# APPENDIX E1

## TRANSITION MATERIAL PARTICLE SIZE ANALYSIS RESULTS

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA01 |
| | | **SAMPLE DESCRIPTION:** | 150 mm minus from stockpile |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 5.2% |
| **DATE SAMPLED:** | Nov 09/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| 150 | 100 |
| 20 | 26 |
| | |
| 10 | 19 |
| 5 | 13 |
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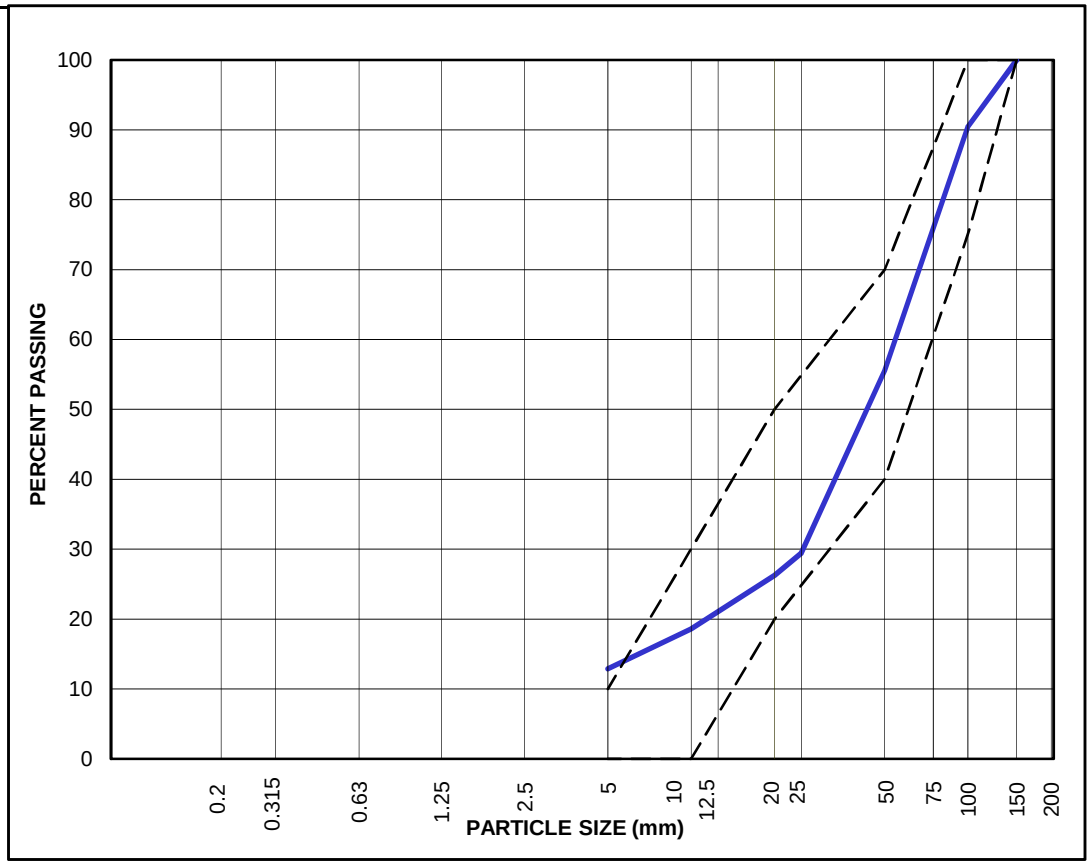


**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA02 |
| | | **SAMPLE DESCRIPTION:** | 150 mm minus from stockpile |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 4.3% |
| **DATE SAMPLED:** | Nov 09/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| 150 | 100 |
| 20 | 25 |
| | |
| 10 | 17 |
| 5 | 13 |
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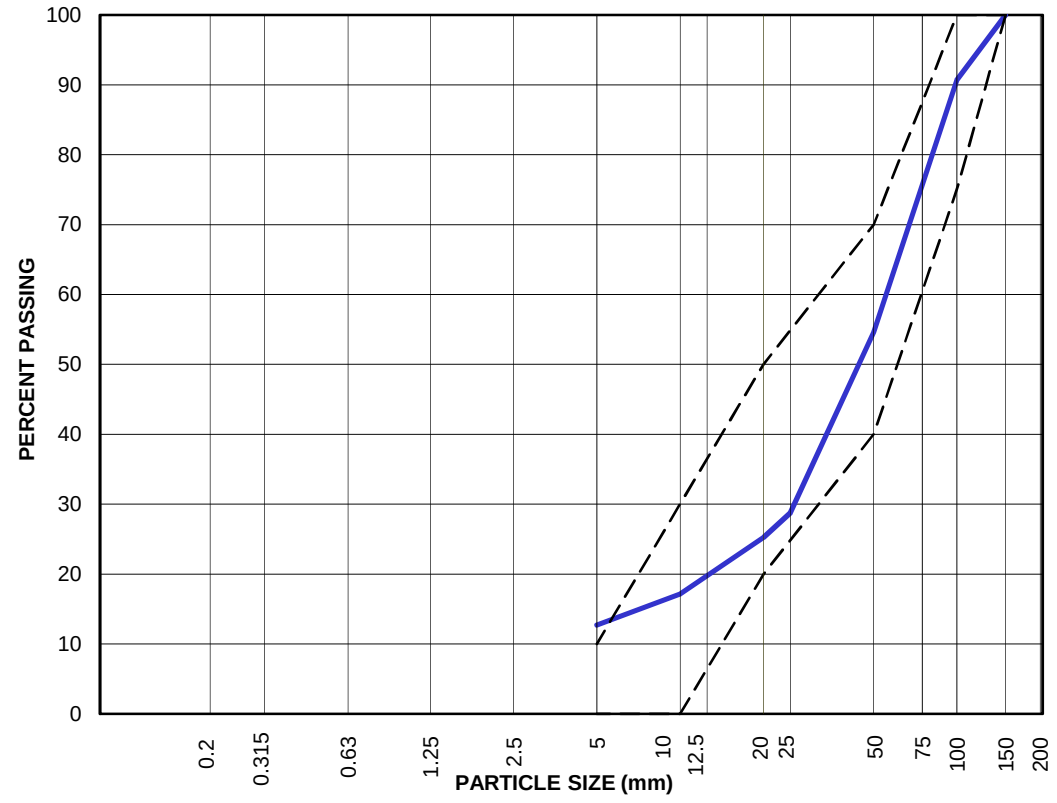


**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA03 |
| | | **SAMPLE DESCRIPTION:** | Type B - 150 mm Minus Transition Rock |
| **ADDRESS:** | Meliadine Gold Project, NU. | | Sampled From Stockpile |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 1.3% |
| **DATE SAMPLED:** | Nov 11/16 By: IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| 150 | 100 |
| 100 | 100 |
| | |
| 50 | 61 |
| | |
| | |
| 20 | 32 |
| | |
| | |
| 10 | 21 |
| 5 | 15 |
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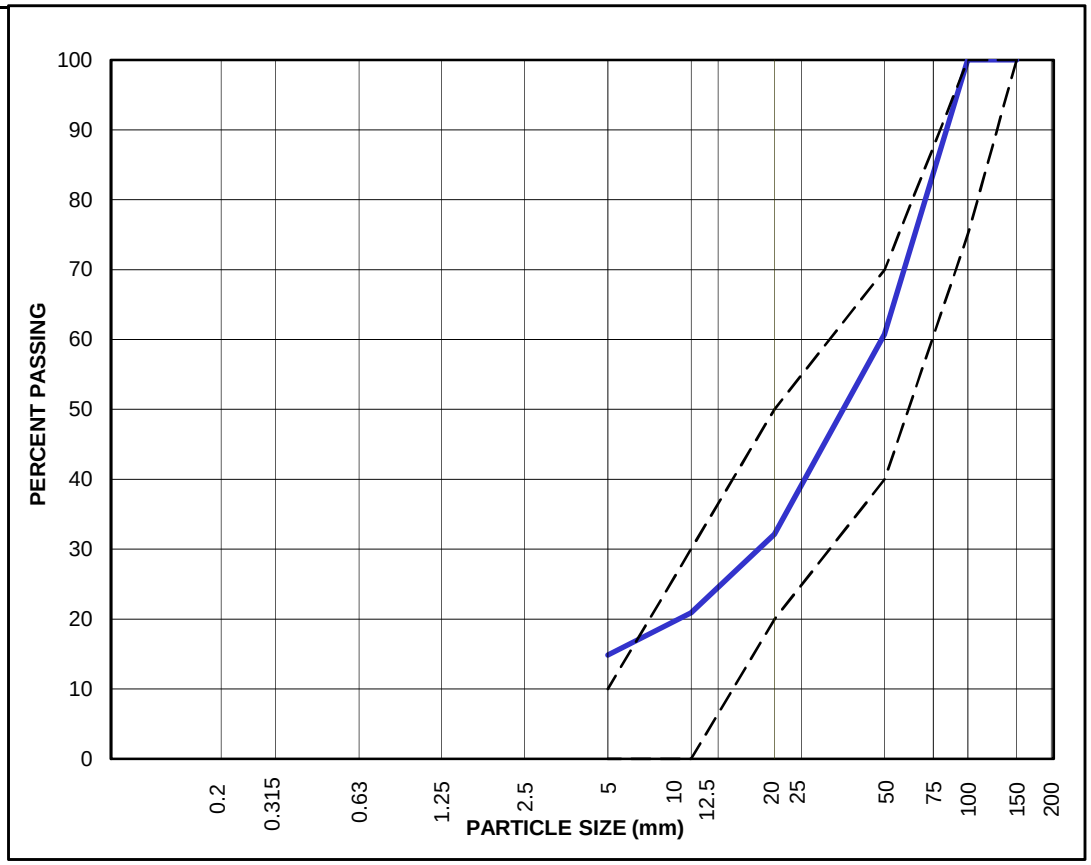


**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA04 |
| | | **SAMPLE DESCRIPTION:** | Type B - 150 mm Minus Transition Rock |
| **ADDRESS:** | Meliadine Gold Project, NU. | | Sampled From Stockpile |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 2.8% |
| **DATE SAMPLED:** | Nov 13/16 **By:** IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| 150 | 100 |
| 100 | 97 |
| | |
| 50 | 60 |
| | |
| | |
| 20 | 35 |
| | |
| | |
| 10 | 25 |
| 5 | 19 |
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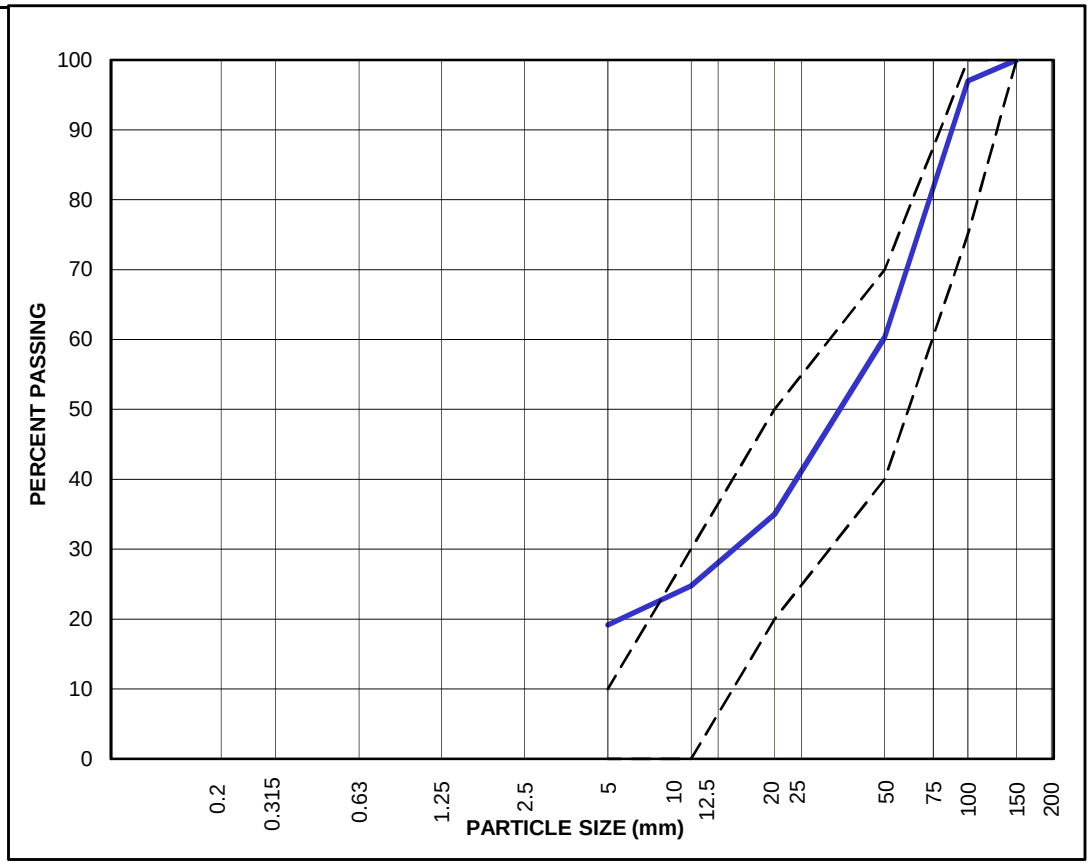


**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

**PROJECT:** Meliadine Dike Construction
**ADDRESS:** Meliadine Gold Project, NU.
**PROJECT NO:** E14103230-01.023
**DATE SAMPLED:** Dec 15/16 **By:** CC
**CLIENT:** Agnico Eagle Mines Ltd.
**ATTENTION:** Mr. Duy Nguyen

**SAMPLE NO:** SA05
**SAMPLE DESCRIPTION:** Type B - 150 mm minus
Sampled from stockpile
**MOISTURE CONT. :** 8.6%
**BULK REL DENSITY:** n/a
**BULK REL. DENSITY (SSD):** n/a
**APPARENT REL. DENSITY:** n/a
**ABSORPTION:** n/a

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| 150 | 100 |
| 100 | 100 |
| 50 | 49 |
| 20 | 19 |
| 10 | 8 |
| 5 | 2 |
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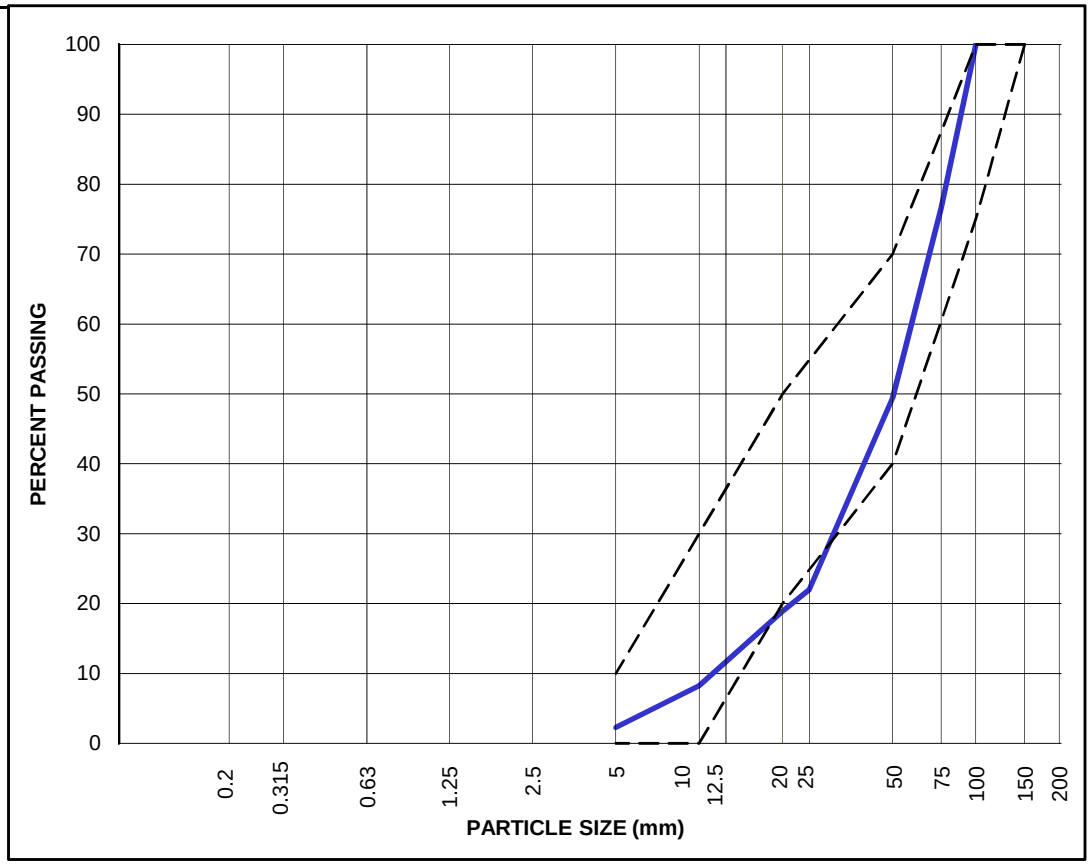


**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

**PROJECT:** Meliadine Dike Construction
**ADDRESS:** Meliadine Gold Project, NU.
**PROJECT NO:** E14103230-01.023
**DATE SAMPLED:** Mar 01/17 **By:** TW
**CLIENT:** Agnico Eagle Mines Ltd.
**ATTENTION:** Mr. Duy Nguyen

**SAMPLE NO:** SA06
**SAMPLE DESCRIPTION:** Type B - 150 mm minus
Sampled from stockpile
**MOISTURE CONT. :** 8.1%
**BULK REL DENSITY:** n/a
**BULK REL. DENSITY (SSD):** n/a
**APPARENT REL. DENSITY:** n/a
**ABSORPTION:** n/a

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| 150 | 100 |
| 100 | 100 |
| 50 | 55 |
| 20 | 29 |
| 10 | 8 |
| 5 | 2 |
| | |
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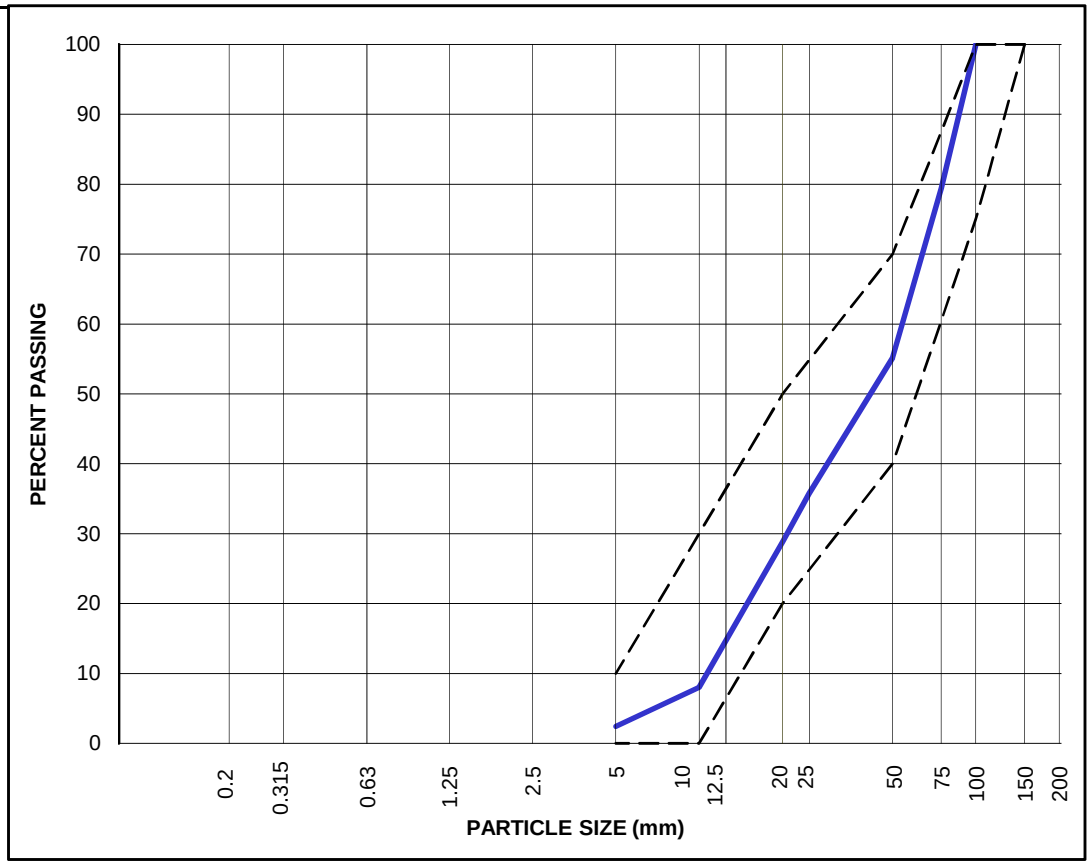


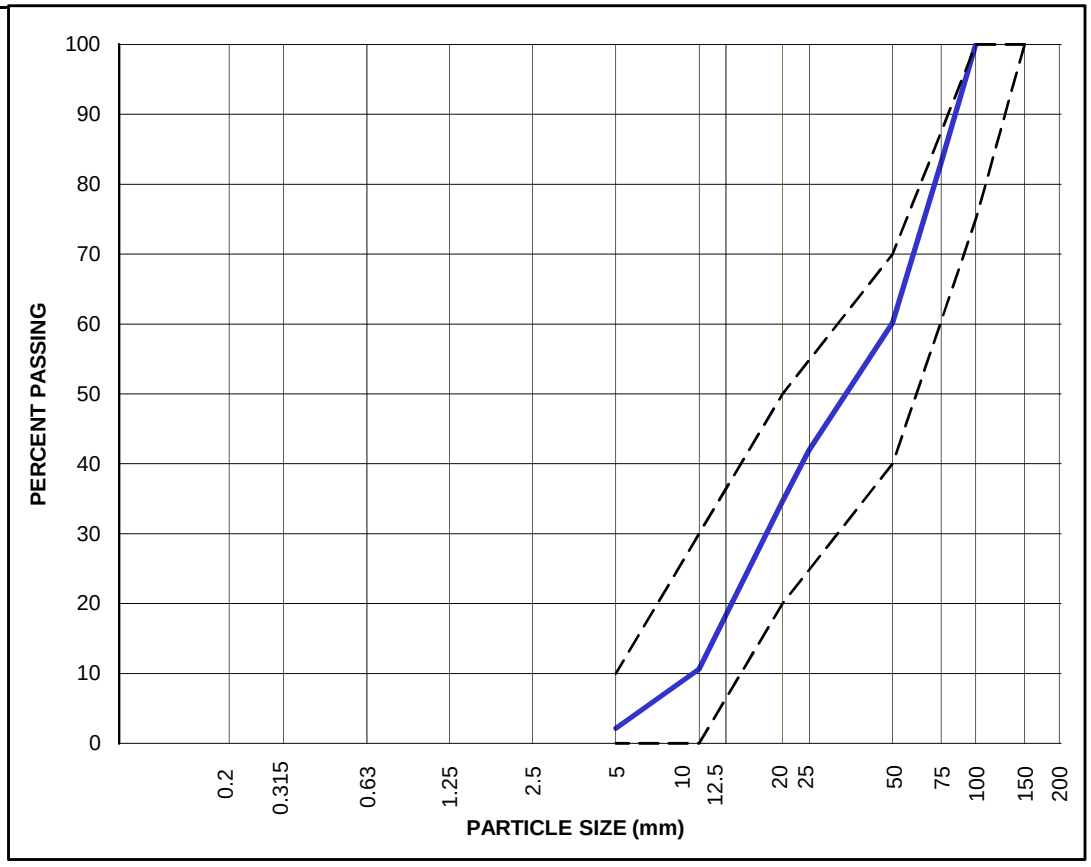

**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

**PROJECT:** Meliadine Dike Construction
**SAMPLE NO:** SA07
**SAMPLE DESCRIPTION:** Type B - 150 mm minus
Sampled from stockpile
**ADDRESS:** Meliadine Gold Project, NU.
**PROJECT NO:** E14103230-01.023
**MOISTURE CONT. :** 8.7%
**DATE SAMPLED:** Mar 01/17 **By:** TW
**CLIENT:** Agnico Eagle Mines Ltd.
**BULK REL DENSITY:** n/a
**ATTENTION:** Mr. Duy Nguyen
**BULK REL. DENSITY (SSD):** n/a
**APPARENT REL. DENSITY:** n/a
**ABSORPTION:** n/a

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| 150 | 100 |
| 100 | 100 |
| 50 | 60 |
| 20 | 35 |
| 10 | 11 |
| 5 | 2 |




**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

**PROJECT:** Meliadine Dike Construction
**SAMPLE NO:** SA08
**SAMPLE DESCRIPTION:** Type B - 150 mm minus
Sampled from stockpile
**ADDRESS:** Meliadine Gold Project, NU.
**PROJECT NO:** E14103230-01.023
**MOISTURE CONT. :** 7.2%
**DATE SAMPLED:** Mar 02/17 **By:** TW
**CLIENT:** Agnico Eagle Mines Ltd.
**BULK REL DENSITY:** n/a
**ATTENTION:** Mr. Duy Nguyen
**BULK REL. DENSITY (SSD):** n/a
**APPARENT REL. DENSITY:** n/a
**ABSORPTION:** n/a

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| 150 | 100 |
| 100 | 100 |
| 50 | 62 |
| 20 | 37 |
| 10 | 10 |
| 5 | 0 |
| | |
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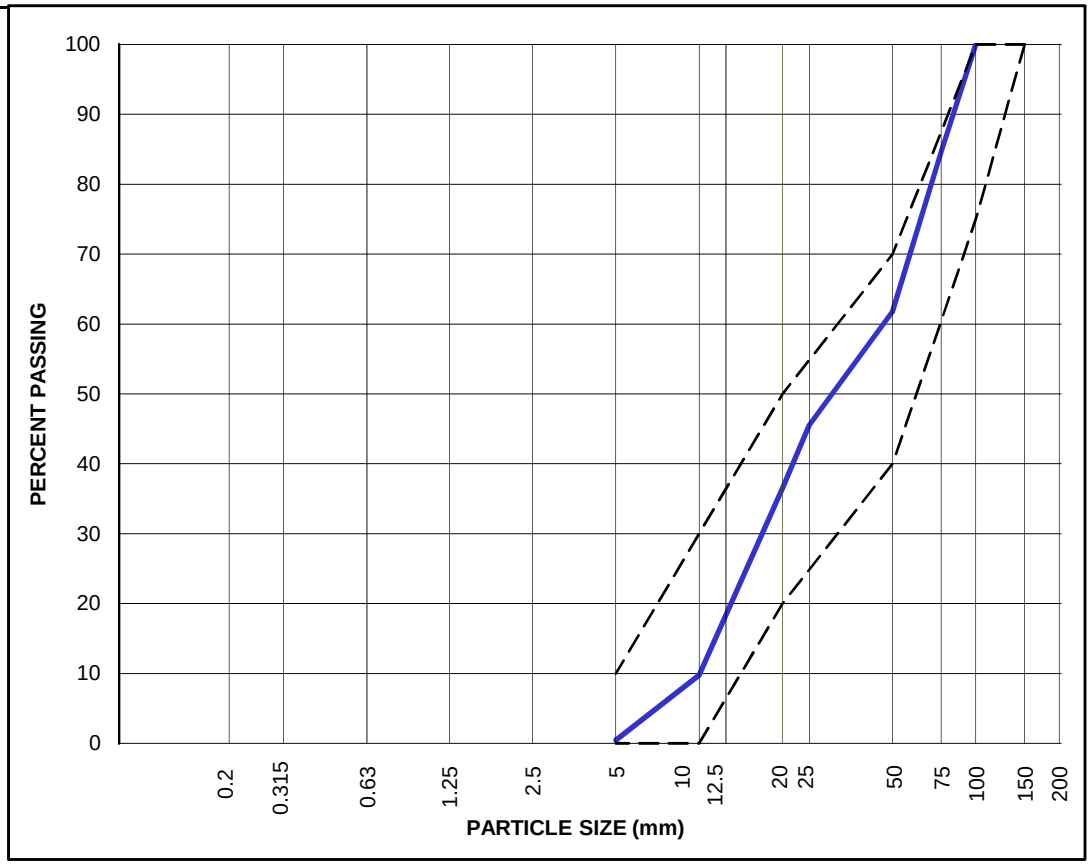


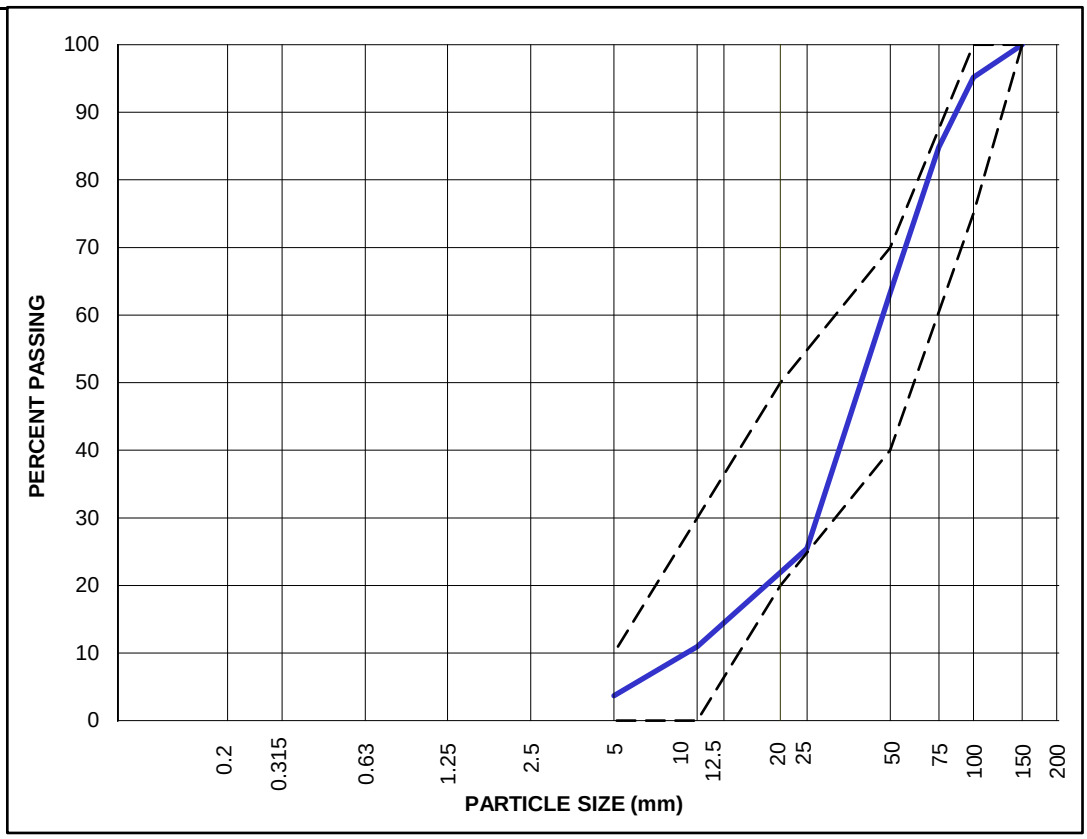

**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

**PROJECT:** Meliadine Dike Construction
**SAMPLE NO:** SA09
**SAMPLE DESCRIPTION:** Type B1 - 150 mm minus
Sampled from Key Trench Stn. 0+455 at O.G. elev.
**ADDRESS:** Meliadine Gold Project, NU.
**PROJECT NO:** E14103230-01.023
**MOISTURE CONT. :** 6.1%
**DATE SAMPLED:** Mar 29/17 **By:** IM/TW
**CLIENT:** Agnico Eagle Mines Ltd.
**BULK REL DENSITY:** n/a
**ATTENTION:** Mr. Duy Nguyen
**BULK REL. DENSITY (SSD):** n/a
**APPARENT REL. DENSITY:** n/a
**ABSORPTION:** n/a

