American Engineering Testing, Inc.
Wausau
4203 Schofield Ave
Schofield, WI 54476
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www.teamAET.com

# Material Test Report

**Report No: MAT:AET-154226-S1**
**Issue No: 1**

**Client:** Kafka Granite, LLC **CC:** Tiffany Koss

**Project:** Kafka 2024 Construction Projects

Wausau WI
**Job No:** P-0029805



Date of Issue: 5/13/2024
Reviewed By: Paul Michlig, CET
Construction Manager

## Sample Details

| | |
|---|---|
| **Sample ID** | AET-154226-S1 |
| **Field Sample ID** | 1 |
| **Date Sampled** | 4/16/2024 |
| **Source** | Kafka Granite |
| **Material** | DOT Granite 4x12 Mesh |
| **Specification** | Kafka Granite-Platinum Granite |
| **Sampling Method** | Sampled by Client |
| **General Location** | Mosinee, WI |
| **Location** | Kafka Granite Stockpile |
| **Date Submitted** | 4/18/2024 |

## Other Test Results

| Description | Method | Result | Limits |
|---|---|---|---|
| Specific Gravity (OD) | ASTM C 128 | 2.780 | |
| Specific Gravity (SSD) | | 2.798 | |
| Apparent Specific Gravity | | 2.832 | |
| Absorption (%) | | 0.664 | ≤1 |
| Additional Notes | | | |
| Date Tested | | 4/22/2024 | |
| Retaining Sieve | ASTM D 5821 | 2.36mm | |
| Total Mass of Sample (g) | | 12.8 | |
| Fracture Criteria | | 1 Face | |
| Fractured Particles (%) | | 100 | 100 |
| Fracture Criteria | | 2 Face | |
| Fractured Particles (%) | | 100 | 80 – 100 |
| Method | | Mass | |
| Date Tested | | 4/18/2024 | |

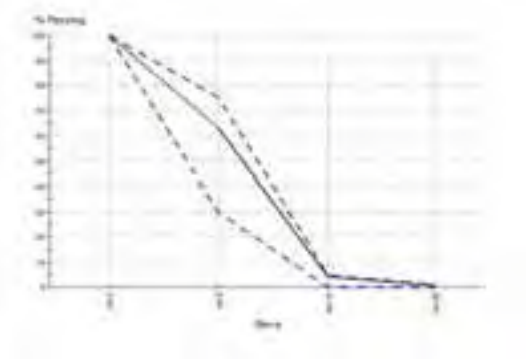
## Particle Size Distribution

**Method:** ASTM C 136, ASTM C 117

**Date Tested:** 4/18/2024
**Tested By:** Eric Dobbe

| Sieve Size | % Passing | Limits |
|---|---|---|
| No.4 (4.75mm) | 100 | 100 |
| No.8 (2.36mm) | 63 | 30 – 75 |
| No.16 (1.18mm) | 4.3 | 0 – 5 |
| No.30 (600µm) | 0.7 | 0 – 1 |

## Chart



## Comments

Sample meets gradation, fractured particles and absorption specifications for DOT Granite 4 x 12 Mesh material.
Moisture Content (ASTM:C566)=0.12%

May 13, 2024

Kafka Granite, LLC
550 East Hwy 153
Mosinee, WI  54455

Attn: Ms. Tiffany Koss

RE: Kafka Granite 2024 Construction Projects
AET Report No. P-0029805

This report presents the results of our Mohs hardness testing of one sample of crushed aggregate identified as 'DOT Granite' submitted to our petrographics laboratory by Mr. Paul Michlig of American Engineering Testing, Inc. on April 25, 2024. The aggregate is to be referred to as "Kafka 2024". The scope of our work in this report was confined to performing Mohs hardness testing on the aggregate sample.

