Office of Materials Technology
Graded Aggregate Base
Plant Certification Procedure

Soils and Aggregate Technology Division
7450 Traffic Drive
Hanover, Maryland 21076
GAB Plant Contacts

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Introduction

This document details the certification procedure of Graded Aggregate Base Plants and serves as a guideline for Aggregate Producers who request for the certification of their GAB plants. The Certified GAB Plants List will be updated and published online on a quarterly basis on the last day of January, April, July and October of each year. Plant Certification will be valid for two years. GAB Plants are certified when they are issued with an Approved JMF Letter and their QC Plan has been approved by MDOT, SHA. All plants are required to satisfy the MDOT SHA’s Standard Specification for Construction and Materials, section 915.04 Base Course Plants (https://roads.maryland.gov/ohd2/2021_Standard_Specifications.pdf) Plants to maintain their certification.

GAB producers are responsible for keeping track of their records, including due dates for submitting a Job Mix Formula (JMF) determination request and Quality Control Plans review. Producers are also responsible for informing the Soils and Aggregate Technology Division of any changes to producer information, such as producer name, quarry name, subsidiary producer’s name, contact information, qualified use of aggregate.

The following acronyms will be used throughout the document:

**GAB**: Graded Aggregate Base

**RC-GAB**: Recycled Concrete -Graded Aggregate Base

**SATD**: Soils and Aggregate Technology Division

**MDOT**: Maryland Department of Transportation

**SHA**: State Highway Administration

**JMF**: Job Mix Formula

**QC**: Quality Control

**QA**: Quality Assurance
GAB Plant Requirements

GAB Plants producing graded aggregate base material shall meet MDOT SHA’s Standard Specification for Construction and Materials Section 915.04.

Once a written request has been received, a facility visit will be scheduled to inspect all Quality Control testing equipment and to witness the GAB production process and verify the required documentation is posted and/or on file at the GAB Plant:

The facility visit will witness and/or verify the following:

A. Lab
   1. Lab facility condition & functionality
   2. Lab & Truck scale certifications
   3. QC Testing equipment
   4. Production sample storage
   5. Approved JMF / Approved QC Plan / Approved Contract List / Plant Certificate (Posted on a bulletin board)
   6. Daily Production Log
   7. Records

B. Technician Certification(s)
   1. MARTCP Certificate
   2. Reciprocal Certificate (State)

C. GAB Plant Production
   1. Pug Mill mixer box
   2. Stockpile
   3. Belt

D. QC Testing/Reporting Procedures
   1. Frequency of test for Gradation and moisture determination
   2. Sampling (AASHTO R 90)
   3. Reporting requirements (Form 43)
   4. First load ticket (Form GAB-1)

E. Reporting/Material Failure Resolution Procedures
   1. Re-sample for QC re-test
   2. Stop shipping
   3. Notify all stakeholders (Internal and External)
GAB Plant Certification Process

Written Request:

The GAB producer shall submit a written request to:

Dr. Intikhab Haider, Division Chief
Soils and Aggregate Technology Division
Maryland State Highway Administration
7450 Traffic Drive
Hanover, MD 21076 OR
IHaider2@mdot.maryland.gov

A. SATD requires GAB producers to submit their written requests, for the renewal of JMF Letters and approval of QC Plans, 60 days before the expiration of an existing JMF Letter and/or a QC Plan. In case of a new plant or a change to the JMF, producers can send their written requests at any time of the year. Test samples shall be delivered to MDOT SHA laboratory, at least 45 days prior to the next publication date of the GAB Certified Plant List.

B. Please refer to Appendix A for “Job Mix Formula (JMF) Letter - Request Form”. Producers shall complete and submit this form for certifying a new or existing GAB Plant.

C. Please refer to Appendix B for “GAB Quality Control Plant Template”. Producers will complete and submit their Quality Control Plan using the format provided in this template.

D. Safety Data Sheet (SDS): RC-GAB requests must be accompanied by a Safety Data Sheet with specific material identification and source(s) of material. No RC-GAB sample will be accepted prior to receipt of the SDS.
Producer submits JMF Determination Request and QC Plan to SATD

SATD determines inspection, sampling and testing charges

**New Plant:** Cost Letter is sent for plant inspection, sampling and testing charges.

**Existing Plant with Active Contract Number:** SATD issues a “Form 12” and producers sample material per AASHTO R-90 and deliver test samples.