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| 150 | 100 |
| 100 | 95 |
| 50 | 63 |
| 20 | 22 |
| 10 | 11 |
| 5 | 4 |




**Remarks:**

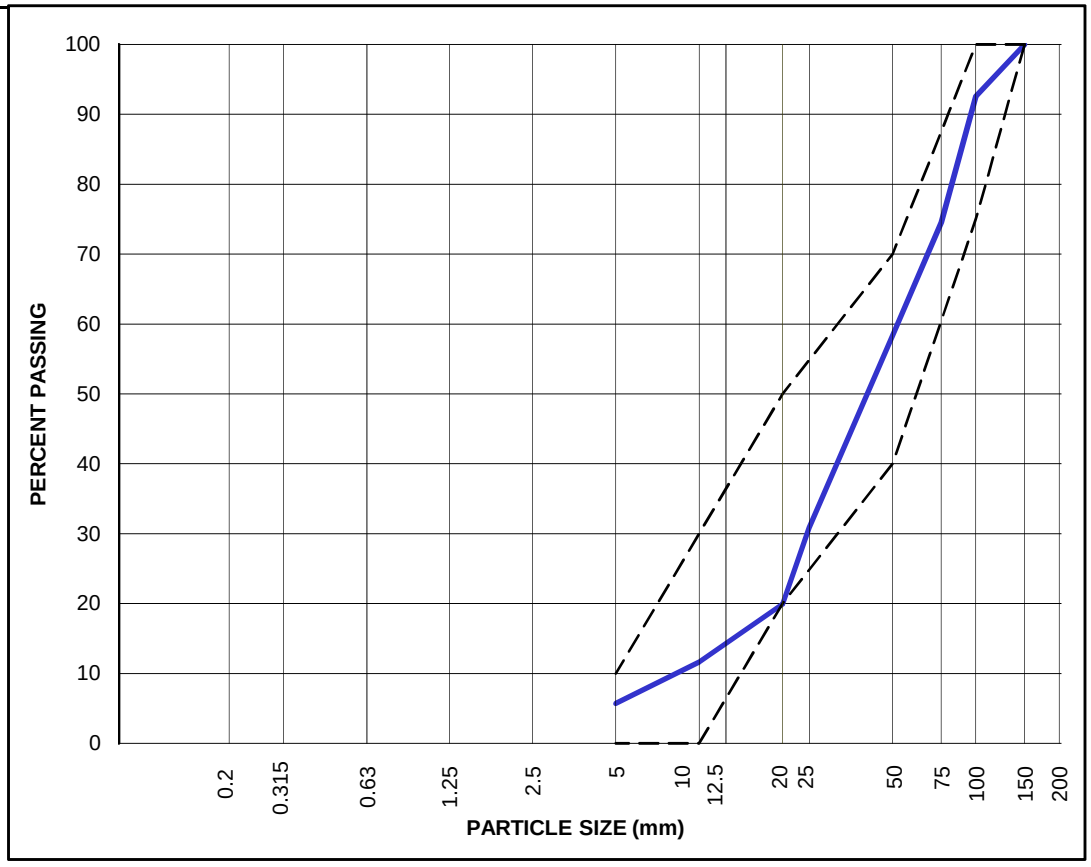
**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

**PROJECT:** Meliadine Dike Construction
**ADDRESS:** Meliadine Gold Project, NU.
**PROJECT NO:** E14103230-01.023
**DATE SAMPLED:** Mar 30/17 **By:** TW/WW
**CLIENT:** Agnico Eagle Mines Ltd.
**ATTENTION:** Mr. Duy Nguyen

**SAMPLE NO:** SA10
**SAMPLE DESCRIPTION:** Type B1 - 150 mm minus
Sampled from Key Trench Stn. 0+455 at O.G. elev.
**MOISTURE CONT. :** 6.1%
**BULK REL DENSITY:** n/a
**BULK REL. DENSITY (SSD):** n/a
**APPARENT REL. DENSITY:** n/a
**ABSORPTION:** n/a

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| 150 | 100 |
| 100 | 93 |
| 50 | 58 |
| 20 | 20 |
| 10 | 12 |
| 5 | 6 |




**Remarks:**

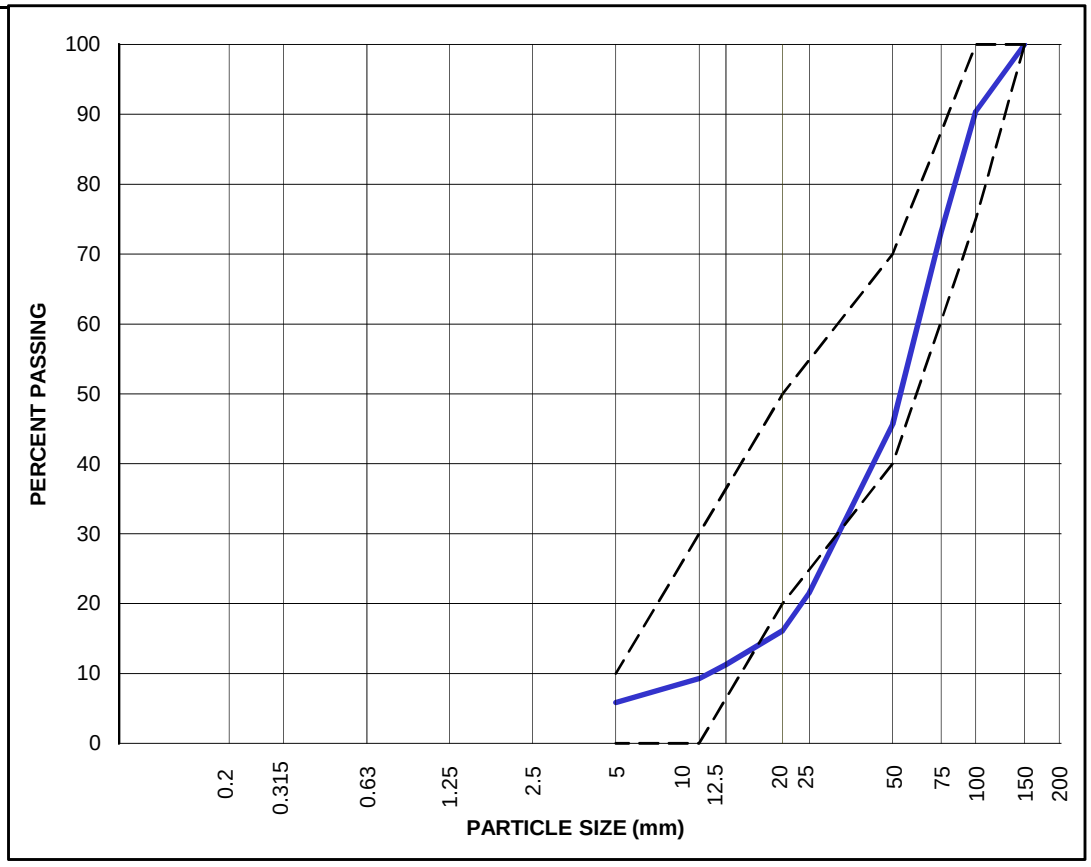
**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

**PROJECT:** Meliadine Dike Construction
**ADDRESS:** Meliadine Gold Project, NU.
**PROJECT NO:** E14103230-01.023
**DATE SAMPLED:** Apr 02/17 **By:** WW
**CLIENT:** Agnico Eagle Mines Ltd.
**ATTENTION:** Mr. Duy Nguyen

**SAMPLE NO:** SA11
**SAMPLE DESCRIPTION:** Type B1 - 150 mm minus
Sampled from stockpile
**MOISTURE CONT. :** 6.5%
**BULK REL DENSITY:** n/a
**BULK REL. DENSITY (SSD):** n/a
**APPARENT REL. DENSITY:** n/a
**ABSORPTION:** n/a

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| 150 | 100 |
| 100 | 90 |
| 50 | 46 |
| 20 | 16 |
| 10 | 9 |
| 5 | 6 |




**Remarks:**

**Reviewed by:** _____ P.Eng.

## Table E1.1: Moisture Content Results for Transition (150 mm minus) Material - Types B and B1

| Sample No. | Date Tested | Moisture Content (%) | Sample Source |
|---|---|---|---|
| SA01 | 9-Nov-16 | 5.2 | Sampled from Type B1 stockpile |
| SA02 | 9-Nov-16 | 4.3 | Sampled from Type B1 stockpile |
| SA03 | 11-Nov-16 | 1.3 | Sampled from Type B1 stockpile |
| SA04 | 13-Nov-16 | 2.8 | Sampled from Type B1 stockpile |
| SA05 | 19-Dec-16 | 8.6 | Sampled from Type B1 stockpile |
| SA06 | 1-Mar-17 | 8.1 | Sampled from Type B stockpile |
| SA07 | 1-Mar-17 | 8.7 | Sampled from Type B stockpile |
| SA08 | 2-Mar-17 | 7.2 | Sampled from Type B stockpile |
| SA09 | 29-Mar-17 | 6.1 | Sampled from Type B1 stockpile |
| SA10 | 30-Mar-17 | 6.1 | Sampled from Type B1 stockpile |
| SA11 | 2-Apr-17 | 6.5 | Sampled from Type B1 stockpile |

| Average Moisture Content | 5.9% |
|---|---|

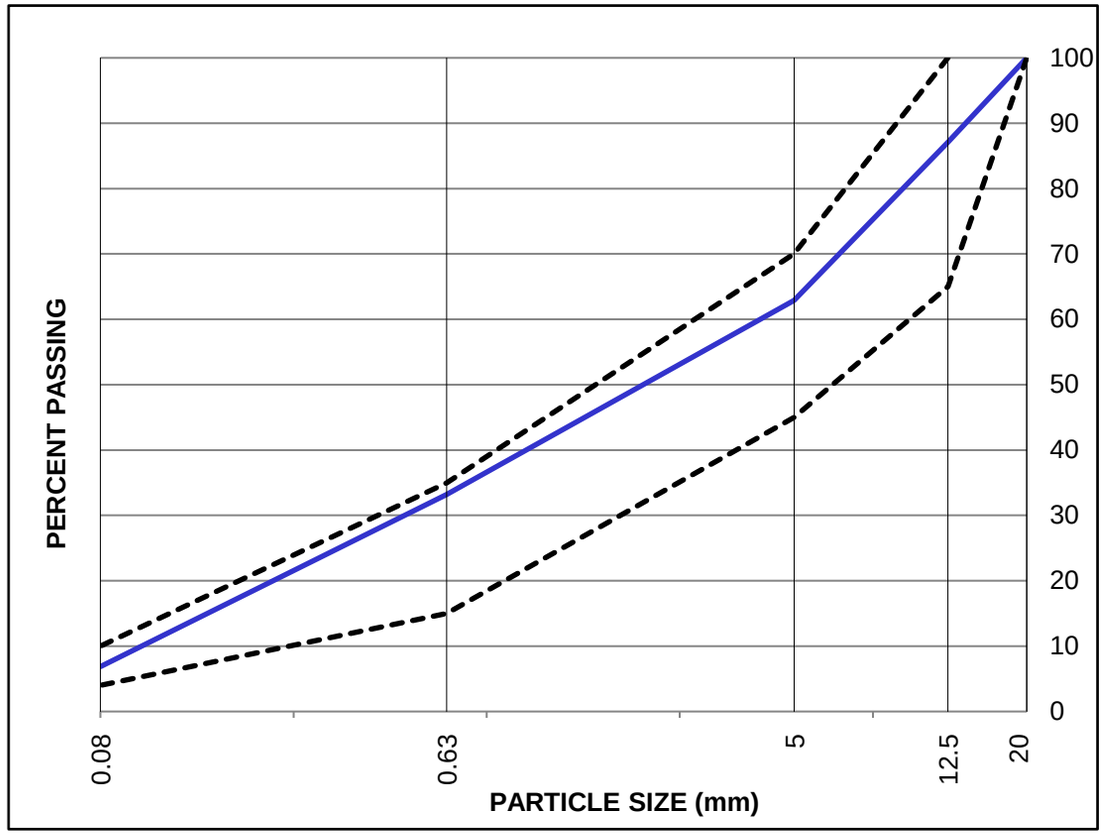
# APPENDIX E2

## TYPE C MATERIAL QA/QC TEST RESULTS

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | DCP-1/DCP-5 | **SAMPLE NO:** | SA01 to SA53 |
| **ADDRESS:** | Meliadine | **SAMPLE DESCRIPTION:** | |
| **PROJECT NO:** | E14103230-01, Task 23 | Type C (20 mm minus) | |
| **UP TO DATE:** | May 15/17 By: Tetra Tech | Overall Material Average, (%) | |
| **CLIENT:** | Agnico Eagle | **NAT. MOISTURE CONT (%).:** | 8.2% |
| | | Test Req'ments = 1 sample/500 m3 production | |
| **ATTENTION:** | Duy Nguyen | | |

| PARTICLE SIZE, mm | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| | |
| 20 | 100.0 |
| 12.5 | 87.1 |
| | |
| 5 | 62.9 |
| 0.63 | 33.2 |
| 0.08 | 6.9 |
| | |
| | |
| | |
| | |




**Remarks:** All samples taken from Meliadine Esker.

**Type C gradation specs as per Geotechnical Specifications Rev 1 Table 3 (Tetra Tech, November 9, 2016)**

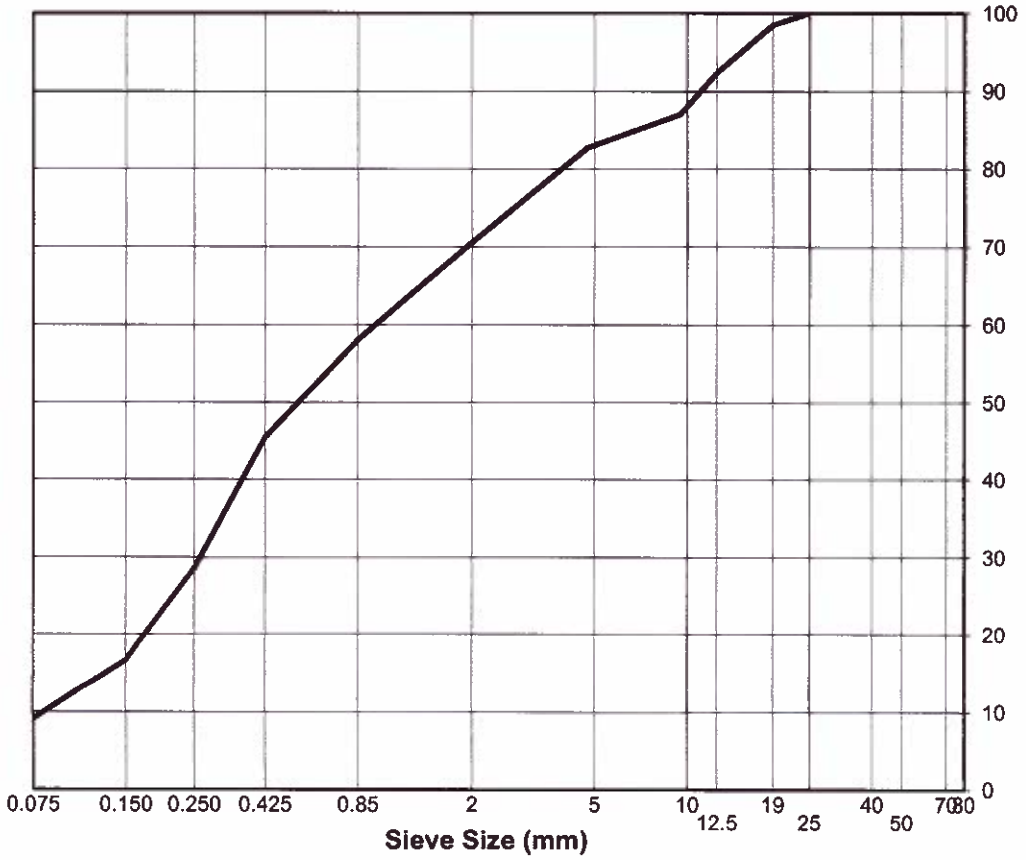
**Reviewed by:** _____

# SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

| | | | |
|---|---|---|---|
| Project No.: | Meliadine Gold Project | Sample No.: | Type C Sample No 1 |
| Project: | E14103230-01.023 | Date Received: | October 26, 2016 |
| Client: | Agnico Eagle Mines Ltd | Sampled by: | Dike QC Team |
| Attention: | | Date Tested: | October 26, 2016 |
| Email: | | Tested by: | JH Office: Edmonton |
| Description: | SAND, some gravel, trace silt, brown | Moisture Content (as received): | 3.0% |
| | | No. Crushed Faces: | Two (2) or Three (3) |
| Source: | Meliadine Project, Dike Construction | By Particle Mass: | |
| Supplier: | | | |
| Sample Location: | Type C Stockpile | | |
| Specification: | | | |

| Sieve Size | Percent Passing |
|---|---|
| | |
| | |
| | |
| | |
| | |
| 25 | 100 |
| 19 | 98 |
| 12.5 | 92 |
| 10 | 87 |
| 5 | 83 |
| 2.0 | 71 |
| 0.85 | 58 |
| 0.425 | 45 |
| 0.250 | 29 |
| 0.150 | 17 |
| 0.075 | 9.1 |




**Remarks:**

**Reviewed By:** _____ P.Eng.



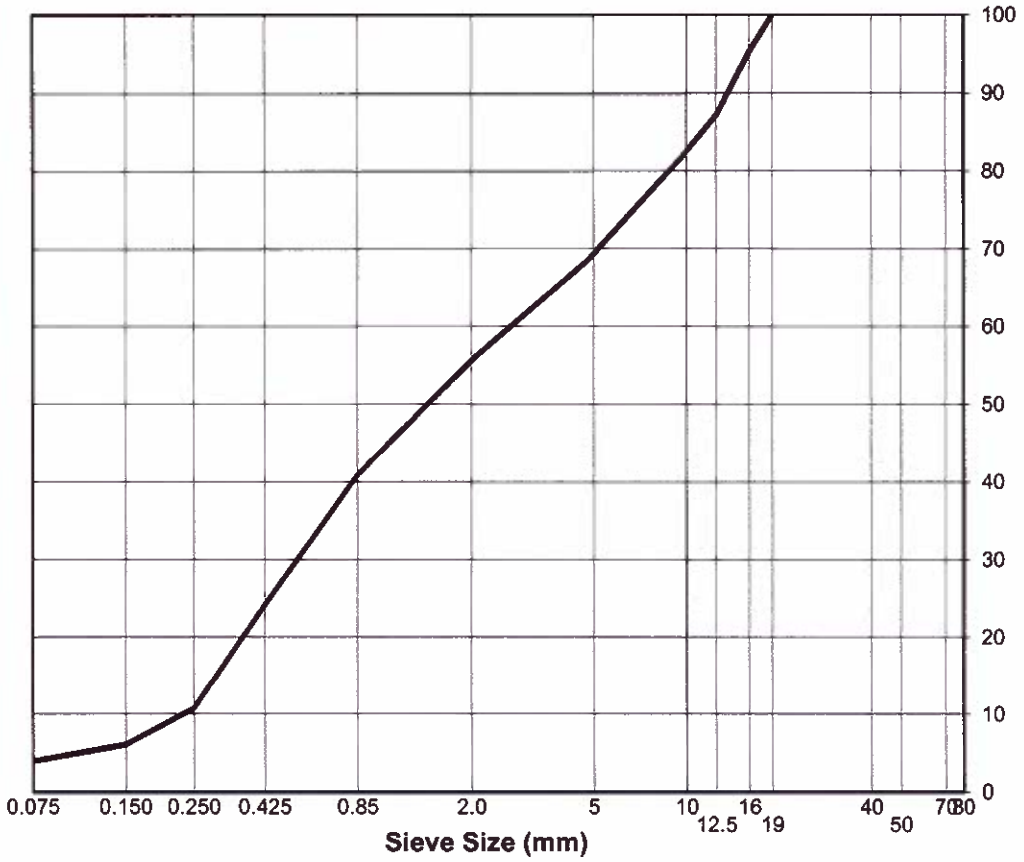
TETRA TECH

# SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

| | | | |
|---|---|---|---|
| Project No.: | Meliadine Gold Project | Sample No.: | Type C Sample No 2 |
| Project: | E14103230-01.023 | Date Received: | November 21, 2016 |
| Client: | Agnico Eagle Mines Ltd | Sampled by: | Dike QC Team |
| Attention: | | Date Tested: | November 23, 2016 |
| Email: | | Tested by: | MC Office: Edmonton |
| Description: | SAND, gravelly, trace silt, grey | Moisture Content (as received): | 2.1% |
| | | No. Crushed Faces: | Two (2) or Three (3) |
| Source: | Meliadine Project, Dike Construction | By Particle Mass: | |
| Supplier: | | | |
| Sample Location: | Type C Stockpile | | |
| Specification: | | | |

| Sieve Size | Percent Passing |
|---|---|
| | |
| | |
| | |
| | |
| | |
| 19 | 100 |
| 16 | 95 |
| 12.5 | 87 |
| 10 | 81 |
| 5 | 68 |
| 2.0 | 56 |
| 0.85 | 41 |
| 0.425 | 24 |
| 0.250 | 11 |
| 0.150 | 6 |
| 0.075 | 3.9 |




**Remarks:**

**Reviewed By:** _____ P.Eng.



TETRA TECH

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA02 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus sampled from belt |
| **ADDRESS:** | Meliadine Mine | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 7.1% |
| **DATE SAMPLED:** | Oct 22/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 84 |
| 10 | 75 |
| 5 | 56 |
| 2.5 | 40 |
| | |
| 0.63 | 24 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
| | |
| | |
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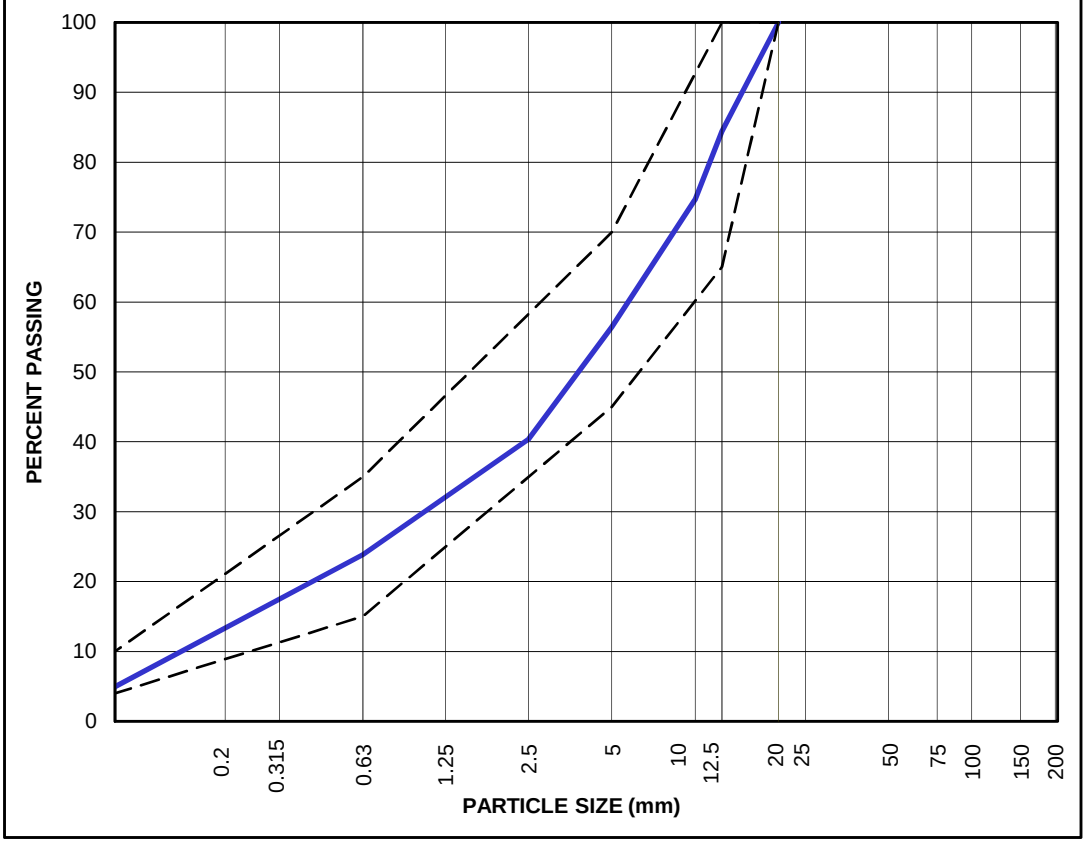
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA03 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus sampled from belt |
| **ADDRESS:** | Meliadine Mine | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 5.4% |
| **DATE SAMPLED:** | Oct 22/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 68 |
| 10 | 55 |
| 5 | 36 |
| 2.5 | 26 |
| | |
| 0.63 | 15 |
| | |
| | |
| 0.08 | 3 |
| | |
| | |
| | |
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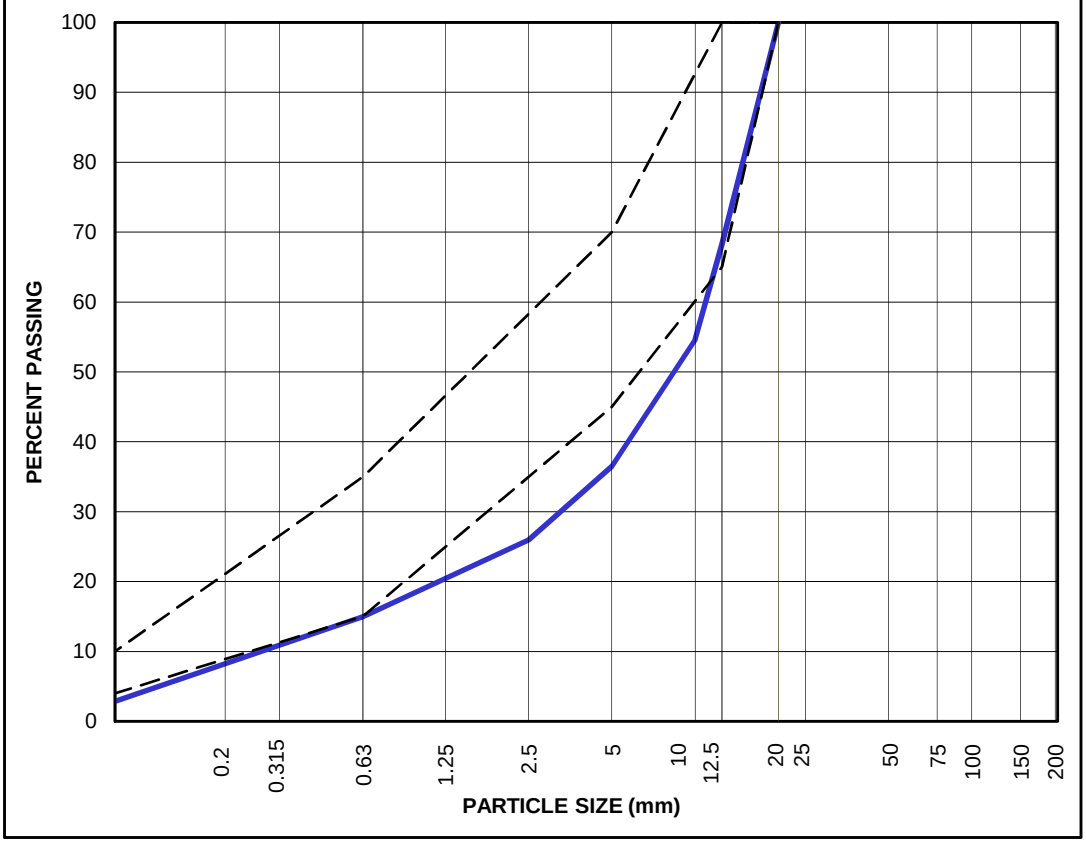
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA04 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus sampled from belt |
| **ADDRESS:** | Meliadine Mine | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 8.7% |
| **DATE SAMPLED:** | Oct 22/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 87 |
| 10 | 80 |
| 5 | 63 |
| 2.5 | 46 |
| | |
| 0.63 | 27 |
| | |
| | |
| 0.08 | 4 |
| | |
| | |
| | |
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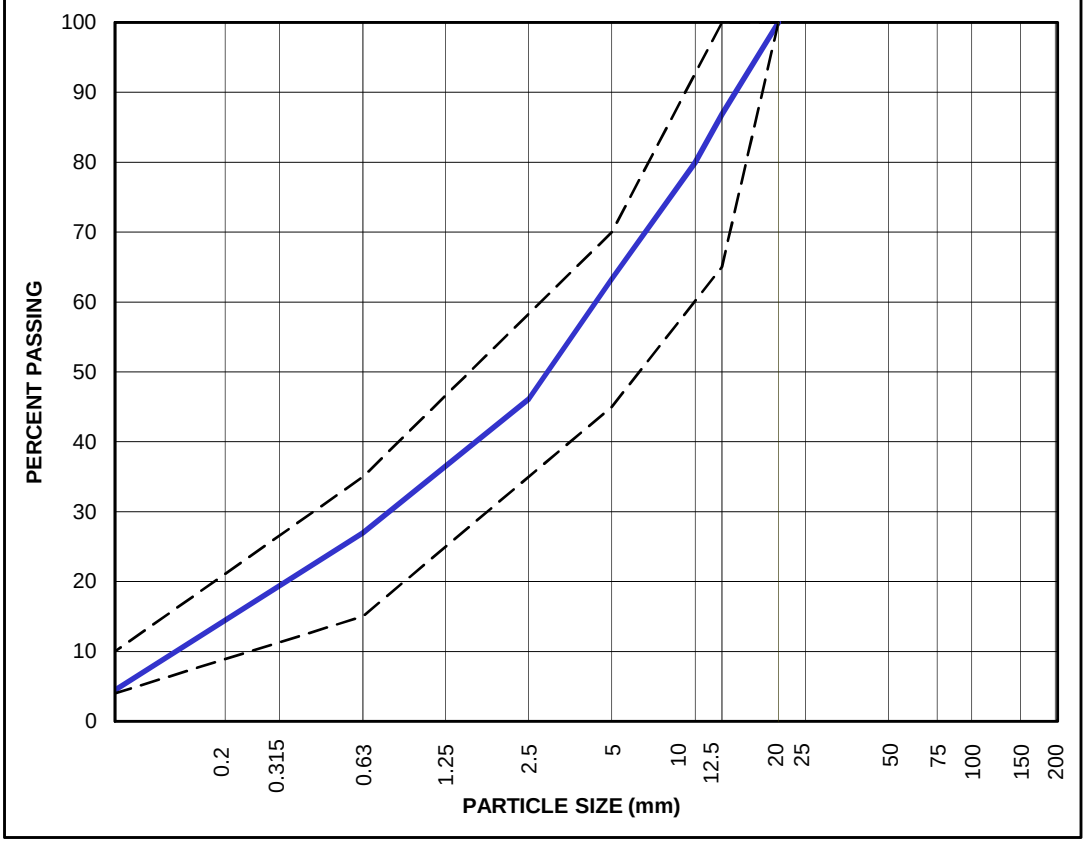
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

**PROJECT:** Meliadine Dike Construction
**ADDRESS:** Meliadine Mine
**PROJECT NO:** E14103230-01
**DATE SAMPLED:** Oct 22/16 **By:** TW
**CLIENT:** Agnico Eagle
**ATTENTION:**

