State of Illinois
Department of Transportation
Division of Highways
Bureau of Materials and Physical Research
Springfield

POLICY MEMORANDUM

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| Revised: June 1, 2012 | 12-08.1 |
| This Policy Memorandum supersedes number 12-08.0 dated January 1, 2008 | |

TO: REGIONAL ENGINEERS AND HIGHWAY BUREAU CHIEFS

SUBJECT: CRUSHED GRAVEL PRODUCER SELF-TESTING PROGRAM

## 1.0 SCOPE

The crushed gravel aggregate producer is responsible for processing round raw feed gravel into coarse and/or fine crushed gravel aggregate complying with applicable quality and gradation specifications. Consistent application of quality control (QC) of the raw feed to the crusher is required to achieve quality crushed gravel aggregate for construction use.

All coarse and/or fine crushed gravel products for Department / Local Agency use shall be produced according to this policy.

## 2.0 PURPOSE

The purpose of this policy is to establish a quality control procedure to control raw feed designated for crushing or, as an option, control the crushed particle content in coarse and/or fine crushed gravel products prior to shipment.

## 3.0 SAMPLING/TESTING PERSONNEL

All sampling and testing shall be conducted by an Aggregate Technician as designated in the IDOT Policy Memorandum "Aggregate Gradation Control System" located in the current IDOT "Manual of Test Procedures for Materials." For the optional procedure listed herein, the Aggregate Technician shall have passed the training course conducted by the Bureau of Materials and Physical Research (BMPR) in the crushed particle test method used.

The overall program shall be administered by a Quality Control (QC) Manager, as designated in the IDOT Policy Memorandum "Aggregate Gradation Control System" located in the current IDOT "Manual of Test Procedures for Materials."

## 4.0 GENERAL PROCEDURE

All crushed gravel sources shall sample, test, and chart a washed gradation per the frequency noted in Section 6.0 on each raw feed (either belt, bin, shaker deck, or stockpile) being fed to a crusher to produce crushed gravel/crushed gravel sand for Department/Local Agency contracts.

The washed gradation shall include the following in the nested set of sieves:

1. A sieve equal to the smallest size wire cloth in the screen deck over which material is being separated into a raw feed for crushing.

2. A sieve equal to the maximum nominal size of the largest product in the production stream being produced as crushed gravel, if different than #1.

3. A No. 200 sieve.

Appropriate cutter sieves shall be inserted into the nested set of sieves for overload situations and small sieve protection. The washed gradations shall be run according to the test methods noted in Section 6.0.

The gradation result from this procedure shall be the result achieved by subtracting the percent passing the No. 200 sieve (to one decimal place) from the percent passing the maximum nominal size sieve (to one decimal place).

Raw feed which has a gradation result that fails the test limit as per Section 7.0 shall be considered unacceptable. An immediate raw feed resample shall be taken and the sample shall be tested for compliance. The Department may verify the compliance of the product stockpiles prior to further shipment.

If the resample passes, the material may be placed on the approved stockpile. The testing frequency shall be increased to a two per week frequency for two consecutive weeks. The one per week frequency may be resumed if no failures occur during the two-week period.

If the resample fails, the Department shall be contacted and production shall stop until corrective action has been initiated by the source. After production is restarted, an immediate raw feed sample shall be taken and the sample shall be tested for compliance. Any crushed products produced shall be stockpiled separately. Once the sample passes, the inspection procedure noted above shall be followed and material produced may be placed on the approved stockpile.

## 5.0 OPTIONAL PROCEDURE

As an option to Section 4.0 herein, a crushed gravel source may request, in writing to the BMPR, to sample, test, and chart all crushed aggregate products as to their crushed particle content prior to shipment to any Department / Local Agency contract. If approved in writing by the BMPR, a sample for crushed particle content shall be run and charted on all crushed gravel products according to the frequency and test method detailed in Section 6.0.

Crushed gravel products which fail the appropriate test limit as per Section 7.0 herein shall be considered unacceptable. Production shall be stopped until corrective action has been initiated by the Source. After production is restarted, the inspection procedure detailed in the last three (3) paragraphs of Section 4.0 herein shall be followed.