**Existing Plant without active Contract Number:** receives a Cost Letter for testing charges.

Once payment has been received, SATD inspects plant, samples material and tests it for JMF determination.

SATD tests material for JMF determination.

Once payment has been received SATD issues a “Form 12”, producers sample material per AASHTO R-90 and deliver samples. SATD tests material for JMF determination.

SATD approves QC Plan (requires adjustments if need be) within 10 days.

SATD issues an approved JMF Letter, (if plant passes inspection in case of new Plant).

SATD issues a GAB Plant Certificate, with the same expiry date as its QC Plan and JMF Letter.
# GAB: Test Frequency and Sample Quantity Requirements

<table>
<thead>
<tr>
<th>GAB Category</th>
<th>Required Tests</th>
<th>Specifications (AASHTO)</th>
<th>% Max</th>
<th>Sampled / Delivered by</th>
<th>Test Frequency</th>
<th>Material Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Virgin Aggregate GAB</strong></td>
<td>Sieve Analysis</td>
<td>T-27</td>
<td>N/A</td>
<td>SATD</td>
<td>10 production days / 1000 Tons of production</td>
<td>1 bag of GAB (35 lbs.)</td>
</tr>
<tr>
<td></td>
<td>Specific Gravity &amp; Absorption</td>
<td>T-85</td>
<td>N/A</td>
<td>SATD</td>
<td>6 months</td>
<td>1 bag of #57 (35 lbs.)</td>
</tr>
<tr>
<td>For JMF Determination</td>
<td>Density Moisture Relationship</td>
<td>T-180</td>
<td>N/A</td>
<td>Producer</td>
<td>2 year</td>
<td>3 bags of GAB (35 lbs.)</td>
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<tr>
<td></td>
<td>Plasticity Index</td>
<td>T-90</td>
<td>6</td>
<td>Producer</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Recycled Concrete GAB</strong></td>
<td>Sieve Analysis</td>
<td>T-27</td>
<td>N/A</td>
<td>SATD</td>
<td>10 production days / 1000 Tons of production</td>
<td>1 bag of GAB (35 lbs.)</td>
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<td></td>
<td>pH Test</td>
<td>T-289</td>
<td>12.4</td>
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<tr>
<td></td>
<td>Specific Gravity &amp; Absorption</td>
<td>T-85</td>
<td>N/A</td>
<td>SATD</td>
<td>6 months</td>
<td>1 bag of #57 (35 lbs.)</td>
</tr>
<tr>
<td>For JMF Determination</td>
<td>Density Moisture Relationship</td>
<td>T-180</td>
<td>N/A</td>
<td>Producer</td>
<td>2 year</td>
<td>3 bags of GAB (35 lbs.)</td>
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<td>Plasticity Index</td>
<td>T-90</td>
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<td>pH Test</td>
<td>T-289</td>
<td>12.4</td>
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<td></td>
<td>Los Angeles Abrasion</td>
<td>T-96</td>
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<td></td>
<td>Magnesium Sulfate Soundness</td>
<td>T-104</td>
<td>18</td>
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</tr>
</tbody>
</table>
“Appendix A”: Job Mix Formula (JMF) Letter - Request Form
Job Mix Formula (JMF) Letter - Request Form
Date Submitted: __________

Organization’s Name (Parent Aggregate Producer):
________________________________________________________________________

Office / Facility’s Name (Subsidiary Aggregate Producer): {Same as above ____ or

Supervising Office’s Mailing Address:
Street or P.O. Box: ___________________________________________________________
Town / City: __________________________ State: _______ Zip:  _________
State: __________________ Zip: __________________
E-Mail Address: __________________________________________________________
Phone No(s): __________________________     _________________________
Fax No.: __________________________

Plant’s Name (If Applicable): ________________________________________________
Plant’s Number (If Applicable): ______________________________________________
Street or P.O. Box: __________________________________________________________
Town / City: __________________________ State: _______ Zip:  _________
Entitled Point of Contact: __________________________________________________
Title / Position: __________________________________________________________
E-Mail Address: __________________________________________________________
Phone No(s): __________________________     _________________________
Fax No.: __________________________

SDS Provided: Yes _____ No____________
Source Material: Virgin Aggregate ☐ Recycled Concrete ☐
Testing Charges: Bill Direct (Yes or No) ______.
If No,
MDOT SHA Contract #/Charge #: _______________________
MDOT SHA Project # (if available): _______________________

Proposed Job Mix Formula: Material meeting MDOT SHA Specification for Construction and
Materials, Table 901 A and 901 B.