**SAMPLE NO:** SA05
**SAMPLE DESCRIPTION:** 20 mm minus sampled from belt
**MOISTURE CONT. :** 6.0%
**BULK REL DENSITY:** n/a
**BULK REL. DENSITY (SSD):** n/a
**APPARENT REL. DENSITY:** n/a
**ABSORPTION:** n/a

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 74 |
| 10 | 63 |
| 5 | 45 |
| 2.5 | 34 |
| | |
| 0.63 | 23 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
| | |
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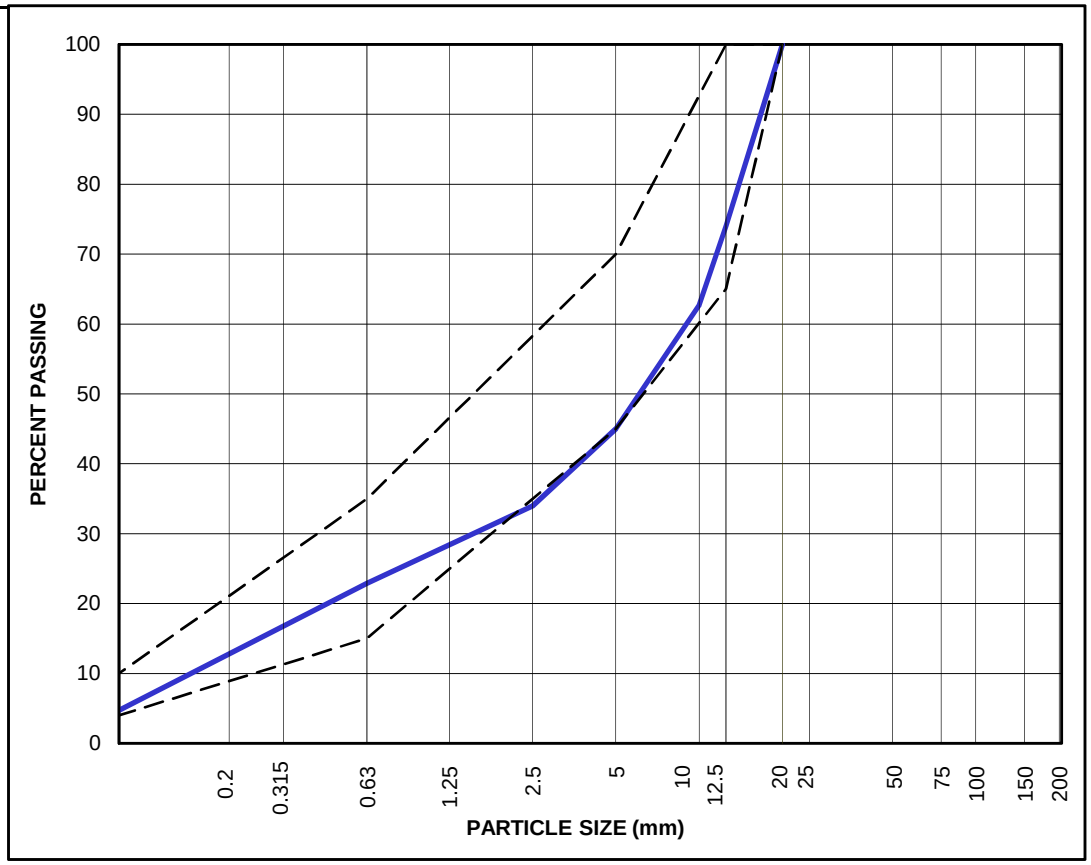
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA06 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus sampled from belt |
| **ADDRESS:** | Meliadine Mine | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 5.5% |
| **DATE SAMPLED:** | Oct 24/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| | |
| 12.5 | 85 |
| 10 | 74 |
| 5 | 54 |
| 2 | 40 |
| | |
| 0.63 | 25 |
| | |
| | |
| 0.08 | 6 |
| | |
| | |
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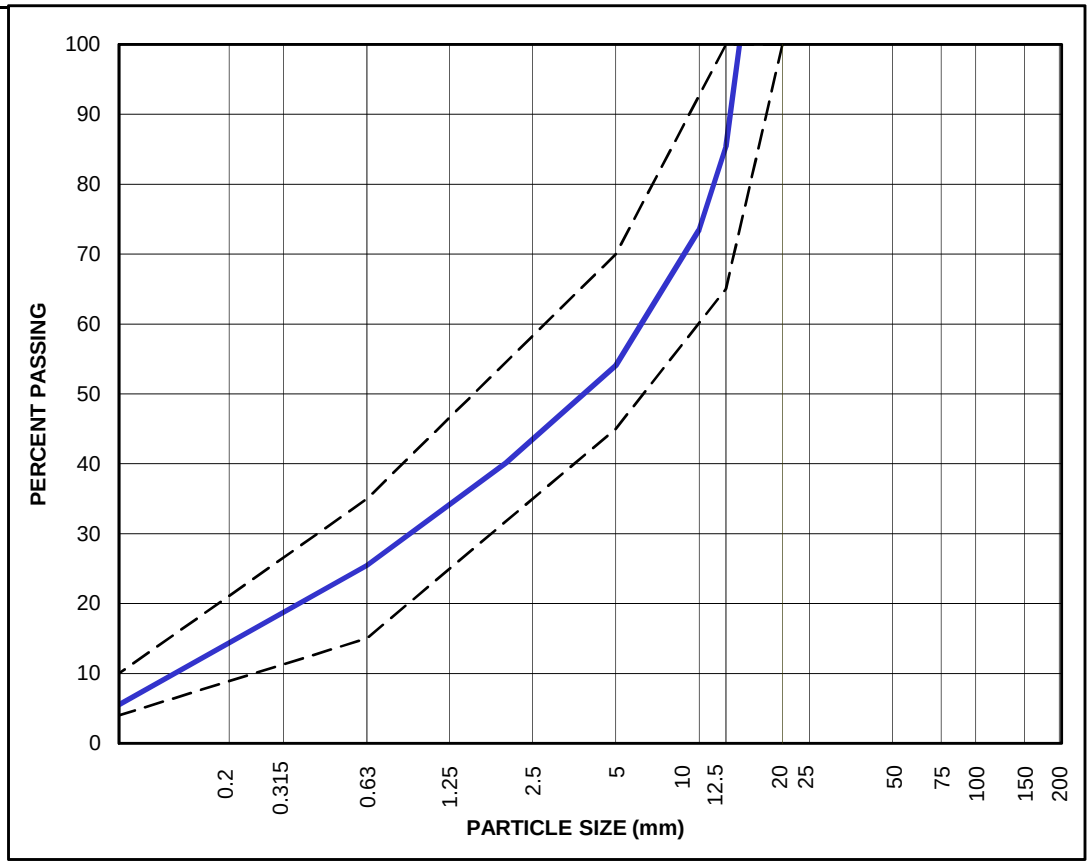
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA07 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus sampled from belt |
| **ADDRESS:** | Meliadine Mine | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 6.3% |
| **DATE SAMPLED:** | Oct 24/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| | |
| 12.5 | 84 |
| 10 | 74 |
| 5 | 54 |
| 2 | 39 |
| | |
| 0.63 | 24 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
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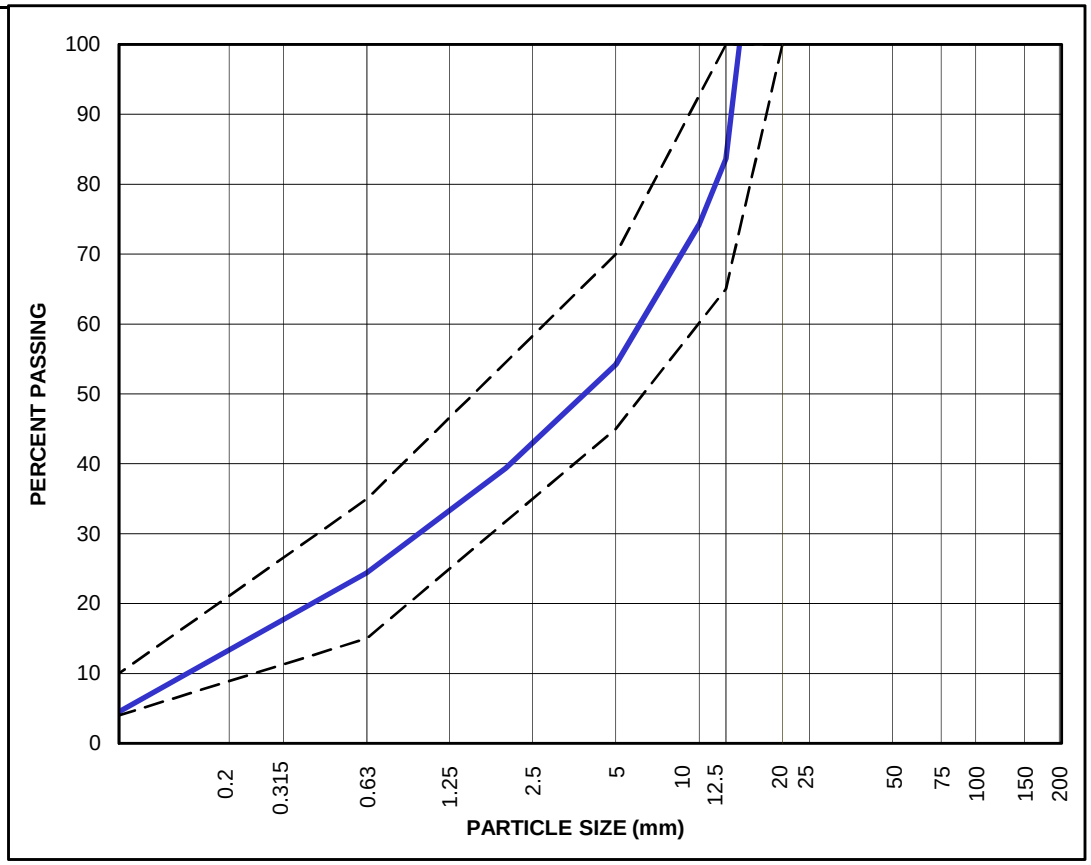


**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

**PROJECT:** Meliadine Dike Construction
**ADDRESS:** Meliadine Mine
**PROJECT NO:** E14103230-01
**DATE SAMPLED:** Oct 25/16 **By:** TW
**CLIENT:** Agnico Eagle
**ATTENTION:**

**SAMPLE NO:** SA08
**SAMPLE DESCRIPTION:** 20 mm minus sampled from belt
**MOISTURE CONT. :** 5.0%
**BULK REL DENSITY:** n/a
**BULK REL. DENSITY (SSD):** n/a
**APPARENT REL. DENSITY:** n/a
**ABSORPTION:** n/a

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| | |
| 12.5 | 84 |
| 10 | 72 |
| 5 | 50 |
| 2 | 38 |
| | |
| 0.63 | 24 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
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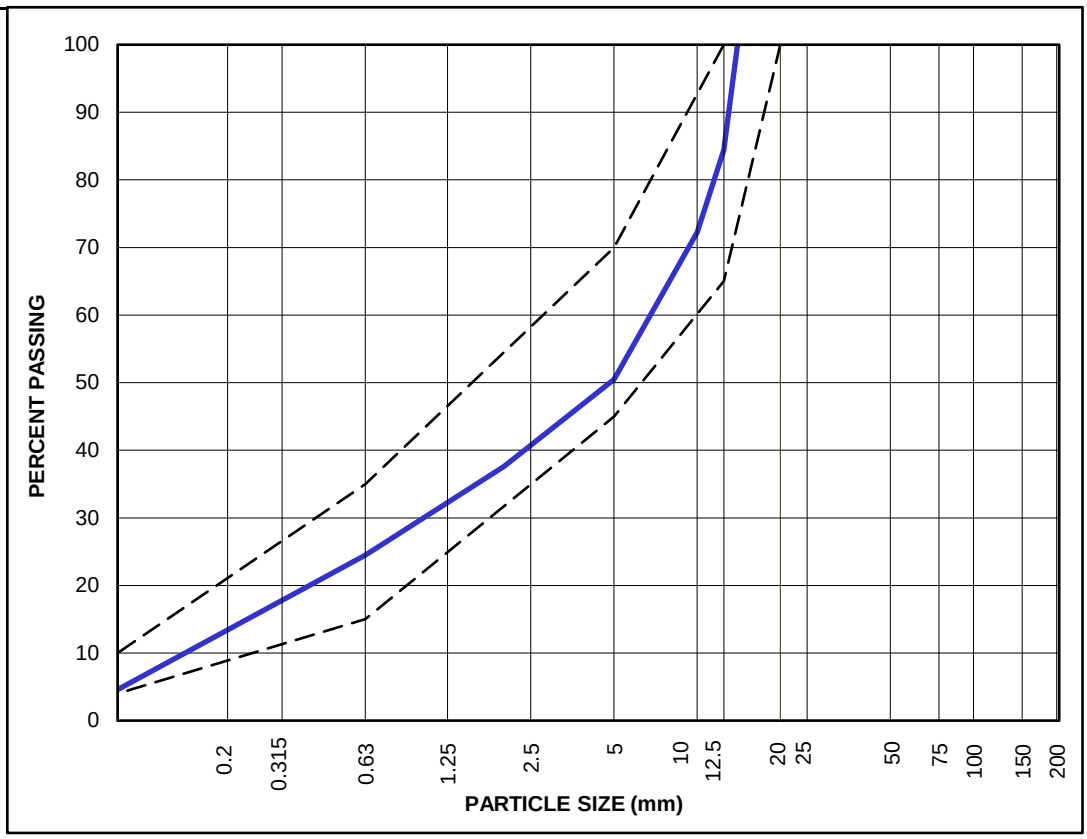
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Geo.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA09 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus sampled from belt |
| **ADDRESS:** | Meliadine Mine | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 8.4% |
| **DATE SAMPLED:** | Oct 26/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| | |
| 12.5 | 89 |
| 10 | 83 |
| 5 | 67 |
| 2 | 52 |
| | |
| 0.63 | 33 |
| | |
| | |
| 0.08 | 4 |
| | |
| | |
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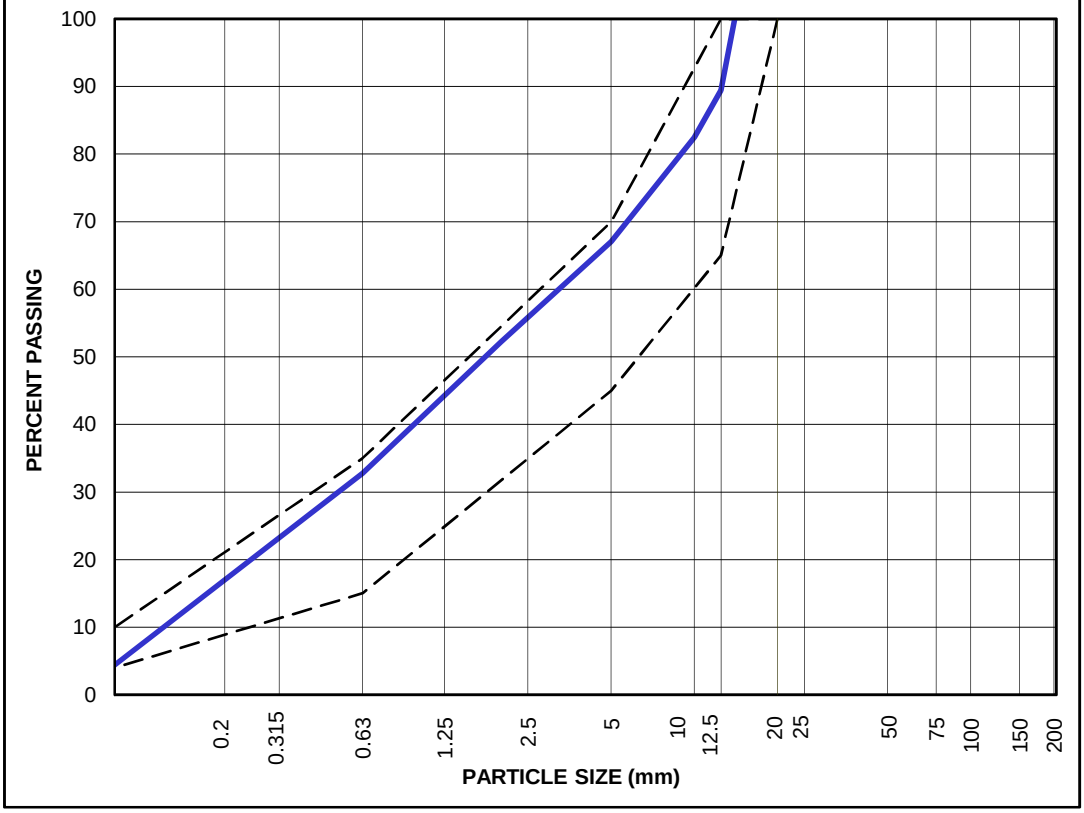
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA10 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus sampled from belt |
| **ADDRESS:** | Meliadine Mine | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 7.1% |
| **DATE SAMPLED:** | Oct 27/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| | |
| 12.5 | 88 |
| 10 | 78 |
| 5 | 60 |
| 2 | 46 |
| | |
| 0.63 | 28 |
| | |
| | |
| 0.08 | 6 |
| | |
| | |
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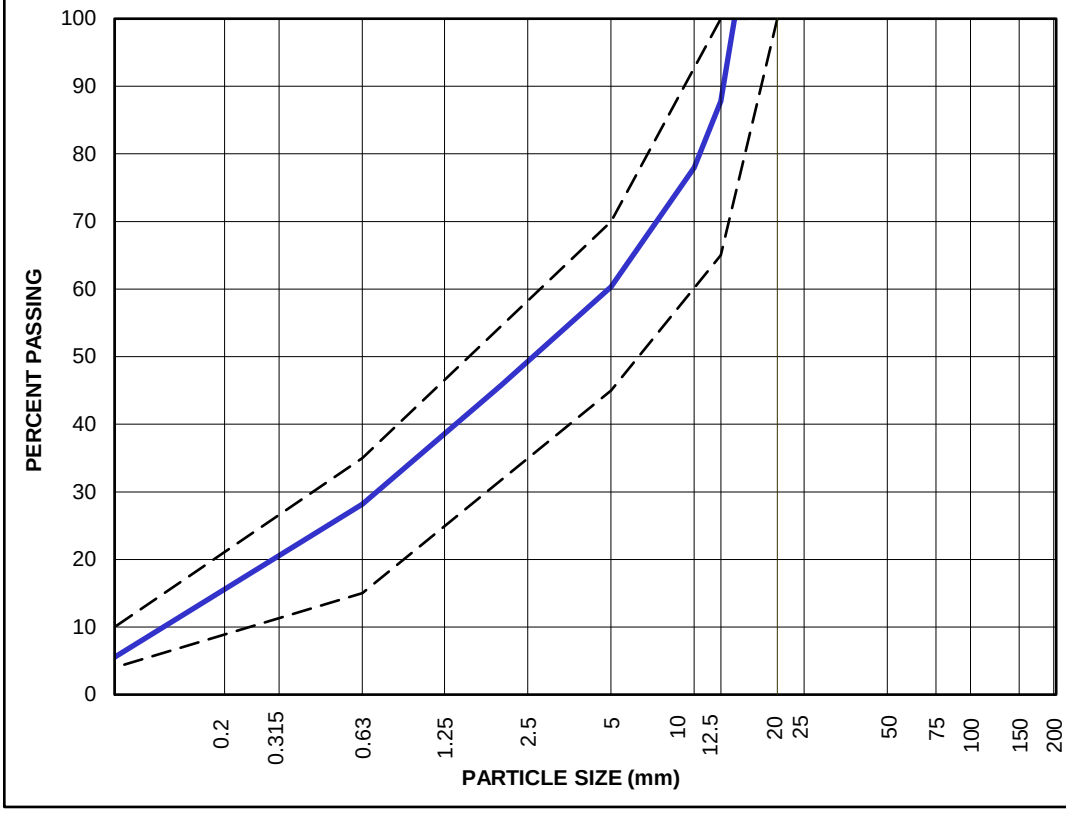
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA11 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus sampled from belt |
| **ADDRESS:** | Meliadine Mine | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 6.1% |
| **DATE SAMPLED:** | Oct 29/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| | |
| 12.5 | 91 |
| 10 | 82 |
| 5 | 64 |
| 2 | 49 |
| | |
| 0.63 | 30 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
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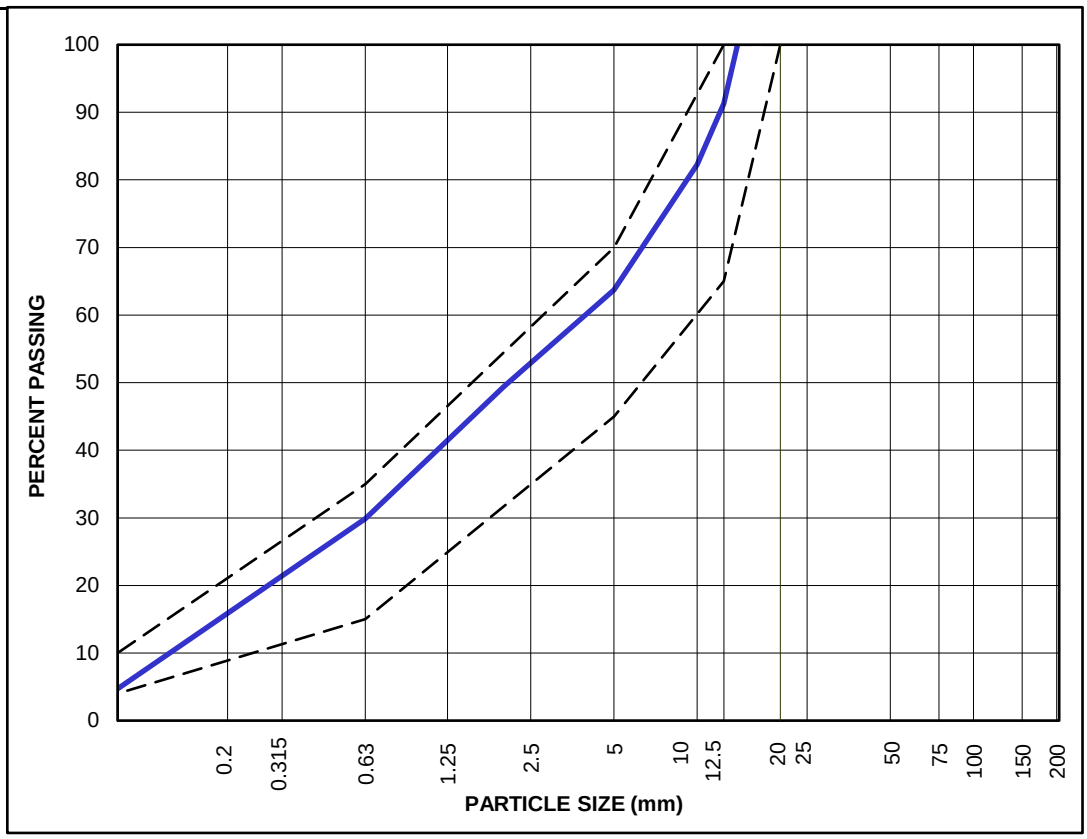
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA12 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus sampled from belt |
| **ADDRESS:** | Meliadine Mine | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 7.6% |
| **DATE SAMPLED:** | Nov 01/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 89 |
| 10 | 79 |
| 5 | 63 |
| 2 | 49 |
| | |
| 0.63 | 30 |
| | |
| | |
| 0.08 | 5 |
| | |
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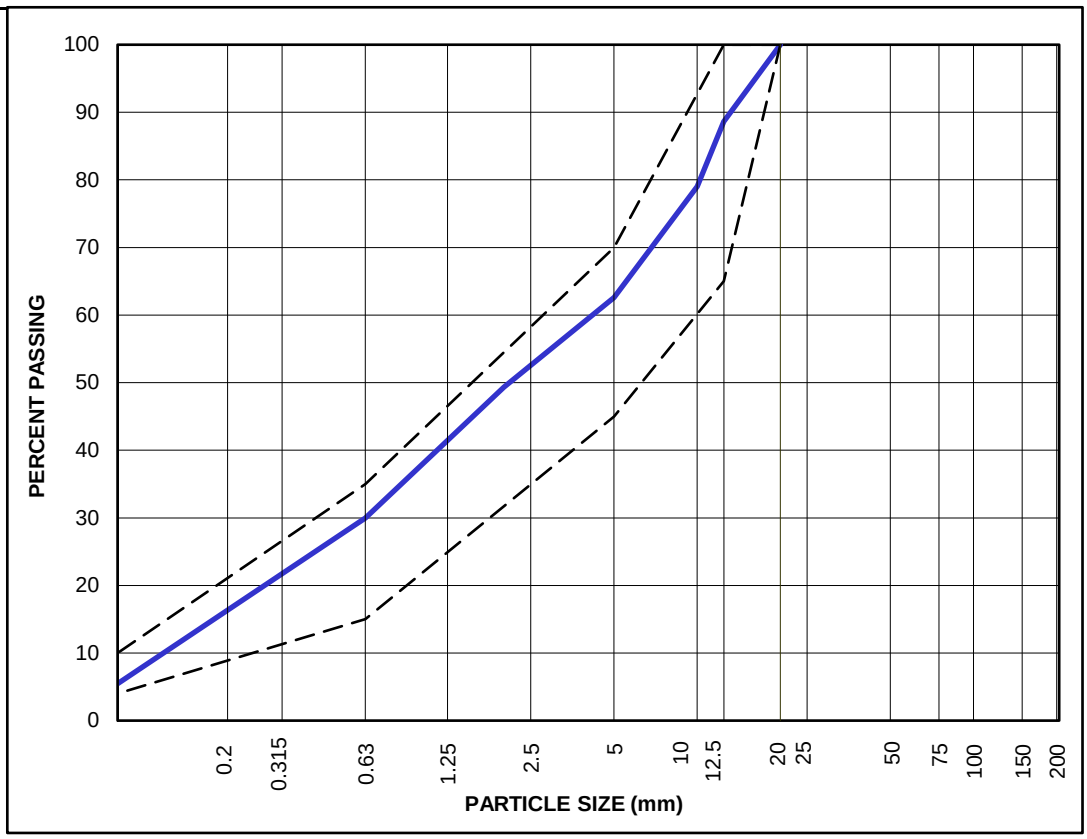
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA13 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 11.0% |
| **DATE SAMPLED:** | Nov 02/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 93 |
| 10 | 85 |
| 5 | 72 |
| 2 | 58 |
| | |
| 0.63 | 33 |
| | |
| | |
| 0.08 | 4 |
| | |
| | |
| | |
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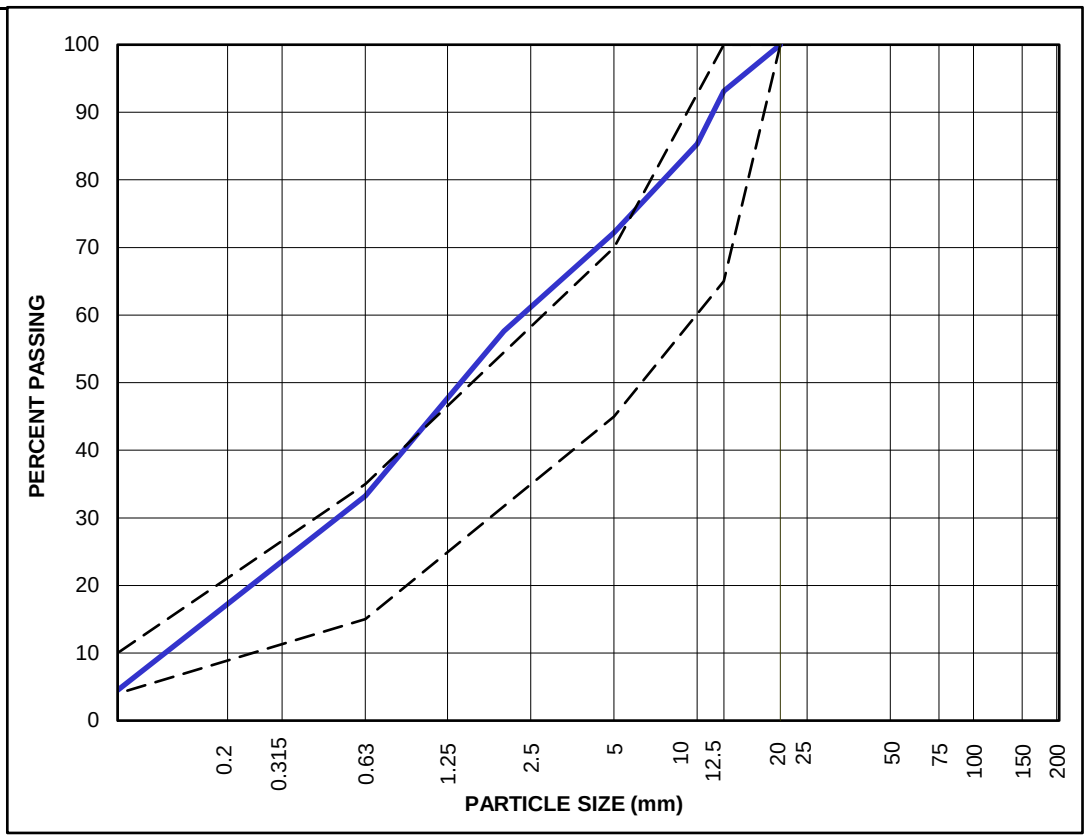
| | |
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA14 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 5.3% |
| **DATE SAMPLED:** | Nov 03/16 By: TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 89 |
| 10 | 83 |
| 5 | 69 |
| 2 | 54 |
| | |
| 0.63 | 33 |
| | |
| | |
| 0.08 | 13 |
| | |
| | |
| | |
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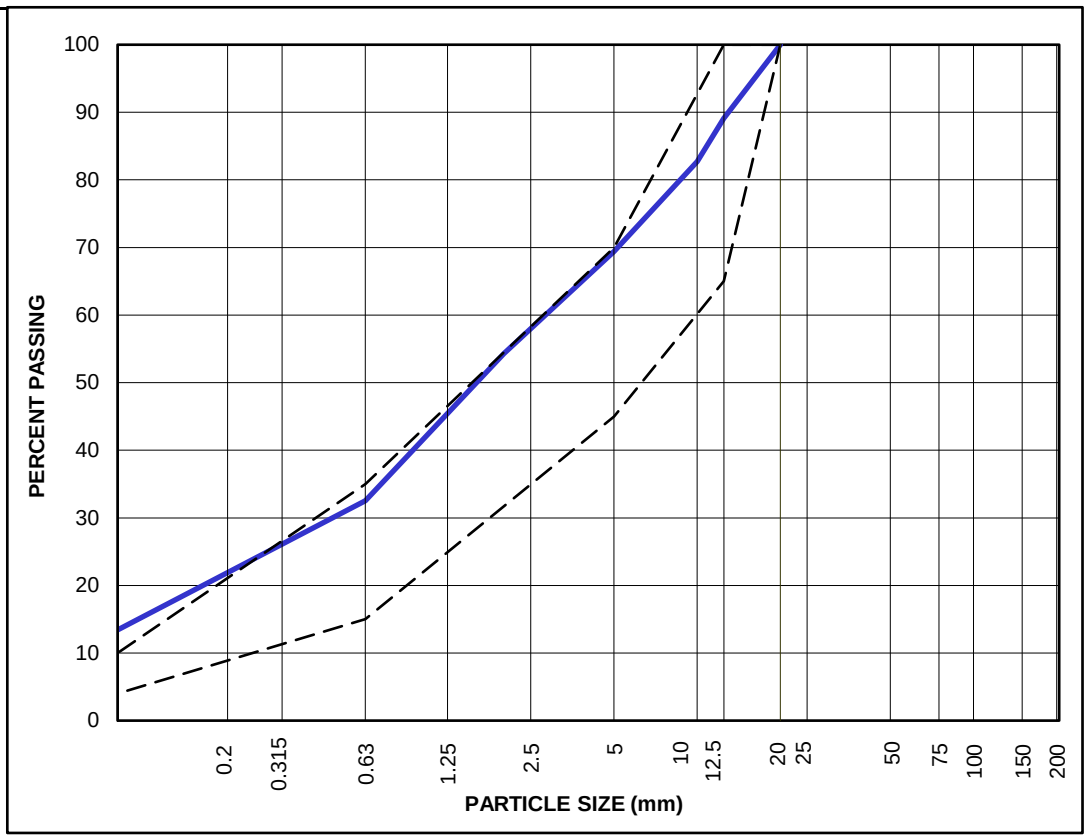
| | |
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA15 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 4.2% |
| **DATE SAMPLED:** | Nov 05/16 By: TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 86 |
| 10 | 80 |
| 5 | 66 |
| 2 | 53 |
| | |
| 0.63 | 37 |
| | |
| | |
| 0.08 | 18 |
| | |
| | |
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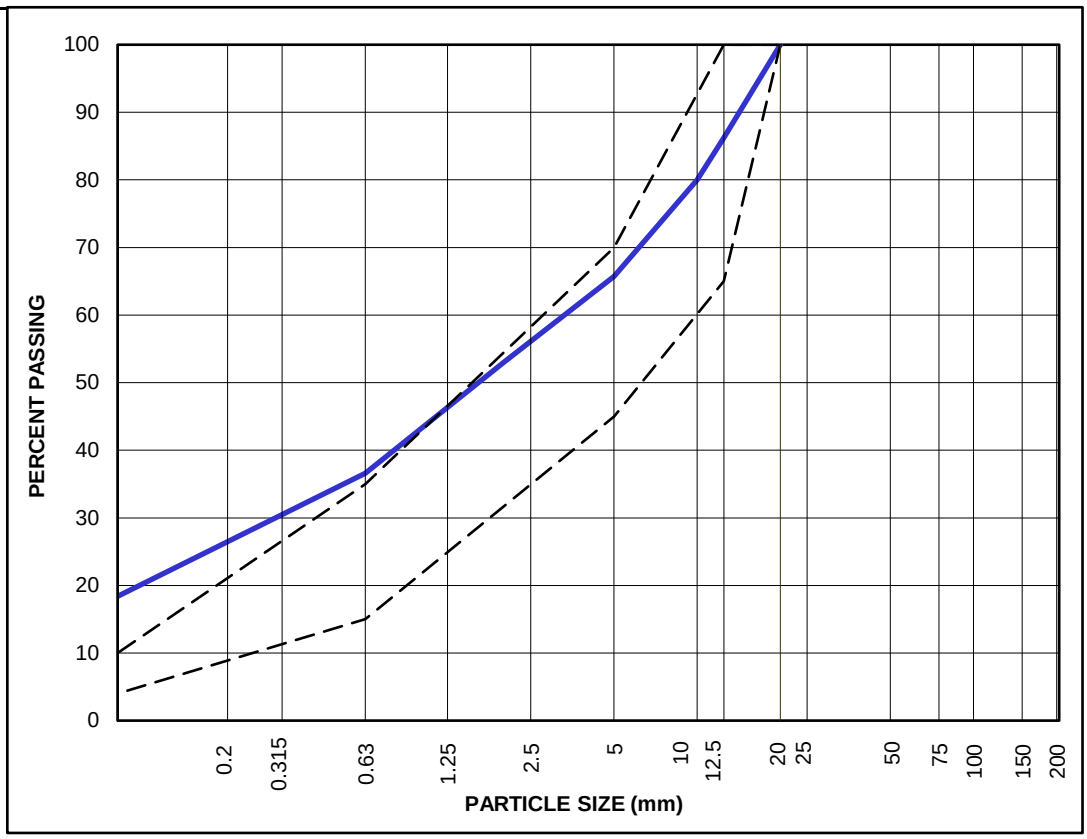
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA16 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 4.9% |
| **DATE SAMPLED:** | Nov 06/16 By: TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 88 |
| 10 | 82 |
| 5 | 68 |
| 2 | 52 |
| | |
| 0.63 | 33 |
| | |
| | |
| 0.08 | 23 |
| | |
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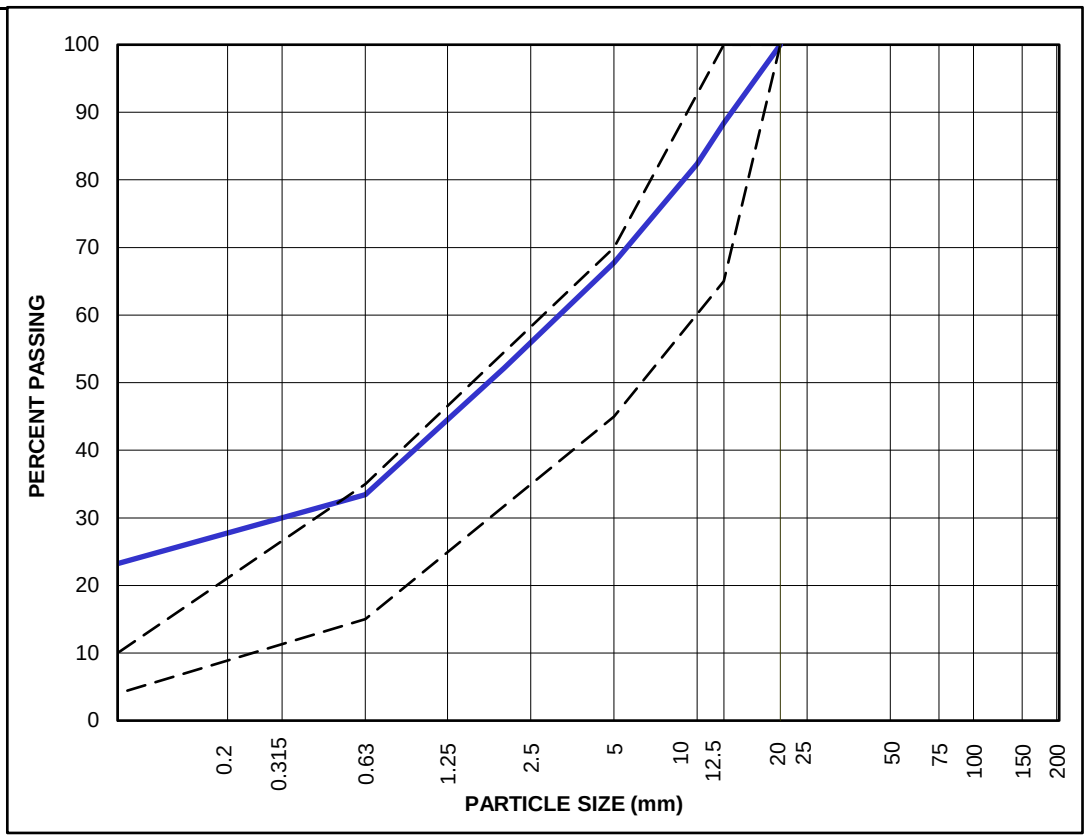
| | |
| | |