## TEST RESULTS

Based on our analysis:

1. The overall hardness of the “Kafka 2024” aggregate is approximately 7 on the Mohs scale. This number is based upon testing values of the overall hardness of 5 selected rocks using Mohs hardness picks of 2, 3, 4, 5, 6, 7, 8 and 9. Each particle is tested on a polished face twice. The average hardness of the five particles was then calculated. The hardness values of the individual rocks were as follows:

| Mohs Hardness | 3 – 4 | 4 – 5 | 5 – 6 | 6 – 7 | 7 – 8 |
|---|---|---|---|---|---|
| Number of Rocks | 0 | 1 | 0 | 2 | 2 |

2. The aggregate was a crushed product, and the particles were generally angular in shape. A Mohs pick with hardness of 9 was used on the five particles. If the Mohs 9 pick scratched a particle, then the next Mohs pick with a lesser hardness was used until the particle would not scratch. The Mohs hardness picks were drawn directly across a freshly lapped surface of the particles. The process was repeated twice on each of the stones.

3. In general, rocks are not homogeneous with regards to Mohs mineral hardness. The best effort was made to accomplish the hardness analysis at a representative area within each particle selected. Because rocks can consist of several different minerals with different quantities and different hardness, and the Mohs scale represents the hardness of individual minerals, the Mohs scale should only be used as an approximation when determining the overall hardness of a rock.

## PROCEDURES

Our work was performed on April 30, 2024, and subsequent dates. The aggregate sample was saw cut and was then lapped on a lapidary wheel. The hardness testing was completed through the use of standard geologic Mohs hardness points and optical microscopy on lapped hand samples. The review was performed in general accordance with Standard Operating Procedure 24-LAB-004, "Petrographic Examination of Aggregates for Concrete, ASTM C295." Observations were made using an Olympus SZX-12 stereo-zoom binocular microscope with magnification up to 90x.

Photographs are included to illustrate our work and conclusions.

## REMARKS

The sample will be retained for at least 60 days from the date of our report. If no further instructions are received by that time, the sample may be discarded. The petrographic services for this project have been conducted in a manner consistent with that level of care and skill exercised by members of the profession currently practicing in this area under similar budget and time constraints. The results relate only to the sample analyzed. No warranty, express or implied, is made.

It has been a pleasure to serve you on this project. Should you have any questions on this report, please do not hesitate to call.

Report Prepared By
**American Engineering Testing, Inc.**

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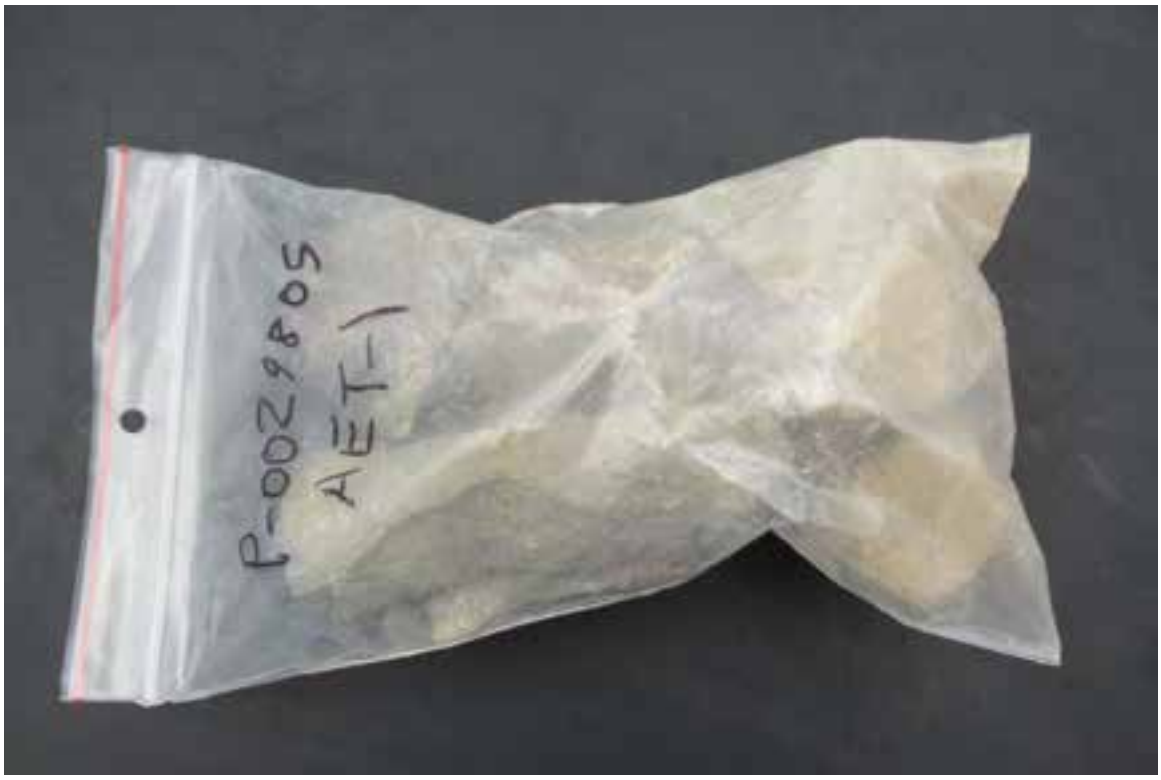
Report of Mohs Hardness Testing
**Kafka 2024 Construction Projects**
AET Project No. P-0029805

