the unit has been completed in compliance with the

as provided in 652 without additional compensation. Where practicable, borrow pits, gravel pits, and quarry sites shall be located so they will not be visible from the highway.

In accordance with the agreement between the Division of Highways and the Division of Environmental Protection, the Contractor cannot furnish material from borrow areas outside the right of way for any other public or private use.

106.3-SAMPLES, TESTS, CITED SPECIFICATIONS:

All materials will be inspected, tested and approved prior to incorporation into the work. Any work which incorporates materials prior to the above evaluation shall be performed at the Contractor's risk, and may subsequently be considered as unacceptable. Unless otherwise specified, the materials shall meet the applicable Standard or Interim Specifications of the American Association of State Highway and Transportation Officials, the Standard or Tentative Specifications of the American Society for Testing and Materials, or Standards adopted by other specifying agencies, with preference given in the same order in which the above agencies are listed. The specification which is current at the time of advertisement for bids shall govern, except that, with the approval of the Engineer, subsequent revisions or adoptions may govern. All materials being used are subject to inspection, testing or rejection at any time prior to final acceptance of the completed work.

The Contractor shall be responsible for the quality of construction and materials incorporated. When called for in the Specifications, the Contractor shall perform all necessary process control inspection, sampling and testing. All materials will be approved for acceptance through the Division's acceptance procedures. The Division has the exclusive right and responsibility for determining the acceptability of the construction and materials incorporated. The Division may use the results of the Contractor's inspection, sampling and testing for acceptance purposes.

Lot or sublot sizes will normally be designated. In the event that operational conditions cause work to be interrupted, or only partially completed before the lot size designated has been achieved, the lot or sublot may be redefined by the Engineer as being either the amount of work accomplished within the day or that work partially completed combined with the next lot or sublot of work. It is the intent of these Specifications that the number of samples required to evaluate each lot or sublot will be unchanged even when the lot or sublot is redefined.

When an acceptance plan is cited, it shall be in accordance with 106.3.1.

106.3.1-Acceptance Plans:

106.3.1.1-Percent Within Tolerance: The percentage of each lot or sublot of material, product, item of construction, or completed construction within the specified tolerances will be determined by the procedures as referenced by the specification requirements. When West Virginia AP-A is referenced, it will consist of Tables 106-1 to 106-5 inclusive, published in MP 106.00.20.

106.3.1.2-Sampling of Reworked Lots or Sublots: It is the intent of these Specifications that lots or sublots of materials, products, items of construction or completed construction meet specification requirements at the time of submission. Lots or sublots generally will not be resampled unless reworked before submission. Sampling after reworking will be at the expense of the Contractor.

106.4-PLANT INSPECTION:

The Engineer may undertake the inspection of materials at the source.

In the event plant inspection is undertaken, the following conditions shall be met:

i. The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.
ii. The Engineer shall have full entry at all times to such parts of the plant as may concern the manufacture or production of the materials being furnished.
iii. Adequate safety measures are to be provided and maintained.

The Division reserves the right to retest all materials, which have been tested and accepted at the source of supply, after the materials have been delivered to the project and prior to incorporation into the work and to reject all materials which, when retested, do not meet the requirements of these Specifications or those established for the specific project.

106.5-STORAGE OF MATERIALS:

Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. Approved portions of the right-of-way may be used for storage purposes and for the placing of the Contractor's plant and equipment, but any additional space required therefore must be provided by them at their expense. Private property shall not be used for storage purposes without written permission of the owner or lessee, and if requested by the Engineer, copies of such written permission shall be furnished. All storage sites shall be restored to their original condition by the Contractor at their expense. This shall not apply to the stripping and storing of topsoil, or to other materials salvaged from the work.

Care shall be exercised to protect finished concrete surfaces from being stained from storing or placing materials, including but not limited to reinforcing bars or mesh or unpainted structural steel, on same. Any such material so stored shall be adequately protected from weather. Any stains resulting from storage of materials on finished concrete surfaces shall be removed by the Contractor at their expense.

Aggregate stockpiles may be made on ground that is denuded of vegetation, hard, and well drained. If necessary, the ground shall be covered with two inch (50 mm) plank. Different kinds and sizes of aggregates shall be kept separate during transportation, handling, and storage until batched. If necessary,

partitions of suitable height and strength shall be constructed between stockpiles to prevent different materials from becoming mixed. Care must be taken to prevent segregation of the coarse and fine particles of aggregates from taking place during handling or hauling. The inclusion of foreign materials will not be permitted. Aggregates placed directly on the ground shall not be removed from the stockpiles within one foot (300 mm) of the ground until the final cleaning up of the work, and then only the clean aggregate will be permitted to be used.

106.6-HANDLING MATERIALS:

All materials shall be handled in such manner as to preserve their quality and fitness for the work. Aggregates shall be transported from the storage site to the work in tight vehicles, so constructed as to prevent loss or segregation of materials after loading and measuring, in order that there may be no inconsistencies in the quantities of materials intended for incorporation in the work as loaded and the quantities as actually received at the place of operations.

106.7-UNACCEPTABLE MATERIALS:

106.7.1-Acceptance or Rejection: Following the application of the appropriate acceptance plan, the decision of the Engineer will be final as to the acceptance, rejection, or acceptance at an adjusted price of sampled lots or sublots.

106.7.2-Disposition of Lots or Sublots: Lots or sublots not conforming to specification requirements may be reworked or removed and replaced and resubmitted for acceptance. All nonconforming lots or sublots evaluated as unsatisfactory for the use intended shall be reworked or removed and replaced and resubmitted for acceptance. When the evaluation indicates the lots or sublots may satisfactorily remain in place, acceptance will be an adjusted price as stated in the Specifications or as directed by the Engineer.

106.8-DIVISION-FURNISHED MATERIAL:

The Contractor shall furnish all materials required to complete the work, except those specified to be furnished by the Division.

Materials furnished by the Division will be delivered or made available to the Contractor at the points specified in the Contract.

The cost of handling and placing all materials after they are furnished to the Contractor shall be considered as included in the contract price for the item in connection with which they are used.

The Contractor will be held responsible for all material delivered to them, and deductions will be made from any monies due the Contractor to make good any shortages and deficiencies, from any cause whatsoever, and for any damage which may occur after such delivery, and for any demurrage charges.

106.9-SILENCE OF SPECIFICATIONS:

The apparent silence of these Specifications, Supplemental Specifications, plans and Special Provisions as to any detail, or the apparent omission from them of a detailed description concerning any point shall be regarded as meaning that only material and workmanship of acceptable quality are to be used.

SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107.1-LAWS TO BE OBSERVED:

The Contractor shall keep fully informed of all Federal and State laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders and decrees; and shall protect and indemnify the State and its representatives against any claim or liability arising from or based on the violation of any such laws, ordinances, regulations, orders, or decrees, whether by themselves, their subcontractors or their employees.

107.2-PERMITS, LICENSES AND TAXES:

The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work.

107.3-PATENTED DEVICES, MATERIALS, AND PROCESSES:

If the Contractor employs any design, devise, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the surety shall indemnify and save harmless the Division, and affected third party, or political subdivision from and claims for infringement by reasons of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Division for any costs, expenses, and damages which it may be obligated to pay by reason of any infringement, at any time during the prosecution or after the completion of the work.

107.4-RESTORATION OF SURFACES OPENED BY PERMIT:

The right to construct or reconstruct any utility service in the highway or street or to grant permits for same, at any time, is expressly reserved by the Division for the proper authorities of the municipality in which the work is done, and the Contractor shall not be entitled to any damages either for the digging up of the street or for any delay occasioned.

Any individual, firm, or corporation wishing to make an opening in the highway must secure a permit from the Division. The Contractor shall allow parties bearing such permits, and only those parties, to make openings in the highway. The Contractor shall, when ordered by the Engineer, make in an acceptable manner all necessary repairs due to such openings and such necessary work will paid for as "Extra Work", or as provided in these Specifications, and will be subject to the same conditions as original work performed.

107.5-FEDERAL-AID PROVISIONS:

When the United States Government pays any portion of the cost of a project, the Federal Laws and the Rules and Regulations made pursuant to such laws must be observed by the Contractor, and the work shall be subject to the inspection of the appropriate Federal Agency.

107.12-PROTECTION AND RESTORATION OF PROPERTY AND LANDSCAPE:

The Contractor shall be responsible for the preservation of all public and private property and shall protect carefully from disturbance or damage all land monuments and property marks until the Engineer has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the prosecution of the work, resulting from any act, omission, neglect, or misconduct in the Contractor's manner or method of executing the work, or at any time due to defective work or materials, and this responsibility will not be released until the project shall have been completed and accepted.

When or where and direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the nonexecution thereof by the Contractor, the Contractor shall restore, at their own expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, rebuilding, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in as acceptable manner.

107.13-FOREST PROTECTION:

In carrying out work within or adjacent to State or National Forests, the Contractor shall comply with all regulations of the State Fire Marshall, Division of Natural Resources, or any other authority having jurisdiction, governing the protection of forests and the carrying out of work within forests, and shall observe all sanitary laws and regulations with respect to the performance of work in forest areas. The Contractor shall keep the areas in an orderly condition, dispose of all refuse, obtain permits for the construction and maintenance of all construction camps, stores, warehouses, residences, latrines, cesspools, septic tank, and other structures in accordance with the requirements of the Forest Supervisor.

The Contractor shall take all reasonable precaution to prevent and suppress forest fires and shall require their employees and subcontractors, both independently and at the request of forest officials, to do all reasonably within their power to prevent and suppress and to assist in preventing and suppressing forest fires and to make every possible effort to notify a forest official at the earliest possible moment of the location and extent of any fire seen by them.

107.14-RESPONSIBILITY FOR DAMAGE CLAIMS:

The Contractor shall indemnify and save harmless the Division, its officers and employees, from all suits, actions, or claims of any character brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of the Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Worker's Compensation Act," or any other law, ordinance, order, or decree; and so much of the money due the Contractor under and by virtue of their Contract as may be

considered necessary by the Division for such purpose may be retained for the use of the Division or, in case no money is due, their surety may be held until such suit or suits, action or actions, claim or claims for injuries or damages as aforesaid shall have been settled and suitable evidence to that effect furnished to the Division; except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that the Contractor is adequately protected by public liability and property damage insurance.

107.15-OPENING SECTIONS OF PROJECT TO TRAFFIC:

At the option of the Engineer, certain sections of the work may be opened for traffic. Such opening will not constitute acceptance of the work, or any part thereof, or a waiver of any provisions of the Contract; provided however, that on such portions of the project as are accepted for use of traffic, the Contractor shall not be required to assume any expense entailed in maintaining the roadway for traffic. Such expense will be borne by the Division or will be compensated for in the manner provided in 109.4. Any damage to the highway not attributable to traffic which might occur on such section, except slides, shall be repaired by the Contractor at their expense. The removal of slides shall be performed by the Contractor and payment will be in accordance with 104.3.

If the Contractor is dilatory in completing shoulders, drainage structures, or other features of the work, the Engineer may order all or a portion of the project open to traffic, but in such event the Contractor shall not be relieved of their liability and responsibility during the period the work is so opened prior to final acceptance. The Contractor shall conduct the remainder of their construction operations so as to cause the least obstruction to traffic.

107.16-CONTRACTOR'S RESPONSIBILITY FOR WORK:

Until final written acceptance of the project by the Engineer, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements, or from the nonexecution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault of or negligence of the Contractor, including but not restricted to acts of God, of the public enemy or governmental authorities.

In case of suspension of work from any cause whatever, the Contractor shall be responsible for the project and shall take such precautions as may be necessary to prevent damage to the project, provide for normal drainage and to erect any necessary temporary structures, signs, or other facilities at their expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seedings, and soddings furnished under their Contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

107.17-CONTRACTOR'S RESPONSIBILITY FOR UTILITY PROPERTY AND SERVICES:

At points where the Contractor's operations are adjacent to properties of railway, telegraph, telephone, and power companies, or are adjacent to other property, damage to which might result in considerable expense, loss, or inconvenience, work shall not be commenced until all arrangements necessary for the protection thereof have been made.

The Contractor shall cooperate with the owners of any underground or overhead utility lines in their removal and rearrangement operations in order that these operations may progress in a reasonable manner, that duplication of rearrangement work may be reduced to a minimum, and that services rendered by those parties will not be unnecessarily interrupted.

In the event of interruption to water or utility services as a result of accidental breakage, or as a result of being exposed or unsupported, the Contractor shall promptly notify the proper authority and shall cooperate with such authority in the restoration of service. If water service is interrupted, repair work shall be continuous until the service is restored. No work shall be undertaken around fire hydrants until provisions for continued service have been approved by the local fire authority.

107.18-FURNISHING RIGHT-OF-WAY:

The Division will be responsible for securing all necessary right-of-way in advance of construction. Any exceptions will be indicated in the Contract.

107.19-PERSONAL LIABILITY OF PUBLIC OFFICIALS:

In carrying out any of the provisions of these Specifications, or is exercising and power or authority granted to them by or within the scope of the Contract, there shall be no liability upon the Commissioner, Engineer, or their authorized representatives, either personally or as officials of the State, it being understood that in all such matters they act solely as agents and representatives of the Division.

107.20-NO WAIVER OF LEGAL RIGHTS:

The Division shall not be precluded or estopped by any measurement, estimate, or certificate made either before or after the completion and acceptance of the work and payment therefor, from showing the true amount and character of the work performed and materials furnished by the Contractor, nor from showing that any such measurement, estimate or certificate is untrue or is incorrectly made, nor that the work or materials do not in fact conform to the Contract. The Division shall not be precluded or estopped, notwithstanding and such measurement, estimate, or certificate and payment in accordance therewith, from recovering from the Contractor or sureties, or both, such damage as it may sustain by reason of their failure to comply with the terms of the Contract. Neither the acceptance by the Division or any representative of the Division, nor any payment for or acceptance of the whole or any part of the work, nor any extension of time, nor any possession taken by the Division, shall operate as a waiver of any portion of the Contract or of any power reserved or of any right to damages. A waiver of any breach of the Contract shall not be held to be a waiver of any other or subsequent breach.

108.8-DEFAULT AND TERMINATION OF CONTRACT:

If the Contractor:

1. fails to begin work under the Contract within the time specified in the "Notice to Proceed"; or
2. fails to perform the work with sufficient employees and equipment or sufficient materials to assure the prompt completion of the work; or
3. performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable;
4. discontinues the prosecution of the work; or
5. fails to resume work which has been discontinued within a reasonable time after notice to do so; or
6. becomes insolvent or is declared bankrupt or commits any act of bankruptcy or insolvency; or
7. allows any final judgment to stand against the Contractor unsatisfied for a period of ten (10) days; or
8. makes an assignment for the benefit of creditors; or
9. for any other cause whatsoever, fails to carry out the Contract terms in an acceptable manner;

the Engineer will give notice in writing to the Contractor and his/her Surety of such delay, neglect or default. If the Contractor or Surety, within a period of ten (10) days after such notice, shall not proceed in accordance therewith, the Division will, upon written notification from the Engineer of the fact of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority, without violating the Contract, to terminate the Contract. The Division may appropriate or use any or all materials and equipment on the ground as may be suitable and acceptable and may enter into an agreement with another contractor for the completion of the Contract according to the terms and provisions thereof, or use such other methods as in the opinion of the Engineer will be required for the completion of the Contract in an acceptable manner.

All cost charges incurred by the Division, together with the cost of completing the work under Contract, will be deducted from any money due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the Contract, then the Contractor and the surety shall be liable and shall pay to the Division the amount of such excess.

108.9-TERMINATION OF CONTRACT FOR CONVENIENCE OF THE STATE:

The Division may terminate the entire Contract or any portion thereof, if the Engineer determines that a termination is in the Division's interest. The Engineer will deliver to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

1. **Submittals and Procedures.** After receipt of a Notice of Termination, the Contractor shall immediately proceed with the following obligations:
    a. Stop work as specified in the notice.
    b. Place no further subcontracts or orders for materials, services, or facilities for the terminated portion of the Contract.
    c. Terminate all subcontracts that relate to the work terminated.
    d. Settle all outstanding liabilities and termination settlement Proposals arising from the termination of the contract or portion thereof.
    e. Transfer title and deliver to the Division (1) fabricated, partially fabricated, or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (2) the completed or partially completed plans, drawings, information, and other property that, if the Contract had been completed, would be required to be furnished to the Division.
    f. Complete performance of the work not terminated.
    g. Acceptable materials obtained by the Contractor for the Project that have not been incorporated in the work shall be inventoried in conjunction with the Engineer at a date identified by the Engineer.
    h. Take any action necessary, or that the Engineer may direct, for the protection and preservation of the property related to the Contract that is in the possession of the Contractor and in which the Division has or may acquire an interest.

2. **Settlement Provisions.** When the Division orders termination of all or a part of the Contract effective on a certain date, completed items of work as of that date will be paid for at the Contract bid price. Payment for partially completed work will be made either at agreed prices or under the provisions below. Items that are eliminated in their entirety by such termination shall be paid for as provided in Subsection 109.5.

    a. **Additional Costs.** Within sixty working days of the effective termination date, the Contractor shall submit a claim for additional damages or costs not covered above or elsewhere in the Contract. Such claim may include such cost items as reasonable idle equipment time, mobilization efforts, bidding and project investigative costs, overhead expenses attributable to the project terminated, legal and accounting charges involved in claim preparation, subcontractor costs not otherwise paid for, actual idle labor cost if work is stopped in advance of termination date, guaranteed payments for private land usage as part of the original Contract, and any other cost or damage for which the Contractor feels reimbursement should be made.

The Contractor and the Division may agree upon the whole or any part of the amount to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. Anticipated profits will not be considered as part of any settlement. The agreed amount may not exceed the total Contract price as reduced by the amount of payments previously made, and the Contract price of work not terminated. The Contract shall be amended, and the Contractor paid the agreed amount.

b. **Additional Cost Review.** If the Contractor and the Division fail to agree on the whole amount to be paid the Contractor because of the termination of work, the Division will pay the amounts determined as follows, but without duplication of any amounts agreed upon above:

i. For Contract work performed before the effective date of termination, the total (without duplication of any items) of:

1) The cost of work performed;
2) The cost of settling and paying termination settlement Proposals under terminated subcontracts that are properly chargeable to the termination portion of the Contract if not included in subparagraph 1 above; and
3) A sum, as profit on (1) above determined by the Division to be fair and reasonable. The Division shall allow no profit under this subdivision if the Contractor's costs incurred on work performed exceed the bid item payments made.

ii. The reasonable costs of settlement of the work terminated, including:

1) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and support data;
2) The termination and settlement of subcontracts (excluding the amounts of such settlements); and
3) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

iii. Except for normal spoilage, and to the extent that the Division expressly accepts the risk of loss, Division will

exclude from the fair value, all that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Division or to the buyer.

iv. In arriving at the amount due the Contractor under this clause, there will be deducted the following:

1) All unliquidated advance or other payments to the Contractor under the terminated portion of the Contract;
2) Any claim that the Division has against the Contractor under the Contract; and
3) The agreed price for or the proceeds from the sale of materials, supplies, or other things acquired and sold by the Contractor not recovered by or credited to the Division.

If termination is partial, the Contractor may file a Proposal with the Division for an equitable adjustment of the price(s) of the continued portion of the Contract. The Division will make any equitable adjustment agreed upon. Any Proposal for an equitable adjustment under this clause shall be requested within sixty (60) working days from the effective date of termination unless extended in writing by the Engineer.

The Division may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the termination portion of the Contract, if these payments will not exceed the amount to which the Contractor is entitled.

The Contractor shall maintain and make available all project cost records to the Division for audit to the extent necessary to determine the validity and amount of each item claimed. This includes all books and other evidence bearing on the Contractor's costs and expenses under the Contract. These records and documents shall be made available to the Division at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Division, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

Termination of the Contract or portion thereof shall not relieve the Contractor of contractual responsibilities of the work completed, nor shall it relieve the Surety of its obligation for and concerning any just claim arising out the work performed.

108.10-FIELD OFFICE OVERHEAD:

The Division may consider compensating the Contractor for Field office overhead costs as long as the Contractor can provide documentation that the field office overhead costs are not covered by the project bid items.