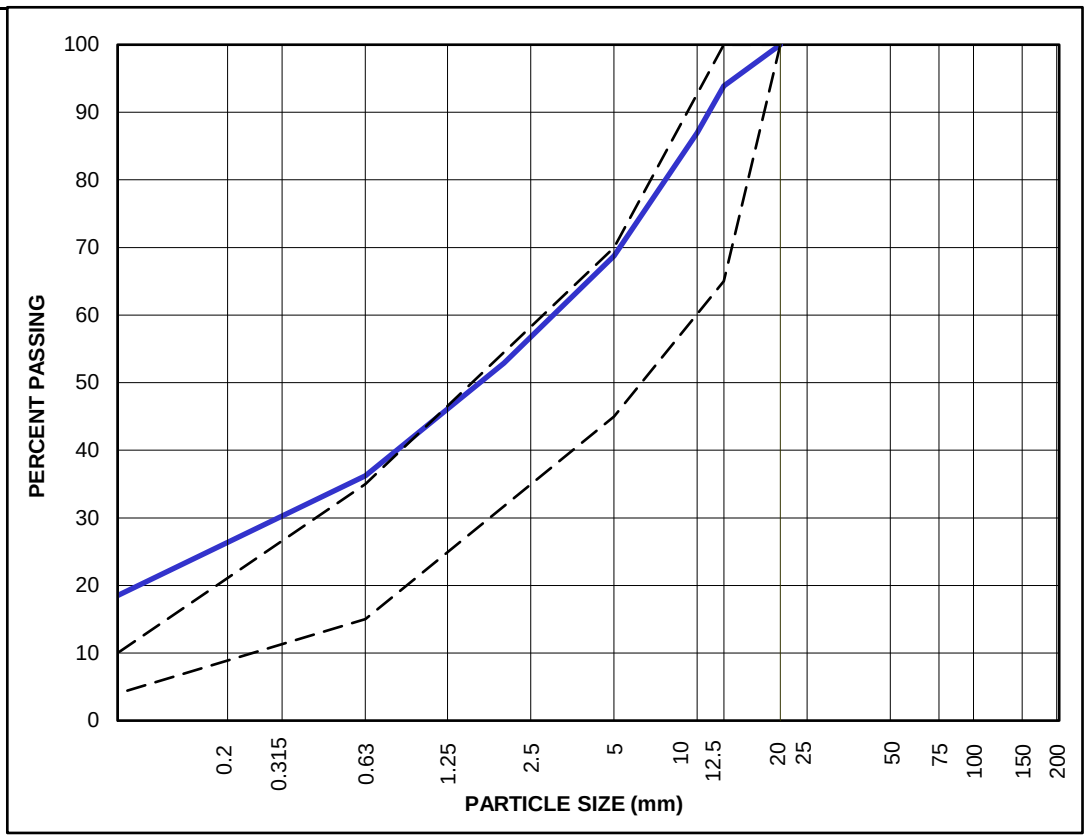

**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA17 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 8.0% |
| **DATE SAMPLED:** | Nov 07/16 By: TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 94 |
| 10 | 87 |
| 5 | 69 |
| 2 | 53 |
| | |
| 0.63 | 36 |
| | |
| | |
| 0.08 | 19 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



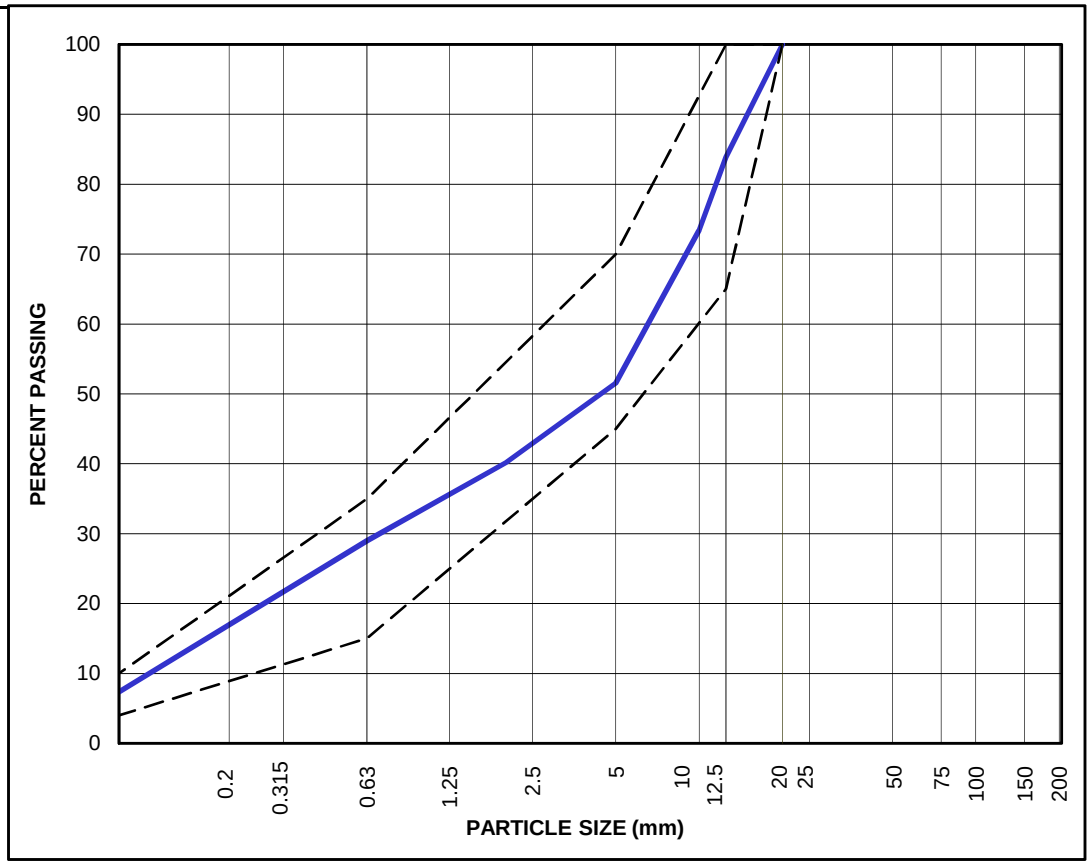

**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA18 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 4.5% |
| **DATE SAMPLED:** | Nov 08/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 84 |
| 10 | 73 |
| 5 | 52 |
| 2 | 40 |
| | |
| 0.63 | 29 |
| | |
| | |
| 0.08 | 7 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA19 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 5.4% |
| **DATE SAMPLED:** | Nov 09/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 83 |
| 10 | 72 |
| 5 | 51 |
| 2 | 39 |
| | |
| 0.63 | 28 |
| | |
| | |
| 0.08 | 7 |
| | |
| | |
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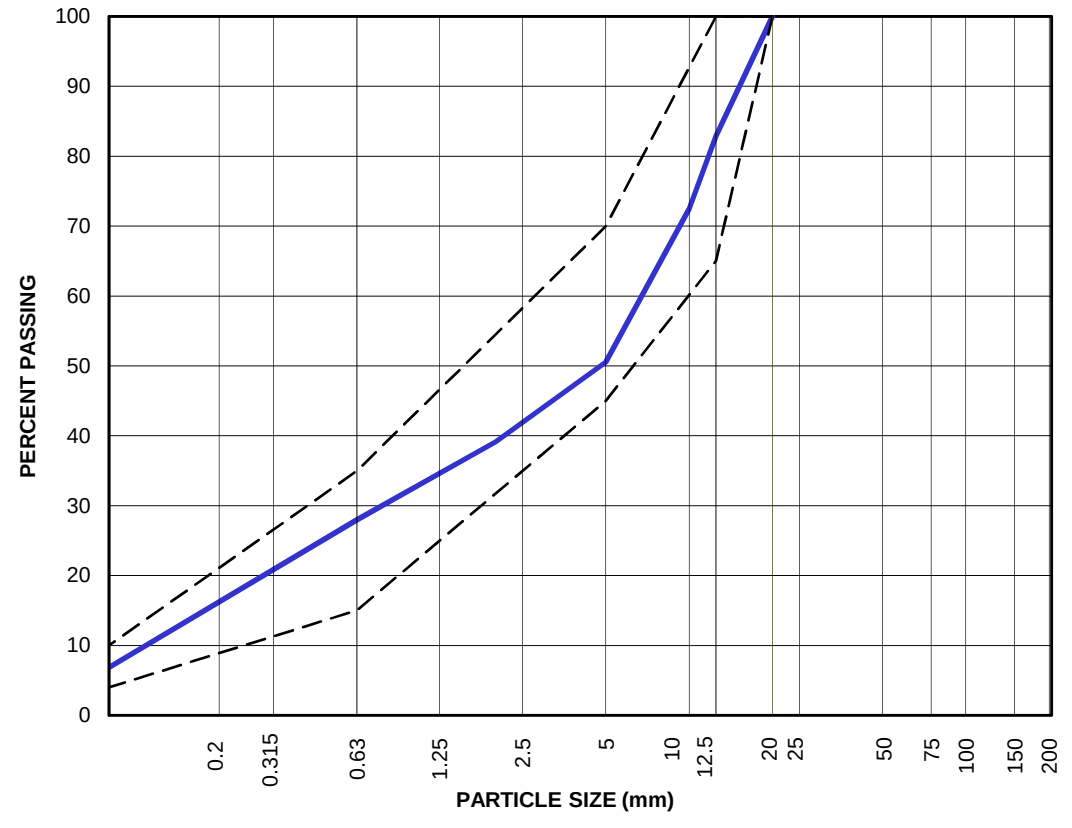
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA20 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 9.4% |
| **DATE SAMPLED:** | Nov 10/16 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 86 |
| 10 | 79 |
| 5 | 66 |
| 2 | 51 |
| | |
| 0.63 | 35 |
| | |
| | |
| 0.08 | 6 |
| | |
| | |
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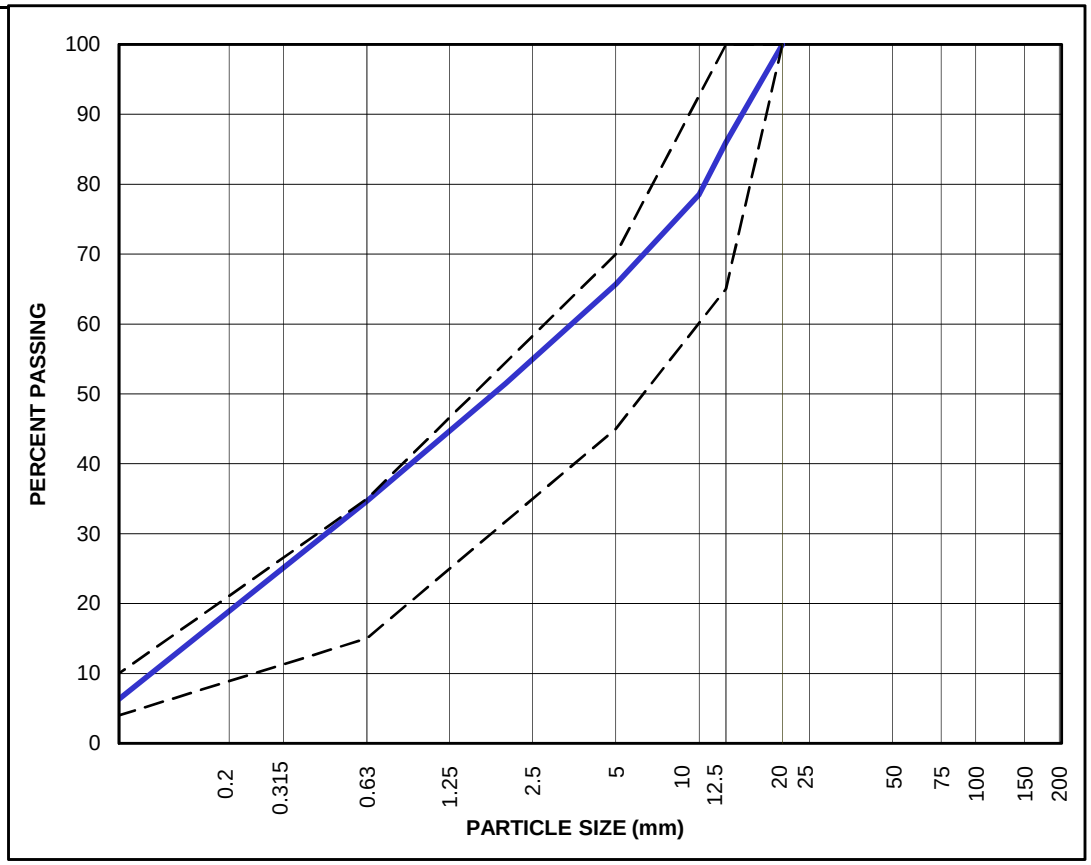
| | |
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA21 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 10.0% |
| **DATE SAMPLED:** | Nov 12/16 **By:** IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 95 |
| | |
| 5 | 81 |
| | |
| | |
| 0.63 | 40 |
| | |
| | |
| 0.08 | 6 |
| | |
| | |
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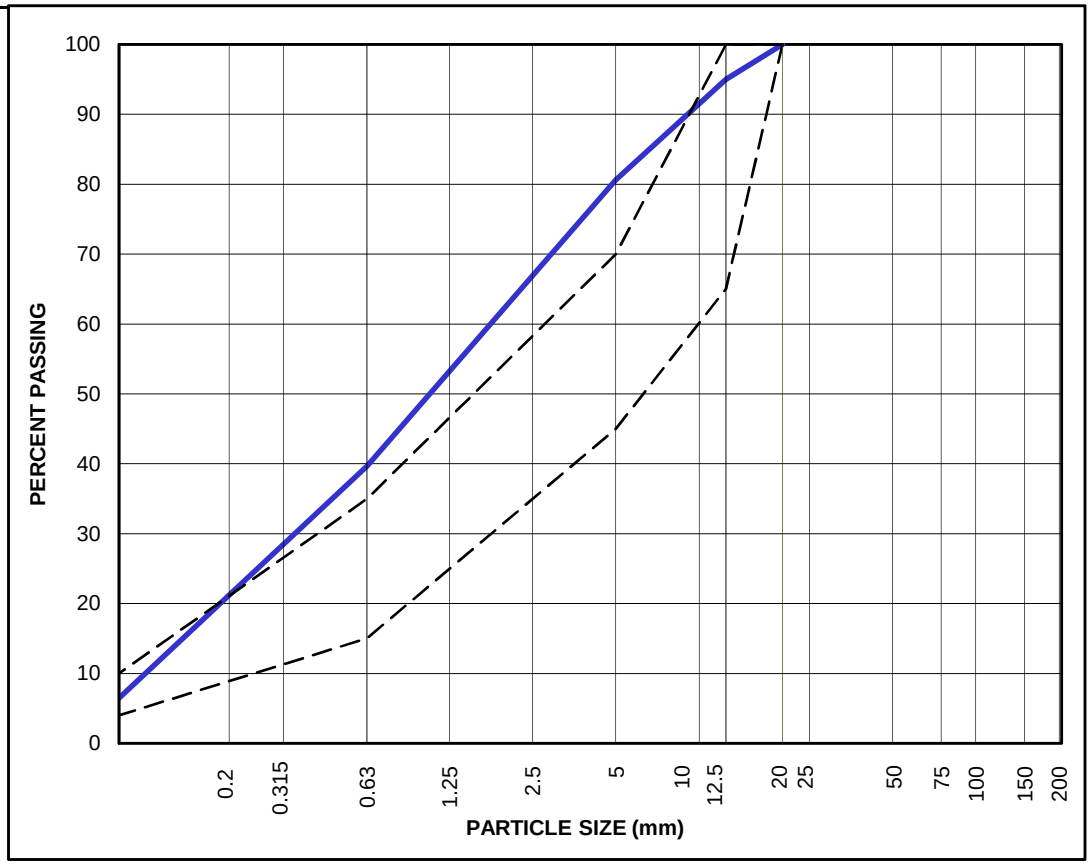
| | |
| | |
| | |
| | |




**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | **Meliadine Dike Construction** | **SAMPLE NO:** | **SA22** |
| | | **SAMPLE DESCRIPTION:** | **20 mm minus (Type C Mat.) Sampled from belt** |
| **ADDRESS:** | **Meliadine Gold Project, NU.** | | |
| **PROJECT NO:** | **E14103230-01.023** | **MOISTURE CONT. :** | **9.9%** |
| **DATE SAMPLED:** | **Nov 13/16** **By: IM** | | |
| **CLIENT:** | **Agnico Eagle Mines Ltd.** | **BULK REL DENSITY:** | **n/a** |
| **ATTENTION:** | **Mr. Duy Nguyen** | **BULK REL. DENSITY (SSD):** | **n/a** |
| | | **APPARENT REL. DENSITY:** | **n/a** |
| | | **ABSORPTION:** | **n/a** |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| **20** | **100** |
| **12.5** | **90** |
| | |
| **5** | **71** |
| | |
| | |
| **0.63** | **40** |
| | |
| | |
| **0.08** | **6** |
| | |
| | |
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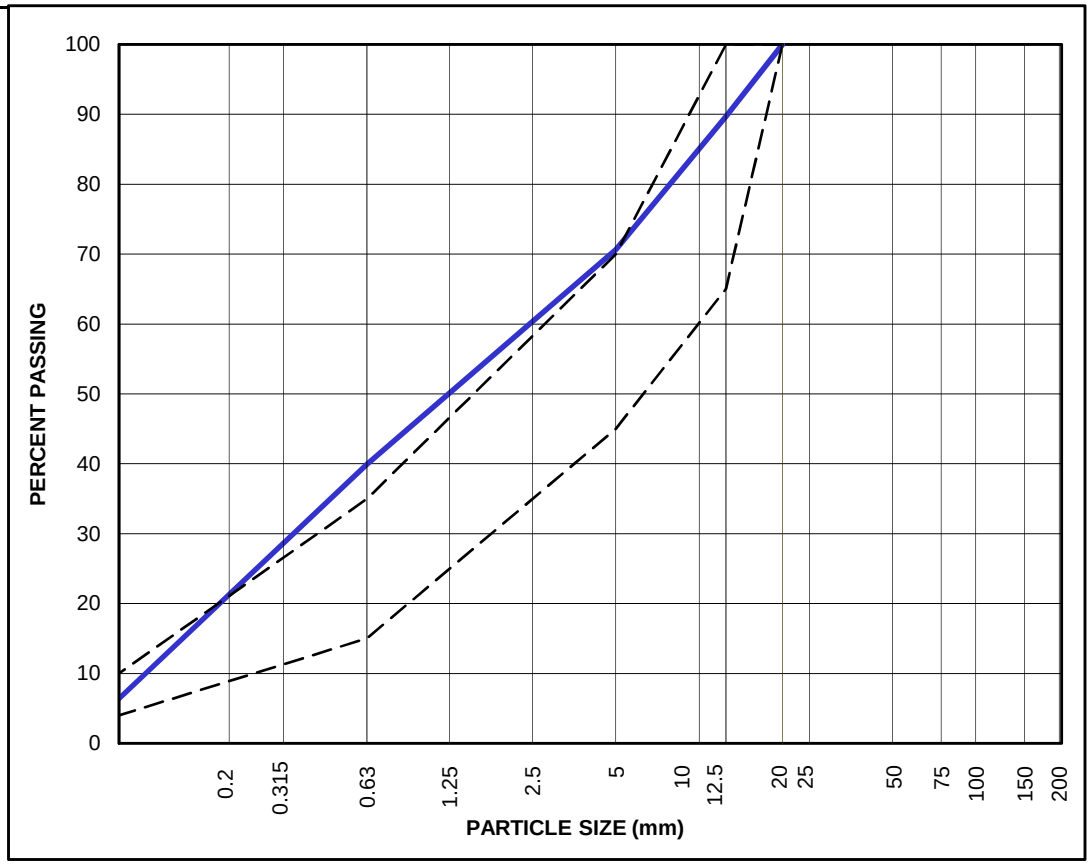
| | |
| | |




**Remarks:** Sampled at 22:00.

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA23 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 5.1% |
| **DATE SAMPLED:** | Nov 14/16 **By:** IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 83 |
| | |
| 5 | 51 |
| | |
| | |
| 0.63 | 23 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
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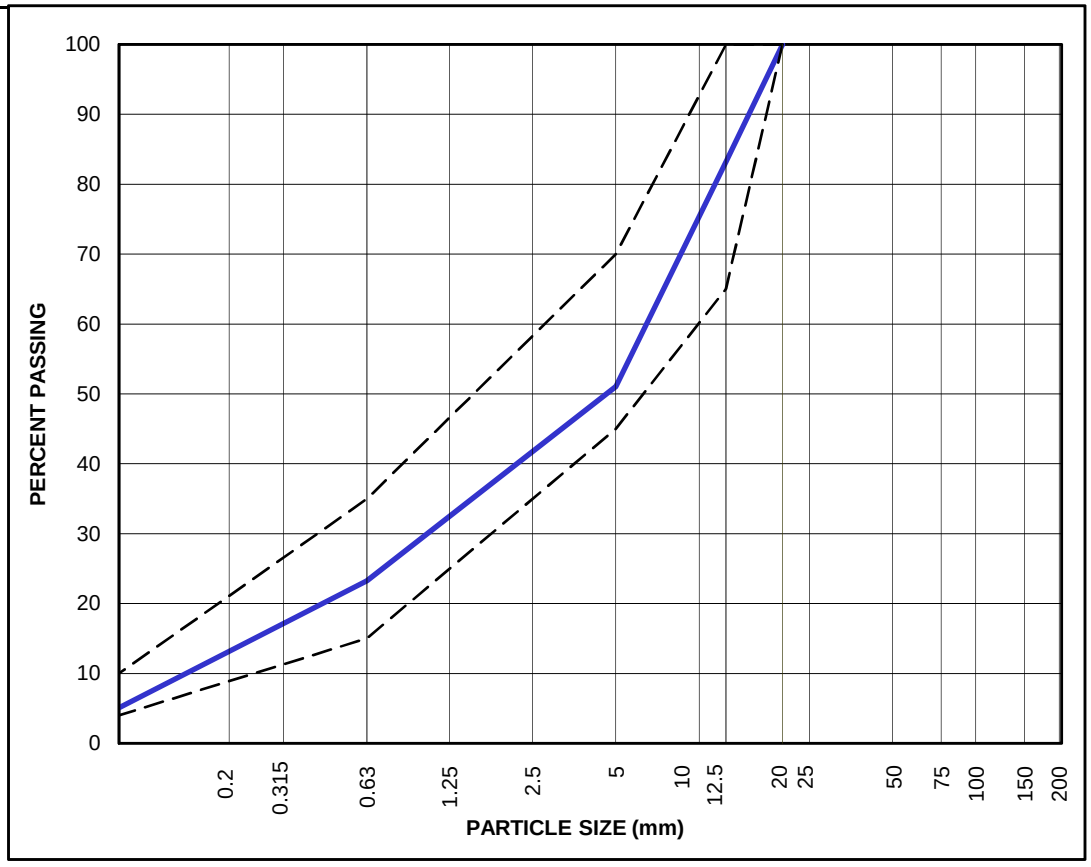
| | |
| | |
| | |