**Photo: 1**

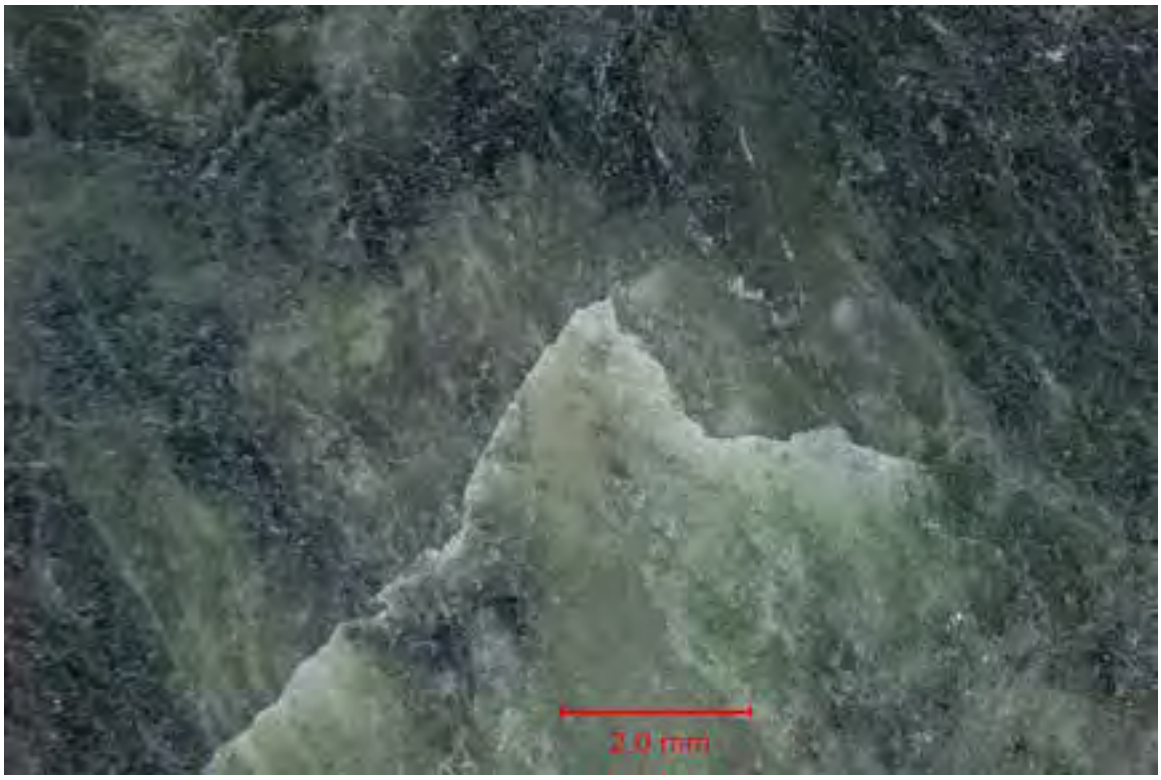



**Sample ID:** AET-1 **Description:** Profile of the sample as received.

**Photo: 2**

**Sample ID:** AET-1 **Description:** Overall view of the sample particles.