108.11-HOME OFFICE OVERHEAD:

The Department shall consider payment to the Contractor for any unabsorbed or extended home office overhead costs for which payment is not previously provided for if all of the following criteria are met:

SECTION 109
MEASUREMENT AND PAYMENT

109.1-MEASUREMENT OF QUANTITIES:

All work completed under the Contract will be measured by the Engineer according to United States standard measure.

The method of measurement and computations to be used in determining of quantities of materials furnished and of work performed under the Contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise indicated, the requirements prescribed shall govern.

Earthwork will be computed by the average end area method, using the horizontal length measured along the centerline as the distance between sections, applying corrections for curvature where the apparent error exceeds 25 percent of the volume in any one cut. Other acceptable methods may be used.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally and no deductions will be made for individual fixtures having an area of nine square feet (one square meter) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the Plans or ordered in writing by the Engineer.

Structures will be measured according to neat lines shown on the Plans or as altered to fit field conditions.

All items which are measured by the linear foot (meter), such as pipe culverts, guardrail, underdrains, etc., will be measured parallel to the base or foundations upon which such structures are placed.

The term "gage" when used in connection with the measurements of plates, will mean the U.S. Standard Gage.

The galvanized sheet thicknesses to be used in the manufacture of metal cribbing, corrugated steel culvert pipe, underdrain pipe, plate pipe, pipe arches, plate pipe arches and plate arches shall be as specified in AASHTO M 36 or AASHTO M 167. The sheet thicknesses to be used in the manufacture of corrugated aluminum alloy culvert pipe, underdrain pipe, plate pipe, pipe arches, plate pipe arches and plate arches shall be as specified in AASHTO M 196 or AASHTO M 219.

The "size number" used in the measurement of wire will be as specified in AASHTO M 32 or AASHTO M 225.

The term ton will mean the short ton consisting of 2,000 lb (The term megagram is defined as a mass of 1,000 kg). All materials which are measured or proportioned by weight shall be weighed on approved scales by competent, qualified personnel. Scales for weighing shall be of either the beam type, springless-dial type or digital recorder type. All plant and truck scales and metering devices shall be inspected, approved and sealed in accordance with the requirements of the West Virginia Division of Labor, Bureau of Weights and Measures, or other appropriate agencies of the State or its political subdivisions. Poises shall be designed to be locked in any position to prevent unauthorized changes. When the beam type scales are used, provisions for a "telltale" dial shall be made for indicating to the operator that the required load in the weighing hopper is being approached. A device on the weighing beams shall clearly indicate the critical position.

Truck scales shall be provided by the producer or Contractor, except that truck scales are not required where the material is weighed at properly calibrated automatic batching plant facilities which are equipped with digital print-out equipment. The scales shall be of sufficient size and capacity to weigh the heaviest loaded trucks that are used for delivery of the material. All truck scales shall be mounted on solid foundations which will ensure their remaining plumb and level.

A weigh person shall be provided by the producer. The weigh person shall certify that the weight of the material, as determined either by the truck scales or from the digital print-out of the weights, is correct. To signify the certification of weight the weigh person must either sign their full name on each ticket, or if the ticket printer prints the weigh person's full name they must at least initial each ticket.

Each truck shall be weighed empty prior to each load, except at automatic batch plants approved to operate without truck scales. A digital recorder shall be required on all truck scales. The digital recorder shall produce a printed record of the gross, tare and net weights, and the time, date, truck identification and project number. Provision shall be made for constant zero compensation and further provision shall be made so that the scales may not be manually manipulated during the printing process. The system shall be interlocked so as to allow printing only when the scale has come to rest.

In case of a breakdown of the automatic equipment, the Engineer may permit manual operation for a reasonable time, normally not to exceed 48 hours, while the equipment is being repaired.

If material is shipped by rail, the car weight may be accepted provided the actual weight of material only will be paid for. However, car weights will not be acceptable for material to be passed through mixing plants.

Devices, used to meter or measure component or other materials in a simultaneous manner, shall be located so as to be readily accessible and visible to a single Inspector, unless otherwise directed by the Engineer.

Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured at the point of delivery. Vehicles for this purpose may be of any size or type acceptable to the Engineer, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.

When approved by the Engineer, material specified to be measured by the cubic yard (meter) may be weighed and these weights converted to cubic yard (meter)s for payment purposes. Further, when it is impractical to measure the material by weighing, or in its original position, the material will be measured in its final position and adjusted by a volume change factor. These conversion factors will be determined by the Engineer and shall be agreed to by the Contractor before these methods of measurement are used.

When bituminous material is measured by volume, the measured volume at loading temperature shall be converted to volume at 60° F (15° C) using the temperature correction factors in 705 for asphaltic materials and 706 for tar materials, except that when volume is measured by an approved temperature compensated metering device, no further volume correction for temperature shall be required. When bituminous material is measured by weight, the actual specific

gravity, API gravity, or weight per gallon (liter) of the material shall be used to convert the measured weight to volume at 60° F (15° C). The Contractor shall furnish all information necessary as determined solely by the Division to determine the amount of bituminous material actually incorporated into the project.

Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when bituminous material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work.

When bituminous materials are shipped by truck or transport, net certified weights or volume, subject to correction for loss or foaming may be used for computing quantities.

Cement will be measured by the cwt (hundredweight = 100 lb) (kilogram). For the purpose of determining the total amount used in the mixture, one bag of cement shall be considered as weighing 0.94 cwt (42.64 kg), and one barrel of cement shall be considered as weighing 3.76 cwt (175.55 kg).

Timber will be measured by the thousand feet board measure (mfbm) (cubic meters) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the Contract.

When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gage, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.

109.2-SCOPE OF PAYMENT:

The Contractor shall receive and accept compensation provided for in the Contract as full payment for furnishing all materials and for performing all work under the Contract in a complete and acceptable manner and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the prosecution thereof, subject to the provisions of 107.20.

If the "Basis of Payment" clause in the Specifications relating to any unit price in the bid schedule requires that the unit price cover and be considered compensation for certain work or material essential to the item, this work or material will not also be measured or paid for under any other pay item which may appear elsewhere in the Specifications, except as provided in 104.6.

When the Contract specifies payment of an item or a portion of an item on a plan quantity basis, the quantities for payment will be those shown on the Plans with deductions from or additions to such quantities resulting from authorized deviations from the Plans.

If the Contractor believes that a quantity which is specified for payment on a plan quantity basis is incorrect, the Contractor may request the Division in writing to check the questionable quantity. The request shall be accompanied by calculations, drawing, or other evidence indicating why the plan quantity is believed to be in error. If the plan quantity is found to be in error, payment will be made in accordance with the corrected plan quantity.

The Division reserves the right to check the quantity of an item which is specified for payment on a plan quantity basis if there is reason to believe that it is inaccurate. If the quantity is found to be in error, payment will be made in accordance with the corrected plan quantity.

Should the Division determine during construction that conditions have varied from those anticipated in design to the extent that actual measurement of a plan quantity item is warranted, the Division will make such measurement, and payment will be based in lieu of the plan quantity.

109.2.1-General Basis of Adjusted Payment:

109.2.1.1-Single Deficiency: In the case of the single characteristic deficiency, the resulting deficiency shall be used directly to determine an adjusted price.

109.2.1.2-Multiple Deficiency: In the case of a multiple deficiency, the related adjusted percentage of contract price as determined by the acceptance plan for each characteristic shall be determined and the resulting percent of contract price to be paid shall be the product of these related adjusted percentages.

109.2.2-Basis of Charges for Additional Testing: When additional acceptance testing is performed by the Division for reworked lots or sublots in accordance with 106.3.1.2, the cost of such testing will be deducted on current estimates from the amount due the Contractor by the Division. The cost of such testing will be determined in accordance with the unit costs per test as shown in Table 9-1, published in MP 109.00.20.

109.3-COMPENSATION FOR ALTERED QUANTITIES:

When the accepted quantities of work vary from the quantities in the bid schedule, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract unit price for the accepted quantities of work done. No allowance except as provided in 104.2 will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor resulting either directly from such alterations of indirectly from unbalanced allocation among the contract items of overhead expense on the part of the bidder and subsequent loss of expected reimbursements therefore or from any other cause.

Increased work involving supplemental agreements will be paid for as stipulated in such agreements. The Contractor shall furnish substantiating data required in the preparation of these agreements.

The "C" values given per gallon of Liquid Asphalt Material is based on the use of an emulsion which is assumed to contain 65% asphalt material and a gallon of emulsion weights 8.43 pounds of a liter of emulsion weights 1.00 kg. If a cut-back asphalt is used "C" as given in the above table must be multiplied by 1.54 to arrive at a modified "C" factor for use in the formula. No change will be made in the Adjustable Material Cost (C) for variations between these assumptions and actual factors.

The adjustable materials costs (C_1) and (C_2) are based on the approved job mix formula for the specific asphalt mixture being placed in accordance with the following formulae:

$$(C_1) = I_b \times A_c \times 1 \text{ ton} \quad \text{or} \quad [\,(C_1) = I_b \times A_c \times 1 \text{ megagram}\,]$$

Where A_c equals the approved asphalt content expressed in decimals, i.e. 5.8% asphalt content equals 0.058. When reclaimed asphalt pavement (RAP) is used in the mix, A_c is the % virgin or new asphalt added to the mix.

$$(C_2) = I_b \times A_c \times 1.6 \text{ tons/cy} \quad \text{or} \quad [\,(C_2) = I_b \times A_c \times 1.9 \text{ mg/m}^3 \times 1 \text{ meter}\,]$$

where A_c equals approved asphalt content expressed in decimals and it is assumed that a cubic yard of asphalt treated open-graded free draining base weights 1.6 tons or 1.9 Mg. No change will be made in C_2 for variations between this assumption and the actual factor.

109.11 THROUGH 109.19-BLANK:

109.20-LOAD LIMIT VIOLATIONS AND WEIGH TICKETS:

The Allowable Gross Weight for any vehicle being used to haul materials on publicly maintained highways under the terms of this contract shall be as follows.

Title 23 Code of Federal Regulations, Section 658.17, establishes maximum allowable gross weight on the Interstate System. The maximum allowable gross weight on WV and US Routes will be as established in Chapter 17C, Articles 17 and 17A of the Official Code of West Virginia, as amended. The Public Service Commission, Weight Enforcement Section is responsible for the enforcement of these provisions.

A weigh ticket shall be required with each load of material from a commercial source which would normally have truck scales. This includes, but is not limited to, all asphalt paving materials and all aggregates regardless of the contract pay unit. The weigh ticket shall include gross, tare, and net weights, time and date of loading, Item Number or Description of Materials, Contract Number or Project Number, number of axles on haul unit, license number of haul unit, and signature of the weigher certifying that all information on the ticket is correct. If the weigher's name is printed by the computer on the ticket, then it only needs to be initialed by the weigher.

For material from a commercial source or a batch plant, which would not normally have truck scales, a weigh ticket documenting the tare weight, number of axles on the haul unit, license number of haul unit, date weighed, location of

scales, and signature of the weigher certifying that all information on the ticket is correct, may be supplied for each haul unit as an alternate to the ticket required in the previous paragraph. The tare weight ticket shall be supplied for each contract on a yearly basis and when modifications are made to the vehicle or combination of vehicles. The weight of the material delivered shall be calculated and furnished by the vendor/supplier shipping the material to the project site or DOH facility. This includes, but is not limited to, concrete, structural steel, piling, reinforcing steel and all prepackaged material of known weight, such as cement, grout, fertilizer, lime, abrasives, etc.

If the haul unit is a combination of vehicles, the license number shall be supplied for each component. The tare weight shall be for the complete haul unit.

All weighing shall be done on scales approved and sealed by the West Virginia Division of Labor, Bureau of Weights and Measures. If the scales are moved or upon the request of the Engineer, the scales shall be reapproved and sealed. The Engineer shall be notified of any scale malfunctions. The Division of Highways may, at its option, accept inspection and sealing by out of state agencies when the material is being loaded outside West Virginia.

Any material, covered by this provision, which is delivered without the proper weigh ticket shall not be accepted by the Division of Highways.

Nothing in this provision relieves any party from compliance with the State Law on load limits or any fines which may be assessed for violation of said law.

SECTION 219
CONTROLLED LOW-STRENGTH MATERIAL

219.1-DESCRIPTION:

A Controlled Low Strength Material (CLSM) is a non-compacted, cementitious material used primarily as a backfill in lieu of a compacted material.

This work shall consist of furnishing and placing CLSM as a backfill material in accordance with these Specifications and in reasonably close conformity with the lines, grades, thicknesses and cross sections shown on the Plans or established by the Engineer.

219.2-MATERIALS:

Materials shall meet the requirements specified in the following Subsections of section 700.

Material	Subsection
Flyash	707.4.1 (except with a maximum loss on ignition of 12%)
Portland Cement:	701.1 or 701.3
Aggregate:	
1. Bottom Ash	703.3.3 (except with the following gradation and a maximum loss on ignition of 12%):

Sieve Size	Percent Passing by Weight:
3/4 inch (19 mm)	95%
3/8 inch (9.5 mm)	85-100%
#100 (150 μm)	0-25%

2. Fine Aggregate:	702.1.1–702.1.5 with the following gradation:

Sieve Size	Percent Passing by Weight:
3/8 inch (9.5 mm)	100%
#200 (150 μm)	0-10%

Water:	715.7
Admixtures:	707

219.3-PROPERTIES:

Type	28 Day Compressive Strength
A	50 psi min./150 psi max. (345 kPa min./1035 kPa max.)
B	50 psi min. (345 kPa)
C	1000 psi min. (6900 kPa)
pH	5.0-13.0

Flow: Minimum spread of 6 inches (152 mm)

219.4-CONSTRUCTION METHODS:

219.4.1-Proportioning: Prior to the start of construction, the Contractor shall design and submit to the Engineer for approval the proportions of materials, including admixtures, to be used which will result in a workable, CLSM mixture having the desired properties.

A mix design shall be required for each type of CLSM to be used in the work. The mix design shall be accompanied by a statement giving the source of materials and certified test data demonstrating the adequacy of the mix design.

The results of the mix design testing shall include a listing of the components used in the mix, the results of unconfined compressive strength tests, pH, and flow.

The unconfined compressive strength test specimens for mix design approval shall consist of two sets (3 cylinders per set) of standard 6 inch (152 mm) by 12 inch (304 mm) cylinders. Both sets of cylinders shall be molded, cured, and tested at an age of 28 days in accordance with ASTM D4832. Both sets of cylinders shall meet the strength requirements specified in section 219.3.

The mix shall have a consistency that will allow the material to fill all voids during placement without vibration or other consolidation methods.

219.4.2-Testing: Material shall be sampled in accordance with ASTM D5971. Flow tests shall be conducted in accordance with ASTM D6103. Compressive strength tests shall be conducted in accordance with ASTM D4832.

The Contractor shall determine the flow, and shall mold one set (3 cylinders) of standard 6 inch (152 mm) by 12 inch (304 mm) compressive strength specimens for every 100 cubic yards (75 cubic meters), or fraction thereof, of material that is placed. These cylinders shall be cured and tested in accordance with ASTM D4832 except that they shall be stored at the construction site in the storage container until the fourteenth day after preparation. After the fourteenth day, they shall be transported to the site of the curing environment, specified in ASTM D4832, where they will be cured for the remainder of the 28 day period. The average compressive strength at 28 days shall meet the strength requirements listed in section 219.3. Material not meeting the minimum compressive strength at 28 days shall be removed at the Contractor's expense. The Division shall evaluate Type A material that exceeds the maximum compressive strength.

Report all test results, in written form, to the Engineer within 24 hours after completion of each test.

Contractor's Quality Control: Quality control of the CLSM is the responsibility of the Contractor. The Contractor shall maintain equipment and certified Portland cement concrete inspector(s) who shall maintain equipment and direct all field inspection, sampling and testing necessary to determine the magnitude of the various properties of the CLSM governed by the Specifications and shall maintain these properties within the limits of this Specification. A Quality Control Plan prepared according to MP 601.03.50 shall be submitted to the Engineer at the pre-construction conference.

Acceptance Testing: Acceptance sampling and testing of CLSM is the responsibility of the Division.

Quality control sampling and testing performed by the Contractor may be used by the Division for acceptance.

219.4.3-Equipment and Tools: Equipment shall be according to 601.5.

219.4.4-Site Preparation: The Contractor shall provide the necessary barriers to confine the CLSM. Pipe culverts and any other items to be backfilled that could move or float during backfilling, shall be secured by the Contractor to prevent movement.

219.4.5-Mixing: The mixing shall be in accordance with 601.7 except that CLSM shall be delivered in a truck mixer. Mixing and delivery is also permitted using volumetric batching and mixing equipment in accordance with AASHTO M241. Volumetric mixers shall be properly calibrated and shall sufficiently mix the materials to produce a uniform product. The limitation on the total number of drum revolutions is waived. Sufficient drum revolutions shall be used just prior to discharge to insure a homogeneous slurry.

219.4.6-Placement: The drop height for the CLSM shall be limited to the minimum necessary by using chutes or other devices.

CLSM shall be brought up evenly by moving the discharge points or by spreading the backfill manually. For backfilling around pipes, the backfill shall be placed evenly on both sides of the trench to avoid overstressing the pipe.

The lift thickness shall be limited to that shown on the plans or as directed by the Engineer to avoid overstressing the pipe, forms, structures or to avoid floating the pipe. Prior to placement of successive lifts, the CLSM shall be allowed to cure until it is self-supporting.

CLSM shall not be finished between lifts. The top of a lift shall be cleaned, if necessary, to insure bonding with the next lift.

219.5-PAY ITEM:

ITEM	DESCRIPTION	UNIT
219001-*	CONTROLLED LOW STRENGTH MATERIAL, TYPE "type"	Cubic Yard (Meter)

* Sequence number

SECTION 601
STRUCTURAL CONCRETE

601.1-DESCRIPTION:

This work shall consist of furnishing and placing portland cement concrete for structures, and incidental construction, in accordance with these specifications and in reasonably close conformity with the lines, grades and dimensions as shown on the Plans or established by the Engineer.

All concrete shall be air-entrained.

Classes of concrete shall be used as indicated below unless noted otherwise on the Plans:

Class A concrete shall be used in railing, cribbing, precast shapes, for filler, and in steel grid floors.

Class K concrete shall be used in all sidewalks, parapets, decks, and median barriers when they are a part of the bridge superstructure.

Class B concrete shall be used in all beams and girders, roadway sidewalks, columns, hammerhead piers, arch rings including ties and spandrel walls, rigid frames, box culverts, heavily reinforced abutments, retaining walls, footings, pedestals and other areas not specifically designated as to class of concrete.

Class C concrete shall be used in massive footings and pedestals, massive pier shafts, gravity walls and, in general, for non-reinforced or lightly reinforced concrete.

Class D concrete shall be used as unformed and non-reinforced concrete for backfilling of any excavated pockets or voids on which footings are to be located.

Class H concrete shall be used for bridge decks and other bridge elements when designated in the plans.

If the Contractor so elects, the Engineer may permit the use of a higher class concrete than the particular class designated for the work, in which event the higher class concrete shall meet the Specifications applicable without additional compensation. If the contractor uses a higher class concrete, and the strength specimens do not meet the minimum strength requirement of that higher class concrete, no penalty will be applied, provided that the strength specimens exceed the minimum strength requirement of the concrete that was originally designated for the work.

When called for on the Plans, an admixture of water-reducing retarder shall be added to all concrete so specified. A retarder may be used in other concrete at the Contractor's option.

The work will be accepted in accordance with these Specifications and the applicable requirements of 105, 106, and 109.

All classes of concrete shall be designated as *modified* when using increased design strengths.

All classes of concrete shall be designated as *architectural* when using additional formwork as shown in Section 601.8.10.

A hydration control admixture may be used at the Contractor's option provided that the conditions in section 601.7 are met.

601.2-MATERIALS:

Materials shall meet the requirements specified in the following Sections or Subsections of Division 700:

Class H Concrete Requirements: The total concrete constituents shall contribute less than 0.10% water soluble chloride ion by weight of cement. The Contractor shall use only one brand and/or source for any concrete constituent. The Contractor shall obtain a written statement from the manufacturer of the microsilica admixture that confirms the compatibility of the material combination and the sequence in which they are combined. The written statement, along with the results of all required tests, shall be furnished to the Engineer prior to the pre-pour meeting.