**Remarks:** Sampled at 17:00.

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | **Meliadine Dike Construction** | **SAMPLE NO:** | **SA24** |
| | | **SAMPLE DESCRIPTION:** | **20 mm minus (Type C Mat.) Sampled from belt** |
| **ADDRESS:** | **Meliadine Gold Project, NU.** | | |
| **PROJECT NO:** | **E14103230-01.023** | **MOISTURE CONT. :** | **8.2%** |
| **DATE SAMPLED:** | **Nov 17/16** **By: IM** | | |
| **CLIENT:** | **Agnico Eagle Mines Ltd.** | **BULK REL DENSITY:** | **n/a** |
| **ATTENTION:** | **Mr. Duy Nguyen** | **BULK REL. DENSITY (SSD):** | **n/a** |
| | | **APPARENT REL. DENSITY:** | **n/a** |
| | | **ABSORPTION:** | **n/a** |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| **20** | **100** |
| **12.5** | **88** |
| | |
| **5** | **73** |
| | |
| | |
| **0.63** | **35** |
| | |
| | |
| **0.08** | **7** |
| | |
| | |
| | |
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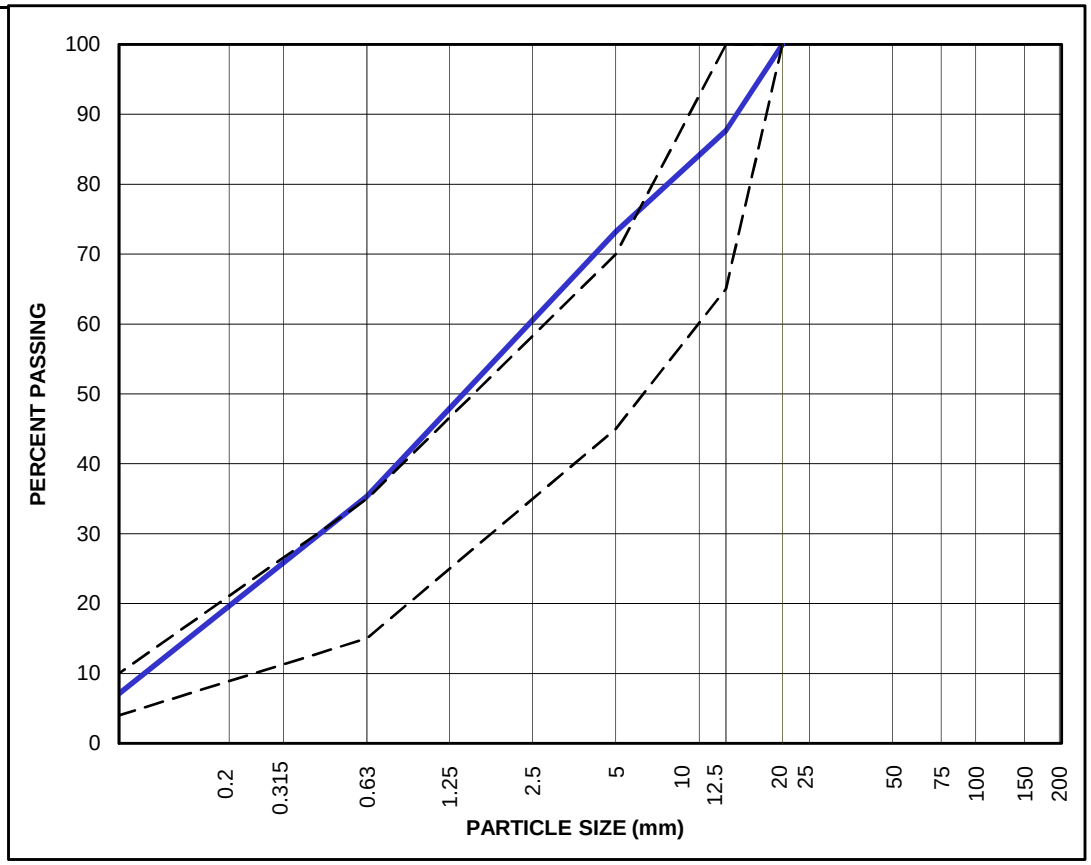
| | |
| | |




**Remarks:** Sampled at 19:00.

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA25 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from stockpile |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 12.4% |
| **DATE SAMPLED:** | Nov 17/16 **By:** IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 91 |
| | |
| 5 | 72 |
| | |
| | |
| 0.63 | 38 |
| | |
| | |
| 0.08 | 7 |
| | |
| | |
| | |
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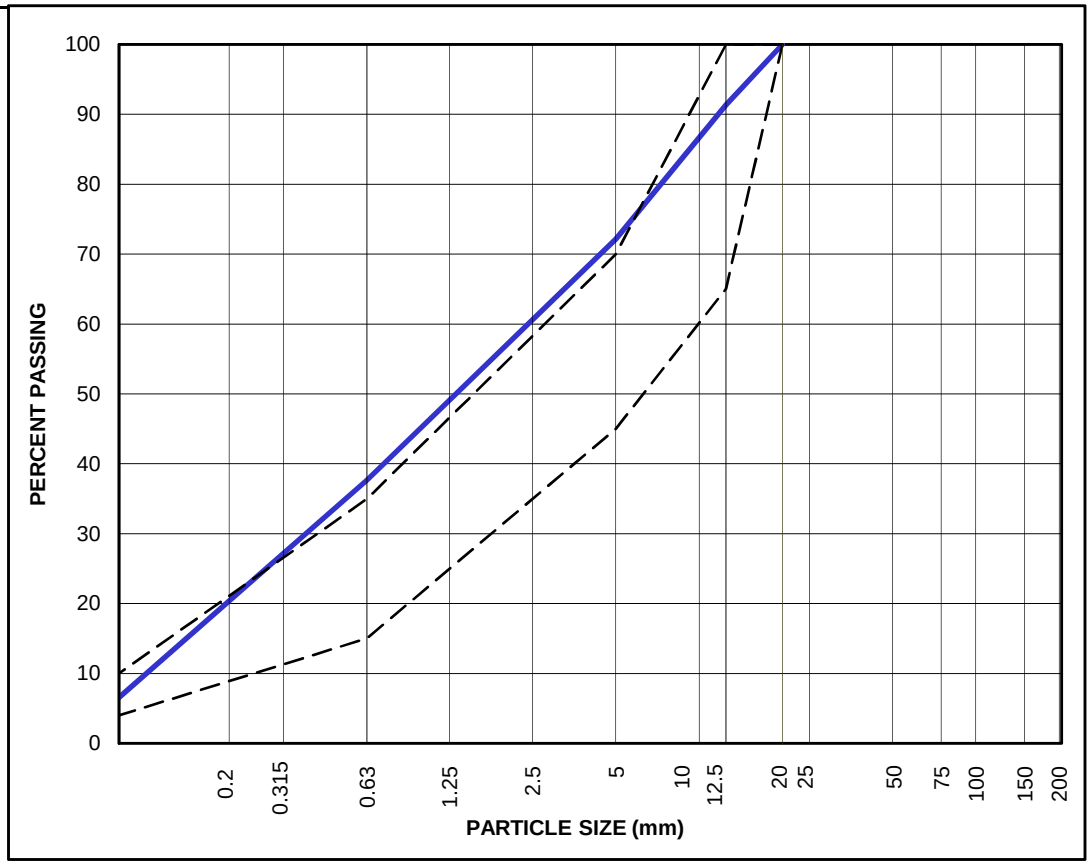
| | |
| | |
| | |



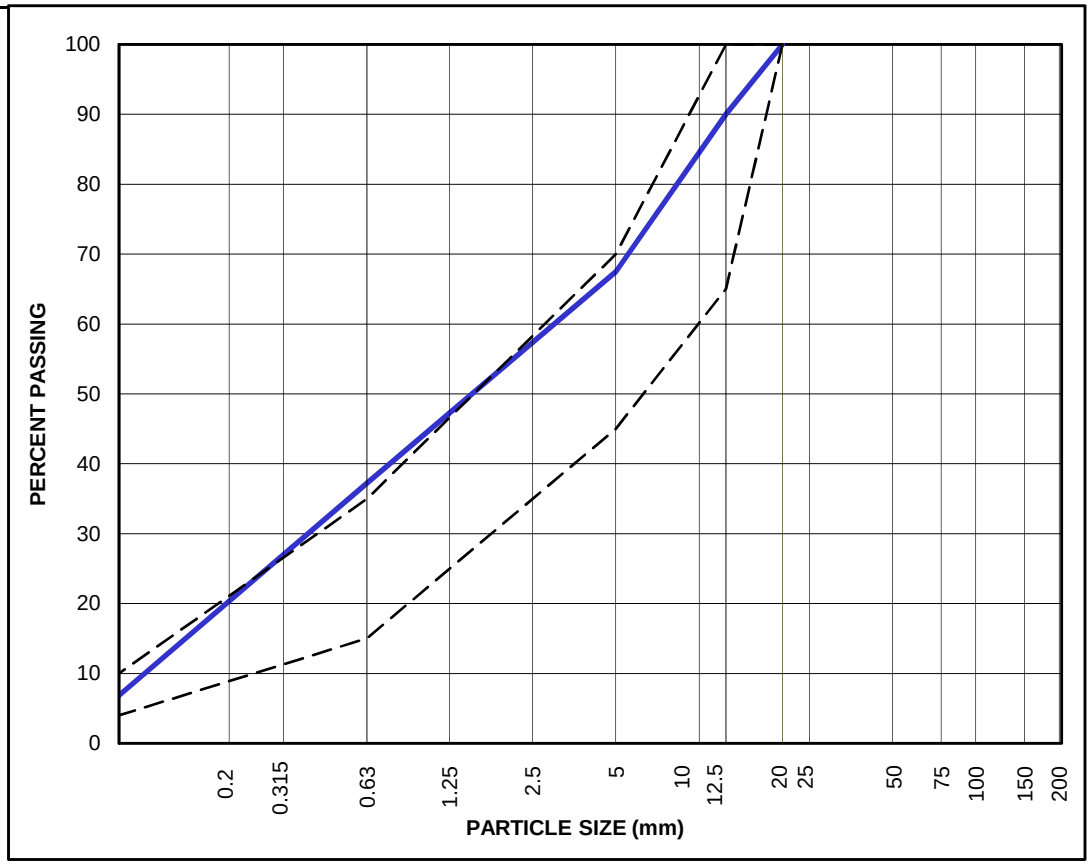

**Remarks:** Sampled at 19:00. Layers of snow noted in stockpile.

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA26 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from stockpile |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 11.5% |
| **DATE SAMPLED:** | Nov 17/16 **By:** IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 90 |
| | |
| 5 | 67 |
| | |
| | |
| 0.63 | 37 |
| | |
| | |
| 0.08 | 7 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



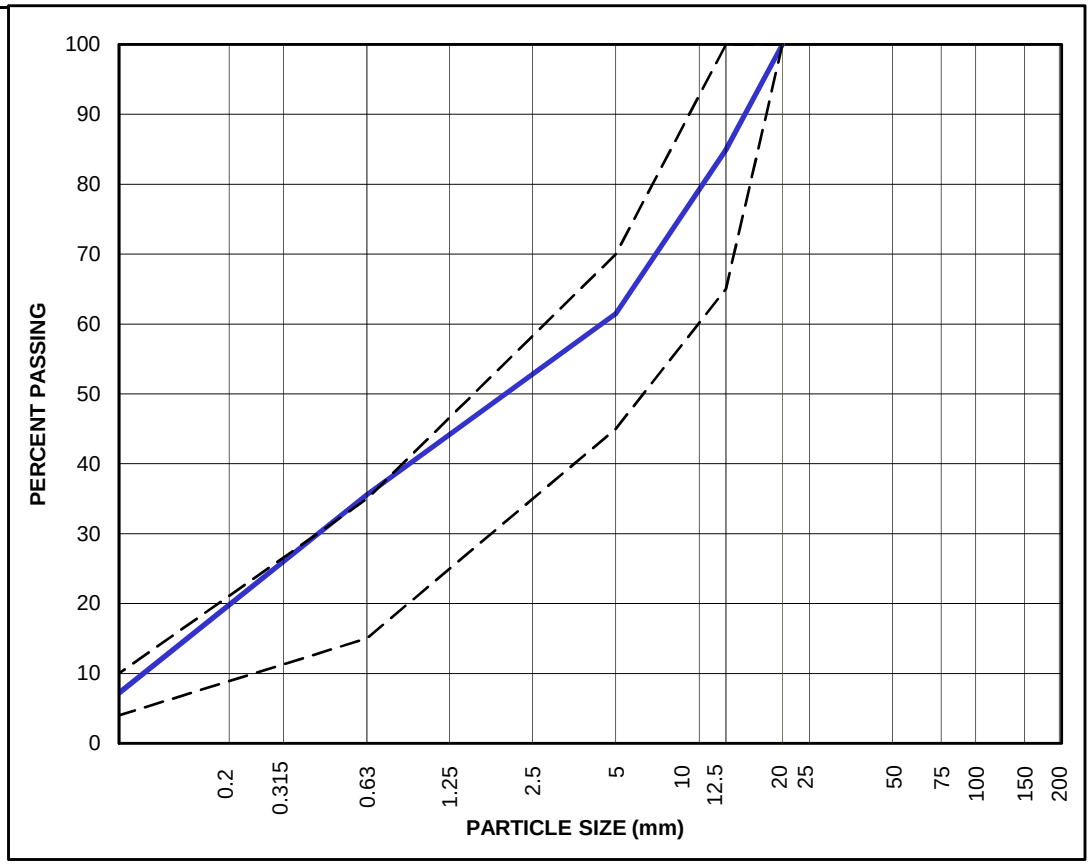

**Remarks:** Sampled at 19:00. Layers of snow noted in stockpile.

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA27 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from stockpile |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 11.2% |
| **DATE SAMPLED:** | Nov 19/16 **By:** SH | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 85 |
| | |
| 5 | 61 |
| | |
| | |
| 0.63 | 36 |
| | |
| | |
| 0.08 | 7 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



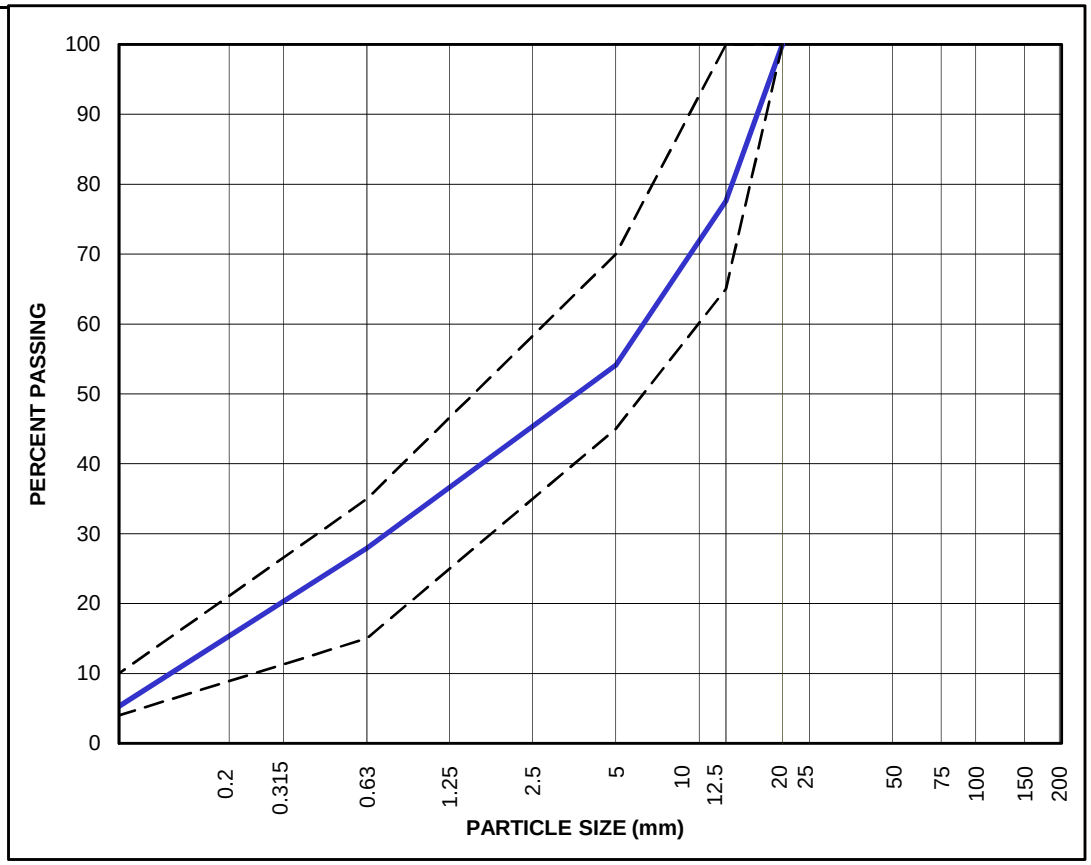

**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA28 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from stockpile |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 9.2% |
| **DATE SAMPLED:** | Nov 19/16 **By:** SH | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 78 |
| | |
| 5 | 54 |
| | |
| | |
| 0.63 | 28 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



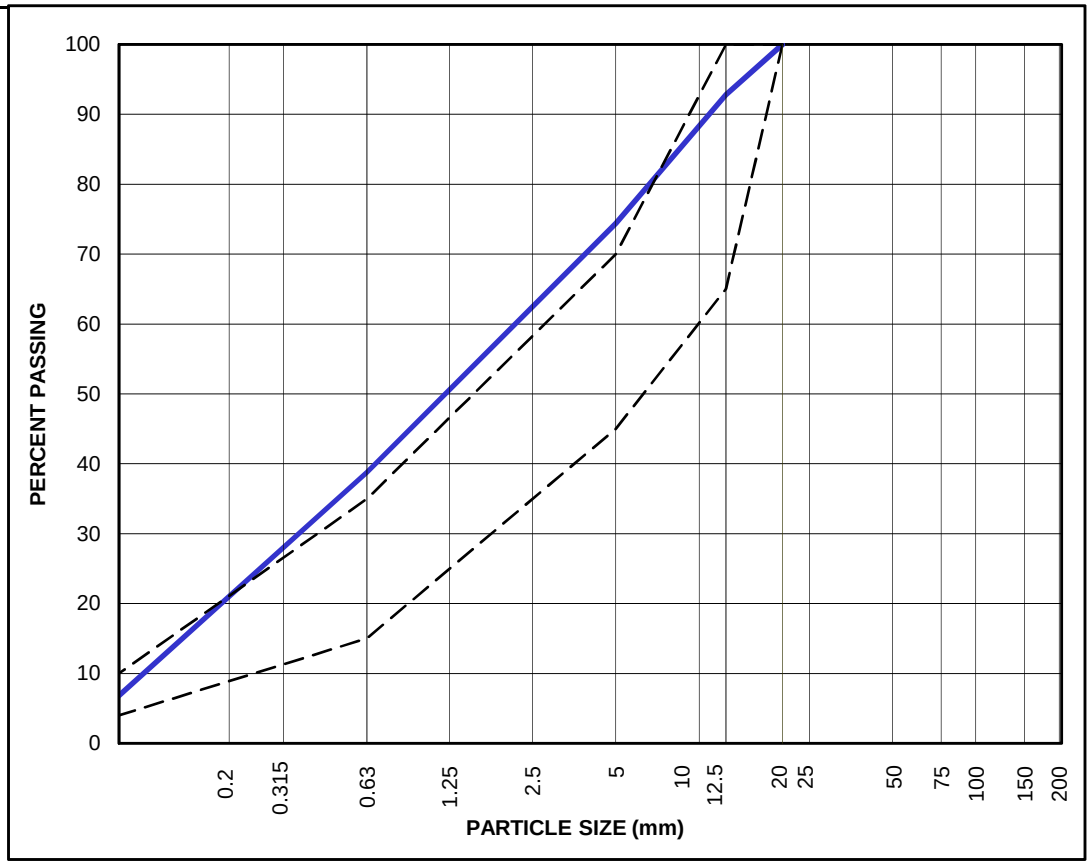

**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA29 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) |
| | | | Sampled after belt (mixed by loader) |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 11.9% |
| **DATE SAMPLED:** | Nov 19/16 **By:** SH | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 93 |
| | |
| 5 | 74 |
| | |
| | |
| 0.63 | 39 |
| | |
| | |
| 0.08 | 7 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



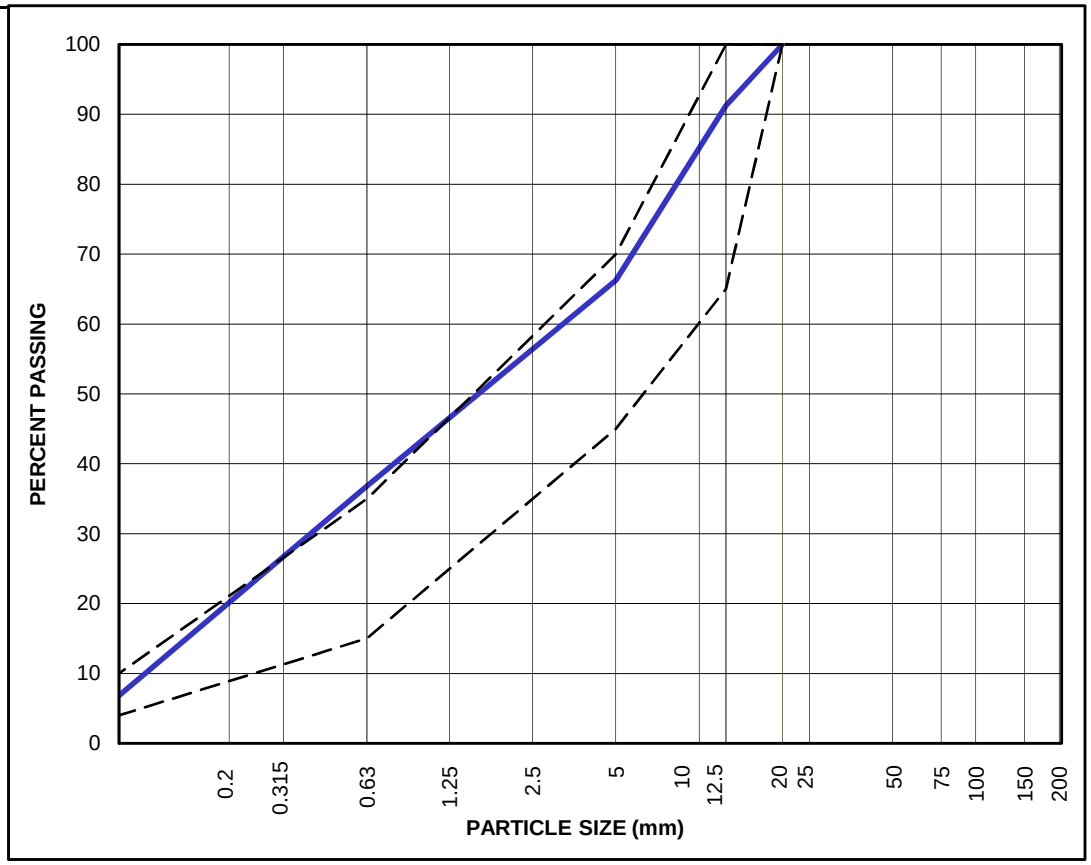

**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA30 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) |
| | | | Sampled after belt (mixed by loader) |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 11.1% |
| **DATE SAMPLED:** | Nov 21/16 **By:** SH | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 91 |
| | |
| 5 | 66 |
| | |
| | |
| 0.63 | 37 |
| | |
| | |
| 0.08 | 7 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



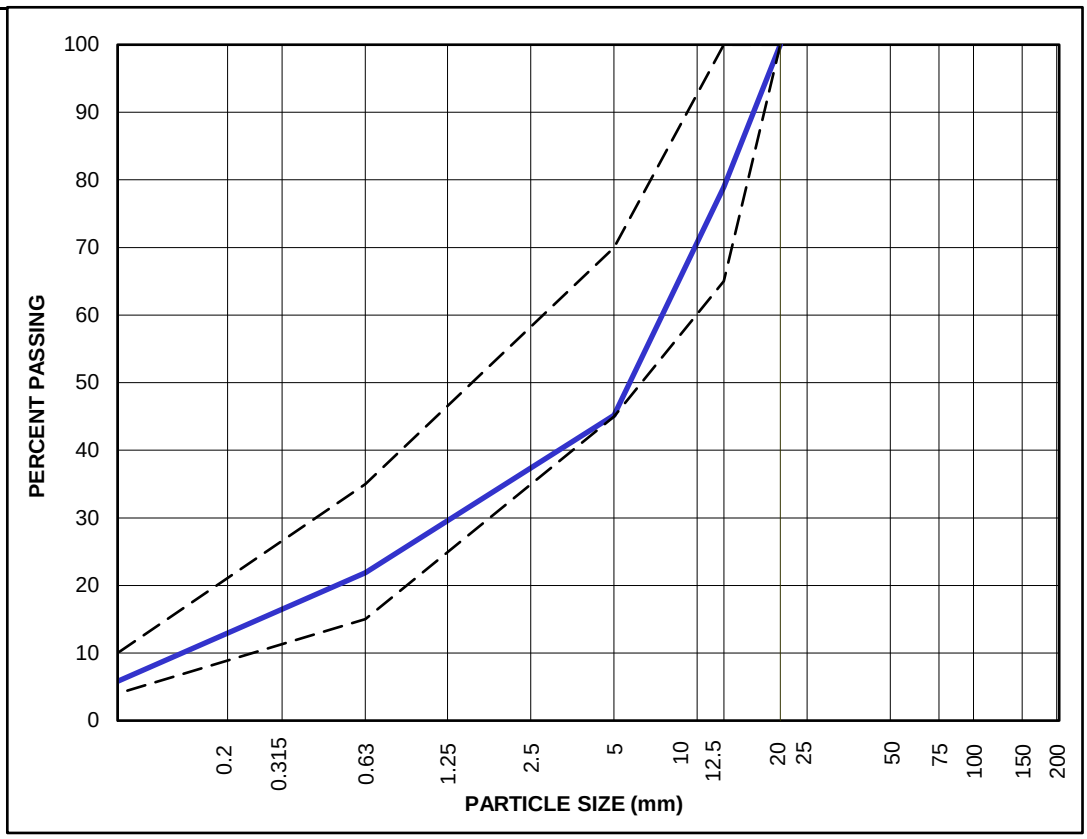

**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA31 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) |
| | | | Sampled after belt (mixed by loader) |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 4.5% |
| **DATE SAMPLED:** | Nov 23/16 **By:** SH/IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 79 |
| | |
| 5 | 45 |
| | |
| | |
| 0.63 | 22 |
| | |
| | |
| 0.08 | 6 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



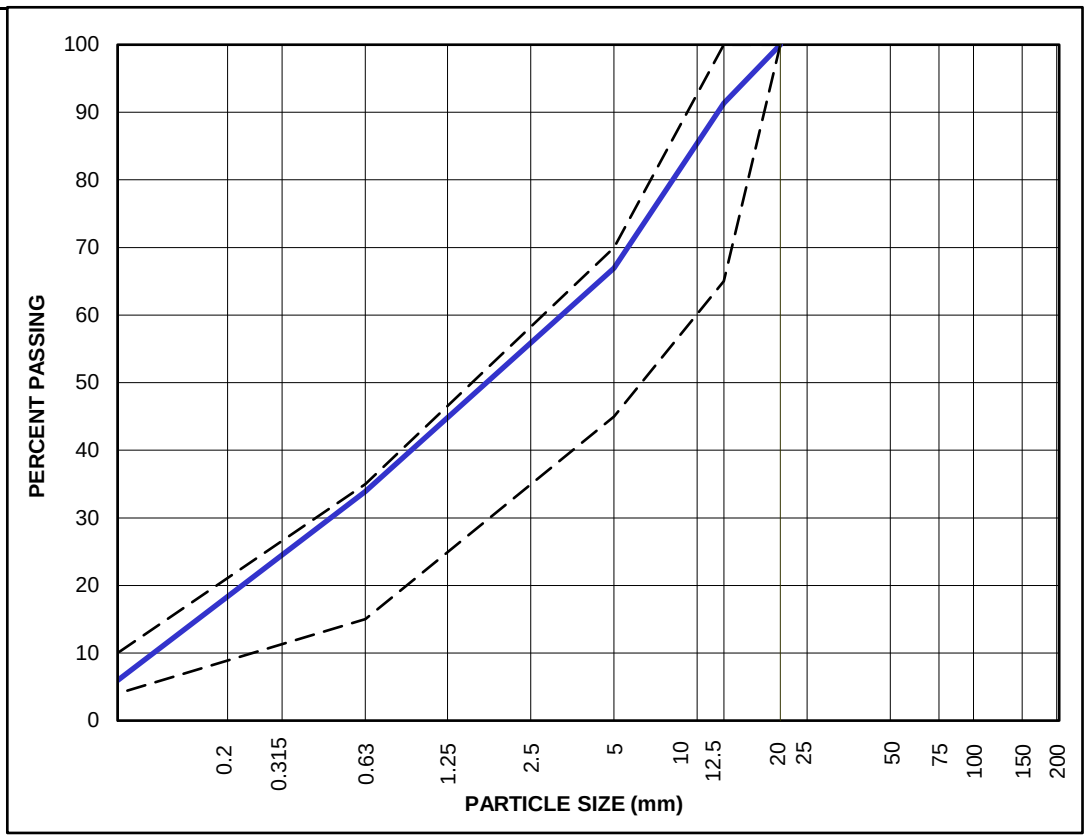

**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA32 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) |
| | | | Sampled after belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 10.3% |
| **DATE SAMPLED:** | Nov 23/16 By: SH/IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 91 |
| | |
| 5 | 67 |
| | |
| | |
| 0.63 | 34 |
| | |
| | |
| 0.08 | 6 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



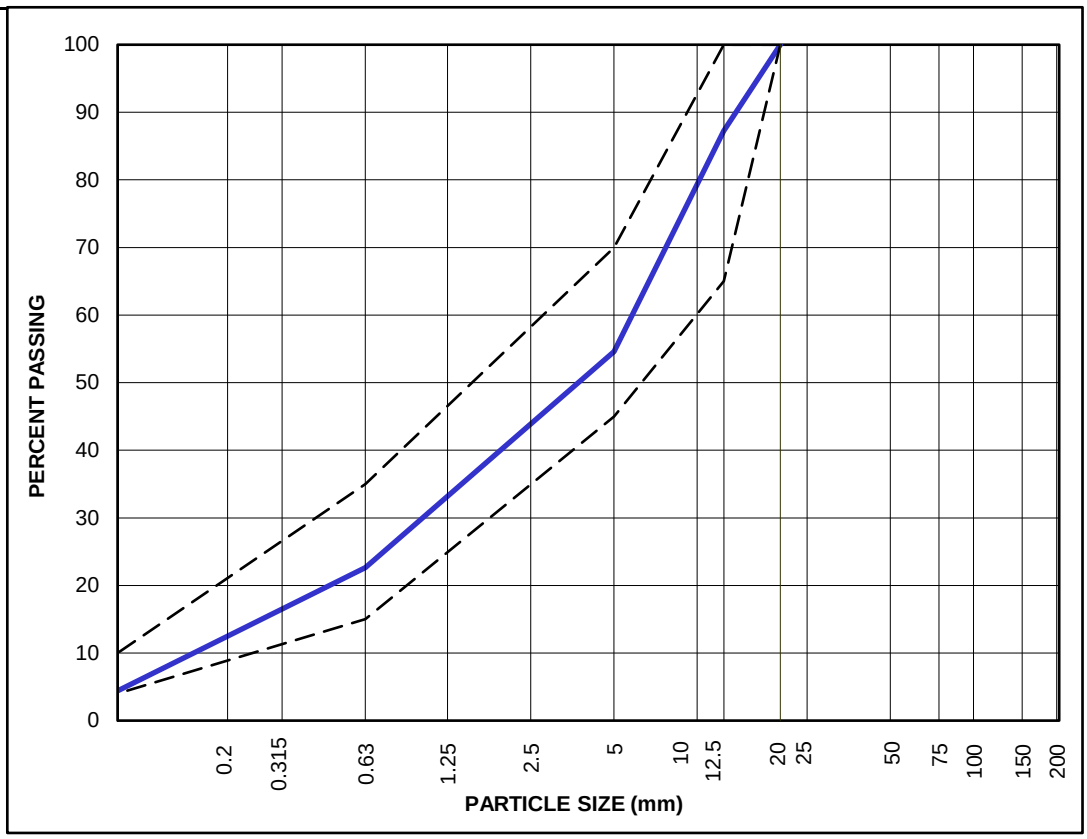

**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA33 |
| | | **SAMPLE DESCRIPTION:** | Type C - 20 mm |
| | | | Sampled from Dayshift Stockpile |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 7.5% |
| **DATE SAMPLED:** | Nov 26/16 **By:** SH/IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 87 |
| | |
| 5 | 55 |
| | |
| | |
| 0.63 | 23 |
| | |
| | |
| 0.08 | 4 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |




**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA34 |
| | | **SAMPLE DESCRIPTION:** | Type C - 20 mm |
| | | | Sampled after belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 6.7% |
| **DATE SAMPLED:** | Nov 26/16 By: SH | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 82 |
| | |
| 5 | 53 |
| | |
| | |
| 0.63 | 24 |
| | |
| | |
| 0.08 | 4 |
| | |
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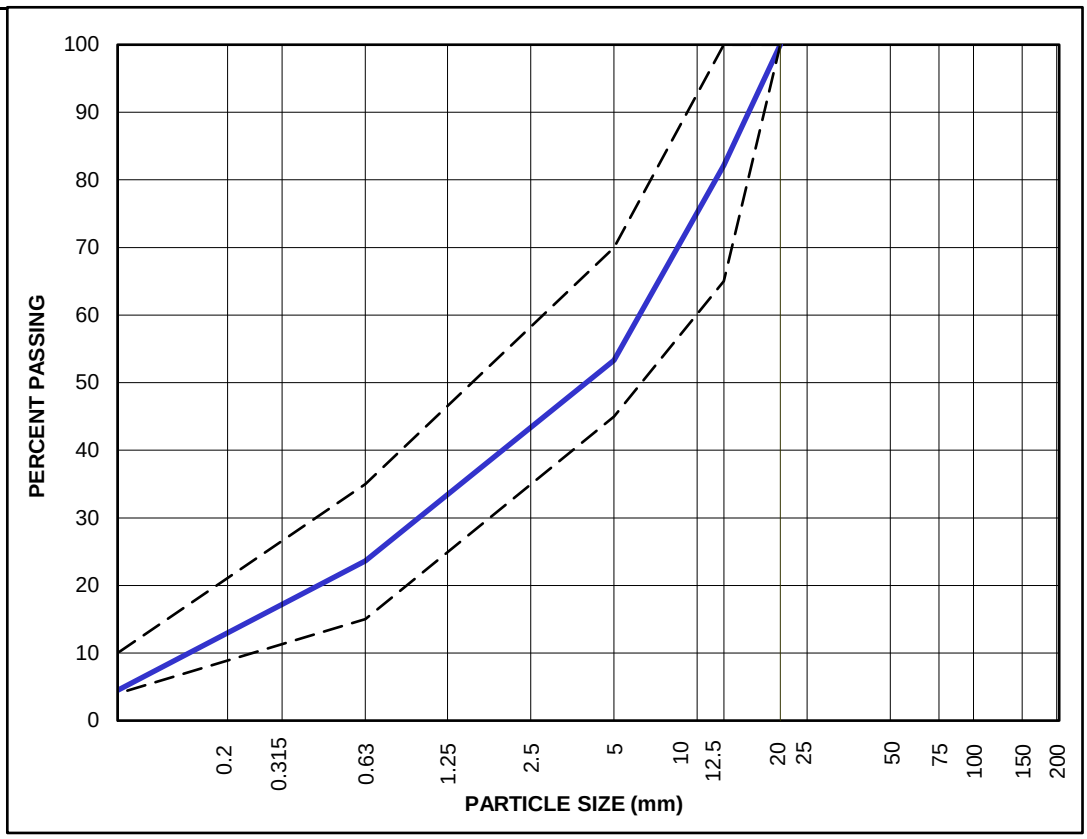


**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA35 |
| | | **SAMPLE DESCRIPTION:** | Type C - 20 mm |
| | | | Sampled from Dayshift Stockpile |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 8.0% |
| **DATE SAMPLED:** | Nov 26/16 **By:** SH/IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 87 |
| | |
| 5 | 62 |
| | |
| | |
| 0.63 | 31 |
| | |
| | |
| 0.08 | 6 |
| | |
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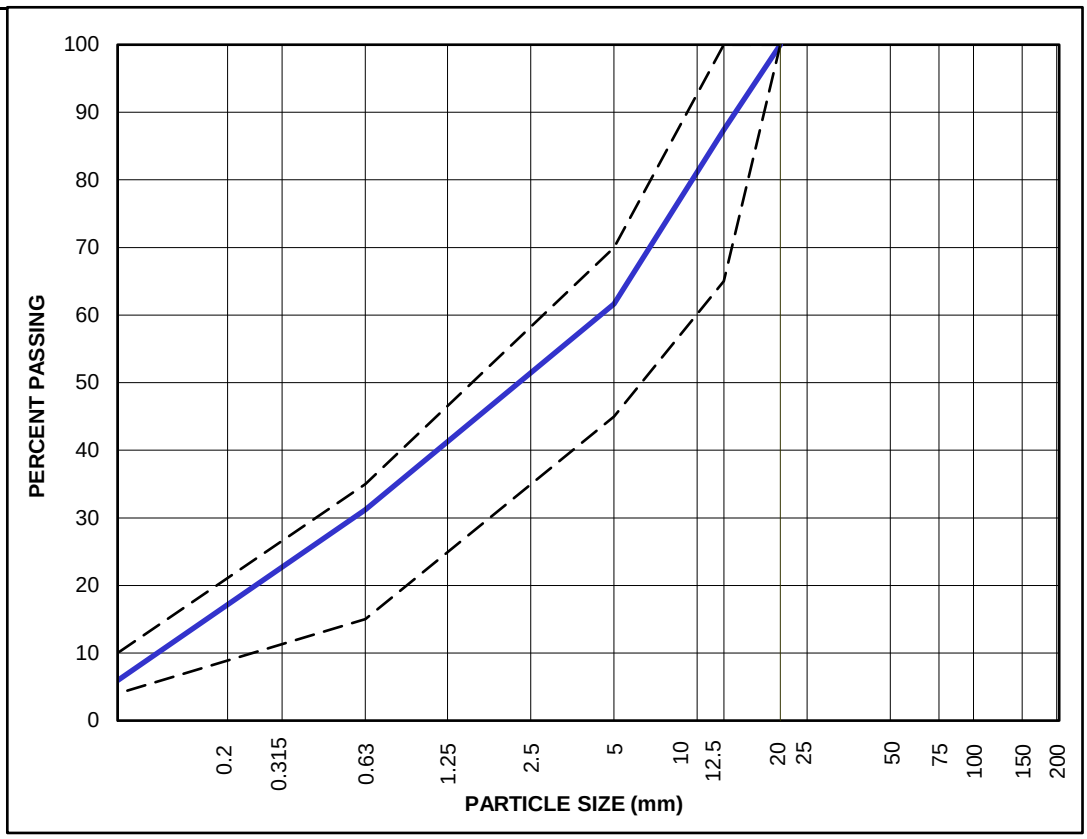


**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA36 |
| | | **SAMPLE DESCRIPTION:** | Type C - 20 mm |
| | | | Sampled November 29 N/S |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 7.1% |
| **DATE SAMPLED:** | Nov 29/16 **By:** SH/IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 82 |
| | |
| 5 | 50 |
| | |
| | |
| 0.63 | 24 |
| | |
| | |
| 0.08 | 4 |
| | |
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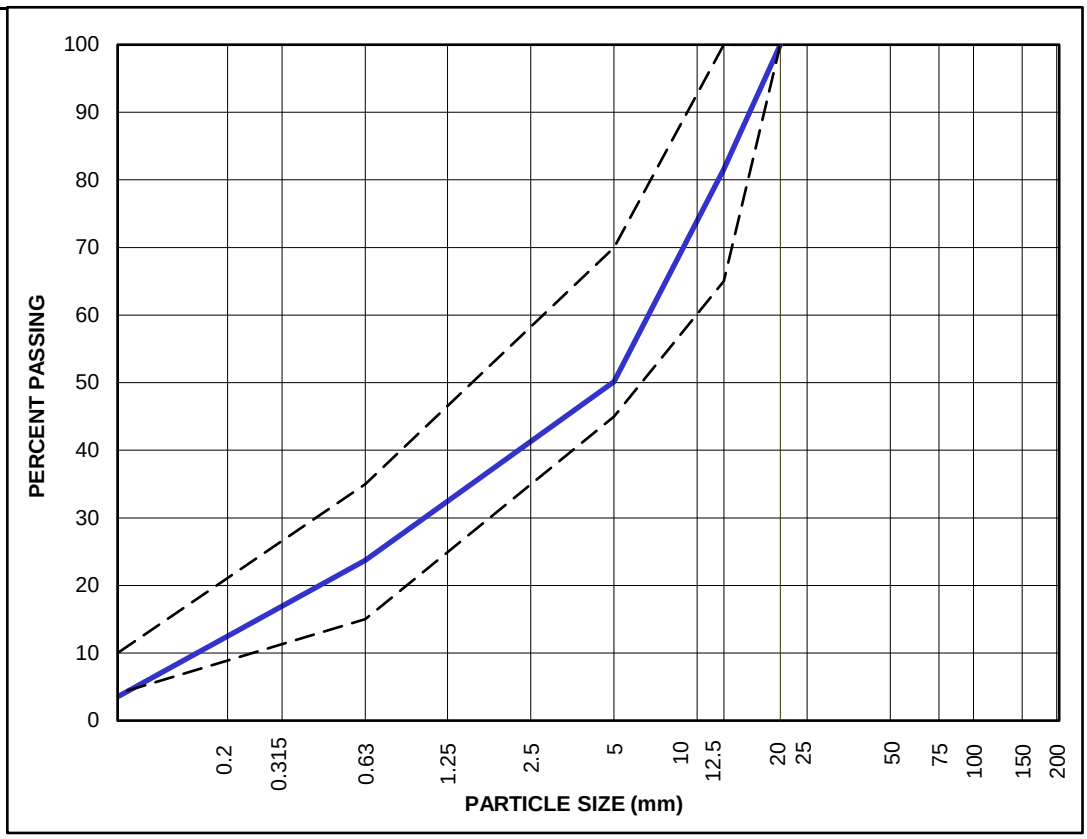
| | |




**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA37 |
| | | **SAMPLE DESCRIPTION:** | Type C - 20 mm |
| | | | Sampled from Belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 14.3% |
| **DATE SAMPLED:** | Nov 30/16 **By:** SH/IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 98 |
| 12.5 | 91 |
| | |
| 5 | 76 |
| | |
| | |
| 0.63 | 43 |
| | |
| | |
| 0.08 | 6 |
| | |
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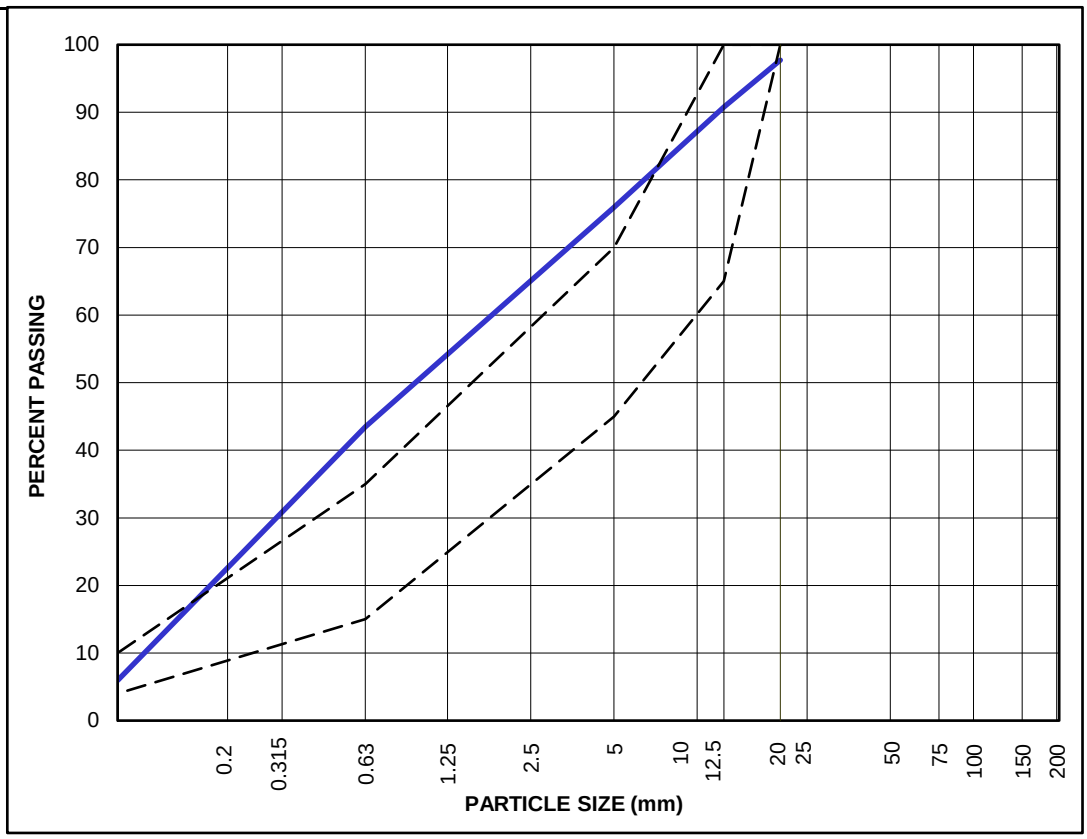


**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA38 |
| | | **SAMPLE DESCRIPTION:** | Type C - 20 mm |
| | | | Sampled from Belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 13.3% |
| **DATE SAMPLED:** | Dec 02/16 **By:** SH/IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 91 |
| | |
| 5 | 80 |
| | |
| | |
| 0.63 | 48 |
| | |
| | |
| 0.08 | 6 |
| | |
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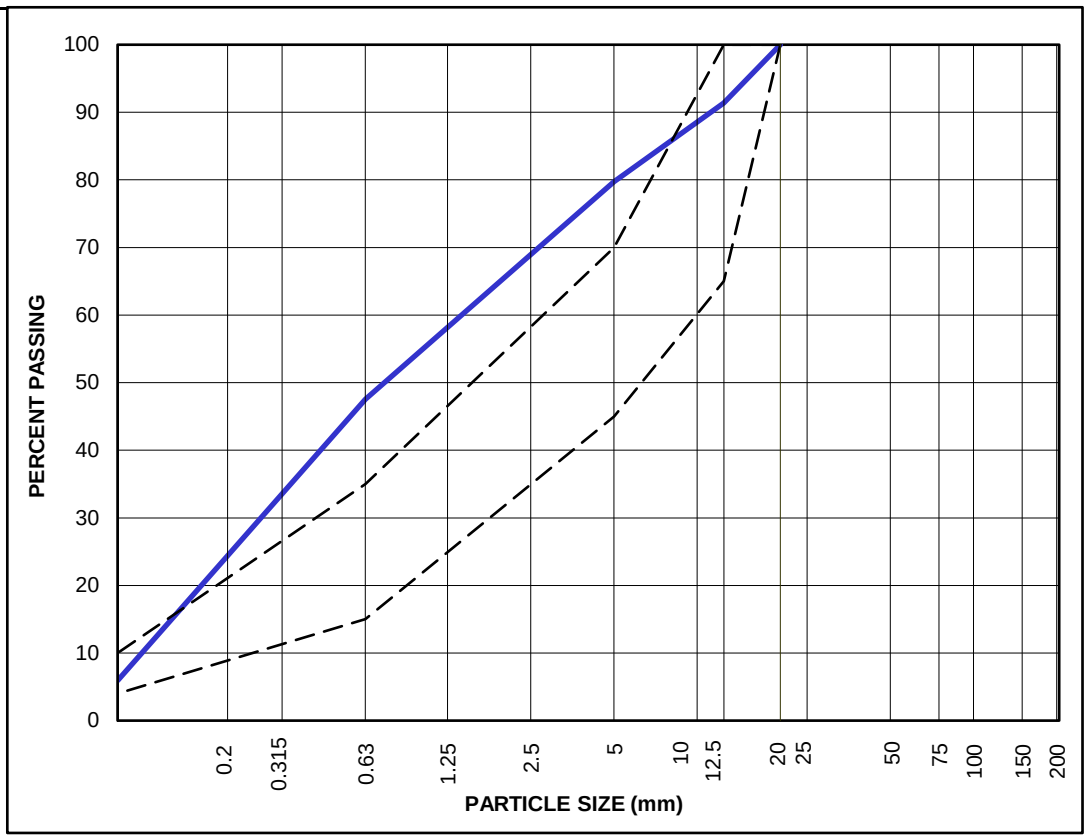
| | |




**Remarks:**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA39 |
| | | **SAMPLE DESCRIPTION:** | Type C - 20 mm |
| | | | Sampled from Belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 13.8% |
| **DATE SAMPLED:** | Dec 03/16 **By:** IM/SH | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 94 |
| | |
| 5 | 82 |
| | |
| | |
| 0.63 | 57 |
| | |
| | |
| 0.08 | 6 |
| | |
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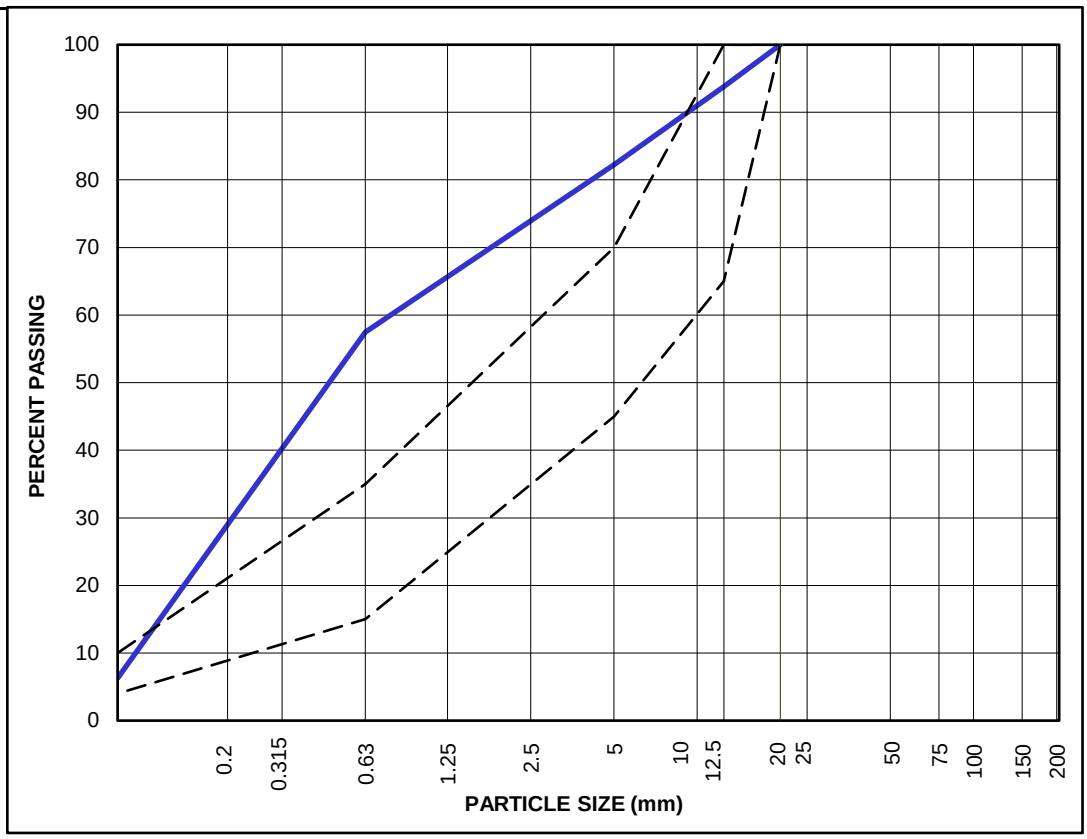


**Remarks:** Sampled at 02:00 (Night shift)

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | **Meliadine Dike Construction** | **SAMPLE NO:** | **SA40** |
| | | **SAMPLE DESCRIPTION:** | **Type C - 20 mm** |
| | | | **Sampled from Belt** |
| **ADDRESS:** | **Meliadine Gold Project, NU.** | | |
| **PROJECT NO:** | **E14103230-01.023** | **MOISTURE CONT. :** | **14.4%** |
| **DATE SAMPLED:** | **Dec 05/16** **By: IM** | | |
| **CLIENT:** | **Agnico Eagle Mines Ltd.** | **BULK REL DENSITY:** | **n/a** |
| **ATTENTION:** | **Mr. Duy Nguyen** | **BULK REL. DENSITY (SSD):** | **n/a** |
| | | **APPARENT REL. DENSITY:** | **n/a** |
| | | **ABSORPTION:** | **n/a** |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| **20** | **100** |
| **12.5** | **97** |
| | |
| **5** | **95** |
| | |
| | |
| **0.63** | **77** |
| | |
| | |
| **0.08** | **6** |
| | |
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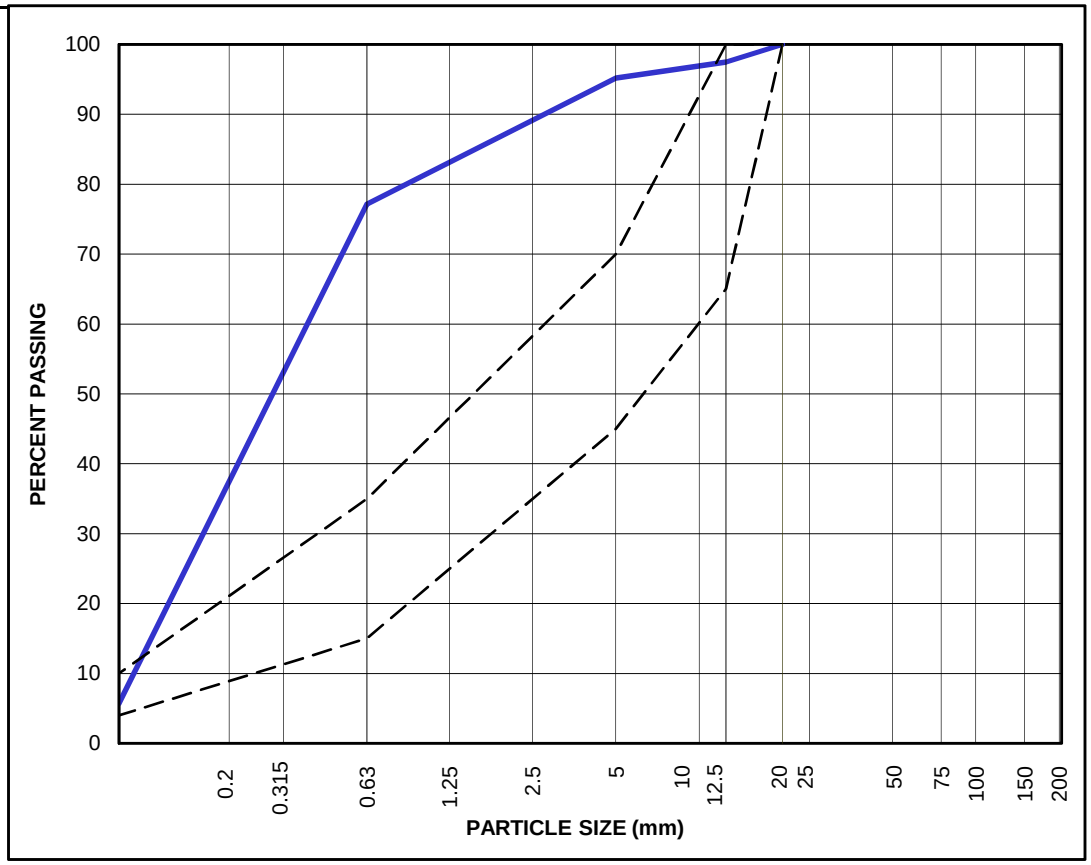


**Remarks:** Sampled at 03:00 (Night shift)

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA41 |
| | | **SAMPLE DESCRIPTION:** | Type C - 20 mm |
| | | | Sampled from stockpile |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 6.7% |
| **DATE SAMPLED:** | Mar 11/17 **By:** SH | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 92 |
| | |
| 5 | 69 |
| | |
| | |
| 0.63 | 31 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
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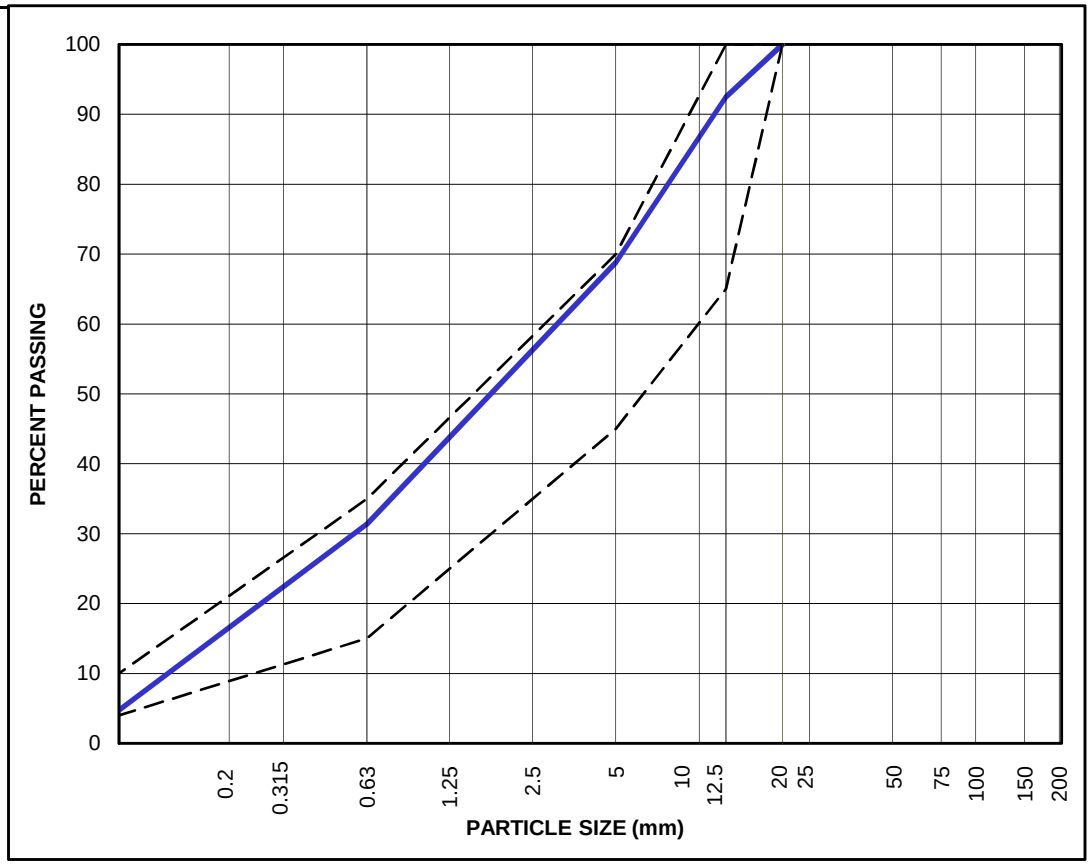


**Remarks:** Sampled at 02:00 (Night shift)

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA43 |
| | | **SAMPLE DESCRIPTION:** | Type C - 20 mm |
| | | | Sampled from u/s Type C fillet ~0+280 @ D-CP5 |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01.023 | **MOISTURE CONT. :** | 11.5% |
| **DATE SAMPLED:** | Apr 18/17 **By:** WW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 88 |
| | |
| 5 | 73 |
| | |
| 1.25 | 63 |
| 0.63 | 48 |
| 0.315 | 48 |
| 0.2 | 48 |
| 0.08 | 15 |
| | |
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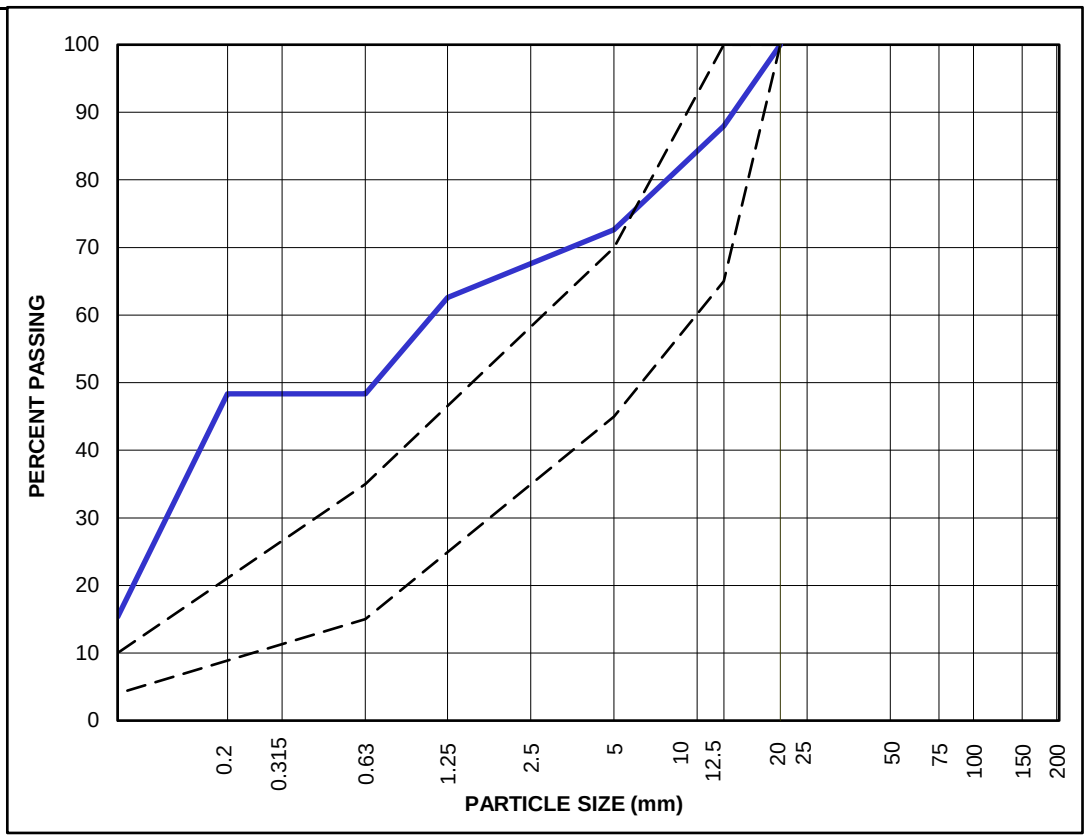
| | |
| | |