**Photo: 3**




**Sample ID:** Rock 1
**Mag:** 10x

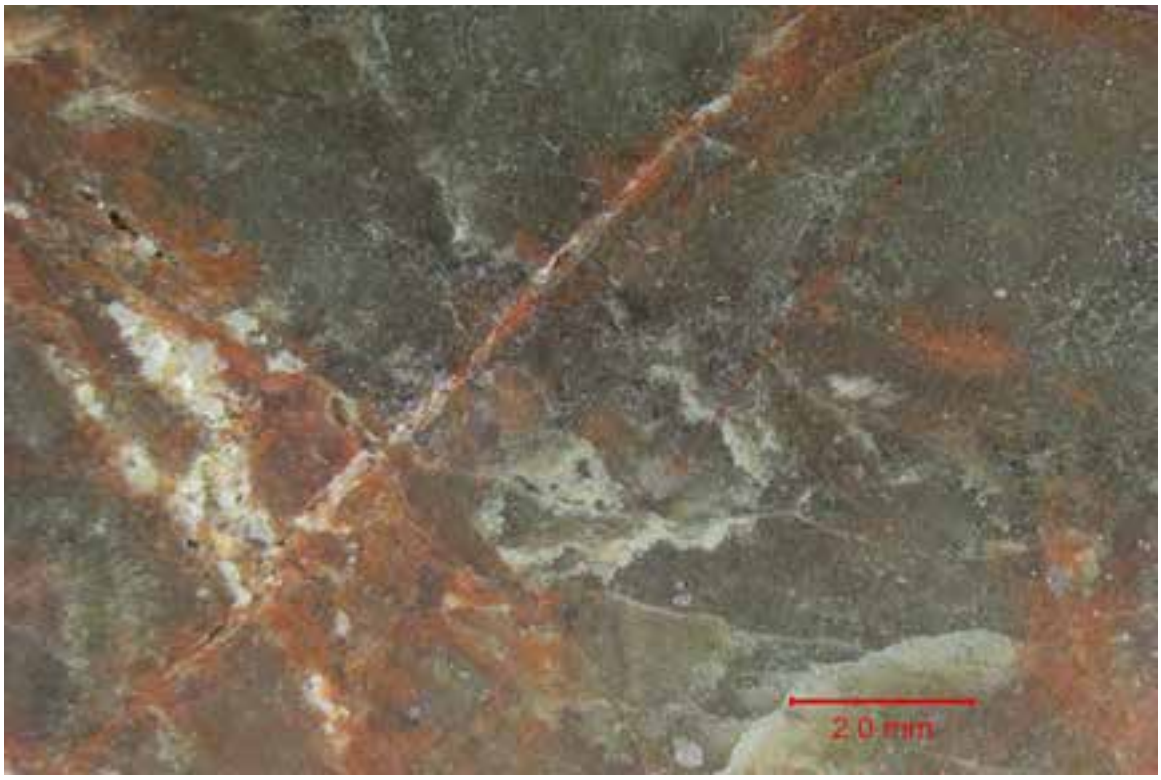
**Description:** View of the lapped cross section of the rock under magnification and reflected light.