MATERIAL	SECTION OR SUBSECTION
*Portland Cement	701.1, 701.3
Air-Entraining Admixtures	707.1
Water-Reducing, Set-Retarding Admixtures	707.2
**Fine Aggregate	702.1
Coarse Aggregate	703
Boiled Linseed Oil	711.2
Petroleum Spirits (Mineral Spirits)	711.5
Water	715.7
Curing Materials	707.6-707.10
Water Reducer	707.3
Epoxy Resin Protective Coating	707.11
Pozzolanic Additives	707.4
Accelerating Admixtures	707.13
Water-Reducing, Accelerating Admixtures	707.14
Hydration Control Admixtures	707.15

* It is normally intended that the product of only one mill or of any one brand or type of Portland cement be used on any one structure.

** Only siliceous sand shall be used as fine aggregate in bridge deck wearing surfaces.

*** The use of a Pozzolanic additives will not be permitted when a blended hydraulic cement is used. Unless otherwise permitted by the Engineer, only one source of a Pozzolanic additive shall be used in any one structure.

Shipping and Storage of Cement: Cement shall be shipped from pretested and approved bins at the mill or distribution terminals. Cement stored by the Contractor for a period longer than 90 days shall be retested before being used in the work. Cement failing to meet any of the specified requirements at any time prior to incorporation into the work will be rejected and shall be removed from the work. Cements of different brands, types, or from different mills shall be stored separately.

Shipping and Storage of Pozzolanic Additives: Pozzolanic additives shall be shipped from only those sources approved by the Division. Bulk Pozzolanic additives shall be stored at the job site in weatherproof bins.

Pozzolanic additives from different sources or from different lots at the same source shall be stored separately.

CONSTRUCTION METHODS

601.3-PROPORTIONING:

The proportions for any concrete designated as *modified* shall be submitted by the Contractor to the Engineer for approval. The Design 28-Day Compressive Strength shall be as shown in the plans. The contractor's mix design shall utilize Table 601.3.1, except the Target Cement Factor may be revised to obtain the modified strength.

Class H concrete shall consist of a homogeneous mixture of cement, fine aggregate, coarse aggregate, microsilica admixture, fly ash or ground granulated blast furnace slag, chemical admixtures, and water.

Establishment of mixture proportions shall be coordinated with the manufacturer of the microsilica admixture.

Design mixture testing for Class H concrete shall be in accordance with MP 711.03.23 and shall include air content, slump, compressive strength, and rapid chloride permeability tests. For establishment of mixture proportions, rapid chloride permeability tests shall be made on representative samples prepared and tested in accordance with AASHTO T277. The rapid chloride permeability test specimens shall be tested at an age of 90 days (or at any time prior to 90 days), and the results of this test shall not exceed 750 coulombs. Specimens shall be moist cured for 56 days prior to the start of specimen preparation unless specimens are to be tested prior to 56 days, in which case the specimens shall be moist cured until the time of test. The 28-day compressive strength of the test mix that satisfies the 750 coulomb threshold shall be used as the basis for acceptance of Class H concrete per Section 601.4.5. The cost of all test mix requirements shall be considered incidental to the cost of Class H concrete.

601.3.1-Mix Design Requirements: Prior to the start of construction, the Contractor shall design and submit to the Engineer for approval the proportion of materials, including admixtures, to be used which will result in a workable concrete having the applicable properties enumerated below, including those of Table 601.3.1A. A mix design prepared in accordance with MP 711.03.23, shall be required for each class of concrete to be used in the work. The mix design shall be accompanied by a statement giving the source of materials and certified test data from a Division approved laboratory demonstrating the adequacy of the mix design. The Contractor shall notify the Engineer of any change in the source of materials or the addition of admixtures during the progress of the work, since such change may necessitate a new mix design. The Contractor shall also state the $\bar{A}$ value of the fine aggregate and the $\bar{A}$ value of the combined grading of the coarse aggregate, fine aggregate, and cement used in the mix design. Each mix design shall remain approved for a period of three years from the date of approval, after which the mix design may be re-approved for an additional time period. The guidelines for this re-approval process are set forth in MP 711.03.23.

TABLE 601.3.1A {ENGLISH}					
Class of concrete	**Design 28 Day Compressive**	**Target Cement Factor**	**Maximum Water Content**	**Standard Size of Coarse Aggregate**	**Entrained Air**
	Pounds per Square inch	lbs./c.y. *	lb. of water / lb. of cement **	Number	Percent
A	3500	682	0.51	7, 78, or 8	7½
K	4000	658	0.44	57, 67	7
B	3000	564	0.49	57, 67	7
C	2500	494	0.58	57, 67	6
D	2000	400	0.62	57, 67	5½
H	4000	658	0.40	57,67	6½

TABLE 601.3.1A {METRIC}					
Class of concrete	**Design 28 Day Compressive Strength**	**Target Cement Factor**	**Maximum Water Content**	**Standard Size of Coarse Aggregate**	**Entrained Air**
	Mpa	Kg per cu. M. *	L/Kg of cement **	Number	Percent
A	24	404	0.51	7, 78, or 8	7½
K	28	390	0.44	57, 67	7
B	21	335	0.49	57, 67	7
C	17	295	0.58	57, 67	6
D	14	235	0.62	57, 67	5½
H	28	390	0.40	57,67	6½

* An equal volume of a pozzolanic additive may be substituted for Portland cement up to the maximum amount in Table 601.3.1B. Only one pozzolanic additive is permitted in a mix design, except for Class H concrete. The target cement factor of Class H concrete shall consist of Option 1 or Option 2 from Table 601.3.1C. The Contractor may choose either option.

TABLE 601.3.1B		
MATERIAL	**CLASS OF CONCRETE**	**QUANTITY**
Fly Ash	B, C, D	0.48 ft^3 (0.014 m^3)
	A, K	0.60 ft^3 (0.017 m^3)
Ground Granulated Furnace Slag	A, B, K	1.43 ft^3 (0.040 m^3)
	C, D	0.96 ft^3 (0.027 m^3)
Microsilica	All Classes	0.24 ft^3 (0.007 m^3)

** When using a pozzolanic additive, volumes of these materials shall be considered as cement for purposes of establishing maximum water content.

TABLE 601.3.1C				
OPTION	**CEMENT**	**FLY ASH**	**GROUND GRANULATED FURNACE SLAG**	**MICROSILICA**
1	2.39 ft^3 (0.068 m^3)	0.84 ft^3 (0.024 m^3)		30 lbs. (13.6 kg)
2	2.15 ft^3 (0.061 m^3)		1.08 ft^3 (0.031 m^3)	30 lbs. (13.6 kg)

MP 711.03.26 shall be used to control the cement factor in all classes of concrete except Class H.

601.3.2-Field Tolerances and Adjustments:

601.3.2.1-Consistency: Concrete shall have the consistency which will allow proper placement and consolidation in the required position. Every attempt shall be made to obtain a uniform consistency. The optimum consistency for various types of highway structures shall be as indicated in Table 601.3.2. Concrete for any "Slump Test" shall be deposited in a manner and location that excludes the effects of vibrations caused by traffic and concrete placement operations.

An approved Type F or Type G admixture may be used to increase the consistency and improve the workability of the concrete as long as the requirements of section 707.2.2.1 or section 707.3.2.1 are met. When an admixture is used for this purpose, it may be referred to as a superplasticizer.

No more than a total of two additions of a superplasticizer shall be permitted in any one batch of concrete. If a superplasticizer is used at the batch plant, then only one field addition is permitted. The total quantity of the superplasticizer shall not exceed the manufacturer's recommended dosage rate.

Upon addition of a superplasticizer at the job site, the mixing drum shall be turned for a minimum of 60 revolutions or 5 minutes at mixing speed to establish a workable mixture of uniform composition and consistency. If a second job site addition of superplasticizer is used; the mixing drum shall be turned a minimum of 30 additional revolutions at mixing speed. All additions and mixing of the superplasticizer shall be completed before placement of the concrete is started. The total number of revolutions shall not exceed 300, and the concrete shall be discharged within the time limits in section 601.7. The slump of Class H concrete shall not exceed 7 inches (175 mm) under any circumstances.

When a superplasticizer is used, the optimum consistency target value may be increased by 4 inches (100 mm), but under no circumstances shall the slump exceed 8 inches (200 mm).

Acceptance tests for consistency (slump), air content, compressive strength, etc. shall be made after all additions and mixing of the superplasticizer. Slump tests shall be performed on every batch of concrete to which superplasticizer is added (one test before and one test after the addition of superplasticizer).

The Contractor shall obtain a written statement from the manufacturer of the superplasticizer stating:

i. The manufacturer is satisfied with the compatibility of the combination of materials and the sequence in which they are combined.

ii. The recommended maximum admixture dosage rate.

iii. Immediately after mixing, the air content and slump shall be measured by a certified Portland Cement Concrete Inspector.

This written statement from the admixture manufacturer shall be made available to project personnel before any superplasticizer is added at the job site.

TABLE 601.3.2 CONSISTENCY

TYPE	*Optimum Consistency Inches of Slump (mm of slump)
i. For structures which have exposed, inclined surfaces such as concrete gutters, cast in place concrete slope protection, etc., requiring low slump concrete to allow proper placement and consolidation and the maintenance of the prescribed geometry; those structures which are placed by slip form construction methods where a low slump is required to maintain the prescribed geometry; and mass nonreinforced concrete.	1 inch (25 mm)
ii. For reinforced concrete structures which are sufficiently massive and generally have sufficient clearances to allow the access of workers into the immediate area of concrete placement, such as bridge piers, column and abutment footings; piers, large columns, and other similar type structures into which workers may enter for the purpose of placing and consolidating the concrete.	2 inches (50 mm)
iii. **a.** For reinforced concrete structures which are not easily accessible for spading and vibrating and offer a fair degree of difficulty in the placement and consolidation of the concrete, such as pier caps and abutments, beams and girders, box culverts, miscellaneous structure footings and other slab type structures, wall or vertical sections 8 inches (200 mm) or greater in width with one line of reinforcement or 12 inches (300 mm) or greater in width with two lines of reinforcement.	3 inches (75 mm)
b. For bridge decks	2 ½ inches (62 mm)
iv. For structures which are inaccessible to workers and generally offer a considerable degree of difficulty in the placement and consolidation of the concrete, such as long slender columns and thin-walled 3 ½ sections less than 8 inches (200 mm) thickness.	3 ½ inches (87 mm)
v. For structures which present peculiar conditions under which concreting must be done, such as structural steel encasement; other special structures which contain small openings through which the concrete must pass; tremie concrete which must be placed and consolidated into all spaces without mechanical disturbances; and other special structures which would require high consistency concrete for proper placement and consolidation.	**

* If the consistency exceeds the target value plus one inch (25 mm), the Contractor shall take immediate steps to reduce the slump of succeeding loads by making necessary adjustments in the mixture. The Contractor will be allowed a reasonable time for the trucks already on the road for a central mix or truck mix operation. Failure to comply will be cause for rejection of the concrete. If the consistency exceeds the target value plus 1 ¾ inches (445 mm), the concrete will be rejected.

** The optimum consistency shall be that consistency which will allow a proper placement and consolidation of the concrete into all spaces.

601.3.2.2-Air Content: The target value of the entrained air at the point of placement shall be as shown in Table 601.3.1A. If the entrained air does not conform with the target value within plus or minus 2.5 percentage points, the Contractor shall take immediate steps to adjust the air content of succeeding loads by making necessary adjustments in the mixture. The air content shall be measured on loads already batched and enroute, as well as the first load to which any adjustments were made in batching procedures. If the air content exceeds the target value plus 3.0 percentage points the concrete shall be rejected. When the concrete is delivered in a truck mixer and the air content is less than the target value minus 2.5 percentage points the concrete shall be rejected, or the Contractor may use additional air entraining agent in an amount that is intended to achieve the target value specified. The addition is permitted under the conditions listed below.

The target of the entrained air content of Class H concrete at the time of placement shall be as shown in Table 601.3.1A. If the entrained air does not conform with the target value within plus or minus 1.5 percentage points, the Contractor shall take immediate steps to adjust the air content of succeeding loads by making necessary adjustments in the mixture. If the entrained air content of Class H concrete does not conform to the target value plus 2.0 percentage points, the concrete shall be rejected. When Class H concrete is delivered in a truck mixer and the air content is less than the target value minus 2.0 percentage points, the concrete shall be rejected or the Contractor may use additional air-entraining agent in an amount that is intended to achieve the target value specified. The addition is permitted under the conditions listed below.

i. The air entraining agent is the same as used in the approved mix design and is thoroughly mixed with a minimum of 2 gallons (7.57 liter) of water. The solution will be directed to the front of the mixer.

ii. The mixer is turned a minimum of 30 revolutions, at mixing speed, or the number of revolutions established in tests to comply with uniformity requirements, whichever is more.

Immediately after mixing, the air content and slump shall be measured by a certified inspector or technician.

An air adjustment may be attempted twice per truck. If after the second addition the specified air content is not achieved, the concrete shall be rejected. These procedures do not alter the limits placed on time to discharge, the total revolutions of the mixing drum, or the specified slump.

601.3.2.3-Yield: The approved mix design shall be subject to modification under the conditions prescribed.

After the start of the first concreting operation and immediately after the specified consistency and entrained air have been established, three unit weight determinations shall be made from different batches and the average of the three determinations shall be considered the unit weight of the concrete. The actual yield shall be determined from the average unit weight. The design mix shall be adjusted as required to correct the actual yield to correspond to the theoretical.

During the progress of the work, the actual yield may be verified; and, if the yield based on a single unit weight determination should differ from the theoretical more than plus or minus two percent, two additional unit weight determinations shall be made and the average of the three determinations shall be considered the unit weight of the concrete. The actual yield shall be determined from the average unit weight, and the design mix shall again be adjusted as required to correct the actual yield to correspond to the theoretical.

In addition to the mix design adjustments specified above to correct for yield, other adjustments in the design mix proportions shall be made as necessary to maintain a plastic, workable mix with suitable finishing characteristics.

No change in the brands or sources of material shall be made without prior approval of the Engineer. Methods for determining-the properties enumerated above shall be in accordance with 601.4.

601.3.2.4-Total Solids Ā: The combined grading of the coarse aggregate, fine aggregate, and cement used in the structural concrete shall conform to the design mix Ā plus or minus the tolerance specified in the following table for the coarse aggregate size used.

TABLE 601.3.2.4-Total Solids Ā

Coarse Aggregate Size Number	Design Mix Ā Tolerance
3 OR 4	± 0.35
57 OR 67	± 0.25
7, 78 OR 8	± 0.15

Ā is the value obtained by grading of the total solids (coarse aggregate, fine aggregate, and cement). The Ā shall be determined by the Contractor (in accordance with MP 601.03.51) at least once for every 50 cubic yards (37.5 cubic meters) of concrete that are produced from the same mix design. However, not more than one Ā test (for each mix design) shall be required per calendar day as long as not more than 400 cubic yards (305 cubic meters) of concrete are produced in a single day from the same mix design. In situations when more than 400 cubic yards (305 cubic meters) of concrete are produced in a single day from the same mix design, two Ā tests shall be required (one in the AM and one in the PM) for that mix design.

During any calendar week (Sunday through Saturday) in which concrete is being produced, a minimum of one Ā test shall be required (for each mix design from which concrete is being produced). This Ā test shall be conducted on the first day of production of that calendar week. For

days on which concrete is being produced, but no Ā test is required, laboratory number 1392855 shall be used for Ā test documentation purposes.

Should the moving average of any five consecutive grading tests of the total solids have an Ā outside the specified mix design tolerance limits, production shall be discontinued until appropriate corrections are made. Corrections shall be made either in the proportions of the concrete (the mix design), the gradation of the aggregates, or the storage and loading of the aggregate, as the Contractor may elect.

The Contractor shall be required to determine the Ā at the beginning of the first day of production of the small quantity work. Another Ā shall not be required until after 50 cubic yards (37.5 cubic meters) of concrete from the same mix design have been produced or until one calendar week has elapsed since the date of the last Ā (whichever occurs first).

Should the moving average of any five consecutive grading test results of the total solids have an Ā outside the specified mix design tolerance limits, production shall be discontinued until appropriate corrections are made. Corrections shall be made either in the proportions of the concrete (the mix design), the gradation of the aggregates, or the storage and loading of the aggregate, as the Contractor may elect.

601.4-TESTING:

601.4.1-Sampling and Testing Methods:

Sampling fresh concrete	AASHTO T 141
Sampling aggregate	MP 700.00.06
Sieve analysis of fine and coarse aggregates	AASHTO T 27 and T 11
Slump of portland cement concrete	AASHTO T 119 (Note 1)
Air content of freshly mixed concrete	AASHTO T 152 AASHTO T 196
Unit weight/Yield of concrete	AASHTO T 121
Making and curing concrete compressive specimens	AASHTO T 23 With MP 601.04.20
Compressive strength of cylindrical concrete specimens	AASHTO T 22
Total moisture content of aggregate by drying	AASHTO T 255
Predicting potential strength of portland cement concrete	MP 711.03.31
Determination of Ā of total solids in concrete	MP 601.03.51
Determination of free moisture in fine aggregate using 20 gram or 26 gram A "Speedy Moisture Tester"	MP 702.00.20

Note 1-When testing concrete produced by volumetric batching and continuous mixing, the consistency testing shall be delayed for approximately three to five minutes after mixing.

601.4.2-Contractor's Quality Control: Quality control of the structural concrete is the responsibility of the Contractor as designated in MP 601.03.50. The Contractor shall maintain equipment and qualified personnel, including at least one certified Portland cement concrete technician who shall direct all field inspection, sampling and testing necessary to determine the magnitude of the various properties of concrete governed by the Specifications and shall maintain these properties within the limits of this Specification. The Contractor's personnel who conducts the field sampling and testing shall be a certified Portland Cement Concrete Inspector. The quality control plan designated in MP 601.03.50 shall be submitted to the Engineer at the preconstruction conference. Work shall not begin until the plan is reviewed for conformance with the contract documents.

601.4.3-Acceptance Testing: Acceptance sampling and testing of Portland cement concrete is the responsibility of the Division, except for furnishing of necessary materials.

Quality control sampling and testing performed by the Contractor may be utilized by the Division for acceptance.

Strength as used in this specification, is only one indicator of the durability of the Portland cement concrete. Evaluation of structural concrete may include evaluation of the freeze-thaw durability, scaling characteristics, abrasion resistance, density and such other factors the Division deems appropriate.

601.4.4-Compressive Strength Tests for Acceptance: A strength test shall consist of three test specimens. Either 6" x 12" (150 mm x 300 mm) cylinders or 4" x 8" (100 mm x 200 mm) cylinders are permitted, provided the requirements of MP 711.03.23 are met. The size of the cylinders which the Contractor intends to use on each project shall be listed in the Contractor's Quality Control Plan. The test shall be the average of the three specimens, except that if one specimen shows manifest evidence of improper sampling, molding, or testing, it shall be discarded and the remaining two strengths averaged. Should more than one specimen representing a given test show definite defects due to improper sampling, molding, or testing, the entire test shall be discarded.

The maximum acceptable range of compressive strengths within a set of three cylinders is 9.5%. This range is found by multiplying 9.5% times the average compressive strength of the three cylinders. If this acceptable range is exceeded, the cylinder that varies the most from the average shall be discarded, and the remaining two cylinders shall be evaluated as outlined in the following paragraph.

The maximum acceptable range of compressive strengths within a set of two cylinders is 8.0%. This range is found by multiplying 8.0% times the average compressive strength of the two cylinders. If this acceptable range is exceeded, the entire test shall be discarded. Under no circumstances shall a compressive strength test consist of less than the average of two specimens.