**Remarks:** Sampled from u/s Type C fillet ~0+280 @ D-CP5

**Reviewed by:** _____ P.Geo.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA44 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 8.5% |
| **DATE SAMPLED:** | Apr 29/17 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 86 |
| 10 | 76 |
| 5 | 61 |
| 2 | 49 |
| | |
| 0.63 | 36 |
| | |
| | |
| 0.08 | 7 |
| | |
| | |
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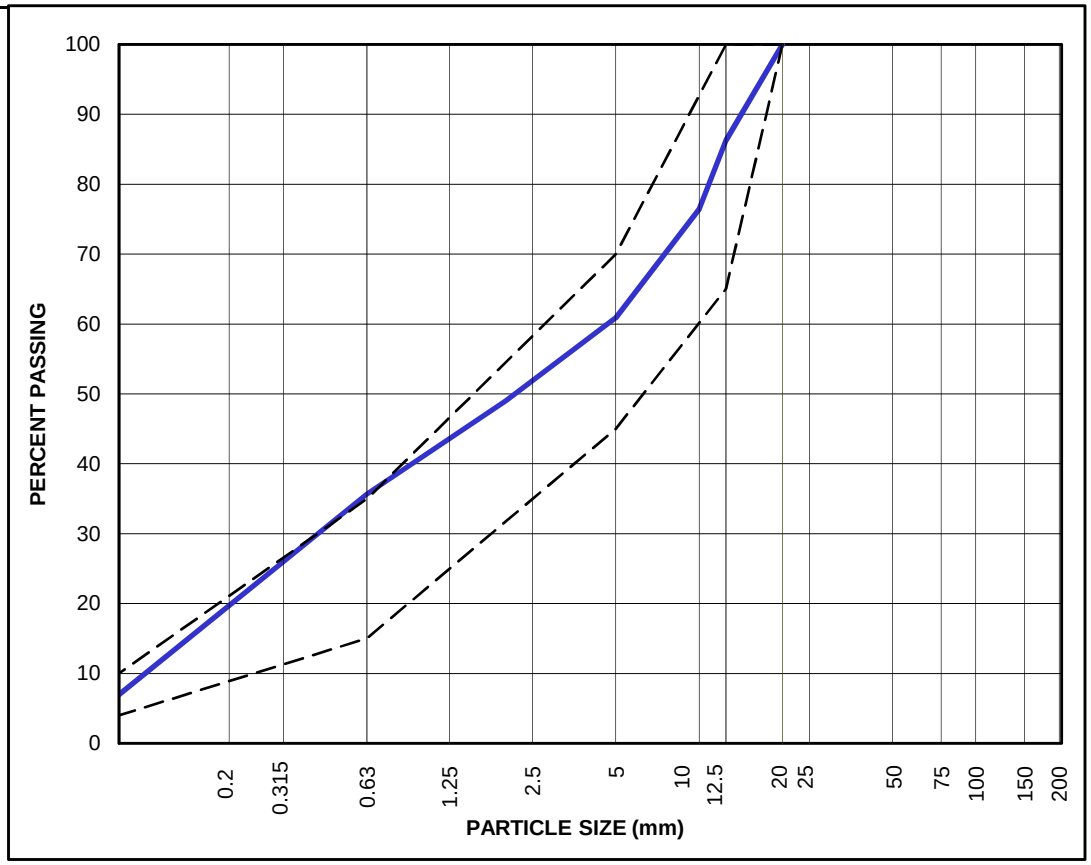
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA45 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 7.8% |
| **DATE SAMPLED:** | Apr 29/17 **By:** IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 87 |
| 10 | 81 |
| 5 | 64 |
| 2 | 52 |
| | |
| 0.63 | 41 |
| | |
| | |
| 0.08 | 7 |
| | |
| | |
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| | |
| | |
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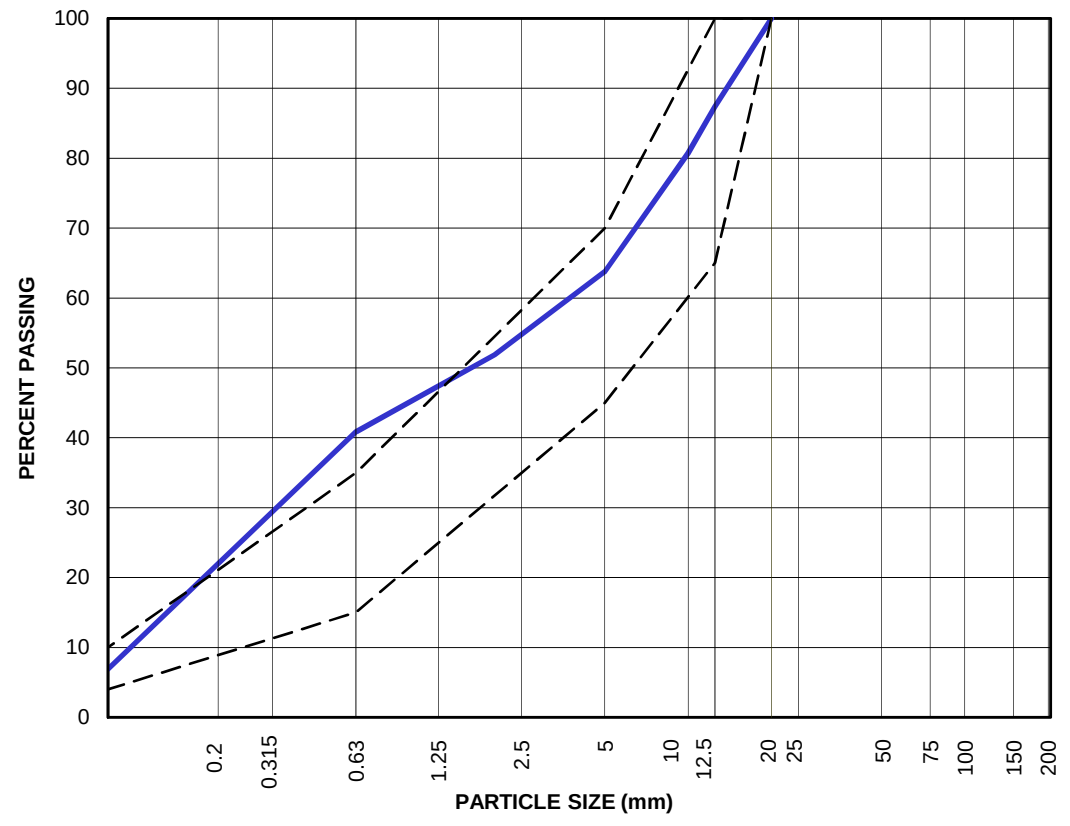


**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA47 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 10.9% |
| **DATE SAMPLED:** | Apr 30/17 **By:** IM | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 80 |
| 10 | 66 |
| 5 | 50 |
| 2 | 42 |
| | |
| 0.63 | 31 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
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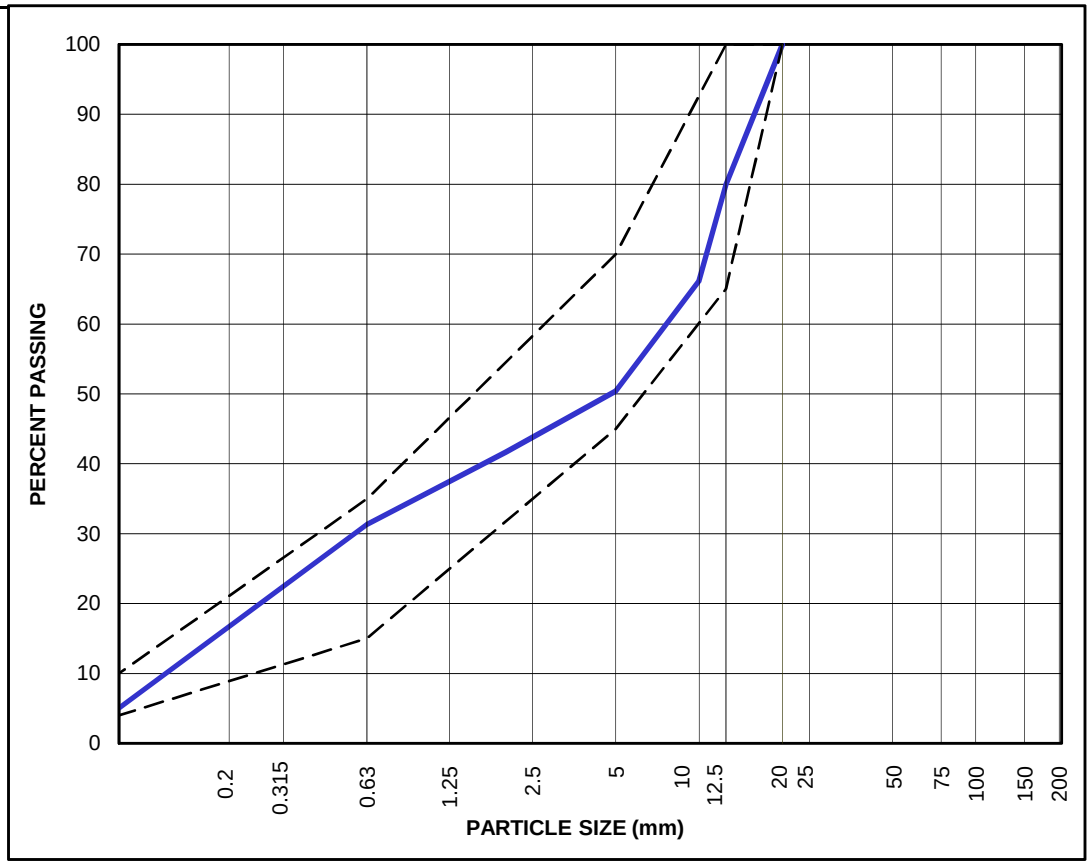
| | |




**Remarks:** 20 mm minus particle size distribution limits shown
Sampled on Night Shift at 02:00

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA46 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 12.6% |
| **DATE SAMPLED:** | May 01/17 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 90 |
| 10 | 84 |
| 5 | 71 |
| 2 | 62 |
| | |
| 0.63 | 49 |
| | |
| | |
| 0.08 | 7 |
| | |
| | |
| | |
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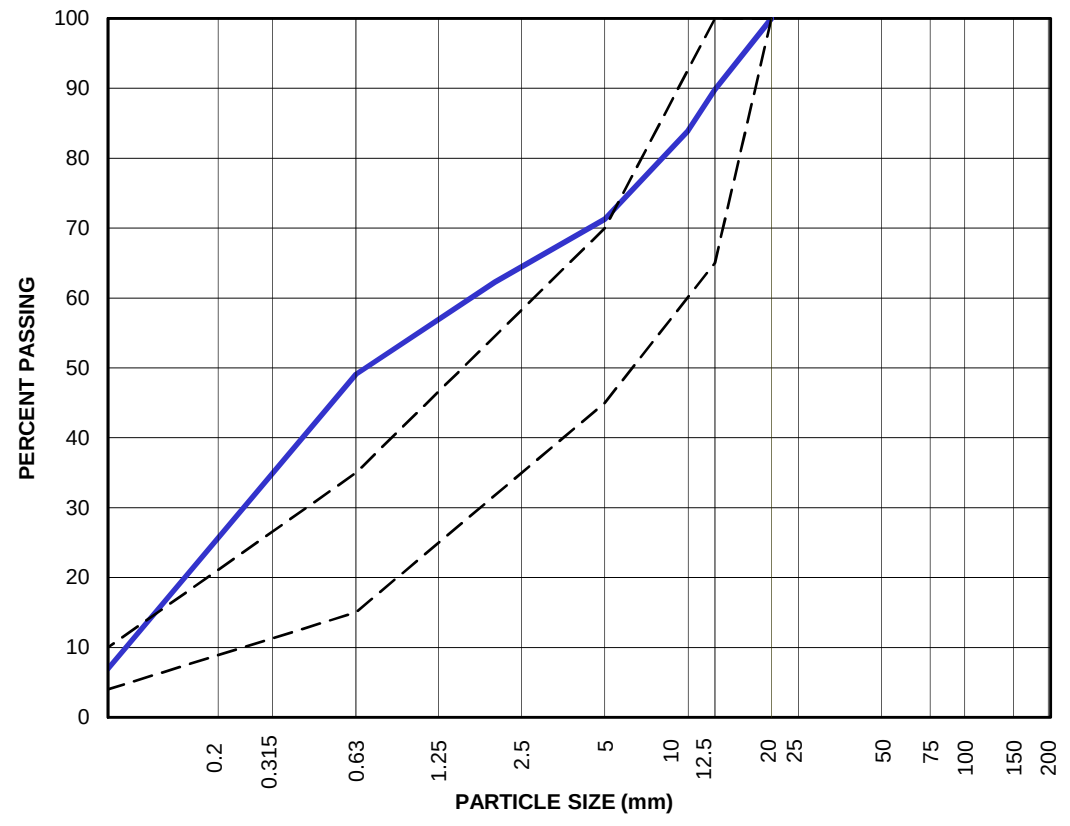
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

*The moisture content of 12.6% is higher than the maximum moisture content of 10% specified.*

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA49 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 5.6% |
| **DATE SAMPLED:** | May 01/17 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 87 |
| 10 | 79 |
| 5 | 63 |
| 2 | 50 |
| | |
| 0.63 | 38 |
| | |
| | |
| 0.08 | 9 |
| | |
| | |
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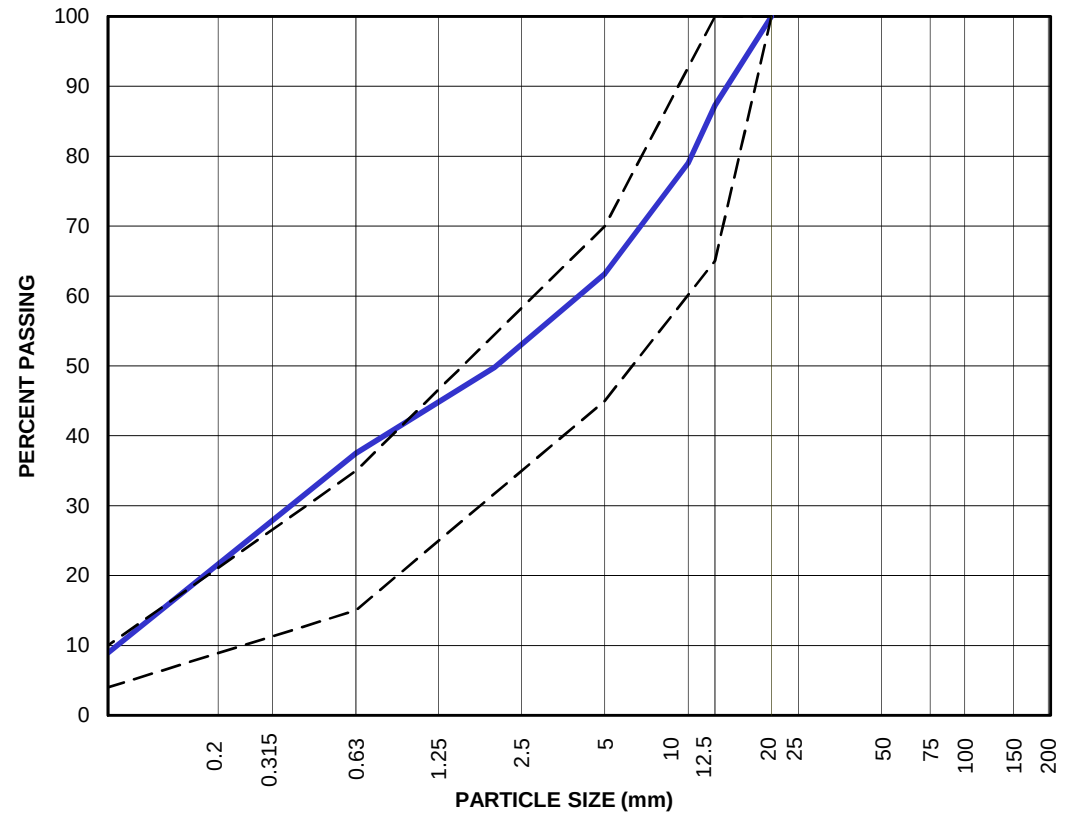
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA50 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 2.4% |
| **DATE SAMPLED:** | May 09/17 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 90 |
| 10 | 82 |
| 5 | 60 |
| 2 | 41 |
| | |
| 0.63 | 23 |
| | |
| | |
| 0.08 | 8 |
| | |
| | |
| | |
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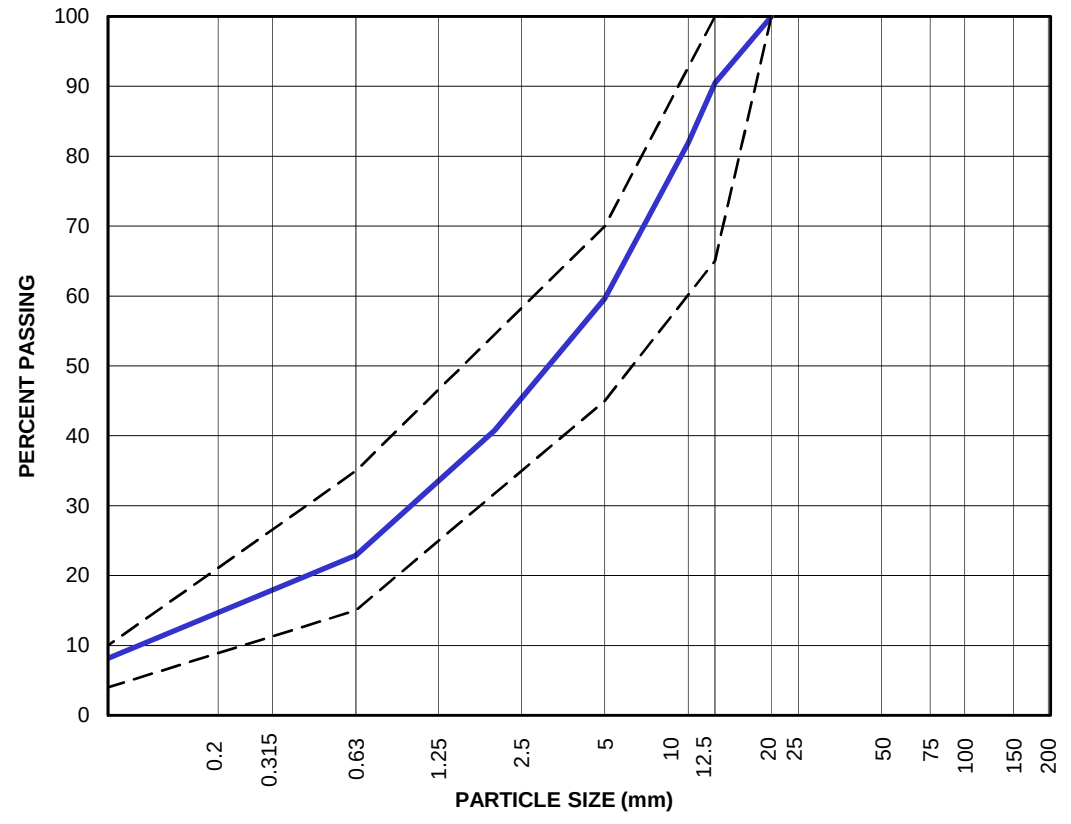
| | |
| | |



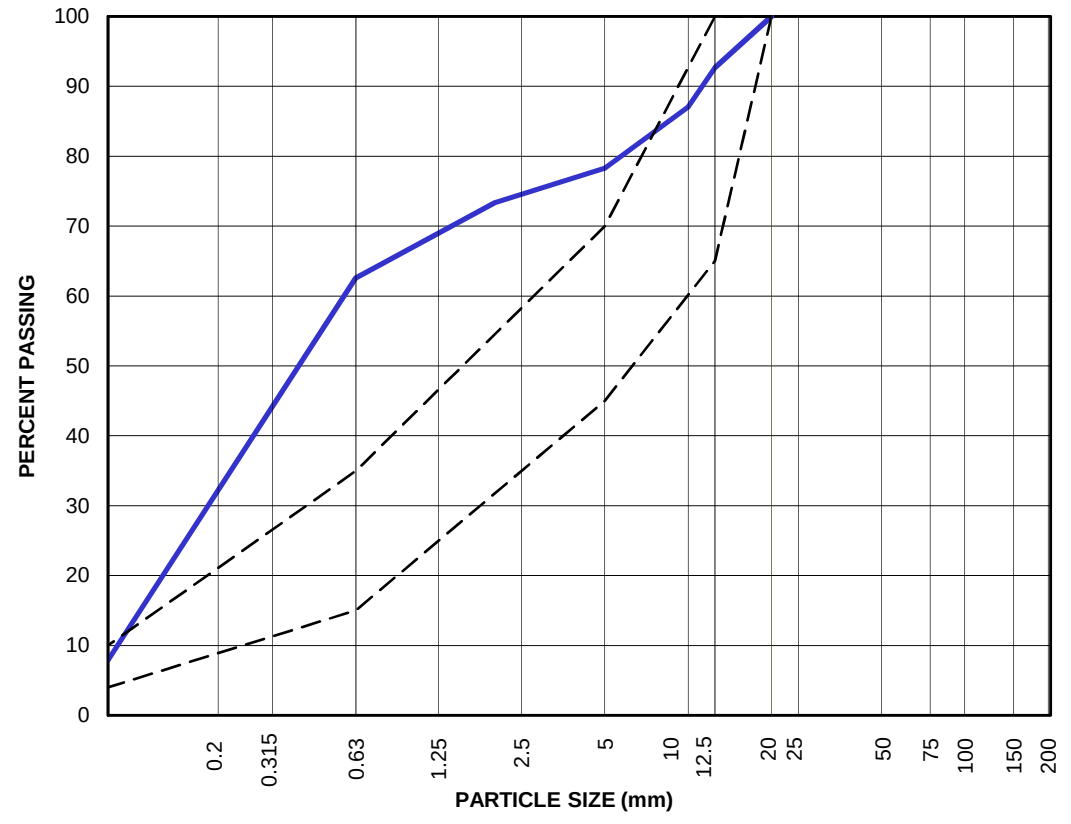

**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | Meliadine Dike Construction | **SAMPLE NO:** | SA51 |
| | | **SAMPLE DESCRIPTION:** | 20 mm minus (Type C Mat.) Sampled from belt |
| **ADDRESS:** | Meliadine Gold Project, NU. | | |
| **PROJECT NO:** | E14103230-01 | **MOISTURE CONT. :** | 14.1% |
| **DATE SAMPLED:** | May 10/17 **By:** TW | | |
| **CLIENT:** | Agnico Eagle Mines Ltd. | **BULK REL DENSITY:** | n/a |
| **ATTENTION:** | Mr. Duy Nguyen | **BULK REL. DENSITY (SSD):** | n/a |
| | | **APPARENT REL. DENSITY:** | n/a |
| | | **ABSORPTION:** | n/a |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 93 |
| 10 | 87 |
| 5 | 78 |
| 2 | 73 |
| | |
| 0.63 | 63 |
| | |
| | |
| 0.08 | 8 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



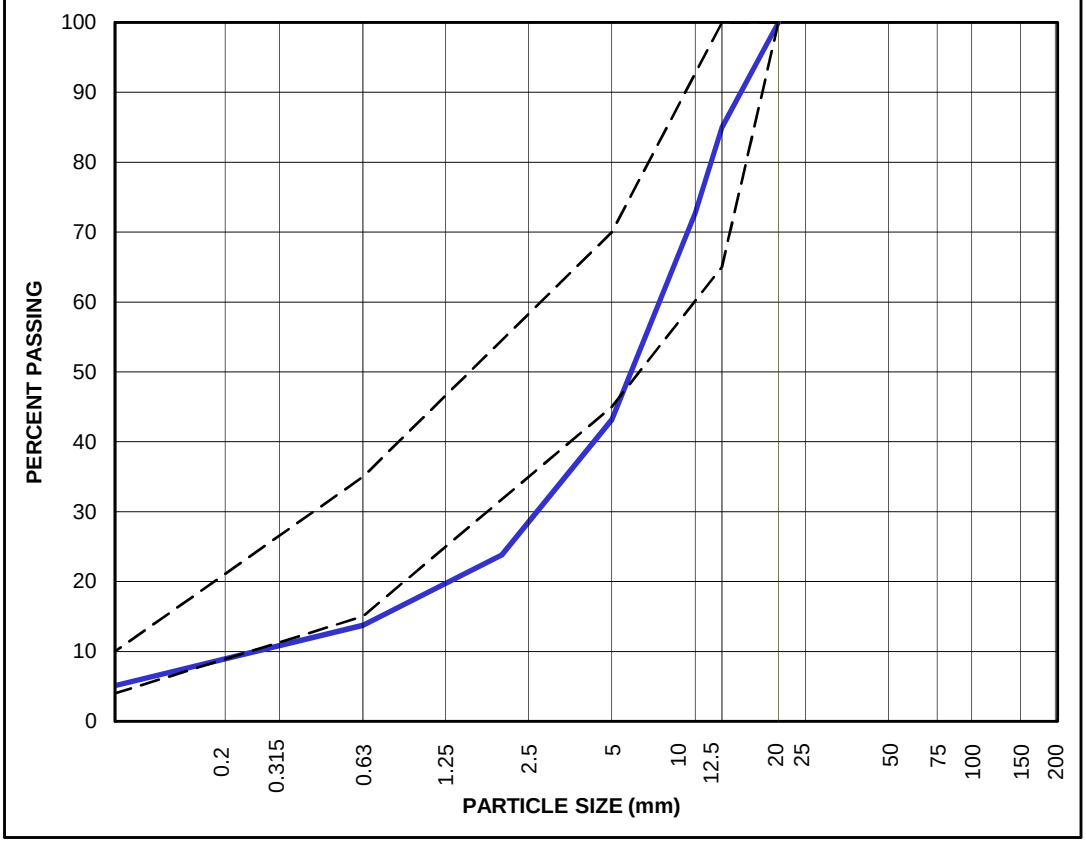

**Remarks:** 20 mm minus particle size distribution limits shown

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | **Meliadine Dike Construction** | **SAMPLE NO:** | **SA52** |
| | | **SAMPLE DESCRIPTION:** | **20 mm minus (Type C Mat.)** |
| **ADDRESS:** | **Meliadine Gold Project, NU.** | | |
| **PROJECT NO:** | **E14103230-01** | **MOISTURE CONT. :** | **1.4%** |
| **DATE SAMPLED:** | **May 14/17** **By: IM** | | |
| **CLIENT:** | **Agnico Eagle Mines Ltd.** | **BULK REL DENSITY:** | **n/a** |
| **ATTENTION:** | **Mr. Duy Nguyen** | **BULK REL. DENSITY (SSD):** | **n/a** |
| | | **APPARENT REL. DENSITY:** | **n/a** |
| | | **ABSORPTION:** | **n/a** |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| **20** | **100** |
| **12.5** | **85** |
| **10** | **73** |
| **5** | **43** |
| **2** | **24** |
| | |
| **0.63** | **14** |
| | |
| | |
| **0.08** | **5** |
| | |
| | |
| | |
| | |
| | |
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

Sampled from Stockpile Under Belt

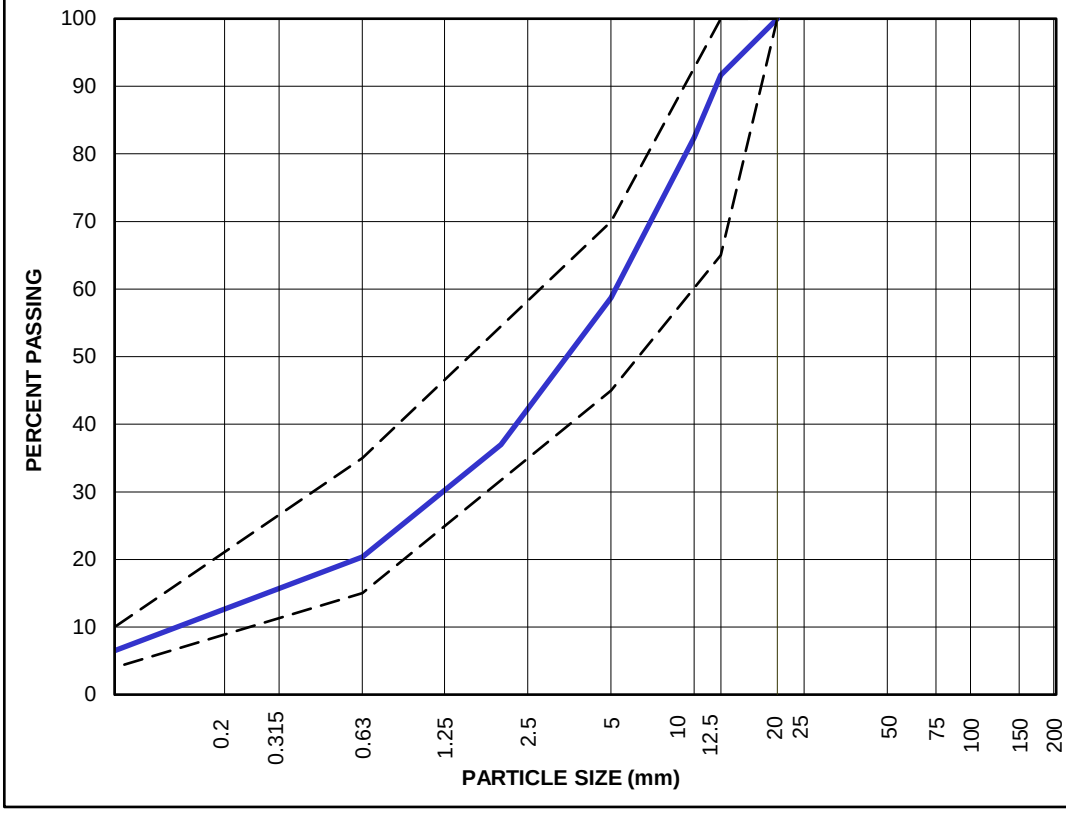
**Note - Produced during dayshift**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | **Meliadine Dike Construction** | **SAMPLE NO:** | **SA53** |
| | | **SAMPLE DESCRIPTION:** | **20 mm minus (Type C Mat.)** |
| **ADDRESS:** | **Meliadine Gold Project, NU.** | | |
| **PROJECT NO:** | **E14103230-01** | **MOISTURE CONT. :** | **2.1%** |
| **DATE SAMPLED:** | **May 15/17** **By: IM** | | |
| **CLIENT:** | **Agnico Eagle Mines Ltd.** | **BULK REL DENSITY:** | **n/a** |
| **ATTENTION:** | **Mr. Duy Nguyen** | **BULK REL. DENSITY (SSD):** | **n/a** |
| | | **APPARENT REL. DENSITY:** | **n/a** |
| | | **ABSORPTION:** | **n/a** |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 92 |
| 10 | 82 |
| 5 | 59 |
| 2 | 37 |
| | |
| 0.63 | 20 |
| | |
| | |
| 0.08 | 6 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

Sampled from Stockpile

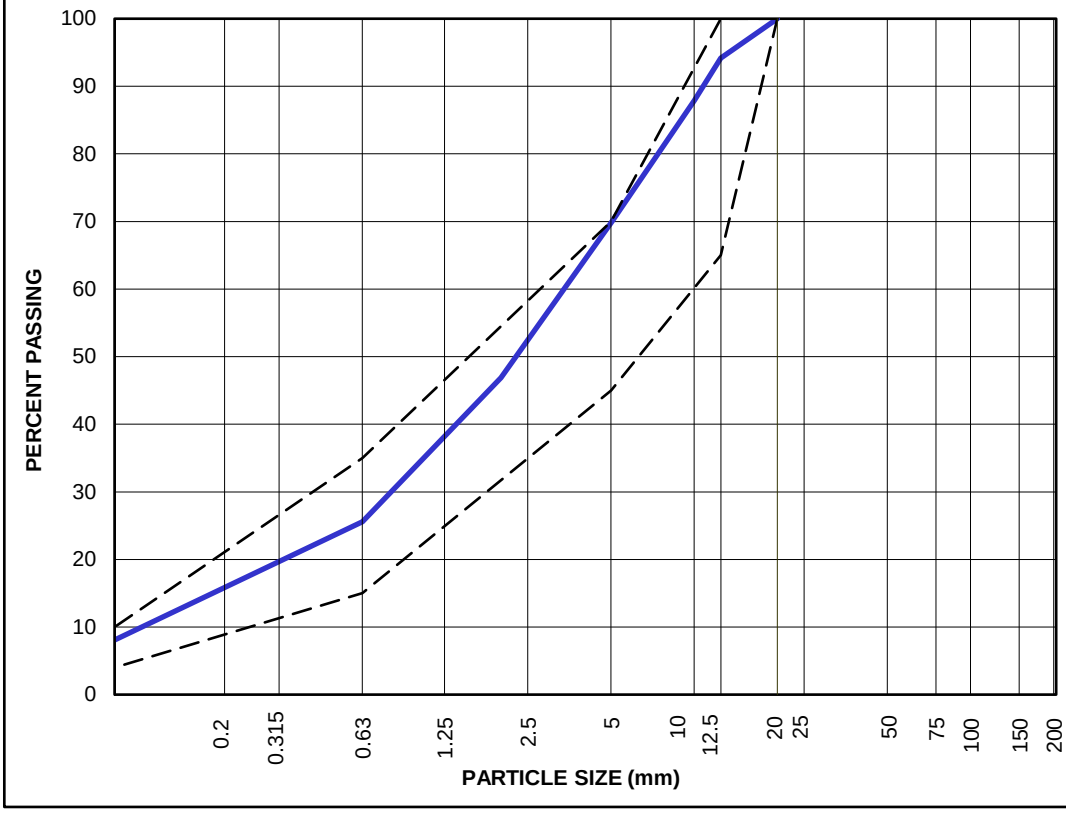
**Note - Produced during dayshift**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | **Meliadine Dike Construction** | **SAMPLE NO:** | **SA54** |
| | | **SAMPLE DESCRIPTION:** | **20 mm minus (Type C Mat.)** |
| **ADDRESS:** | **Meliadine Gold Project, NU.** | | |
| **PROJECT NO:** | **E14103230-01** | **MOISTURE CONT. :** | **2.1%** |
| **DATE SAMPLED:** | **May 16/17** **By: IM** | | |
| **CLIENT:** | **Agnico Eagle Mines Ltd.** | **BULK REL DENSITY:** | **n/a** |
| **ATTENTION:** | **Mr. Duy Nguyen** | **BULK REL. DENSITY (SSD):** | **n/a** |
| | | **APPARENT REL. DENSITY:** | **n/a** |
| | | **ABSORPTION:** | **n/a** |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 94 |
| 10 | 88 |
| 5 | 70 |
| 2 | 47 |
| | |
| 0.63 | 26 |
| | |
| | |
| 0.08 | 8 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