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>2”</th>
<th>1 1/2”</th>
<th>3/4”</th>
<th>3/8”</th>
<th>#4</th>
<th>#30</th>
<th>#200</th>
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<tbody>
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<td>Tolerance</td>
<td>-2</td>
<td>±5</td>
<td>±8</td>
<td>±8</td>
<td>±5</td>
<td>±3</td>
<td></td>
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<tr>
<td>High Range</td>
<td>100</td>
<td>100</td>
<td>92</td>
<td>70</td>
<td>55</td>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>Low Range</td>
<td>100</td>
<td>95</td>
<td>70</td>
<td>50</td>
<td>35</td>
<td>12</td>
<td>0</td>
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</tbody>
</table>
“Appendix B”: GAB Plant - Quality Control Plan (Template)

(The purpose of the GAB QC Plan Template is to have all GAB producers submit their Quality Control Plans in a consistent manner. Producers may cut and paste their current plans and submit in a similar format as the template. Additional pages may be added, for technician certifications.)
Company Name: (company letterhead)
Plant Number:

Year: _______  Revision Date: _______
(if applicable)

Plant Quality Control Plan
QC Manager Name: ________________________________________________
Contact Information: ________________________________________________
______________________________________________
______________________________________________
______________________________________________
______________________________________________

For SHA OMT Use only:

Reviewed By: ________________________  Reviewed Date: ___________
Approved By: ________________________  Approval Date: ____________
Expiration Date: ______________________
Quality Control Plan for GAB Plants

Reference: MD Standard Specifications for Construction and Materials Sections 915 / AASHTO T-27, AASHTO T-11, MSMT 251, R 90

1. Plant Description
   1.1 Plant Type
   1.2 Plant Address

2. Plant Certified Technicians
   MARTCP Qualified Personnel / Contact Information/Card#/Expiry Date
   (Submit copies of all MARTCP cards)

3. Product Description

4. Sampling and testing frequency procedures

5. Corrective Action Procedure

6. Documentation (all documentation will be reported to GAB@MDOT.Maryland.gov)
   6.1 24 Hour Notice (form 43) to be sent to the GAB email address and retained on file.
   6.2 Form GAB-1 (First Load Ticket) will be sent to project and retained on file.
   6.3 Report production Form 43 (or cancellation) with QC testing the following workday and send to the GAB email address and retained on file.

7. Truck Scales (915.01.04)
   Calibration Frequency (submit copies of Scale Certifications)

8. Lab Scales Weighing / Measuring Devices (915.01.04)
   Calibration Frequency (submit copies of Scale Certifications)

9. Construction and Maintenance of GAB and Aggregate Stockpiles (915.01.03)
“Appendix C”: GAB -1 First Load Ticket
SUBJECT: CERTIFIED BASE COURSE TECHNICIAN ON DUTY

To: Administration Project Engineer
Re: MDSHA Project Number ________________________________

This letter certifies that a Certified Base Course Plant Technician is performing Quality Control Duties and is inspecting the production of base course material.

JMF Number: ________________________________
Producer: ________________________________
Location: ________________________________
Certified Technician Number: ________________________________
Name of Technician: ________________________________
Technician’s Signature: ________________________________

Note: The original letter shall be sent to each project, daily, with the first truck Load. A copy will be retained in the Plant File.
“Appendix D”: Form – 43 GAB Plant Report
State Highway Administration
Office of Materials Technology

Graded Aggregate Base Plant Report

(Plant/Quarry Name)

<table>
<thead>
<tr>
<th>Shipment Date:</th>
<th>Total Tons</th>
<th>Next Day Shipment Date:</th>
<th>Estimated Tons</th>
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<tbody>
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TOTAL TONS FOR THE DAY: ______________  TOTAL ESTIMATED TONS: ______________

Date Tested: __________________________
G.A.B Job Mix Formula Approval Number (Plant #) (JMF No.) (Year)

<table>
<thead>
<tr>
<th>Sieve Size</th>
<th>Moisture &amp; Additive</th>
<th>Sample</th>
<th>Tons</th>
<th>Result</th>
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</table>

Remark: ______________________________

Date Submitted: __________________________
Sample Size: __________________________ (lbs.)
Reported by: __________________________
Reported by: __________________________
Certified Technician No. __________________________