Compressive strength tests shall conform to the requirements of Table 601.3.1. Statistical analysis may indicate a percentage of production to be below nominal minimum design strength. Concrete represented by compressive strengths below the nominal minimum design strength of Table 601.3.1 may be removed and replaced by the Contractor. If the Contractor elects to leave the material in place, it will be evaluated as to adequacy for the use intended. All concrete evaluated as unsatisfactory for the use intended shall be removed and replaced or otherwise corrected by and at the expense of the Contractor as required in 105.3. When an evaluation indicates that the work may satisfactorily remain in place, a statistical analysis will be made of the material. If this statistical analysis indicates at least 93 percent of the material may be expected to have compressive strengths equal to or greater than that shown in Table 601.3.1 and 99.87 percent of the material may be expected to have compressive strengths at least one standard deviation above forty percent of the design strength ($0.4f'_c+\sigma$), the work will be accepted as substantially complying with the specification requirements. If this statistical analysis indicates that less than 93 percent of the material may be expected to have compressive strengths equal to or greater than that shown in Table 601.3.1 or less than 99.87 percent of the material may be expected to have compressive strengths at least one standard deviation above forty percent of the design strength ($0.4f'_c+\sigma$), the Engineer will provide for an appropriate adjustment under the provisions of 601.15.

Whenever possible, the Division's statistical analysis will be based on a minimum of 10 cylinder test results. These results may be from the concrete item being placed, the same class of concrete on the project, or the same class of concrete from the producer. All of the cylinder test results used in this evaluation, however, must be from the same mix design.

601.4.5-Tests for Permeability Acceptance: The Contractor shall be required to compare the compressive strength test results obtained in Section 601.4.4 to the compressive strength of the approved test mix per Section 601.3. This comparison shall be used as the acceptance criteria for the Chloride Permeability requirements. Chloride Permeability of the in-place concrete shall be considered acceptable if the 28-day compressive strengths obtained in Section 601.4.4 are greater than eighty percent of the 28-day compressive strength of the approved test mix. Concrete represented by compressive strengths below eighty percent of the 28-day compressive strength of the approved test mix may be removed and replaced by the Contractor. If the Contractor elects to leave the material in place, it will be evaluated as to adequacy for the use intended. All concrete evaluated as unsatisfactory for the use intended shall be removed and replaced or otherwise corrected by and at the expense of the Contractor as required in Section 105.3.

The Contractor shall also be required to fabricate six rapid chloride permeability test specimens in accordance with AASHTO T277 every time that a set of compressive strength specimens is fabricated. These test specimens shall be moist cured until as close to the time of test as possible. If the 28-day compressive strength of the in-place concrete (obtained in Section 601.4.4) is less than or equal to eighty percent of the compressive strength of the approved test mix, these rapid chloride permeability test specimens shall be tested in

accordance with AASHTO T277, otherwise testing of these specimens is not required. When testing of these specimens is required, two test specimens shall be tested at each of the following ages: 35, 56, and 90 days. These test results shall be used by the Engineer as the basis for evaluation as to the adequacy of the material for the use intended.

601.5-EQUIPMENT AND TOOLS:

601.5.1-Field Laboratory: Field laboratory provisions shall conform to the requirements prescribed in 501.5.1.

601.5.2-Batching Plant and Equipment:

601.5.2.1-General: The batching plant shall include bins, weigh hoppers, and scales for the fine aggregate and for each size of coarse aggregate. If cement is used in bulk, a separate bin, weight hopper, and scale for cement shall be included. The cement weight hopper shall be properly sealed to preclude dusting during operation and shall be properly vented to prevent a build-up in pressure. The discharge chute shall not be suspended from the weighing hopper and shall be so arranged that cement will not lodge in it nor leak from it. When fly ash is used in the concrete a separate bin shall be included.

601.5.2.2-Bins: Bins with adequate separate compartments for fine aggregate and for each size of coarse aggregate shall be provided in the batching plant.

601.5.2.3-Scales: The scales for weighing aggregates and cement shall conform to the requirements in 109.1.

Scales shall be inspected and sealed as often as may be deemed necessary to assure their continued accuracy. The Contractor shall have on hand not less than ten 50 lb. (20 kg) weights for testing scales.

601.5.2.4-Automatic Weighing Devices: Batching plants equipped to proportion aggregates and bulk cement by means of automatic weighing devices of an approved type may be used.

601.5.2.5-Water Measuring Equipment: Water shall be measured by volume or by weight. The device for the measurement of the water shall be readily adjustable and, under all operating conditions, shall have an accuracy within one percent of the quantity of water required for the batch.

601.5.2.6-Admixture Dispenser: A positive, automatic method shall be used for adding each admixture in solution.

601.5.2.7-Aggregate Sampling: Provisions shall be made to allow a rapid sampling of the aggregates as they pass from the storage bin to the weigh hopper or as they pass from the storage bin into the conveyor feed.

601.5.3-Mixers and Agitators: Site and central mixers, truck mixers, truck agitators, and non-agitator trucks shall conform to the requirements of AASHTO M 157, except as modified.

Volumetric mixers shall conform to the requirements of AASHTO M 241, except as modified.

Central mixers shall be equipped with a device which will automatically lock the discharge lever when the drum has been charged and release it at the end of the mixing period. The device shall be equipped with a bell or other suitable warning device adjusted to give a clearly audible signal each time the lock is released. In case of failure of the timing device, the mixer may be used for the balance of the day while it is being repaired, providing that each batch is mixed for the specified time period.

All mixers shall be cleaned at suitable intervals. The pickup and throw-over blades in the drum or drums shall be repaired or replaced when they are worn down ¾ inch (20 mm) or more. The Contractor shall either have available at the job site a copy of the manufacturer's design, showing dimensions and arrangements of blades in reference to original height and depth, or provide permanent marks on blades to show points of ¾ inch (20 mm) wear from new conditions. Holes of ¼ inch (6 mm) diameter near each end and at midpoint of each blade are recommended).

601.5.4-Recording Thermometer: The Contractor shall supply a continuous recording thermometer capable of recording temperatures in the 30-150° F (1 – 66 °C) range. It shall likewise provide a recording capability over a 24-hour continuous period, minimum. The Contractor shall provide any ancillary equipment, supplies and labor necessary for calibration of this equipment.

601.6-HANDLING, MEASURING, AND BATCHING OF MATERIALS:

Handling, measuring, and batching of materials for ready-mix concrete shall conform to the requirements specified in 501.7. Handling, measuring, and batching of materials for volumetric batching and continuous mixing shall conform to the applicable requirements specified in 501.7 and AASHTO M 241.

When microsilica densified powder is used, the densified powder shall be weighed using an approved cement scale or standard 25 lb. (11.3 kg) or 50 lb. (22.6 kg) full bags may be substituted. Batching tolerance for the cement plus densified powder shall be 1.0%.

Batching and mixing recommendations for bulk and bagged densified microsilica (silica fume) are provided in the Silica Fume Users Manual which is available through the Silica Fume Association (Report Number FHWA-IF-05-016).

These recommendations include procedures to be used when the Ready-Mix Supplier desires to add microsilica, which is supplied in repulpable bags, into the mix. If these recommendations are followed, and the Ready-Mix Supplier can satisfactorily demonstrate to the Engineer, by means of testing and wet-sieving a trial batch (see section 7.3.6 of the Silica Fume Users Manual), that there are no fragments of the packaging material remaining in the mix, then the restriction in section 501.7, concerning the addition of the pozzolan packaging material, may be waived.

The above referenced testing and wet-sieving of the trial batch shall be done on a plant-by-plant and mix-by-mix basis. When truck-mixed concrete is used, the truck which demonstrates the greatest degree of variability in the uniformity requirements, as specified in AASHTO M 157, shall be the truck which is used to produce the trial batch for testing and wet-sieving purposes. If the Ready-Mix Supplier intends to use this approach, it shall be addressed in the Plant portion of the Quality Control Plan.

601.7-MIXING:

Concrete may be central-mixed, truck-mixed, or shrink-mixed as defined in AASHTO M 157 and will be designated as ready-mixed concrete. The production of ready-mixed concrete shall meet the applicable requirements of AASHTO M 157, paragraphs ten and eleven, except as otherwise specified.

Concrete for incidental construction items may be made by volumetric batching and continuous mixing as designated in ASTM C 685, except as otherwise specified. Concrete produced by this method will not be permitted in bridge, box culvert, pavement, or retaining wall construction.

When a truck mixer or agitator is used for transporting concrete, the concrete shall be delivered to the site of the work and discharge shall be completed within one and one-half hours after the addition of the cement to the aggregates. Each batch of the concrete delivered at the job site shall be accompanied by a batch ticket (Form HL 411A) bearing complete batching information. In adverse weather or under other conditions contributing to quick stiffening of the concrete, or when the temperature of the concrete is 85° F (30° C) or above, the time between the introduction of the cement to the aggregates and discharge shall not exceed one hour. When a truck mixer is used for the complete mixing of the concrete, the mixing operation shall begin within one hour after the cement has been added to the aggregate.

When placing concrete at remote locations, and due to excessive haul time to the site of work from the closest approved batch plant, and discharge of the concrete within the time limits specified in the previous paragraph is not possible, a concrete mix that includes a hydration control admixture may be used. The subject concrete mix containing this admixture must be approved in accordance with section 601.3.1, and the hydration control admixture must be approved in accordance with section 707.15. When conditions are such that a hydration control admixture is used, the allowable time between the introduction of the cement to the aggregates and discharge of the concrete shall be increased to three hours. The limit of 300 maximum revolutions (pertaining to truck mixers or agitators) specified in AASHTO M 157 may be waived when hydration control admixtures are used, provided that no additional water is added prior to discharge

of the concrete. A single batch of concrete containing a hydration control admixture may not be discharged on more than one project.

The addition of water after completion of initial mixing will not be permitted, except that when concrete is delivered in truck mixers, additional water may be added to adjust to a specified consistency. In this event, a minimum of 20 additional revolutions of the truck mixer drum at mixing speed shall be required before discharge of any concrete; the maximum allowable time between the addition of the cement to the aggregates and the discharge of the batch shall not be exceeded. Concrete that is not within the specified consistency limits at the time of placement shall not be used.

Shrink-mixed concrete is a ready-mixed concrete which is initially and partially mixed in a central mix plant and lastly mixed to completion in a truck mixer while in transit to or after arrival at the job site. Shrink-mixed concrete will be allowed for use in the work if specified in the Contract.

601.8-FORMS:

601.8.1-General: Forms shall be of wood, metal or other approved material and shall be mortar tight and sufficiently rigid to prevent distortion due to pressure of the concrete and other loads incidental to the construction operations including vibration. Wood forms shall be constructed and maintained so as to prevent the opening of joints due to shrinkage of the lumber.

All falsework shall be designed and constructed to provide the necessary rigidity and to support the loads without appreciable settlement or deformation. Suitable jacks, wedges or other approved devices shall be used to maintain the forms at correct elevation and to permit lowering the centers gradually and uniformly without injury to the structure.

A "Telltale" or other approved type of indicator shall be attached to the forms and arranged in such a manner that any settlement or movement in the forms or falsework is indicated. Forms shall be filleted and chamfered as shown on the Plans and shall be given a bevel or draft in the case of all projections to assure easy removal.

All field welding shall be performed by a certified welder. Welding of form ties and supports to the beam will not be permitted. Welding of screed rail supports will not be permitted in the top flange in tension zone.

601.8.2-Form Lumber: Form lumber for all exposed concrete surfaces shall be dressed at least on one side and two edges.

601.8.3-Metal Ties: Metal ties or anchorages within the forms shall be constructed to permit their removal to a depth of at least 1 inch (25 mm) from the face without injury to the concrete. Only rods shall be used for internal ties. The cavities shall be filled with cement mortar and the surface left sound, smooth, even, and uniform in color.

601.8.4-Cleanouts: Where the bottom of the form is inaccessible, the lower form area shall be left loose or other provisions made so that extraneous material may be removed from the forms immediately before placing the concrete.

601.8.5-Surface Treatment: Forms shall be treated with oil in such manner as to prevent contamination of reinforcing steel. Oil which will adhere to or discolor the concrete shall not be used.

601.8.6-Metal Forms: The metal used for the forms shall be of such thickness that the forms will remain true to shape. All bolts and rivet heads shall be countersunk. Clamps, pins, and other connecting devices shall be designed to hold the forms rigidly together and to allow removal without injury to the concrete. Metal forms which do not present a smooth surface or do not line up properly shall not be used. Metal forms shall be kept free of rust, grease, or other foreign matter.

601.8.7-Removal of Forms and Construction of Superimposed Elements: The forms for any portion of the structure shall not be removed until the concrete is strong enough to prevent damage. Methods of form removal likely to cause overstressing of the concrete shall not be used.

The minimum requirements for removal of forms or supports and the construction of superimposed elements shall be as specified in Table 601.8.7.

TABLE 601.8.7
Requirements for Removal of Forms and Construction of Superimposed Elements

Structural Element	Removal of Forms	Placing Concrete In Superimposed Elements
	Compressive Strength-psi (Mpa)	Compressive Strength-psi (Mpa)
Bridge Decks	2000 (14.0)	3000 (21)
Columns	2000 (14.0)	2000 (14.0)
Walls & Beams	2000 (14.0)	2000 (14.0)
Footings	500 (3.5)	2000 (14.0)
Components Supported By Falsework	3000 (21)	3000 (21)
Parapets	2000 (14.0) (See 601.11)	----------

601.8.8-Slip Forming: Slip forming and related methods of placing concrete may be used. At the Contractor's option, parapet wall joints and median barrier on the bridge may be sawed in lieu of formed open joints and the joints shall be spaced as shown on the Plans and shall be 1/4 inch ± 1/16 inch (6 mm ± 1.6 mm) wide. Joints shall be sawed full width from the top of the wall to the upper break point in the wall. From the upper break point to the bottom of the wall a 2 inches (50 mm) minimum depth saw cut shall be made along the face and back of the wall. Joints shall be sealed in accordance with Section 501.16.1. The face of the back-up material shall be ½ inch (13 mm) minimum from the concrete surface.

Initial sawing of joints shall commence as soon as the concrete has hardened sufficiently to permit sawing without excess raveling, usually 4 to 24 hours. All joints shall be initially sawed before uncontrolled shrinkage cracking takes place, but no later than 24 hours after placement of concrete.

601.8.9-Stay-in-Place Fabricated Metal Forms for Concrete Bridge Decks: All concrete bridge decks shall be constructed with a stay-in-place fabricated metal forming system per the requirements shown in this specification unless otherwise noted in the plans.

601.8.9.1-General: Stay-in-place fabricated metal forms for concrete deck slabs of bridges shall be used on all interior bays of beams. For overhangs and where longitudinal expansion joints are located between stringers removable forms shall be used. The design and material of the forms, in the judgment of the Engineer, shall be such as to give an expected maintenance free service life equal to the service life of the concrete slab. The stay-in-place fabricated metal forms shall be crimped at each end.

Unless otherwise specified in the plans, the weight of stay-in-place fabricated metal forms plus concrete in the form flutes used in the design is 15 psf (74 N/m^2). The contractor shall submit revised computations if the proposed forming system is heavier than 15 psf (74 N/m^2). The cost of the revised computations shall be at no additional cost to the Division.

601.8.9.2-Material: Stay-in-place fabricated metal forms for concrete decks slabs and exposed material for supports shall be zinc-coated (galvanized) steel sheet conforming to ASTM A-653, Designation SS, Grades 33 (230) through 80 (550), with a G165 Coating Designation. The stay-in-place fabricated metal forms shall be designed on the basis of dead load of the forms, reinforcement, and the plastic concrete plus 50 psf (2400 N/m^2) for construction loads. Unit working stresses shall be in accordance with the AASHTO LRFD Bridge Design Specifications for construction loads and the unit stress in the steel sheet shall be not more than 0.725 of the specified minimum yield strength of the material furnished but not to exceed 36,000 psi (250 Mpa). Maximum deflection under weight of plastic concrete, reinforcement and form shall not exceed 1/180 of the form span or ½" (13 mm), whichever is less. Maximum deflection under 60 psf (2900 N/m^2) of live loads shall not exceed 1/360 of the form span or ¼" (6 mm), whichever is less. The form span for design and deflection shall be the clear distance between the flanges of the supporting beams less 2" (50 mm), measured parallel to the form flutes.

All stay-in-place fabricated metal forms shall have a minimum thickness of 22 gage.

Physical design properties shall be computed in accordance with requirements of American Iron and Steel Institute Specification for the Design of Cold-Formed Steel Structural members, latest published edition.

All reinforcing bars in the bottom layer of the deck slab reinforcement shall have a minimum concrete cover of 1" (25 mm). The distance from the top of the slab to the bottom layer of deck slab reinforcement shall not be less than that shown on the plans.

601.8.9.3-Installation: All forms shall be installed in accordance with detailed fabrication plans submitted to the Engineer for approval. The fabrication plans shall clearly indicate locations where the forms are supported by steel beam flanges.

Form sheets shall not be permitted to rest directly on the top of the stringer or floor beam flanges. Sheets shall be securely fastened to form supports and shall have a minimum bearing length of 1" (25 mm) at each end. Form supports shall be placed in direct contact with the flange of stringer or floor beam. All attachments shall be made by bolts, clips, or other approved means. Welding of form supports to flanges shall not be permitted.

Any exposed form metal where the galvanized coating has been damaged shall be thoroughly cleaned and wire brushed, and then painted with two coats of zinc-rich primer, conforming to Subsection 711.21, to the satisfaction of the Engineer.

Transverse construction joints shall be located at the bottom of a flute and ¼" (6 mm) weep holes shall be provided in the field at 12" (300 mm) ± 3" (75 mm) on center along the line of the joint.

601.8.9.4-Placement Of Concrete: Concrete shall be placed in accordance with the contract specifications. The entire form shall be filled with deck concrete. No filler material shall be permitted. Particular emphasis should be placed on proper vibration of the concrete to avoid honeycomb and voids, especially at construction joints, expansion joints, flutes, and ends of form sheets.

The use of covered flutes or fillers of any kind in the flutes of the stay-in-place fabricated metal forms is not permitted.

601.8.9.5-Inspection: The Contractor's method of construction shall be carefully observed during all phases of the construction of the bridge deck. These methods include installation of the Stay-in-place fabricated metal forms; location and fastening of the reinforcement; composition of concrete, placement and vibration; and finishing of the bridge deck.

Unless waived by the Engineer, the Contractor shall remove at least one section of the forms at a location and time selected by the Engineer for each concrete placement in each approved pour sequence. This should be done as soon after placing the concrete as practicable in order to provide visual evidence that the concrete mix and the Contractor's procedures are obtaining the desired results. An additional section shall be removed each time the concrete mix or the contractor's procedures are changed, unless waived by the Engineer.

After the deck concrete has been in place for a minimum of two days, the concrete shall be tested for soundness and bonding of the forms by sounding on the forms with a hammer at least 50 percent of the area of at least 25 percent of the individual form panels, as selected by the Engineer on a random basis. If areas of doubtful soundness are disclosed by this procedure, the Contractor will be required to remove the forms from such areas for visual inspection.

At locations where sections of the forms are removed, the Contractor will not be required to replace the forms, but the adjacent metal forms and supports shall be repaired to present a neat appearance and assure their satisfactory retention. As soon as the form is removed, the concrete surfaces will be examined for cavities, honeycombing and other defects. If irregularities are found, and in the opinion of the Engineer these irregularities do not justify rejection of the work, the concrete shall be given a Class 1, Ordinary Surface Finish in accordance with the contract specifications and shall be repaired as the Engineer may direct. If the concrete where the form is removed is unsatisfactory, additional forms shall be removed, as necessary, to inspect and repair the slab, and the Contractor's methods of construction shall be modified as required to obtain satisfactory concrete in the slabs.

The amount of sounding and form removal may be moderated, at the Engineer's discretion, after a substantial amount of slab has been constructed and inspected if the Contractor's methods of construction and the results of the inspections as outlined above indicate that sound concrete is being obtained throughout the slabs.

The Contractor shall provide all facilities required for the safe and convenient conduct of the Engineer's inspection procedures.

601.8.9.6-Forming System Changes: The contractor shall not utilize a removable forming system without the submittal of the following information:

1. Revised camber tables based on actual forming system.
2. Revised dead load deflection tables based on actual forming system.

These revised drawings must be stamped by a West Virginia Professional Engineer and approved by the Engineer prior to commencing forming. No change in unit prices, or contract completion date will be permitted for the use of a removable forming system.

601.8.10-Architectural Formwork:

601.8.10.1-General: This work includes additional requirements for the forming of cast-in-place structural concrete designated as *architectural*. The scope of this work is as indicated and as detailed on the drawings.