**Photo: 4**


**Sample ID:** Rock 1
**Mag:** 10x

**Description:** View of the lapped cross sections of the rocks after Mohs hardness testing under magnification and reflected light. The overall hardness of the rock was 6 – 7.

**Photo: 5**




**Sample ID:** Rock 2
**Mag:** 10x

**Description:** View of the lapped cross section of the rock under magnification and reflected light.

**Photo: 6**


**Sample ID:** Rock 2
**Mag:** 10x

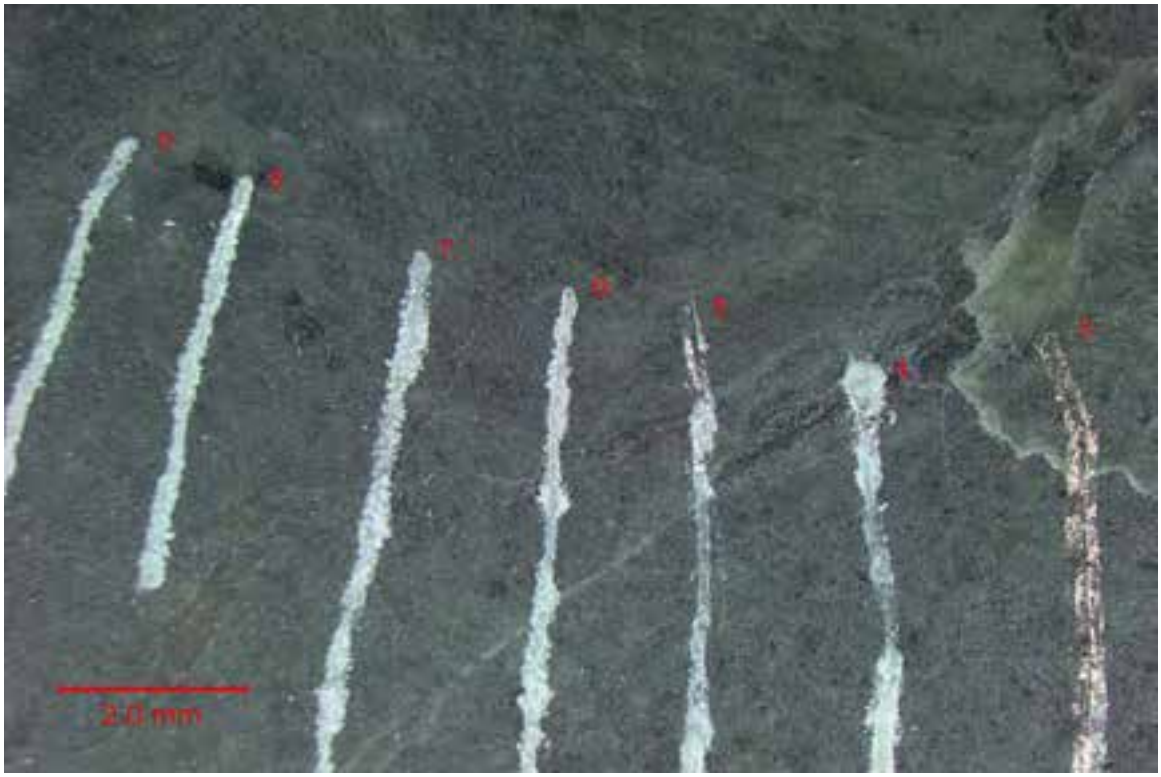
**Description:** View of the lapped cross sections of the rocks after Mohs hardness testing under magnification and reflected light. The overall hardness of the rock was 6 – 7.