## 6.0 TEST METHODS / SAMPLE FREQUENCY

Each crushed gravel source shall test their crushed gravel by the listed test method approved for the Source at the required test frequency. The samples for each raw feed gradation or crushed particle content shall be tested, reported, and charted within 24 hours of sampling. Test calculation sheets shall be retained in a file at the aggregate source for three (3) years.

| ***Procedures*** | ***Test Method*** * | ***Test Frequency (minimum)*** |
|---|---|---|
| Raw Feed Sieve Analysis | Illinois Test Procedure 11<br>Illinois Test Procedure 27 | 1 per week |
| Crushed Particle Content | Illinois Test Procedure 5821 | 1 per week |

*Current IDOT *Manual of Test Procedures for Materials*

## 7.0 RAW FEED SIEVE ANALYSIS / CRUSHED PARTICLE CONTENT

The following test limit for the testing procedure run by the Source shall be applied to crushed gravel production tested under this policy memorandum. All crushed gravel products shipped per this policy memorandum shall meet these test limits prior to shipment.

| ***Crushed Gravel Individual Test Limits*** | |
|---|---|
| Raw Feed Sieve Analysis | (Percent Passing Nominal Maximum Sieve) - (Percent Passing No. 200 Sieve) $\leq$ 3.0% |
| Crushed Particle Content (%) | • Category I/II Coarse Aggregate Products **<br>$\geq$ 85.0% Two-faced or more Crushed Particles and<br>$\geq$ 97.0% One-faced or more Crushed Particles<br><br>• Category III Products/All Manufactured Sand (Crushed Gravel Sand Only)**<br>$\geq$ 97.0% One-faced or more Crushed Particles |

**Aggregate products per Table 1 in the current IDOT Policy Memorandum, "Aggregate Gradation Control System."

## 8.0 IDOT MONITORING

The Aggregate Inspector shall witness the sampling and splitting of one of the crushed gravel producer's samples a minimum of every 20 production days. The Aggregate Inspector shall obtain one of the two final split portions for IDOT testing. The specific testing run by the producer shall also be conducted by IDOT on its split portion for test results comparison.

Comparison of the sample splits will be considered acceptable if the crushed gravel producer's test result falls within the following limits of the IDOT test result.

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|---|---|
| Raw Feed Sieve Analysis | 2.0% |
| Crushed Particles Content | 2.0% |

Any IDOT result not comparing within the appropriate above limits or that fails the test limit noted in Section 7.0 shall be cause for an IDOT investigation. Corrective action may be required by the Department if determined to be a producer problem. Continued lack of comparison or continued failure of the IDOT monitor sample is considered non-compliance with the program and may be cause for removal of the crushed gravel source from this program per Section 9.0 herein.

## 9.0 ACCEPTANCE / REJECTION

Crushed gravel aggregate sources shall acknowledge in their Approved Aggregate Source Certification letter that all coarse and/or fine crushed gravel products are produced under this policy memorandum and meet all required test limits cited in this policy memorandum prior to shipment for use in any Department/Local Agency project.

Coarse and/or fine crushed gravel products produced from failing raw feed or having an unacceptable crushed particle content shall be isolated and removed from the approved product pile to the satisfaction of the District Materials Engineer or his/her representative.

Shipment of coarse and/or fine crushed gravel products produced from failing raw feed or having an unacceptable crushed particle content (Optional Procedure) may result in the crushed gravel source's removal from the "Approved Aggregate Source List," as per Section 11.0 in the current Department Policy Memorandum, "Aggregate Gradation Control System," located in the current IDOT "Manual of Test Procedures for Materials."

Continued failure of a raw feed or the crushed particle content of a crushed gravel product or non-compliance with the current "Crushed Gravel Producer Self-testing Program" is unacceptable and may result in the crushed gravel production method being rejected by the Department. No crushed gravel products from the Source would be acceptable for shipment for use on Department/Local Agency projects. The general response procedure detailed in Section 11.0 in the Department Policy Memorandum, "Aggregate Gradation Control System," located in the current IDOT "Manual of Test Procedures for Materials," shall be followed.

David L. Lippert, P.E.
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and Physical Research

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