601.8.10.2-Submittals: The following shall be submitted to the Engineer for his review:

A. Product data and installation instructions for manufactured form systems, form liners, release agents, ties, and accessories. The release agent manufacturer shall certify that the products supplied comply with regulations controlling the use of volatile organic compounds (VOC's).

B. Shop drawings for fabrication and erection. These drawings shall show all items that visually affect the exposed concrete, including, but not limited to, general form construction, jointing, specially

formed joints or reveals, and patterns of placement. The Engineer's review will be for general architectural applications and features only. Formwork design for structural stability and sufficiency is the Contractor's responsibility and shall not be submitted for the Engineer's review.

C. Mockup or Sample Panels. The Contractor shall submit a mockup or sample panel of their respective material indicating texture, finish, and pattern in accordance with Section 601.8.10.3.A. This Mockup or Sample Panel shall have a minimum front surface area of 15 ft^2 (1.2 m^2).

601.8.10.3-Quality Assurance:

A. The Contractor shall construct a mockup or sample panel using the proposed formwork and facing materials in order to demonstrate the required finishes and textures. Actual construction of *architectural* concrete shall not proceed until the Engineer has accepted the sample units.

B. Before placing concrete, the Contractor shall check lines and levels of erected formwork, and shall make corrections and adjustments to ensure:
   1) proper size and location of concrete members
   2) stability of the forming systems

C. During concrete placement, the Contractor shall check formwork and related supports to ensure the forms are not displaced and that completed work will be within specified tolerances.

601.8.10.4-Materials:

601.8.10.4.1-Form Materials:

A. Forms for Exposed-Finish Concrete: Unless otherwise indicated, construct formwork for exposed concrete surfaces with plywood, metal, metal-framed plywood-faced or other paneled materials to provide as-cast surfaces. Furnish in largest sizes to minimize number of joints and to conform to joint system shown on drawings. Provide form materials with sufficient thickness to withstand pressure of placed concrete without bow or deflection beyond allowable tolerances.

   1) Use overlaid plywood, APA grade trademarked "HIGH DENSITY OVERLAY (HDO)."

   2) Use plywood, APA grade trademarked "B-B PLYFORM CLASS 1."

B. Forms for Textured Finish Concrete: Provide special forming materials to produce surfaces with face design, texture, arrangement, and configuration as shown on drawings or as required to match Engineer's control sample. Provide solid backing and form supports to ensure stable textured form liners.

C. Form Coating: Provide a commercial formula release agent that will not bond with, stain, or adversely affect concrete. Provide material that will not impair subsequent treatment of concrete surfaces requiring bond or adhesion, nor impede wetting surfaces to be cured with water or a curing compound.

601.8.10.4.2-Formwork Design: Design formwork for easy removal without impact, shock, or damage to the concrete and adjacent materials.

601.8.10.5-Construction Methods:

601.8.10.5.1-Form Construction:

A. General: Construct forms to sizes, shapes, lines, and dimensions shown, and as required to obtain accurate alignment, location, level, and plumb work in finished structures. Provide for openings, offsets, keyways, recesses, chamfers, blocking, screeds, bulkheads, and other as required.

B. Fabricate forms to prevent cement paste from leaking while placing concrete and for easy removal without hammering or prying against exposed concrete surfaces. Provide crush plates where stripping might damage cast concrete surfaces. Provide top forms for inclined surfaces where slope is too steep to place concrete. Solidly butt joints and provide backup material at joints to prevent leakage and fins. Assemble forms so that they may be easily removed without damaging exposed concrete surfaces

C. Provide temporary form openings where inaccessible formwork interior can be cleaned and inspected before placing concrete. Place temporary form openings as inconspicuously as possible, consistent with project requirements.

D. When drilling forms used for exposed concrete, drill from the contact face to the outside to suit the ties used and to prevent leakage of concrete mortar. Do not splinter the forms by driving ties through improperly prepared holes.

E. Unless otherwise shown in the plans,

1) provide sharp, clean corners at intersecting planes with no visible edges or offsets.
2) provide accurately formed chamfered corners using ¾ x ¾ inch (19 x 19 mm) strips, surfaced to produce uniformly straight lines and tight edge joints.

601.8.10.5.2-Form Coatings:

A. General: Coat form contact surfaces with form-release agent before placing reinforcement. Do not allow excess material to accumulate in forms or to come into contact with reinforcement or surfaces that will be bonded to fresh concrete. Apply coating according to manufacturer's instructions.

B. Coat steel forms with non-staining, rust-preventative release agent, or otherwise protect from rusting. Rust-stained steel formwork is not acceptable.

601.8.10.5.3-Reusing Forms: Split, frayed, delaminated, or otherwise damaged form-facing materials are not acceptable. Clean and apply a new form-release agent to concrete contact surfaces.

601.9-ADVERSE WEATHER CONDITIONS:

601.9.1-Cold Weather Concreting: The plastic concrete shall have a temperature of at least 50° F (10° C) but not more than 85° F (30° C) at the time of placing. When the plastic concrete has a temperature of less than 55° F (13° C), the provisions for cold weather concreting shall apply. Maintenance of at least the minimum temperature shall be accomplished by heating the water or the aggregates, or both, as necessary. Heating methods which alter or prevent the entrainment of the required amount of air in the concrete shall not be used. Heating equipment shall be capable of heating the materials to achieve the specified temperature of the plastic concrete. The temperature of the aggregates or water shall not exceed 150° F (65° C) at the time the cement is added to the mixture. Materials containing frost or lumps of frozen materials shall not be used.

If the Contractor is placing concrete or plans to place concrete during cold weather conditions, the Contractor shall advise the Division of his plans for curing and protecting the concrete. The Division may at any time, require the Contractor to provide additional protection to cause the provisions of this specification to be met.

Stockpiled aggregate may be heated by the use of dry heat or steam. Aggregates shall not be heated directly by gas or oil flame or on sheet metal over fire.

Binned aggregates may be heated by steam-coil or water-coil heating. The use of live steam on or through binned aggregate will not be permitted.

The use of calcium chloride to hasten the initial set of structural concrete will not be permitted.

Insulated forms may be used for protecting and curing concrete. There will be no additional cost to the Division for the use of insulated forms.

Class H or Class K Concrete Cold Weather Provisions: Cold weather periods shall be defined as those periods when temperatures above 50° F (10° C) do not occur for more than half of any 24 hour duration. The temperature of the surface on which the concrete is to be placed shall not be less than 45° F (7° C) immediately prior to placement of the concrete. During the cold weather periods, as defined above, the temperature of the concrete immediately after placement shall be between 55 and 75° F (13 and 24° C).

601.9.2-Hot Weather Concreting: The Contractor will be required to state, at the pre-construction conference, his plan of action when the temperature of plastic concrete reaches 90° F (32° C).

When a free air, shaded thermometer in the vicinity of the concrete production plant reaches 85° F (30° C), thermometer readings of the temperature of the plastic concrete shall be taken at least hourly.

When the temperature of the plastic concrete reaches 85° F (30° C), the elapsed time between the introduction of the mixing water to the cement-aggregates and discharge of the mix shall not exceed 1 hour. At this temperature or above, particular attention shall be paid to the Specification provisions concerning the sprinkling and wetting of surfaces not oil-treated, the maintenance of coarse aggregate stock in saturated surface-dry condition, and the prompt start of concrete curing operations.

When the temperature of the plastic concrete reaches 90° F (32° C), immediate steps shall be taken to cool either mixing water or aggregates, or both, in order to maintain a plastic concrete temperature of 90° F (32° C) or less. Crushed or flaked ice may be used to cool the mixing water. Crushed or flaked ice may also be introduced into the mixing drum when the concrete is batched and mixed in a truck mixer. The ice will be considered as part of the mix water in the mix proportions. The mixing operation shall not be considered complete until all ice in the drum has melted.

In no event shall concrete be placed when its temperature in the plastic state at the completion of mixing exceeds 90° F (32° C).

Bridge Decks: The Contractor's plan of action for all bridge deck concreting operations shall contain provisions designed to minimize the probability that any bridge deck concrete will be placed when the ambient temperature is greater than 85° F (30° C).

601.10-PLACING CONCRETE:

601.10.1-General: Concrete shall not be placed until forms and reinforcing steel have been inspected and approved. The forms shall be cleaned of all debris immediately prior to placing concrete, and surfaces not oil treated shall be wetted. The method and sequence of placing concrete will be subject to approval by the Engineer. Concrete shall be placed so that no segregation will occur and no displacement of reinforcement will be caused. Concrete shall be placed in the forms as nearly as practical in its final position

in order to avoid rehandling, and an approximately horizontal surface of the plastic concrete shall be maintained. After initial set of the concrete, the forms shall not be jarred and no strain shall be placed on the ends of projecting reinforcement. Concrete shall not be placed until all laitance which may have formed on concrete previously placed, or any loose deleterious material on reinforcing bars, has been removed.

601.10.1.1-Pre-Pour Meeting: The Contractor shall schedule a meeting prior to the start of the concrete work. The Engineer, Construction Manager, Prime Contractor, Concrete Contractor, Concrete Finisher, Concrete Supplier, and the Individual or Agency that will perform the quality control testing of the concrete shall attend. Topics of discussion shall include Class H concrete mixture proportions, batching, transporting, handling, placing, finishing, curing, and on-site quality control testing requirements.

601.10.1.2 – Concrete Placement Limitations: If the evaporation rate exceeds 0.10 lb./sq. ft. per hour (0.5 kg/sq. m per hour) (see Figure 1), the Contractor shall make provisions (i.e. wind breaks, fogging, etc.) to reduce the rate prior to placing concrete. These provisions shall be maintained during the placement of the concrete. If the evaporation rate obtained from Figure 1 is close enough to the maximum allowable value of 0.10 lb./sq.ft. per hour (0.5 kg/sq. m per hour) that there may a discrepancy in the exact numerical value, the following equation shall be used to obtain a more accurate value.

$$E = [T_c^{2.5} - (r \times T_a^{2.5})]\,[1 + 0.4V] \times 10^{-6}$$

Where:

E = *evaporation rate, lb/ft²/h*
T_c = *concrete temperature, °F*
T_a = *air temperature, °F*
r = *(relative humidity %) / 100*
V = *wind velocity, mph*

Example:
Air Temperature = 65 °F
Relative Humidity = 45%
Concrete Temperature = 60 °F
Wind Velocity = 20 mph

Result Using Figure 1:
Evaporation Rate ≈ 0.11 lb/ft²/h

Result Using Formula:
$E = [T_c^{2.5} - (r \times T_a^{2.5})]\,[1 + 0.4V] \times 10^{-6}$
$E = [60^{2.5} - (0.45 \times 65^{2.5})]\,[1 + (0.4 \times 20)] \times 10^{-6}$
$E = [27885 - 15328]\,[1 + 8] \times 10^{-6}$
$E = 12557 \times 9 \times 10^{-6}$
$E = 0.11$ *lb/ft²/h*

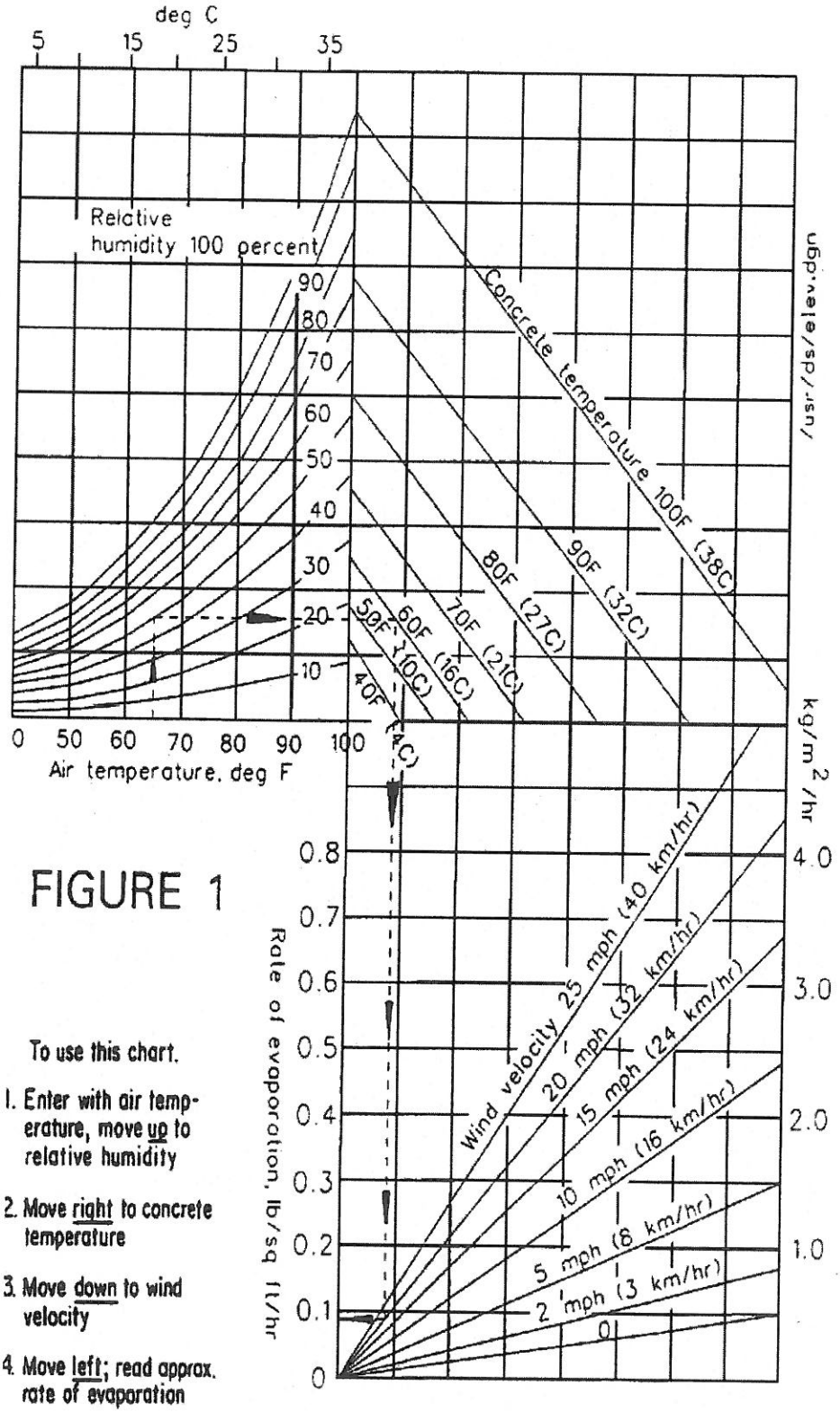


FIGURE 1

To use this chart.

1. Enter with air temperature, move up to relative humidity
2. Move right to concrete temperature
3. Move down to wind velocity
4. Move left; read approx. rate of evaporation

601.10.1.4 – Concrete Placement at Night: If placement of any concrete is to be made at night, a plan which provides adequate lighting for the work area shall be submitted at least 14 days before concrete is placed for the Engineer's approval.

601.10.2-Chutes and Troughs: Concrete shall not be dropped in the forms a greater distance than 5 feet (1.5 meters) without the use of closed chutes or pipes. When chutes or troughs are used under steep slope conditions, they shall be equipped with baffle boards or shall be used in short lengths to reverse the direction of movement. All chutes, troughs or pipes shall be kept clean and free of hardened concrete by flushing with water after each run. Flushing water shall be discharged outside the forms. Aluminum chutes, troughs or pipes shall not be used.

601.10.3-Vibrating: Concrete shall be compacted by the operation of approved mechanical vibrators within the concrete. When required, vibrating shall be supplemented by hand spading to assure proper compaction, to force all coarse aggregate from the surface, and to bring mortar against the forms to produce a smooth finish. Vibrators shall be manipulated in such a manner that concrete is worked around reinforcement and imbedded features and into angles of the form. Vibration shall be of sufficient duration to accomplish compaction but shall not be prolonged to the point where segregation occurs. Vibration shall not be used to cause concrete to flow from point to point within forms. The frequency of the vibrators shall meet the requirements of Section 501.5.5.

601.10.4-Placing Concrete Bridge Decks: Concrete for bridge decks shall be placed and finished with mechanical equipment unless waived by the Engineer. The Contractor shall furnish the Engineer information as to the weight of the proposed machine, the volume of concrete to be placed per hour, and the operating procedure to be followed.

Where beam support screeds are used and the distance between the support and gutter line is in excess of 1 foot (300 mm), the Contractor shall use devices to control the grade of the gutter line during the deck finishing operations.

601.10.4.1-Fogging Equipment: When Class H concrete is used, fogging equipment shall be available for use in accordance with these specifications. The fogging nozzles shall produce an atomized mist. Fogging nozzles shall incorporate compressed air to create the mist. Hand held or hand operated equipment shall be permitted when the Contractor has demonstrated that his operator has been trained in its use.

601.10.4.2-Placement: The following requirements shall apply during placement of the Bridge Deck concrete:

a. So that the use of hand tools will be kept to a minimum, concrete shall be deposited as nearly as possible to its final position. Internal vibrators shall not be used for moving concrete into position.

b. A pencil type vibrator shall be used along all construction joints to further consolidate the concrete to prevent voids.

c. The new concrete shall be placed slightly above final grade. It shall then be struck-off, screeded, and finished to final grade.

d. The finished surface, before texturing, shall be uniformly smooth, dense and even. Variations in pavement surface in excess of 1/8 inch (3 mm) above, or below, the proper finished elevation, or surface irregularities of more than 1/8 inch (3 mm) in 10 feet (3 m), will not be accepted.

e. A construction dam, or bulkhead, shall be installed in case of a delay in the placement operations exceeding 30 minutes duration. During any delays of 30 minutes or less, the placement shall be protected from drying with several layers of wet burlap. If the concrete placement is stopped, or delayed, for 90 minutes or more, further placement shall be discontinued and may be resumed only after the concrete has cured. This restriction does not prohibit continuation of the placement provided a gap is left in the placement. This gap shall be sufficient in length to allow the finishing machine to clear the previously placed concrete.

f. Adequate precautions shall be taken to protect freshly placed concrete from rainfall. All placement operations shall stop when it starts to rain. The Engineer may order removal and replacement of material damaged by rainfall.

g. The addition of superficial water to the surface of the concrete to assist in finishing operations will not be permitted.

601.10.5-Depositing Concrete Under Water: Concrete shall not be placed until all laitance which may have formed on concrete previously placed has been removed. Still water shall be maintained at the point of deposit. While depositing foundation concrete, pumping shall be discontinued if it results in a flow of water inside the forms. All concrete deposited under water shall have the minimum cement content increased at least 10 percent.

Concrete deposited under water shall be carefully placed in a compact mass in its final position by means of a tremie, a closed bottom dump bucket, or other approved method and shall not be disturbed after being deposited.

601.11-FINISHING CONCRETE SURFACES:

The surface of the concrete shall be finished immediately after form removal.

The exposed surfaces of bridge parapets, wingwalls, headwalls and vertical edge of the bridge deck shall be given a Class 2, Rubbed Finish, or a Class 1, Ordinary Surface Finish supplemented with wood float rubbing. When the Class 1,Ordinary Finish is used, the forms shall be removed as early as practical, not to exceed six hours (in lieu of 601.8.7) after placing, and the finish completed including rubbing with a wood float and water. The rubbing shall produce a nonplastered, smooth textured and uniform color surface. Other concrete surfaces except bridge decks shall be given a Class 1, Ordinary Finish.

Unless otherwise shown in the plans, all concrete designated as *architectural* shall receive a Class 1, Ordinary Surface Finish, as defined in Section 601.11.1.

601.11.1-Class 1, Ordinary Surface Finish: Immediately following the removal of the forms, all fins and irregular projections shall be removed from all surfaces except those which are not to be exposed or are not to be waterproofed. On all surfaces the cavities produced by form ties and all other holes, honeycomb spots, broken corners or edges and other defects shall be thoroughly cleaned, saturated with water, and carefully pointed and trued with a mortar of cement and fine aggregate mixed in the proportions used in the class of concrete being finished. Mortar used in pointing shall be not more than 30 minutes old. The mortar patches shall be cured as specified in 601.12. All construction and expansion joints in the completed work shall be left carefully tooled and free of all mortar and concrete. The joint filler shall be left exposed for its full length with clean and true edges.

The resulting surfaces shall be true and uniform. All surfaces which cannot be repaired to the satisfaction of the Engineer shall be rubbed as specified for Class 2, Rubbed Finish.