**Photo: 7**


**Sample ID:** Rock 3
**Mag:** 10x

**Description:** View of the lapped cross section of the rock under magnification and reflected light.

**Photo: 8**




**Sample ID:** Rock 3
**Mag:** 10x

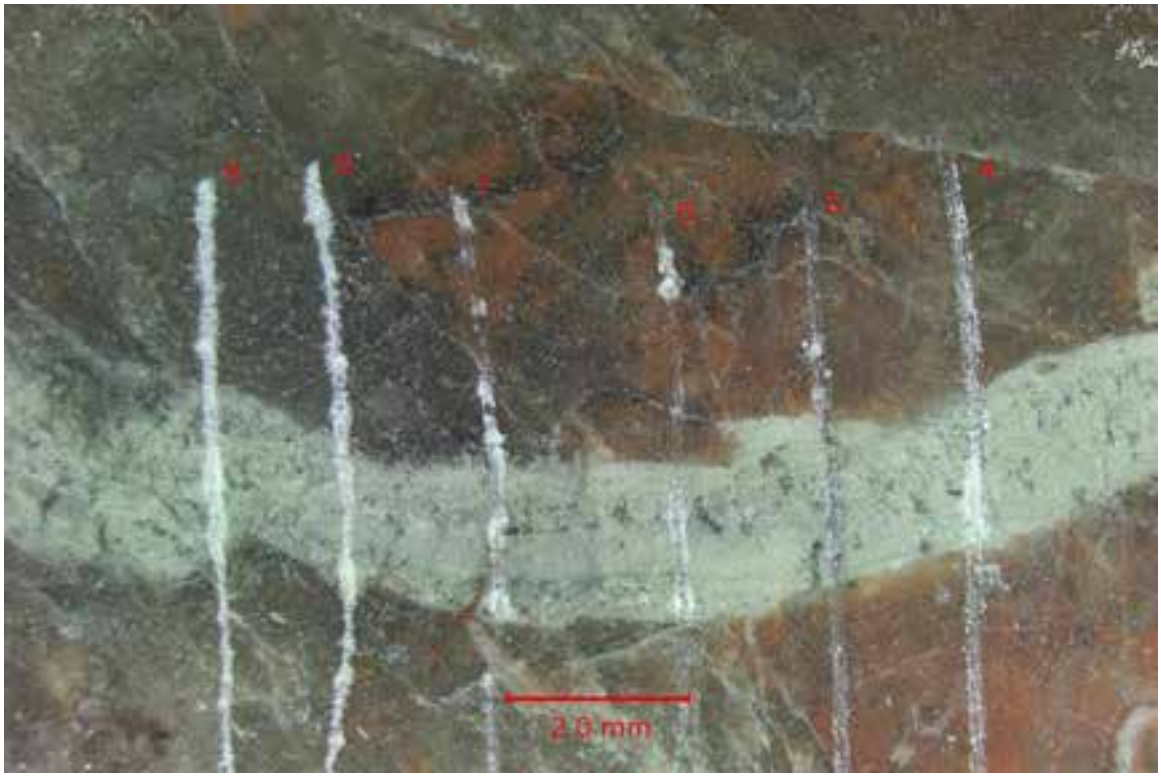
**Description:** View of the lapped cross sections of the rocks after Mohs hardness testing under magnification and reflected light. The overall hardness of the rock was 4 – 5.

**Photo: 9**


**Sample ID:** Rock 4
**Mag:** 10x

**Description:** View of the lapped cross section of the rock under magnification and reflected light.

**Photo: 10**




**Sample ID:** Rock 4
**Mag:** 10x

**Description:** View of the lapped cross sections of the rocks after Mohs hardness testing under magnification and reflected light. The overall hardness of the rock was 7 – 8. Note the somewhat softer mineral vein within the rock.

**Photo: 11**


**Sample ID:** Rock 5
**Mag:** 10x

**Description:** View of the lapped cross section of the rock under magnification and reflected light.

**Photo: 12**


**Sample ID:** Rock 5
**Mag:** 10x

**Description:** View of the lapped cross sections of the rocks after Mohs hardness testing under magnification and reflected light. The overall hardness of the rock was 7 – 8.