601.11.2-Class 2, Rubbed Finish: After removal of forms, the rubbing shall be started as soon as the condition of the concrete will permit. The concrete shall be thoroughly saturated with water immediately prior to rubbing and shall be kept saturated throughout the rubbing operation.

Sufficient time shall have elapsed before wetting down to allow the mortar used in pointing to thoroughly set. Surfaces to be finished shall be rubbed with a medium coarse carborundum stone, using a small amount of mortar on its face. The mortar shall be composed of cement and fine sand in the same proportion as the concrete being finished. Rubbing shall be continued until all form marks, projections, and irregularities have been removed, all voids filled, and a uniform surface obtained. The past produced by this rubbing shall be left in place. After all concrete above the surface being treated has been cast, the final finish shall be obtained by rubbing with a fine carborundum stone and water. This rubbing shall be continued until all the paste produced by the

first rubbing operation has been removed from the face of the concrete except from depressions and defects which have been filled with the paste. The surface of the concrete after rubbing shall have a non-plastered, smooth texture and a uniform color.

After the final rubbing is completed and the surface has dried, the surface shall be rubbed with burlap to remove loose powder.

The resulting surfaces shall be free from all unsound patches, paste, powder, and objectional marks.

601.11.3-Class 6, Float Finish: This finish, for horizontal surfaces, shall be achieved by placing an excess of material in the form and removing or striking off the excess with a template, forcing the coarse aggregate below the mortar. Creation of concave surfaces shall be avoided. After the concrete has been struck off, the surface shall be thoroughly worked and floated with a suitable floating tool of wood, canvas or cork. Before the finish has set, the surface cement film shall be removed with a fine brush in order to have a fine grained, smooth but sanded texture.

601.11.4-Finishing Concrete Bridge Decks: Any addition of water to the surface of the concrete to assist in the finishing operations will not be permitted. When conditions are such that unusually rapid drying is occurring, an atomized mist may be used to prevent the rapid evaporation of water from the concrete surface during the final finishing.

After striking off, consolidating and floating have been completed, both while the concrete is still plastic, the surface shall be checked for trueness with a straightedge. The Contractor shall furnish an accurate scraping type straightedge with a minimum length of 10 feet (3.048 meter) and swung from a handle at least 3 feet (1 meter) longer than one-half the width of the slab.

The straightedge shall be held in successive positions parallel to the road centerline and in contact with the roadway surface and operated from side to side until the surface is within the permissible tolerance provided. Advance along the roadway shall be in successive stages of not more than one-half of the length of the straightedge. Any depressions found shall be immediately filled with freshly mixed concrete, struck-off, consolidated, and refloated. High areas shall be cut down and refloated. The straightedge testing and reflecting shall continue until the surface is found to be free from observable departures from the straightedge and the slab has the required grade and contour.

Upon completion of the above operations, the surface shall be smoothed with a lute or smoothing float, four to 6 feet (1.2 to 1.8 meters) in length, after which the surfaces shall be tested with an accurate straightedge. This checking straightedge shall be 10 feet (3.048 meters) long and shall be held in a position parallel to the centerline of the roadway. The advance of this straightedge along the slab shall be in successive stages of not more than one-half of its length. When tested with this straightedge, the finished surface shall be free from observable departures from the straightedge.

Upon completion of the above operations, the surface of the concrete shall be given a groove finish while the concrete is still plastic. The tool used shall produce a groove that is approximately 3/32 inch (2 mm) wide. The depth of

this groove shall be 1/8 inch (3 mm) to 3/16 inch (5 mm) and spaced approximately ½ inch (13 mm) center to center. The grooves shall be formed in a direction that is transverse to the centerline of the roadway or parallel to the skew. On any one bridge the direction of the grooves shall be consistent. Adjacent strokes to establish the texture shall abut one another without appreciable overlap. Texturing shall be performed when the concrete surface is of such plasticity as to prevent excessive raveling (concrete too dry) or to prevent mortar from flowing back into the grooves (concrete too wet). All texturing shall be accomplished with a single pass of the tool. To facilitate drainage, the 12 inches (300 mm) immediately adjacent to the curbline shall be left untextured.

When finishing has been completed and the concrete has hardened sufficiently, the surface shall be given a further test for trueness with a rolling straightedge. Areas showing high spots of more than 1/8 inch (3 mm) shall be marked by the Engineer and, only when directed by the Engineer, such areas shall be ground with an approved grinding tool, utilizing carborundum stones or industrial diamond wheels; grinding shall be done to an elevation where the area or spot will not show a surface deviation in excess of 1/8 inch (3 mm) when tested with the 10 feet (3.048 meter) rolling straightedge, except that the maximum depth of grinding shall not exceed ¼ inch (6 mm). The ground areas shall be treated as directed by the Engineer. Where the initial deviation from the straightedge is ½ inch (13 mm) or more, the Contractor will be required to remove and replace the complete pour in which the areas not meeting the required tolerance are located.

After grinding, all areas either high or low, not meeting the requirements of 1/8 inch (3 mm) tolerance will be measured and disposition of these areas will be as set forth in 601.15.2.

601.11.4.1-Class H Bridge Decks:

Surface Texturing: The surface of the Class H concrete shall be uniformly smooth, dense and even. The surface shall then be given a suitable texture with an approved burlap drag.

The Contractor shall texture in a transverse or longitudinal direction. Once begun, the direction of texturing shall not change. All texturing shall be performed prior to the beginning of curing operations. Only one pass of the drag over the finished area will be permitted. Texturing shall be in strict accordance with the time requirements of 601.12.4 for applying wet burlap.

If texturing is done in the transverse direction, the Contractor shall texture by hand methods as soon as practicable after finishing machine passage.

If texturing is done in the longitudinal direction, the burlap drag shall be a seamless strip and shall be attached to the work bridge such that the surface of the concrete is textured as soon as practicable after finishing machine passage. Small areas, inaccessible to the attached drag, may be textured by hand methods.

The finishing movement and resulting progress of the burlap drag shall be done in a manner so as to prevent ridges or gouges from forming in the concrete surface. The drag shall be weighted and the contact area changed as required to produce a texture acceptable to the Engineer. The drag shall be cleaned as required; to remove all hardened concrete particles.

Texture resulting from the drag shall stop within one foot (305 mm) of curbs or parapets.

Class H Concrete Finished Deck Grooving: After corrective grinding and before opening to traffic, grooves shall be cut into the concrete using a mechanical saw. These grooves shall be 0.10 inch (3 mm) wide and 0.25 inch (6 mm) deep. Groove spacing shall be 1.5 inches (38 mm) center to center. No later than one week prior to grooving operations, the Contractor shall provide the Engineer with two accurate, easily readable gauges with which to verify groove dimensions. Groove depth and spacing tolerances are limited to ±1/16 inch (±2 mm). Groove width tolerances are +0.02 (+0.5 mm) inch and -0.0 inch (-0 mm). The grooves shall be cut in a direction that is transverse to the centerline of the roadway or parallel to the skew. On any one bridge the direction of the grooves shall be consistent. Grooves shall be cut continuously across the deck to within one foot (305 mm) of gutter lines or drainage structures. Grooves shall also be continuous across the full width of the deck surface including construction joints. Grooves shall terminate within 1 inch (25 mm) of any exposed metal component or elastomeric concrete of an expansion joint. When the deck is skewed and the contractor is using gang blades to saw the grooves, the maximum distance (measured perpendicular to the centerline of the expansion joint) from the last groove termination in the pass to the expansion joint shall be 1 foot - 8 inches (508 mm). Radial grooving shall be performed in increments limited to 12 feet (3.7 m) of bridge length.

Saw Cutting Equipment: Only multi-bladed saw cutting equipment, using circular saw blades, will be permitted for final deck finish operations. The Engineer may allow the use of single blade circular saw equipment only where such equipment is necessary to complete the work as required.

601.11.5-Finishing Concrete Decks For the Placement of Specialized Overlay: When the plans require the placement of a Specialized Concrete Overlay, per Section 679, on a newly placed concrete deck, the concrete surface shall be intentionally roughened. The surface shall be raked and roughened to provide a surface profile that will facilitate the bond of the specialized concrete overlay. Floating of this surface shall be minimized to avoid formation of bleed water on the surface.

601.12-CURING AND PROTECTING CONCRETE:

601.12.1-Curing Under Normal Conditions: All concrete shall be protected by one or more of the curing materials, meeting the requirements of 601.2, as soon as possible after placement to prevent loss of moisture from the surface. Burlap and water curing shall be used on all bridge decks.

Concrete surfaces shall be kept completely and continuously moist. Curing shall be continued for a period of at least 7 days. This curing period may be reduced if the contractor presents evidence that the in place concrete has attained 70% of the specified strength for the class of concrete under cure. Under no circumstances, shall the period of cure be less than 3 days. The reduced curing period option is not applicable to Class H or Class K concrete. Surfaces may have

coverings temporally removed for finishing, but the covering shall be restored as soon as possible.

Membrane forming curing compounds may be used providing they do not conflict with other requirements of these Specifications. If membrane forming curing compound is used, all surfaces shall be given the required finish prior to application of the curing compound with the concrete protected by some other method before finishing.

Curing compound shall be applied at a minimum rate of one gallon of liquid coating per 300 square feet (13.6 liters of liquid coating per 100 m^2) of concrete surface for each application. The curing compound shall be continuously agitated during use. All concrete cured by this method shall receive two applications of the curing compound. The first coat shall be applied immediately after acceptance of the concrete finish. If the surface is dry, the concrete shall be saturated with water and the curing compound applied as soon as the surface film of water disappears. The second application shall be made after the first application has set. Placement in more than two coats may be required to prevent streaking.

During the curing period, any coating marred or otherwise disturbed shall be given an additional coating. Should the surface coating be subjected continuously to injury, another method of cure shall be immediately substituted. If the use of an impervious compound results in a streaky or blotched appearance, the method shall be stopped and water curing applied until the cause of the defective appearance is corrected.

Curing Temperature is the air temperature at the concrete surface, or the air temperature between the concrete surface and its protective covering.

601.12.2-Curing Under Cold Weather Conditions: When the air temperature is expected to fall below 30° F (-1° C), the Contractor shall provide suitable measures to maintain the concrete surface temperature between 50° F (10° C) and 90° F (32° C).

Calendar days on which the surface temperature of the concrete falls below 50° F (10° C) shall not be considered days of curing. In no event shall the temperature of the concrete be allowed to fall below 35° F (2° C) before the specified curing is completed. The Contractor shall be responsible for the quality and strengths of the concrete placed or cured, or both, during the cold weather, and any concrete injured by frost action shall be removed and replaced at the Contractor's expense.

When protection is removed from the structure after the specified curing is complete, the temperature of the concrete shall not be permitted to fall at a greater rate than 20° F (11° C) per 24 hour period.

Class H or Class K Concrete Provisions:

The surface temperature of the concrete shall be maintained between 55 and 75° F (13 and 24° C) for 72 continuous curing hours immediately after placement. After this 72 hour period, a minimum concrete surface temperature of at least 50° F (10° C) shall be maintained for an additional 96 continuous curing hours.

If it is expected that the surface temperature of the concrete will drop below 50° F (10° C) during the 168 hour curing period, then the surface shall be enclosed

and external heat shall be provided in accordance with the provisions of this section. Once external heat provisions are required, they shall remain on the surface until curing is complete, regardless of the ambient air temperature. Enclosures for heat retention shall be properly vented to prevent surface disintegration from carbon dioxide gas.

Continuous wetting shall be replaced by wetting at regular intervals if, in the opinion of the Engineer, expected air temperatures could result in freezing of run-off water.

601.12.3-Protection of Finished Surfaces: All exposed finished surfaces of concrete shall be protected to prevent rust stains, paint splotches, scars or other blemishes tending to disfigure or discolor the finished surface. Where reinforcing steel bars or other steel inserts are left exposed for extended periods or over the winter, they shall be given a coat of neat cement paste to prevent rust staining.

Any stains or other blemishes shall be corrected by the Contractor.

601.12.4-Curing Class H Concrete: It is the nature of Class H concrete material to quickly form a plastic film at the surface upon drying. This film is to be protected from drying and cracking by prompt covering with wet burlap. Regardless of the type of concrete placed, the use of membrane curing compounds will not be allowed. Floor drains shall be immediately unplugged to permit the deck to drain.

The concrete surface shall be completely covered with clean, wet burlap. The burlap shall be thoroughly saturated over its entire area, but shall be drained of excess water before application. Burlap shall be lapped a minimum of one foot (305 mm) and shall lay flat. Failure to apply wet burlap within 10 minutes after the concrete has been placed will be cause for rejection of the work as determined by the Engineer. However, the Engineer may extend time if the plastic film has not formed or the Contractor's fogging operation adequately protects the film. Care shall be exercised to ensure that the burlap is well drained. Burlap shall be continuously wet for a period of seven days by means of automatic intermittent sprinkling or a continuous wetting system.

601.13-PROTECTIVE SURFACE TREATMENT:

601.13.1-Linseed Oil: After the concrete is at least 14 days old, a protective surface treatment as specified shall be applied to the entire top surface of bridge decks, approach slabs when they are included in the Contract, concrete bridge medians, top and curb face of bridge sidewalks, and inside faces of parapets.

The application of the linseed oil protective surface treatment is not required for elements constructed from Class H concrete.

The surface shall be dry for at least 48 hours before treatment and shall be free from oil, grime, and loose dirt or particles. Immediately before application, the entire surface shall be air blown to remove any loose dust.

The surface treatment mixture shall consist of 50 percent boiled linseed oil and 50 percent petroleum spirits (mineral spirits), by volume.

The mixture shall be sprayed, and the nozzle shall be kept within 18 inches (450 mm) of the surface. Hand tank type pressure sprayers will be permitted. The temperature of the concrete and air shall be 50° F (10° C) or higher at the time of application.

The first coat shall be applied at the rate of 0.025 gallons per square yard (40.0 square yard per gallons) (0.11 liters per square meter (8.8 m^2 per liter)) and the second coat at the rate of 0.015 gallons per square yard (67.0 square yard per gallons) (0.068 liters per square meter (14.7 m^2 per liter)).

The second coat shall not be applied until the concrete has regained its dry appearance.

The Contractor is cautioned to guard against fire of all sorts, including cigarettes, as this material is flammable.

Metal hand rails shall be protected from spray by shielding or masking.

The Contractor shall prohibit all pedestrian or vehicular traffic on the structure during the drying period of the protective coating.

The Contractor shall not apply a protective coating when it is anticipated that there will be precipitation within five hours of the time of application. Any coating damaged by rain or moisture shall be corrected by an additional application.

601.13.2-Epoxy Resin Protective Coating: The top surface of abutment bridge seats, including drainage areas, and the adjacent bottom 6 inches (150 mm) of the backwall and the top surface of pier caps which are located beneath expansion devices shall receive an epoxy resin protective coating. The area immediately beneath the bearing masonry plates may be omitted at the Contractor's option.

Concrete surfaces to be coated shall be sound, dry and free of all laitance and curing materials. The coating shall not be applied until the concrete has attained the age recommended by the manufacturer.

When required by the Engineer in the field, concrete surfaces shall be cleaned of all oil, grease and other potential bond inhibiting matter by acid etching with a 10 percent to 15 percent muriatic acid solution. The acid solution shall be spread and allowed to react until bubbling has subsided, approximately three to five minutes. The surface shall then be thoroughly flushed with clear water and allowed to dry. Where, in the opinion of the Engineer, acid etching is insufficient to clean the concrete, then sandblasting or an approved method of mechanical abrading shall be required.

The exact indicated amounts of the base polymer and the reacting system, as recommended by the manufacturer, shall be measured into mixing container and mixed thoroughly with a low-speed paddle-type mixer. After mixing, the material shall stand for an induction period of one hour before application.

Following the one hour induction period, the mixed protective coating may be applied by brush, roller or spray. When applied by roller, a first quality, long nap roller is recommended for rough surfaces, and a short nap roller for smooth surfaces. If applied by spray, an externally atomized spray gun is recommended. If thinning is necessary for spray application, thinner shall be of the type and amount recommended by the coating manufacturer.

Two coats of mixed material shall be applied in thin, uniform coats of approximately 2 to 3 mil (50 μm to 75 μm) dry film thickness each (4-5 mils wet thickness (100-125 μm wet thickness)). The second coat shall be applied approximately 24 hours after the application of the first coat. One gallon of the system will cover approximately 275 square feet of smooth concrete, first coat; a second coat will cover approximately 400 square feet. One liter of the system will cover approximately 6.75 m^2 of smooth concrete, first coat; a second coat will cover approximately 10 m^2.

In all cases application shall be made at temperatures recommended by the manufacturer.

601.13.3-Concrete Protective Coating:

601.13.3.1-Concrete Surface Preparation: After the Engineer has inspected and accepted the concrete surfaces of bridges and median barriers as having a satisfactory ordinary surface finish, clean the concrete surfaces specified hereinafter of all dust, foreign matter, and form oil, and apply a Department approved protective coating finish. Coat the following surfaces, including all beveled edges:

1) Bridge Abutments and Wingwalls – Every exposed surface above a point six inches below ground or fill line. Exclude where epoxy coating is applied.

2) Bridge Pier Caps – The tops (including exposed surfaces of pads, pedestals, and keys), sides and ends. Do not apply the coating to bearing areas. Exclude where epoxy coating is applied.

3) Bridge Superstructure – The tops, inside and outside faces, and ends of all barrier walls, parapets, curbs, and points that will be exposed. Do not apply the coating to the riding surface of the bridge deck.

4) Exposed Surfaces of Substructure and the Superstructure – all surfaces identified in 1), 2), and 3) above and the underneath surfaces of slab overhangs that are outside of exterior girders and the exterior side and bottom of exterior beams or girders, the interior windows of barriers, and all exposed surfaces of piers and abutments. Extend the masonry coating from a point six inches below ground line to the top of the exposed surface.

Thoroughly clean all surfaces to receive a protective coating and keep them free of oil, form oil, grease, dust, dirt, mud, curing compound, release agents, loose patching mortar, or any other substance that may prevent bonding. Before applying the protective coating material, fill all air holes flush with the surface with the protective coating material or an approved mortar to provide a uniform surface.

Check all surfaces to receive a protective coating for the presence of dust by wiping a dark cloth across the surface of the concrete. If a white powder can be seen on the dark cloth, clean the concrete by wire brushing, grinding, or water blasting and then allow it to thoroughly dry before applying the

masonry coating. The Engineer will recheck the surface for the presence of dust after cleaning.

Check all surfaces to receive a protective coating for the presence of oily conditions by sprinkling or fogging water on the surface of the concrete. If the water stands in droplets without spreading out immediately, this indicates the surface is contaminated with an oily substance, and the Engineer will require cleaning using a detergent and water followed by thorough rinsing with water. The Engineer will recheck the surface for the presence of oil conditions after cleaning.

Thoroughly dry all surfaces to receive a protective coating before applying the coating, unless the coating manufacturer specifically recommends the surface to be wet. The Department's List of Approved Materials contains each manufacturer's recommendations. The Engineer will not consider surfaces to be dry unless an absorbent paper pressed tightly against the surface does not show any trace of moisture.

Suspend coating application any time the ambient temperature or the temperature of the concrete does not comply with the coating manufacturer's recommendations.

Prior to application of the materials, furnish the Engineer with copies of the coating material manufacturer's brochures or booklets. Apply protective coating materials in strict conformity with the manufacturer's written instructions and apply the material at a uniform rate of at least 50± 10 ft^2/gal (1.75± 0.35 m^2/L).

Satisfactorily repair or remove any portions of the coating that are not clean, uniform in color, texture, thickness, tightly bonded, or that are damaged before final acceptance of the project and replace them with an acceptable finish and coating.

Provide a neat uniform appearance, and prevent the coating from being dripped, sprayed, or otherwise deposited upon concrete and surfaces not designated to receive the coating. Remove any objectionable deposits or material and repair the surfaces to the Engineer's satisfaction.

601.13.3.2-Concrete Protective Coating Materials:

Description: This section covers requirements for materials to be used as surface finishes for designated surfaces of cement concrete structures. The protective coatings must hide form marks, patches, and other minor irregularities and prevent deterioration, spalling, and other damage to the concrete due to the action of the weather and deicing chemicals.

Approval: Select masonry coatings from the Department's List of Approved Materials. Use a material that is readily recognizable by its name, trademark, container, or other feature. Conform to the Department's testing criteria to be placed on or remain on the Department's List of Approved Materials.

For initial approval submit representative samples, color chip(s), and duplicate copies of certified test reports to the Division of Materials for review and approval. An independent testing laboratory acceptable to the

Department shall perform the tests described herein on representative samples of the material. Tests listed herein are the minimum testing requirements to be met. When requested in writing, the Engineer may accept materials based on conformance to the same type of test but differing on minor procedural points. Attach copies of test procedures which differ from those stated herein. In addition to the material, provide brochures or booklets containing detailed instructions and explanatory remarks about surface preparation, application procedures, and other pertinent operations.

A. Freeze-Thaw Test. Cast and cure 3 concrete specimens no less than 4 by 6 by 6 inches (100 by 150 by 150 mm). Moist cure specimens for 14 days and then dry in room air at 60° to 80° F (15° to 27° C) for 24 hours before applying protective coating. Ensure that there is no excessive oil on specimen forms. Coat sides of specimens (brush permitted) according to the manufacturer's directions at a rate of 50± 10ft^2/gal (1.75± 0.35 m^2/L) and cure at room temperature for 48 hours, after which:

    1) Immerse in water at room temperature 60° to 80° F (15° to 27° C) for 3 hours and remove.
    2) Place in cold storage at 5° F (-15° C) for one hour and remove.
    3) Thaw at room temperature, 60° to 80° F (15° to 27° C) for one hour.
    4) Repeat steps 1), 2) and 3) to complete a total of 50 cycles. At the end of 50 cycles of the Freeze/Thaw Test, ensure that the coated specimens show no visible defects.

B. Accelerated Weathering. Test according to ASTM D 822. Apply at an application rate of 50± 10 ft^2/gal (1.75± 0.35 m^2/L). Test for 335 hours in the Atlas Type XW Sunshine Arc Weatherometer or for 500 hours in an Atlas Type DMC Enclosed Violet Carbon Arc Weatherometer or equivalent. Perform the test in 120 minute cycles consisting of 102 minutes of light and 18 minutes of light and demineralized water. At the end of the exposure test, ensure that there is no checking, cracking, or loss in film integrity, and no other film defects. Ensure that the coating shows no more than very slight color change.

C. Salt Spray Resistance. Apply the masonry coating to concrete at a rate of 50± 10ft^2/gal (1.75± 0.35 m^2/L), and test the coating according to ASTM B 117. Expose the coating to a 5 percent sodium (salt) solution for 300 hours, and maintain it at 194° ± 4° F (90± 2° C) during the period of exposure. Ensure that it shows no loss of adhesion or deterioration at the end of the 300 hours.

D. Fungus Growth Resistance. Ensure that like protective coatings passes a fungus resistance test as described by federal specifications TT-P-29. After a minimum incubation period of 21 days, ensure that no growth is exhibited on the coatings.

601.13.3-Concrete Protective Coatings: In order for a concrete protective coating to be placed on the approved list, it must be one which will hide form marks, patches, and other minor irregularities and which will prevent deterioration, spalling, and other damage to the concrete due to the action of the weather and deicing chemicals. The material shall be one that is readily recognizable by its name, trademark, container, or other feature. The material shall be one which is accompanied by brochures or booklets containing detailed instructions and explanatory remarks about surface preparations, application procedures, and other pertinent operations. Additionally, materials to be placed on or remain on the approved listing will be required to meet testing criteria established by the Materials Control, Soil and Testing Division to ensure their durability. These tests shall include: (1) resistance to freezing and thawing; (2) resistance to accelerated weathering, (3) resistance to salt spray and; (4) resistance to fungus attack.

See list of approved products.

601.14-METHOD OF MEASUREMENT:

The quantity of work done for Class A, Class B, Class C, Class D, Class H, and Class K concrete will be measured in cubic yards (meters), complete in place and accepted as determined by the dimensions on the Plans or Contract Documents, subject to adjustments provided for in Sections 104.2 and 109.2.

The quantity of work done for Class H and Class K concrete will be measured in cubic yards (meters), complete in place and accepted, as measured from one end of the bridge to the other, fascia to fascia, and from the top of the forms to the finished elevation of the proposed deck surface. If stay-in-place prefabricated metal forms are used, the measurement between the finished elevation of the proposed deck surface to half the depth of the stay-in-place prefabricated metal forms, will be utilized as the deck thickness to account for the concrete that fills the form flutes. The stay-in-place prefabricated metal form area shall be as defined in the plans.

No deductions will be made for the volume occupied by pipe less than 8 inches (200 mm) in diameter, nor for reinforcing steel, anchors, conduits, weep holes or piling, or other small inserts.

The cost of copper, copper-nickel alloy or other type of flashing, expansion joint filler, preformed joint filler, concrete bearing pads, drain pipes for weep drains through abutments, wings and walls or bridge floors, unless otherwise specified, shall be included in the unit prices bid for the several classes of concrete.

All costs associated with the revised mix design and proportions shall be in the unit price bid for the class of concrete designated as *modified.*

All costs associated with architectural formwork shall be in the unit price bid for the class of concrete designated as *architectural.* No deductions will be made for the volume occupied by the architectural formwork.

The quantity of work done under line items 603.13.3 will include

preparation and application of concrete protective coating to all exposed surfaces of special bridge railing, outside face of exterior prestressed girders, exposed portion of abutments, wingwalls and piers. The area to be coated will be measured on a square foot (square meter) basis.

601.15-BASIS OF PAYMENT:

601.15.1-General: The quantities, determined as provided above, will be paid for at the contract unit prices bid or at the adjusted percent of contract price as specified for the items listed below, which prices and payments shall be full compensation for furnishing all the materials and doing all the work prescribed in a workmanlike and acceptable manner, including all labor, tools, equipment, field laboratory, supplies and incidentals necessary to complete the work.

The cost of stay-in-place fabricated metal forms and all work associated therewith shall be included in the unit price bid for concrete placed as the bridge deck. The amount of concrete required to fill the form flutes is included in the plan quantity of the concrete bridge deck material, and shall be paid for per Section 601 of the Specifications.

The quantities determined as provided above, complete in place, will be paid under item 601019-* concrete protective coatings on a square foot (square meter) basis.

No additional payment will be allowed for concreting under adverse weather conditions nor when the use of a higher class concrete than that specified is permitted.

601.15.2-Price Adjustments: The Contractor will be assessed an equitable deduction of twenty-five dollars ($25.00) per square foot. (two-hundred-seventy dollars ($270.00) per square meter) for areas of bridge decks not meeting the specified 1/8 in (3mm) tolerance and not specified to be removed nor directed to be ground, and for any areas that have been ground but do not meet the specified tolerance. Deviations will be tested with a 10ft (3.048 meter) rolling straightedge.

Concrete found not in compliance with the requirements of 601.4.4 for compressive strength will be paid for at a reduced contract price in accordance

$$\text{Percent Reduction} = \frac{f'_c - X}{0.6f'_c - \sigma}$$

with the following formula:

Where:

f'_c = Design Strength, psi (MPa)
X = Observed strength, psi (MPa)
σ = Standard Deviation

The percent reduction shall be applied to the sublot with the low strength.

601.16-PAY ITEMS:

ITEM	DESCRIPTION	UNIT
601001-*	Class A Concrete	Cubic Yard (Meter)
601002-*	Class B Concrete	Cubic Yard (Meter)
601003-*	Class K Concrete	Cubic Yard (Meter)
601005-*	Class C Concrete	Cubic Yard (Meter)
601006-*	Class D Concrete	Cubic Yard (Meter)
601025-*	MODIFIED CONCRETE, CLASS y, zz PSI (MPA)	Cubic Yard (Meter)
601002-*	Class B Concrete, Architectural	Cubic Yard (Meter)
601003-*	Class K Concrete, Architectural	Cubic Yard (Meter)
601009-*	Class H Concrete	Cubic Yard (Meter)
601019-*	Concrete Protective Coating	square foot (square meter)
601026-*	Modified Architectural Concrete, CLASS y, zz PSI (MPA)	cubic yard (meter)

* Sequence number
y Class of concrete
zz Design 28-day Compressive Strength

PORTLAND CEMENT CONCRETE PLANT EVALUATION

EFFECTIVE DATE: 9/5/13

Submitted on Mainframe or Website

Code	Sticker Expires	Plant Location	Rating	Std. Dev	Comments	Dist.
A072A	12/19/2013	Adams Trucking Barboursville, WV	A-2	650.0	Class B w/FA (6.50 bags) Maintain current design cement factors	2
A104A	11/7/2013	New Castle Morgantown, WV	A-2	650.0	Maintain current design cement factors	4
A104B	12/3/2013	Essroc Ready Mix Gallipolis, OH	A-2	650.0	Maintain current design cement factors	2
A104C	11/17/2013	Essroc Ready Mix New Martinsville, WV	A-2	650.0	Maintain current design cement factors	6
A104E	11/17/2013	Essroc Ready Mix McMechen, WV	A-2	647.6	Class B w/FA (5.50 bags) Class K 4000 w/FA (7.00 bags) Maintain current design cement factors	6
A104H	8/8/2013	Essroc Ready Mix Winfield, WV	B	764.0	Class B w/FA (5.50 bags) Class K 4000 w/FA (7.00 bags) Maintain current design cement factors	1
A104L	7/29/2013	Essroc Ready Mix Parkersburg, WV	B	885.7	Class B w/FA (5.50 bags) Class K 4000 w/FA (7.00 bags) Class B Modified 4500 (8.50 bags)	3
A128A	1/29/2014	Central Supply Lorentz, WV	A-2	650.0	Maintain current design cement factors	7
A291A	10/10/2013	Valley Concrete Wheeling, WV	A-2	650.0	Maintain current design cement factors	6
B219B	10/30/2013	Boxley Materials Beckley, WV	A-2	719.1	Maintain current design cement factors	10
B219C	10/23/2013	Boxley Materials Alta, WV	A-2	774.6	Class B w/FA (6.00 bags) reduce to 5.50 bags	9
B219D	10/30/2013	Boxley Materials Beckley, WV	A-2	963.8	Maintain current design cement factors	10
C089F	7/6/2013	Central Supply Saltwell, WV	B	806.7	Class B w/FA (6.00 bags) reduce to 5.50 bags Maintain current design cement factors	4

C089G	7/3/2012	Central Supply Morgantown, WV	B	495.1	Class B w/FA (6.00 bags) reduce to 5.50 bags Maintain current design cement factors	4
C089H	10/17/2013	Central Supply Meadowbrook, WV	A-2	650.0	No design data submitted	4
D069B	11/30/2013	D.W. Dickey Concrete Steubenville, OH	A-2	650.0	No design data submitted	6
D069E	8/26/2013	D.W. Dickey Concrete East Liverpool, OH	B	650.0	No design data submitted	6
D156A	8/14/2013	Dan Lee Co. Concrete Inwood, WV	B	650.0	No design data submitted	4
E016O	9/5/2013	Central Supply Elkins, WV	A-2	584.8	Class B w/FA (6.00 bags) reduce to 5.50 bags Maintain current design cement factors	8
F011E	9/29/2013	Fairfax Concrete Thomas, WV	A-2	650.0	No design data submitted	5
F011F	10/9/2013	Fairfax Concrete Oakland, MD	A-2	650.0	No design data submitted	5
F011G	8/6/2013	Allegany Concrete Short Gap, WV	B	583.8	Class B 3000w/GBFS (5.50 bags) Class B mod 4500 (7.25 bags) Maintain current design cement factors	5
F011J	10/1/2013	Fairfax Concrete Scherr, WV	A-2	700.0	Maintain current design cement factors	5
G005A	10/26/2013	Golden Triangle Mt. Storm, WV	A-2	650.0	No design data submitted	5
G023O	11/1/2013	Greenbrier Ready Mix Caldwell, WV	A-2	650.0	Class B w/FA (6.00 bags)	9
G170O	9/26/2013	Central Supply Gassaway, WV	A-2	895.0	Class B w/FA (6.00 bags) Maintain current design cement factors	7
G179A	9/20/2012	Central Supply Glenville, WV	B	650.0	Maintain current design cement factors	7

H124B	10/13/2012	Hi-Way Paving Scherr, WV	B	466.4	Class B w/FA (6.00 bags) reduce to 5.50 bags	5
L046O	10/23/2013	Logan Concrete Logan, WV	A-2	714.2	Maintain current design cement factors	2
L144B	10/16/2013	Boxley Materials Summersville, WV	A-2	650.0	Class B w/FA (6.00 bags) reduce to 5.50 bags	9
L144C	10/29/2013	Boxley Materials Wolfpen, WV	A-2	915.9	Class B w/FA (6.00 bags) increase to 6.25 bags	10
M188O	11/14/2012	Madison Ready Mix Madison, WV	B	650.0	No design data submitted	1
M309A	10/24/2013	Moore's Ready Mix Greenbank, WV	A-2	650.0	No design data submitted	8
P017A	9/1/2013	Essroc Ready Mix Charleston, WV	A-2	799.2	Class B w/FA (5.50 bags) Class K 4000 w/FA (7.00 bags) increase to 7.75 bags	1
P197A	10/14/2013	Boxley Materials Princeton, WV	A-2	650.0	Maintain current design cement factors	10
P337A	9/11/2013	The Wells Group S. Williamson, WV	A-2	650.0	Maintain current design cement factors	2
P337C	9/11/2013	The Wells Group Lovely, KY	A-2	650.0	No design data submitted	2
R165A	10/2/2013	Rumble Ready Mix Winfield, WV	A-2	806.0	Maintain current design cement factors	1
R165C	10/12/2013	Rumble Ready Mix Belle, WV	A-2	650.0	Maintain current design cement factors	1
S049A	9/12/2013	Smith Concrete Porterfield, OH	A-2	650.0	Maintain current design cement factors	3
S049B	8/5/2013	Smith Concrete Reno, OH	B	561.2	Maintain current design cement factors	3

S057O	12/6/2013	Superior Supply Caldwell, WV	A-2	650.0	No design data submitted	9
S174A	10/23/2013	Claxton Smith Culloden, WV	A-2	650.0	No design data submitted	2
S174C	10/22/2013	Claxton Smith Charleston, WV	A-2	650.0	Class B w/FA (6.00 bags)	1
S174O	7/9/2013	Claxton Smith Poca, WV	B	650.0	No design data submitted	1
S371B	8/8/2013	Essroc Ready Mix Winfield, WV	B	650.0	Maintain current design cement factors	1
S371C	11/13/2013	Essroc Ready Mix Huntington, WV	A-2	769.7	Class B w/FA (6.00 bags) reduce to 5.50 bags Class B 3000w/GBFS (6.50 bags) Maintain current design cement factors	2
S383B	8/28/2013	Cardinal Concrete Ravenswood, WV	B	650.0	Maintain current design cement factors	7
S383C	8/4/2013	Cardinal Concrete Parkersburg, WV	B	678.8	Class B w/FA (6.00 bags) Maintain current design cement factors	3
T014C	9/3/2011	PCI Concrete Martinsburg, WV	B	650.0	No design data submitted	5
T162A	9/27/2013	Tri-Son Concrete Bellaire, OH	A-2	743.3	Maintain current design cement factors	6
T176A	1/15/2014	The Wells Group Wayne, WV	A-2	650.0	No design data submitted	2
T184A	9/18/2013	Thomas, Bennet, Hunter Martinsburg, WV	A-2	647.6	Class B 3000w/GBFS (6.00 bags) reduce to 5.50 bags Maintain current design cement factors	5
U017B	10/15/2013	Boxley Materials Bluefield, WV	A-2	650.0	No design data submitted	10
V072B	11/17/2013	Valley Brook Conc. #3 Robertsburg, WV	A-2	650.0	No design data submitted	1

V072C	11/13/2013	Valley Brook Conc. #1 Lakin, WV	A-2	650.0	No design data submitted	1
W081A	10/18/2013	Weirton Ice & Coal Weirton, WV	A-2	795.7	Maintain current design cement factors	6
W424A	11/6/2013	The Wells Group Cannonsburg, KY	A-2	650.0	No design data submitted	2
W424B	9/12/2013	The Wells Group Louisa, KY	A-2	650.0	Maintain current design cement factors	2
W431A	11/14/2013	Wrightway Ready Mix Holden, WV	A-2	650.0	No design data submitted	2

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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
MATERIALS CONTROL, SOILS AND TESTING DIVISION

INFORMATIONAL MEMORANDUM

QUALITY ASSURANCE PROCEDURES

1.0 PLANT AND EQUIPMENT INSPECTION STICKERS

1.1 Physical plants and equipment which prepare materials for or deliver materials to State project shall be regularly inspected and approved by an authorized representative of the Division when such inspections are necessary to insure conformance with Division specifications and directives.

1.2 The inspections and approval shall be witnessed, where applicable, by an inspection sticker supplies by the Materials Control, Soils and Testing Division. The inspection sticker will indicate the following:

1. Name of inspector
2. Date of inspection and
3. Date of expiration of approval

1.3 Inspections may be made at any time at the option of the Division and the status of the inspected facility shall be determined by the latest inspection. The date of expiration of approval, as noted on latest inspection sticker, shall be the last day on which the facility is considered to be approved by Division, and such facility must have an approved status at time of preparing materials for or delivering materials to State projects.

1.4 The sole purpose of the inspection sticker is to inform all concerned that a plant, or portion thereof, or a singular piece of equipment has been inspected and found to meet, substantially, all requirements of the specifications and is, therefore, approved to supply materials to State projects. Said inspection sticker shall therefore be affixed to the equipment or displayed in other manners so that the purpose as above stated will be fulfilled.

1.5 Each District will be supplied with inspection stickers numbered consecutively. The first digit of the sticker numbers issued to a District will correspond to the number of that District. The stickers shall be applied, insofar as practicable, in numerical order, and records shall be maintained by each District which will indicate the following:

1. Plant or portion thereof, or singular piece of equipment inspected.
2. Date of inspection.
3. Expiration date of inspection sticker.
4. Number of inspection sticker.

1.6 A plant or portion thereof, or a singular piece of equipment, shall be approved for a period not to exceed six (6) months. The period of approval shall be determined, in general, by the age, physical condition, or durability of the plant or equipment, and the inspection interval shall be such that the Division will have reasonable assurance that the plant or equipment is maintained in an acceptable manner.

1.7 Additional information regarding inspections and a sample of an inspection sticker is contained on FLOW DIAGRAM NO. 1, copy attached.

2.0 QUALITY ASSURANCE IN PORTLAND CEMENT CONCRETE

2.1 PURPOSE

The purpose of this procedure is to establish guidelines which will aid Division personnel in implementing in a prescribed and uniform manner the Division's Quality Assurance Program for portland cement concrete, said program being directed primarily to maintaining a predetermined and acceptable level of assurance that portland cement concretes do conform to their governing specification.

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2.2 DEFINITION OF TERMS

2.2.1 QUALITY ASSURANCE

Quality Assurance is an expression of confidence which the Division has in its program of acceptance testing and inspection which determines conformance of materials and construction to governing specification. A Quality Assurance Program is a planned program of acceptance testing and inspection which is conducted by the Division for the express purpose of maintaining a predetermined and acceptable level of assurance that construction materials do conform to governing specifications. Part of any Quality Assurance Program, of course, is an awareness and knowledge of the producer's Quality Control Program and the level of Quality Control which he maintains.

2.2.2 QUALITY CONTROL

Quality Control is a planned program of testing, inspection and related activities conducted by a concrete producer for the purpose of measuring the various properties of concrete and its component materials which are governed by the specification and controlling these properties within the limits of the specification. Quality Control of portland cement concrete is discussed in detail in CD-318.

2.3 GENERAL DISCUSSION

During the past several years, the Division and the Contractor-Supplier industry have jointly participated in a program whose primary objective is to improve the quality of concrete in highway construction. When this program is fully implemented and effective, then the Division will run a smaller risk of having non-conforming materials incorporated into the work, and the Contractor-Supplier industry will run a smaller risk of having suitable materials rejected.

The following major developments are outgrowths of the program just mentioned:

2.3.1 Portland cement concrete technicians have now been certified and are available in the Contractor-Supplier industry to implement a program of Quality Control (See definition of PORTLAND CONCRETE TECHNICIAN in Subsection 3.2 of CD-318).

2.3.2 The requirement for a Contractor (or his authorized representative, a subcontractor or a commercial supplier) to do Quality Control of portland cement concrete and to have in his service a Certified Portland Cement Concrete Technician is specified in Subarticles 501.3.2.2 and 601.3.2.2 of the Standard Specifications (1968) entitled QUALITY CONTROL TESTING (See CD-318 for interpretation).

2.3.3 The requirement for a Contractor (or his authorized representative, a subcontractor or a commercial supplier) to have a field laboratory which is equipped and maintained in specified manner so as to aid in the conduct of a Quality Control Program is specified in Subarticles 501.3.3.1 and 601.3.3.1 of the Standard Specification (1968).

2.3.4 Concrete batch plants and hauling equipment are regularly inspected by the Division and approval of same as conforming to requirements of governing specification is attested to by an inspection sticker (See Section 1 of this memorandum for details).

2.3.5 The requirement to do concrete design, using the particular sources of materials which are to be used in the work, is specified in articles 501.3.1 and 601.3.1 of the Standard Specifications (1968). This requirement will allow commercial concrete suppliers to have laboratory design work done just once a year for the various classes of concrete to be supplied, but this procedure guards against the possibility of source materials changing appreciable from one construction season to the next and affecting the quality of subsequent concrete work.

The foregoing is a significant measure of the Contractor-Supplier (producer) potential to do Quality Control of portland cement concrete. It is expected that this potential will not be utilized with the same effectiveness by all producers.

Although all producers will probably maintain an acceptable level of Quality Control, it is reasonable to assume that a number of producers will maintain a level of Quality Control well above the minimum accepted level.

It is generally agreed that an acceptable level of Quality Assurance may be maintained with less acceptance testing ad inspection when the level of Quality Control is increased. This knowledge was not acted on in the past because the elements which are essential to Quality Control were not generally available then. Additionally, a minimum acceptable level of Quality Control could not have been practically established in the past because the producer industry, generally, was not equipped to maintain a positive and sustained level of Quality Control.

The capability to perform a positive and sustained level of Quality Control in practically all producer plants today is now well established (See CD-318 for interpretation). Also, the Division has the means for measuring the level of Quality Control maintained by each producing plant. Accordingly, it would be desirable to pursue a Quality Assurance Program which takes into account the level of Quality Control in a producers plant so that an acceptable level of Quality Assurance could be maintained with a minimum cost (man-hours and dollars) to the Department. As previously stated the purpose of this procedure is to establish guidelines which will aid Department personnel in implementing in a prescribed and uniform manner such a Quality Assurance Program.

2.4 DIRECTIVE

Concrete plants will be inspected in accordance with Section 1 of this memorandum and the condition of conformance will be determined. Those plants which are found to conform to the specifications will be identified as Class A plants and those which do not conform will be identified as Class B plants. The level of Quality Control at each concrete plant will also be evaluated.

Those plants which have a high level of Quality Control will be considered to have a Level 1 Quality Control, and those plants which have a lower level of Quality Control will be considered to have a Level 2. All concrete plants will then be rated with one of the following classification numbers Al, A2 or B.

2.4.1 LEVEL 1 QUALITY CONTROL

All plants producing concrete which reasonably conforms to the specification requirements, and which satisfies the following additional requirements will be considered to have LEVEL 1 Quality Control:

2.4.1.1 The compressive strength of the concrete produced by the plant shall have a coefficient of variation of 0.15 or less and the average, compressive strength shall be equal to or greater than the specified requirement plus 2 1/2 standard deviations.

2.4.1.2 The air content of the concrete produced by the plant shall have a coefficient of variation of 0.18 or less, and the average air content shall not differ from the specified optimum value by more than one standard deviation.

2.4.1.3 The consistency of the concrete produced by the plant shall have a coefficient of variation of 0.20 or less, and the average consistency shall not differ from the specified optimum value by more than two standard deviations.

2.4.1.4 The plant shall maintain an adequate Quality Control Program for aggregate gradation.

2.4.2 LEVEL 2 QUALITY CONTROL

All plants which fail to meet one or more of the requirements specified in 2.4.1 will be considered to have LEVEL 2 Quality Control.

2.4.3 PHYSICAL PLANT-EVALUATION

District personnel will inspect and evaluate concrete plants in conformance with Section 1 of this memorandum. A copy of the inspection data, which is specified in Subsection 1.5, will be transmitted to the Materials Division immediately after the inspection is completed.

2.4.4 LEVEL OF QUALITY CONTROL - EVALUATION

The evaluation of the level of Quality Control maintained by concrete plants will be performed and maintained current by the Materials Division. The initial evaluation of the level of Quality Control will be based on an analysis of historical data. There after, tests for strength, entrained air, and consistency will be made by District personnel on random samples taken from plant production, and these test data will be used by the Materials Division to update the statistical parameters and maintain a current and valid evaluation of each plant's Quality Control level. The Materials Division will publish a list of concrete plants with their rating numbers, said publication to be updated monthly.

2.4.5 CLASS AI PLANTS - TEST AND INSPECTION REQUIREMENTS

Concrete from Class AI concrete plant shall be sampled and tested by District personnel on a random basis with the frequency specified in Subsection 700.03 of the Construction Manual.

Plant inspection at Class AI concrete plants shall be performed by District personnel on a random basis with the frequency specified in Subsection 700.03 of the Construction Manual.

A concrete delivery ticket (Form HL-411) shall be initiated and signed at the plant and accompany each delivery to the project.

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2.4.6 CLASS A2 PLANTS - TEST AND INSPECTION REQUIREMENTS

Concrete for major Items from Class concrete plants shall be sampled and tested by District personnel on a project- by-project basis with the frequency specified in Subsection 700.03 of the Construction Manual.

Plant inspection at Class A2 concrete plants shall be performed by District personnel on a continual basis during the time that concrete for major items is being produced for State projects. Concrete for miscellaneous items (See 2.4.8) shall be sampled and tested with the same frequency required in 2.4.5, Class Al plants.

2.4.7 CLASS B PLANTS

Concretes purchased by a Contractor for use on State projects shall be supplied from Class Al or A2 plants. Concretes purchased through competitive bidding with Purchase order contracts shall be supplied from Class Al or A2 plants. (Class B plants are not considered to be eligible to compete with Class A plants in the furnishing of concrete to State projects).

In the event it is not practical to obtain small quantities of concrete for miscellaneous items (See 2.4.8) from a Class Al or A2 plant and a survey reveals that a Class B plant is conveniently situated with respect to the construction site, then a direct purchase of concrete by the Division from the Class B plant may be accomplished in conformance with standard procedures of the Purchasing Division of the Department of Finance and Administration. The direct purchase of concrete from Class B plants shall also be made to conform to the requirements set out in Subsection 2.5 entitled Quality Assurance OF DIRECT PURCHASE CONCRETES FROM CLASS B PLANTS. Plant inspection at Class B plants and the sampling, testing and documentation of concretes from Class B plants shall also conform to the requirements set out in Subsection 2.5.

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2.4.8 SMALL QUANTITIES FOR MISCELLANEOUS ITEMS

Miscellaneous concrete shall be defined as relatively small quantities incorporated into items that will not adversely affect the traffic carrying capacity of a completed facility. Such items would not include any concrete intended for major structures permanent mainline or ramp pavements, or other structurally critical items.

The following items are suggested as a guideline in establishing miscellaneous concrete:

2.4.8.1 Sidewalks - not to exceed approximately 50 square meters per day.

2.4.8.2 Curb and gutter - Not to exceed approximately 150 lineal meters per day.

2.4.8.3 Concrete base course and concrete base course widening - Not to exceed approximately 50 square meters per day.

2.4.8.4 Paving, patching and temporary pavements.

2.4.8.5 Building floors and foundations.

2.4.8.6 Slope paving and headers.

2.4.8.7 Paved ditch.

2.4.8.8 Guardrail anchorages.

2.4.8.9 Metal pile shells.

2.4.8.10 Small culvert headwalls.

2.4.8.11 Fence posts.

2.4.8.12 Catch basins, manhole bases and inlets.

2.4.8.13 Sign, signal and light bases.

FLOW DIAGRAM NO. 2 is made a part of this memorandum and gives detailed information on the organization and operation of the Quality Assurance procedures.

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2.5 QUALITY ASSURANCE OF DIRECT PURCHASE CONCRETES FROM CLASS B PLANTS

2.5.1 PURPOSE

The purpose of this instruction is to provide guidance in specifying direct purchase concretes and for inspection and testing direct purchase concretes from Class B plants so that a predetermined and acceptable level of Quality Assurance may be maintained by Division personnel. This instruction is set apart from the main directive in Subsection 2.4 because it is the intent to have concretes from Class B plants used in highway work only when it is not practical or economical to obtain concretes from Class A1 or A2 plants.

2.5.2 DEFINITION OF TERMS

2.5.2.1 Direct Purchase - Direct purchase is a formal procedure used by the Purchasing Division of Department of Finance and Administration to purchase supplied and equipment for government agencies (including the Division of Highways) when it is not practical or economical to use the procedure of competitive bidding. Direct purchase requisitions will always specify the name of the proposed supplier as well as product name, quantity, specifications, etc.

2.5.3 GENERAL DISCUSSION

When highway work requiring portland cement concrete is let to contract, the contract will normally allow for the Contractor to produce or procure the concrete in which event the concrete shall be supplied by a Class Al or A2 plant. If the Division should determine prior to letting work to contract that it would be impractical or uneconomical to obtain concrete from a Class Al or A2 plant but that it would be practical to obtain it from a Class B plant, then the Division may stipulate in the contract documents that the concrete will be supplied to the Contractor by the Division FOB site of work. In this event the purchase of concrete from a Class B plant shall conform to the requirements specified in Article 2.5.4.

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When highway work requiring portland cement concrete is being done by Division forces and it is found to be impractical or uneconomical to obtain concrete from a Class Al or A2 plant but that it would be practical to obtain it from a Class B plant, then the purchase of concrete from a Class B plant shall be made to conform to the requirements of article 2.5.4.

2.5.4 INSTRUCTION

The purchase of portland cement concrete from a Class B plant will be permitted only after a field condition survey has been conducted and properly documented which indicates that it would be impractical and uneconomical to obtain concrete from a Class Al or A2 plant, and that a Class B plant does exist from which a direct purchase of concrete could practically and economically be made.

Procedures for making direct purchases of concrete shall be as prescribed by the Department of Finance and Administration. The method of specifying direct purchase concrete shall be as follows:

(1) Specify the class of concrete.

(2) Specify that the concrete mix design will be furnished by the Division.

(3) Specify that a Division inspector will be at the plant during the full time that concrete is being batched to direct the batching operation, and that batching shall not commence until the inspector is present.

(4) Specify that the inspector shall execute FORM OC-411 which will accompany each load of concrete to the site of the work.

In addition to the Quality Assurance activity performed at the plant, the Division will sample and test as deemed necessary all direct purchase order LOTS of concrete used in highway maintenance work.

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FLOW DIAGRAM NO. 2 is made a part of this memorandum and gives detailed information on the organization and operation of the Quality Assurance procedures.

Gary L. Robson, Director
Materials Control, Soils
and Testing Division

GLR:w

Attachments

CERTIFICATION AND SIGNATURE PAGE

By signing below, I certify that I have reviewed this Solicitation in its entirety; understand the requirements, terms and conditions, and other information contained herein; that I am submitting this bid or proposal for review and consideration; that I am authorized by the bidder to execute this bid or any documents related thereto on bidder's behalf; that I am authorized to bind the bidder in a contractual relationship; and that to the best of my knowledge, the bidder has properly registered with any State agency that may require registration.

Boxley Concrete Products of VA

(Company)



(Authorized Signature)

Sammy Geso, Sales Manager

(Representative Name, Title)

304-320-6194 304-392-5828

(Phone Number) (Fax Number)

December 16, 2013

(Date)

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: 6614C018

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

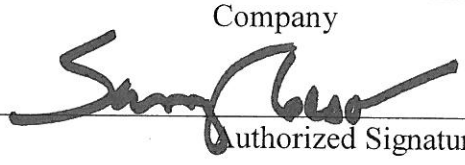
Addendum Numbers Received:
(Check the box next to each addendum received)

[X]	Addendum No. 1	[ ]	Addendum No. 6
[ ]	Addendum No. 2	[ ]	Addendum No. 7
[ ]	Addendum No. 3	[ ]	Addendum No. 8
[ ]	Addendum No. 4	[ ]	Addendum No. 9
[ ]	Addendum No. 5	[ ]	Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Boxley Concrete Products of VA

Company



Authorized Signature

December 16, 2013

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

Solicitation

NUMBER	PAGE
6614C018	1

ADDRESS CORRESPONDENCE TO ATTENTION OF:
CRYSTAL RINK
304-558-2306

VENDOR
RFQ COPY
TYPE NAME/ADDRESS HERE
*709052118 03 304-487-0474
Boxley Concrete Products of Va
101 Westview Ave
Princeton, WV 24740

SHIP TO
DIVISION OF HIGHWAYS
VARIOUS LOCALES AS INDICATED
BY ORDER

DATE PRINTED
12/03/2013

BID OPENING DATE: 12/18/2013 BID OPENING TIME 1:30PM

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
				ADDENDUM NO.01		
				THIS ADDENDUM HAS BEEN ISSUED TO MODIFY THE ORIGINAL SOLICITATION PER THE ATTACHED DOCUMENTATION.		
0001		CY		750-70		
				READY-MIX CONCRETE		
				****** THIS IS THE END OF RFQ 6614C018 ****** TOTAL:		

SIGNATURE [signature] TELEPHONE 304-487-0474 DATE 12/16/13

TITLE Sales Manager FEIN 54-1763598 ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO SOLICITATION, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

SOLICITATION NUMBER: 6614C018
Addendum Number: 1

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

[ ] Modify bid opening date and time

[ ] Modify specifications of product or service being sought

[ ] Attachment of vendor questions and responses

[ ] Attachment of pre-bid sign-in sheet

[ ] Correction of error

[✓] Other

Description of Modification to Solicitation:

To make the pricing page available online

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.

2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: 6614C018

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

[x] Addendum No. 1	[ ] Addendum No. 6
[ ] Addendum No. 2	[ ] Addendum No. 7
[ ] Addendum No. 3	[ ] Addendum No. 8
[ ] Addendum No. 4	[ ] Addendum No. 9
[ ] Addendum No. 5	[ ] Addendum No. 10

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

BOxley Concrete Products of VA

Company

Authorized Signature

December 16, 2013

Date

NOTE: This addendum acknowledgement should be submitted with the bid to expedite document processing.

Rev. 07/12

State of West Virginia

VENDOR PREFERENCE CERTIFICATE

Certification and application* is hereby made for Preference in accordance with ***West Virginia Code***, §5A-3-37. (Does not apply to construction contracts). ***West Virginia Code***, §5A-3-37, provides an opportunity for qualifying vendors to request (at the time of bid) preference for their residency status. Such preference is an evaluation method only and will be applied only to the cost bid in accordance with the ***West Virginia Code***. This certificate for application is to be used to request such preference. The Purchasing Division will make the determination of the Resident Vendor Preference, if applicable.

1. **Application is made for 2.5% resident vendor preference for the reason checked:**

____ Bidder is an individual resident vendor and has resided continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

____ Bidder is a partnership, association or corporation resident vendor and has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; or 80% of the ownership interest of Bidder is held by another individual, partnership, association or corporation resident vendor who has maintained its headquarters or principal place of business continuously in West Virginia for four (4) years immediately preceding the date of this certification; **or,**

____ Bidder is a nonresident vendor which has an affiliate or subsidiary which employs a minimum of one hundred state residents and which has maintained its headquarters or principal place of business within West Virginia continuously for the four (4) years immediately preceding the date of this certification; **or,**

2. **Application is made for 2.5% resident vendor preference for the reason checked:**

____ Bidder is a resident vendor who certifies that, during the life of the contract, on average at least 75% of the employees working on the project being bid are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

3. **Application is made for 2.5% resident vendor preference for the reason checked:**

____ Bidder is a nonresident vendor employing a minimum of one hundred state residents or is a nonresident vendor with an affiliate or subsidiary which maintains its headquarters or principal place of business within West Virginia employing a minimum of one hundred state residents who certifies that, during the life of the contract, on average at least 75% of the employees or Bidder's affiliate's or subsidiary's employees are residents of West Virginia who have resided in the state continuously for the two years immediately preceding submission of this bid; **or,**

4. **Application is made for 5% resident vendor preference for the reason checked:**

__x__ Bidder meets either the requirement of both subdivisions (1) and (2) or subdivision (1) and (3) as stated above; **or,**

5. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**

____ Bidder is an individual resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard and has resided in West Virginia continuously for the four years immediately preceding the date on which the bid is submitted; **or,**

6. **Application is made for 3.5% resident vendor preference who is a veteran for the reason checked:**

____ Bidder is a resident vendor who is a veteran of the United States armed forces, the reserves or the National Guard, if, for purposes of producing or distributing the commodities or completing the project which is the subject of the vendor's bid and continuously over the entire term of the project, on average at least seventy-five percent of the vendor's employees are residents of West Virginia who have resided in the state continuously for the two immediately preceding years.

7. **Application is made for preference as a non-resident small, women- and minority-owned business, in accordance with *West Virginia Code* §5A-3-59 and *West Virginia Code of State Rules*.**

____ Bidder has been or expects to be approved prior to contract award by the Purchasing Division as a certified small, women- and minority-owned business.

Bidder understands if the Secretary of Revenue determines that a Bidder receiving preference has failed to continue to meet the requirements for such preference, the Secretary may order the Director of Purchasing to: (a) reject the bid; or (b) assess a penalty against such Bidder in an amount not to exceed 5% of the bid amount and that such penalty will be paid to the contracting agency or deducted from any unpaid balance on the contract or purchase order.

By submission of this certificate, Bidder agrees to disclose any reasonably requested information to the Purchasing Division and authorizes the Department of Revenue to disclose to the Director of Purchasing appropriate information verifying that Bidder has paid the required business taxes, provided that such information does not contain the amounts of taxes paid nor any other information deemed by the Tax Commissioner to be confidential.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), Bidder hereby certifies that this certificate is true and accurate in all respects; and that if a contract is issued to Bidder and if anything contained within this certificate changes during the term of the contract, Bidder will notify the Purchasing Division in writing immediately.

Bidder: Boxley Concrete Products of VA **Signed:** Sam Cleo

Date: 12/16/13 **Title:** Sales Manager

RFQ No. 6614C018

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

MANDATE: Under W. Va. Code §5A-3-10a, no contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and: (1) the debt owed is an amount greater than one thousand dollars in the aggregate; or (2) the debtor is in employer default.

EXCEPTION: The prohibition listed above does not apply where a vendor has contested any tax administered pursuant to chapter eleven of the W. Va. Code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Employer default" means having an outstanding balance or liability to the old fund or to the uninsured employers' fund or being in policy default, as defined in W. Va. Code § 23-2c-2, failure to maintain mandatory workers' compensation coverage, or failure to fully meet its obligations as a workers' compensation self-insured employer. An employer is not in employer default if it has entered into a repayment agreement with the Insurance Commissioner and remains in compliance with the obligations under the repayment agreement.

"Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

AFFIRMATION: By signing this form, the vendor's authorized signer affirms and acknowledges under penalty of law for false swearing (*W. Va. Code* §61-5-3) that neither vendor nor any related party owe a debt as defined above and that neither vendor nor any related party are in employer default as defined above, unless the debt or employer default is permitted under the exception above.

WITNESS THE FOLLOWING SIGNATURE:

Vendor's Name: Boxley Concrete Products of VA

Authorized Signature: _____ Date: 12/16/13

State of West Virginia

County of Greenbrier, to-wit:

Taken, subscribed, and sworn to before me this 16 day of December, 2013.

My Commission expires May 18, 2020.

AFFIX SEAL HERE

NOTARY PUBLIC-OFFICIAL SEAL
PHYLLIS G. BURNS
State of West Virginia
My Commission Expires May 18, 2020
103 CIRCLE DRIVE
LEWISBURG, WEST VIRGINIA 24901

NOTARY PUBLIC Phyllis G. Burns 12/16/13