Sampled from Stockpile

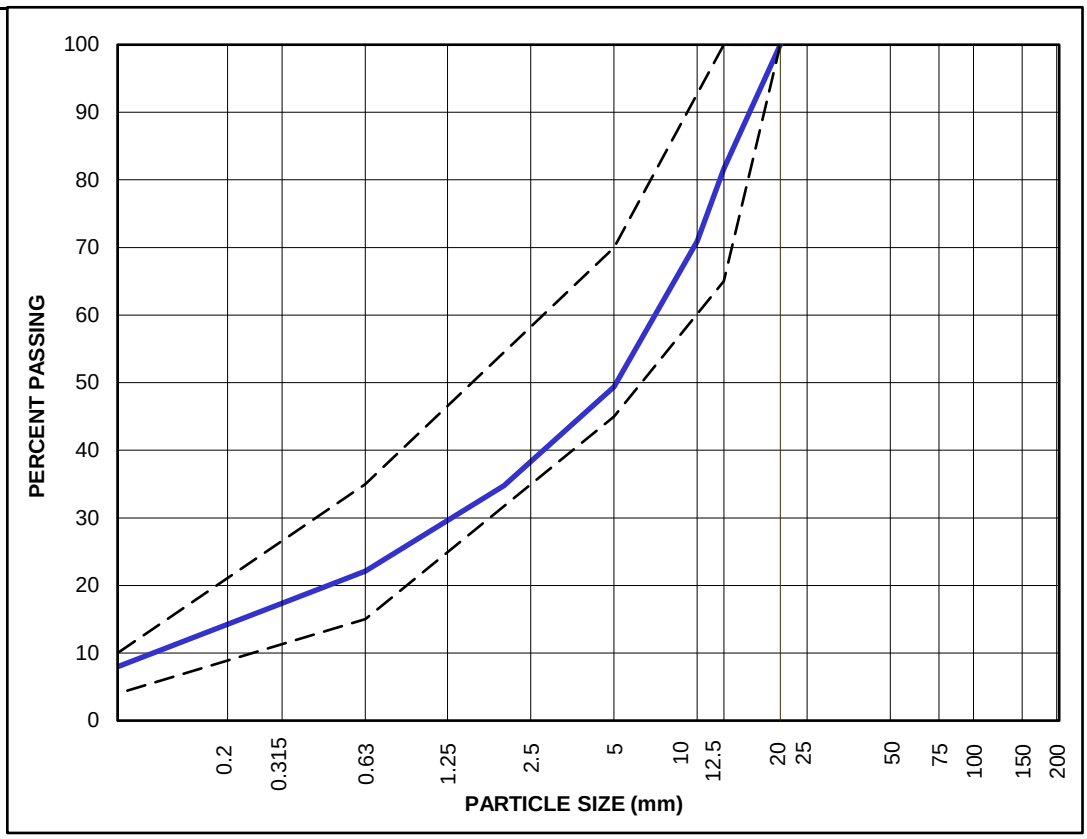
**Note - Produced during dayshift**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | **Meliadine Dike Construction** | **SAMPLE NO:** | **SA55** |
| | | **SAMPLE DESCRIPTION:** | **20 mm minus (Type C Mat.)** |
| **ADDRESS:** | **Meliadine Gold Project, NU.** | | |
| **PROJECT NO:** | **E14103230-01** | **MOISTURE CONT. :** | **2.7%** |
| **DATE SAMPLED:** | **May 18/17** **By: IM** | | |
| **CLIENT:** | **Agnico Eagle Mines Ltd.** | **BULK REL DENSITY:** | **n/a** |
| **ATTENTION:** | **Mr. Duy Nguyen** | **BULK REL. DENSITY (SSD):** | **n/a** |
| | | **APPARENT REL. DENSITY:** | **n/a** |
| | | **ABSORPTION:** | **n/a** |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 82 |
| 10 | 71 |
| 5 | 49 |
| 2 | 35 |
| | |
| 0.63 | 22 |
| | |
| | |
| 0.08 | 8 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |



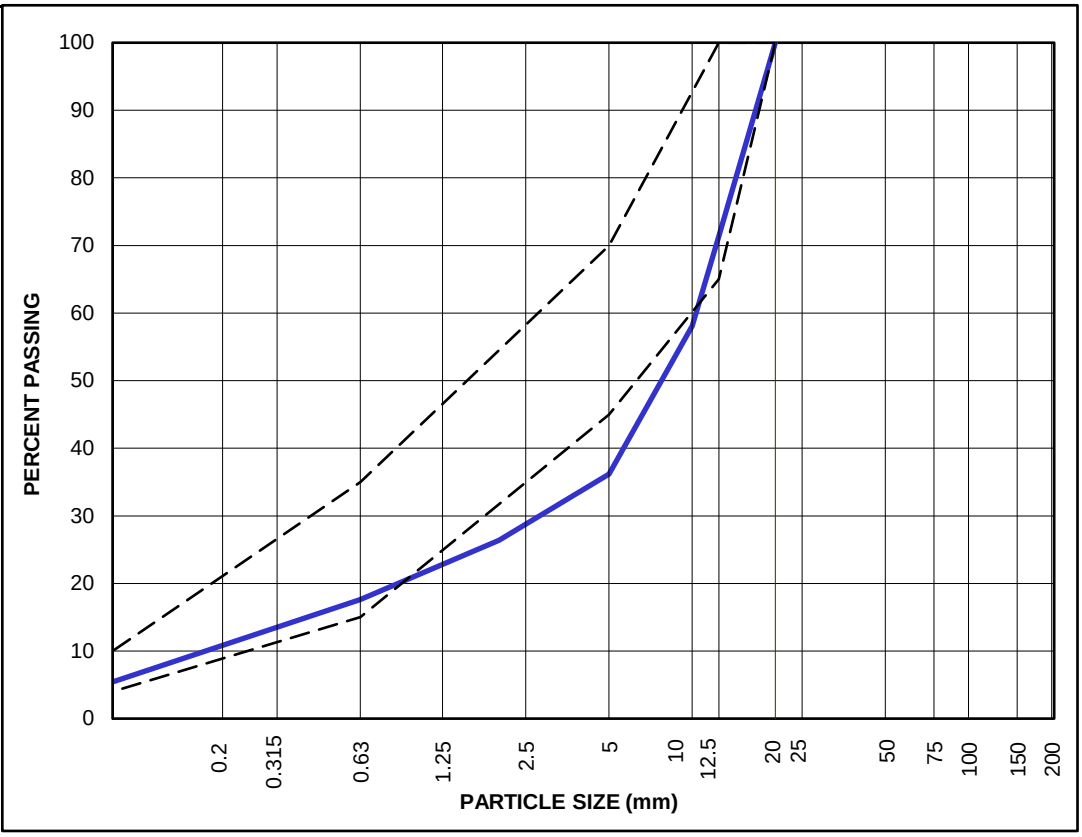

**Remarks:** 20 mm minus particle size distribution limits shown
Sampled from Stockpile
**Note - Produced during nightshift**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | **Meliadine Dike Construction** | **SAMPLE NO:** | **SA56** |
| | | **SAMPLE DESCRIPTION:** | **20 mm minus (Type C Mat.)** |
| **ADDRESS:** | **Meliadine Gold Project, NU.** | | |
| **PROJECT NO:** | **E14103230-01** | **MOISTURE CONT. :** | **2.8%** |
| **DATE SAMPLED:** | **May 19/17** **By: IM** | | |
| **CLIENT:** | **Agnico Eagle Mines Ltd.** | **BULK REL DENSITY:** | **n/a** |
| **ATTENTION:** | **Mr. Duy Nguyen** | **BULK REL. DENSITY (SSD):** | **n/a** |
| | | **APPARENT REL. DENSITY:** | **n/a** |
| | | **ABSORPTION:** | **n/a** |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 71 |
| 10 | 58 |
| 5 | 36 |
| 2 | 26 |
| | |
| 0.63 | 18 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown

Sampled from Stockpile

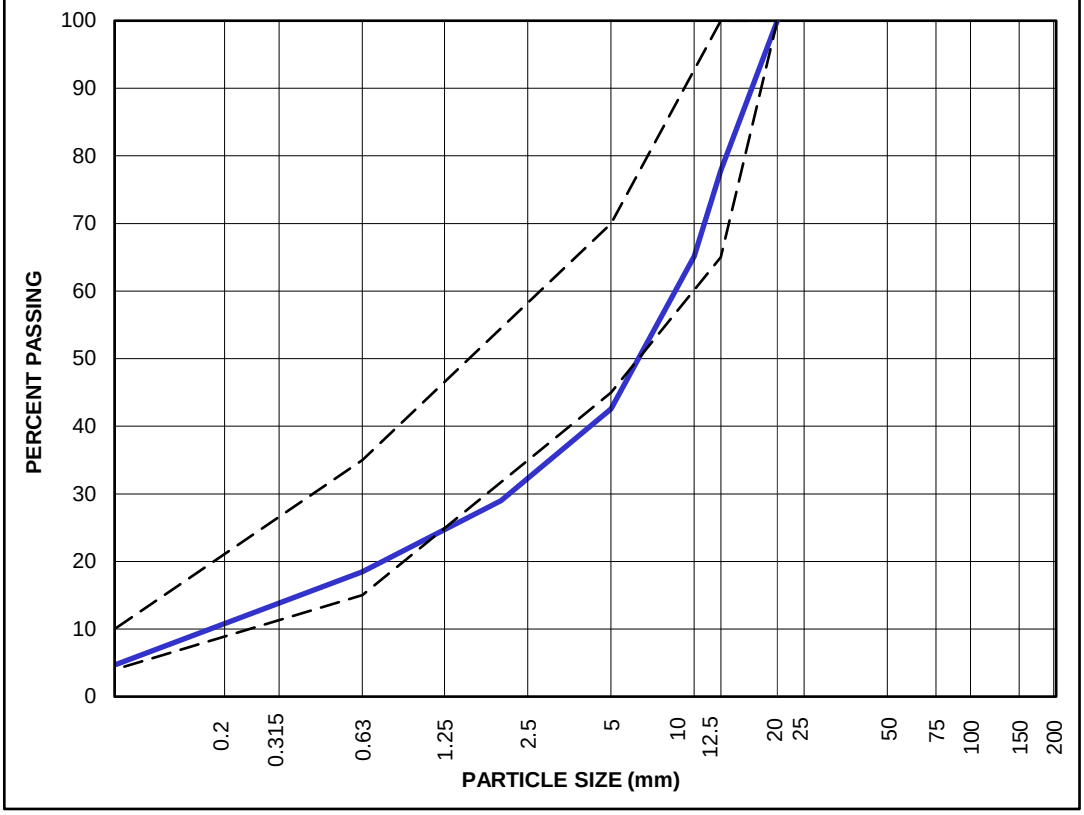
**Note - Produced during dayshift**

**Reviewed by:** _____ P.Eng.

# PARTICLE SIZE ANALYSIS REPORT

| | | | |
|---|---|---|---|
| **PROJECT:** | **Meliadine Dike Construction** | **SAMPLE NO:** | **SA57** |
| | | **SAMPLE DESCRIPTION:** | **20 mm minus (Type C Mat.)** |
| **ADDRESS:** | **Meliadine Gold Project, NU.** | | |
| **PROJECT NO:** | **E14103230-01** | **MOISTURE CONT. :** | **3.9%** |
| **DATE SAMPLED:** | **May 20/17** **By: IM** | | |
| **CLIENT:** | **Agnico Eagle Mines Ltd.** | **BULK REL DENSITY:** | **n/a** |
| **ATTENTION:** | **Mr. Duy Nguyen** | **BULK REL. DENSITY (SSD):** | **n/a** |
| | | **APPARENT REL. DENSITY:** | **n/a** |
| | | **ABSORPTION:** | **n/a** |

| PARTICLE SIZE | PERCENT PASSING |
|---|---|
| | |
| | |
| | |
| 20 | 100 |
| 12.5 | 78 |
| 10 | 65 |
| 5 | 43 |
| 2 | 29 |
| | |
| 0.63 | 18 |
| | |
| | |
| 0.08 | 5 |
| | |
| | |
| | |
| | |
| | |
| | |
| | |




**Remarks:** 20 mm minus particle size distribution limits shown
Sampled from Stockpile
**Note - Produced during dayshift**

**Reviewed by:** _____ P.Eng.

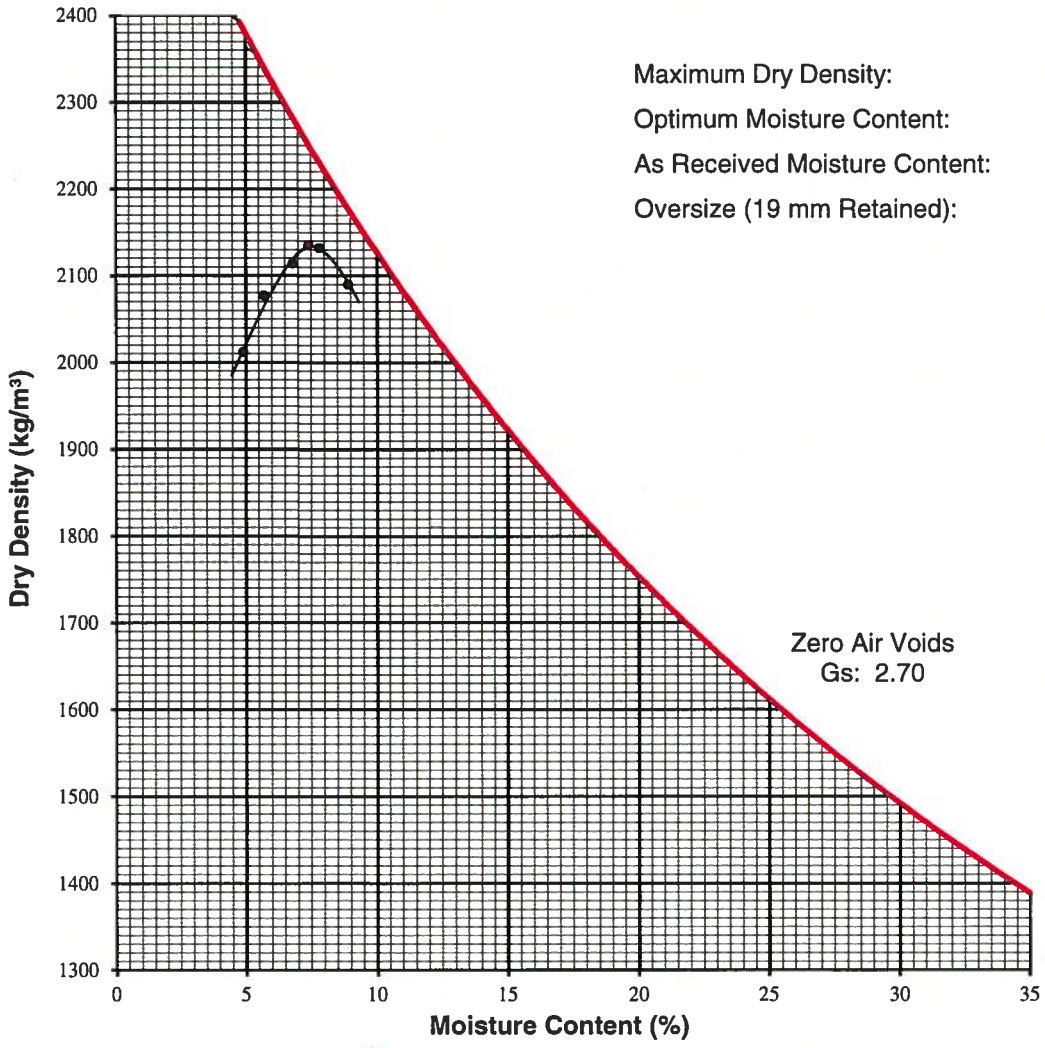
# MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 (Standard Proctor)

| | | | |
|---|---|---|---|
| Project: | Meliadine Gold Project | Sample No.: | Type C, Sample No 1 |
| Project No.: | E14103230-01.023 | Sampled By: | Dike QC Team |
| Client: | Agnico Eagle Mines Ltd | Date Received: | 7-Mar-17 |
| Attention: | | Test Date: | 9-Mar-17 |
| E-mail: | | Test By: | MA |
| Source: | Meliadine Project, Dike Construction | Test Method: | C (Manual) |

Sample Location: Type C Stockpile

Sample Description: SAND, some gravel, trace silt, brown




| | | |
|---|---|---|
| Maximum Dry Density: | **2135** | kg/m³ |
| Optimum Moisture Content: | **7.4** | % |
| As Received Moisture Content: | 3.0 | % |
| Oversize (19 mm Retained): | 0 | % |

**Remarks:**

**Reviewed By:** _____ P.Eng.



TETRA TECH

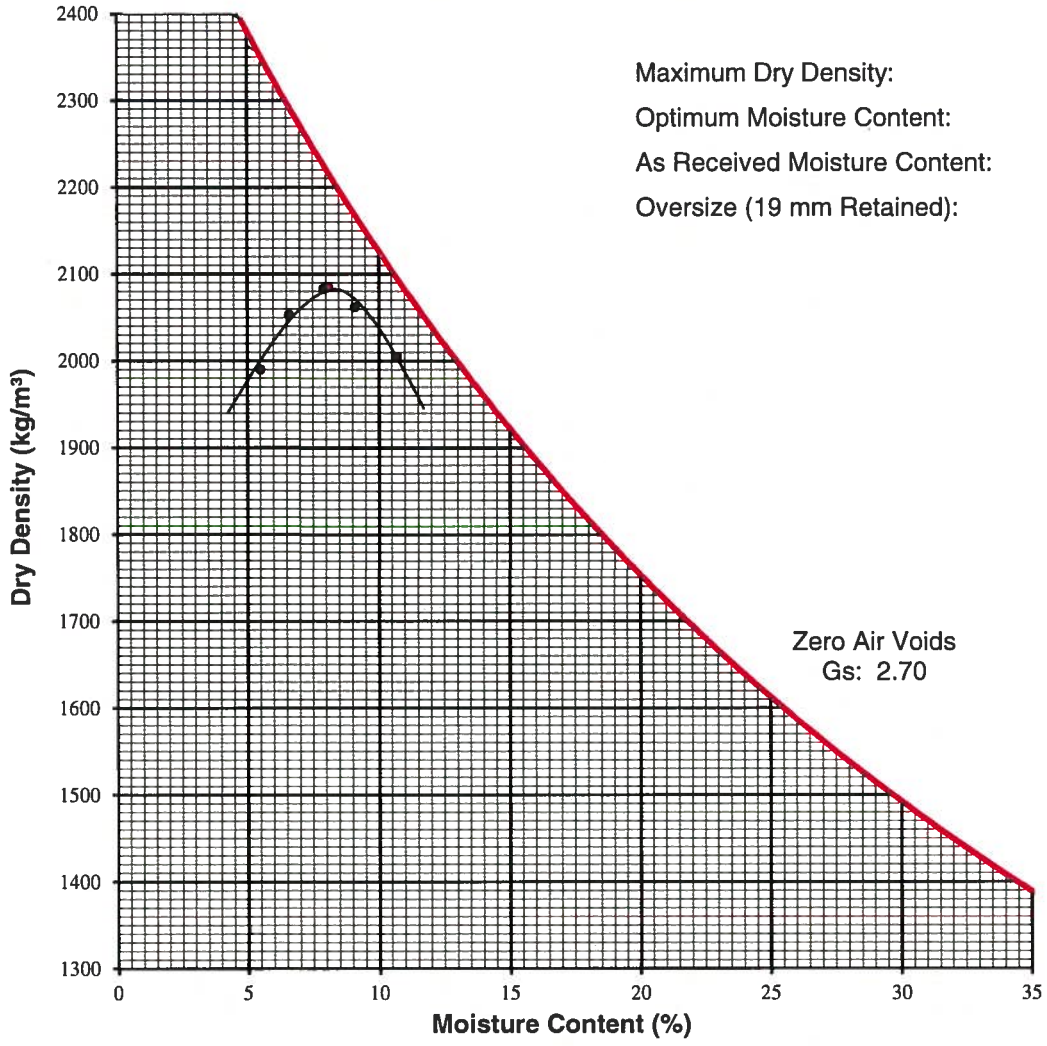
# MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 (Standard Proctor)

| | | | |
|---|---|---|---|
| Project: | Meliadine Gold Project | Sample No.: | Type C, Sample No 2 |
| Project No.: | E14103230-01.023 | Sampled By: | Dike QC Team |
| Client: | Agnico Eagle Mines Ltd | Date Received: | 7-Mar-17 |
| Attention: | | Test Date: | 9-Mar-17 |
| E-mail: | | Test By: | MA |
| Source: | Meliadine Project, Dike Construction | Test Method: | C (Manual) |

Sample Location: Type C Stockpile

Sample Description: SAND, some gravel, trace silt, brown




| | | |
|---|---|---|
| Maximum Dry Density: | **2085** | kg/m³ |
| Optimum Moisture Content: | **8.1** | % |
| As Received Moisture Content: | 2.1 | % |
| Oversize (19 mm Retained): | 0 | % |

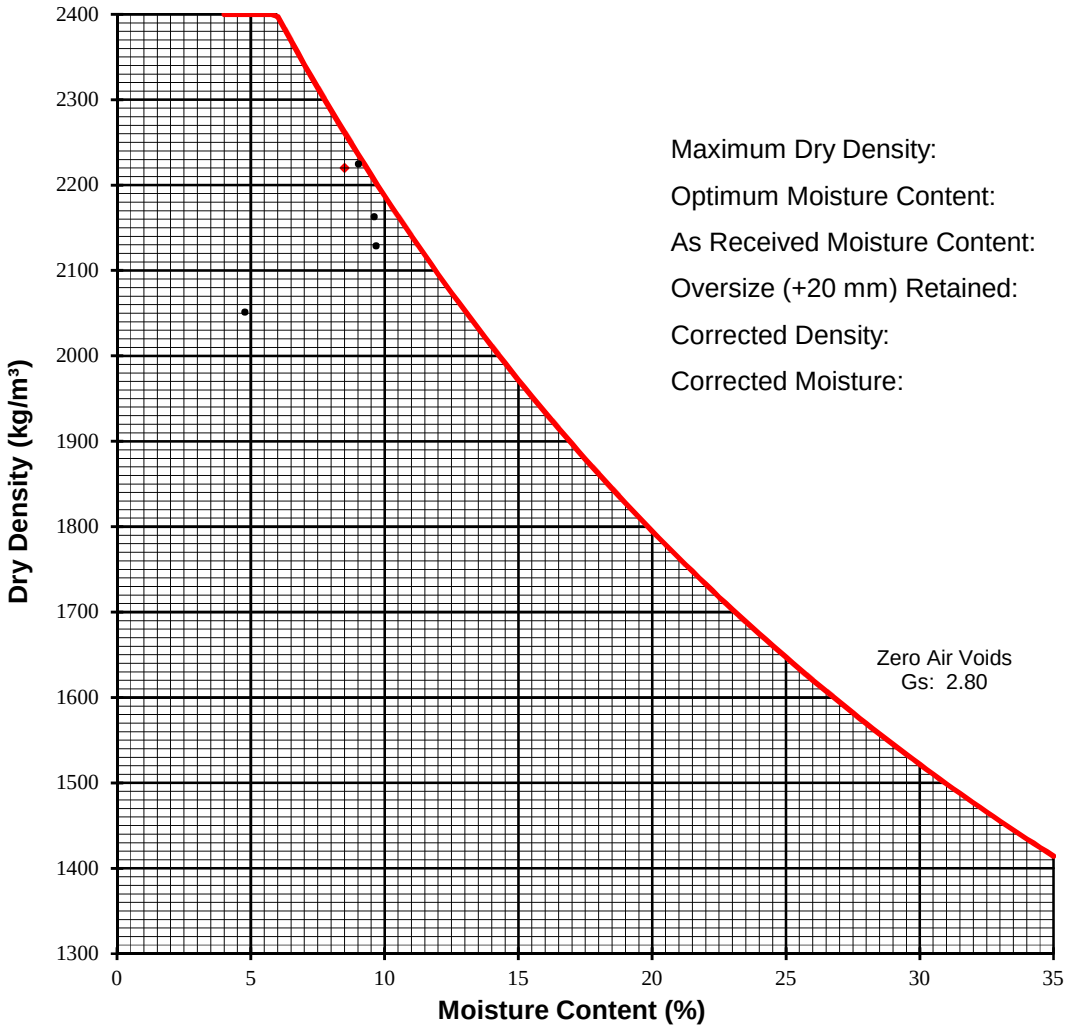
**Remarks:**

**Reviewed By:** _____ P.Eng.

# MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

| | | | |
|---|---|---|---|
| Project: | Meliadine Dike Construction | Sample No.: | SA01 |
| Client: | Agnico Eagle | Sampled By: | TW |
| Attention: | | Sample Date: | October 23, 2016 |
| Project No.: | E14103230-01 | Test Date: | October 23, 2016 |
| Description: | 20mm minus | Preparation: | Moist |
| Source: | On-Site Stockpile | Compaction: | Manual |




| | | |
|---|---|---|
| Maximum Dry Density: | **2220** | kg/m³ |
| Optimum Moisture Content: | **8.5** | % |
| As Received Moisture Content: | **5.0** | % |
| Oversize (+20 mm) Retained: | | % |
| Corrected Density: | | % |
| Corrected Moisture: | **8.5** | % |

**Remarks:**

**Reviewed By:** _____ C.E.T.

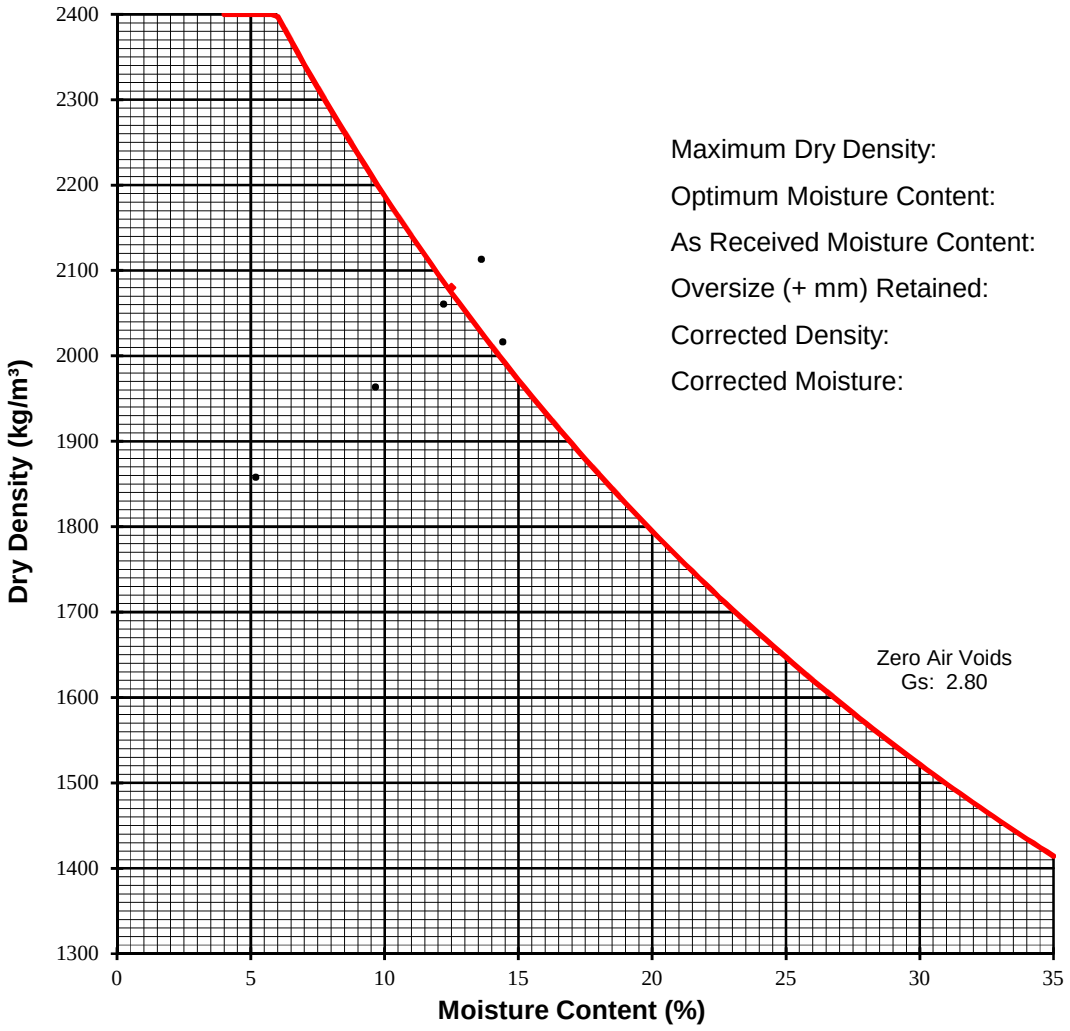


TETRA TECH

# MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

| | | | |
|---|---|---|---|
| Project: | Meliadine Dike Construction | Sample No.: | SA02 |
| Client: | Agnico Eagle | Sampled By: | TW |
| Attention: | Duy Nguyen | Sample Date: | November 8, 2016 |
| Project No.: | E14103230-01 | Test Date: | November 8, 2016 |
| Description: | Type C (20mm agg.) | Preparation: | Moist |
| Source: | Crusher | Compaction: | Manual |




| | | |
|---|---|---|
| Maximum Dry Density: | **2080** | kg/m³ |
| Optimum Moisture Content: | **12.5** | % |
| As Received Moisture Content: | | % |
| Oversize (+ mm) Retained: | | % |
| Corrected Density: | **2080** | % |
| Corrected Moisture: | **12.5** | % |

**Remarks:**

**Reviewed By:** _____ C.E.T.



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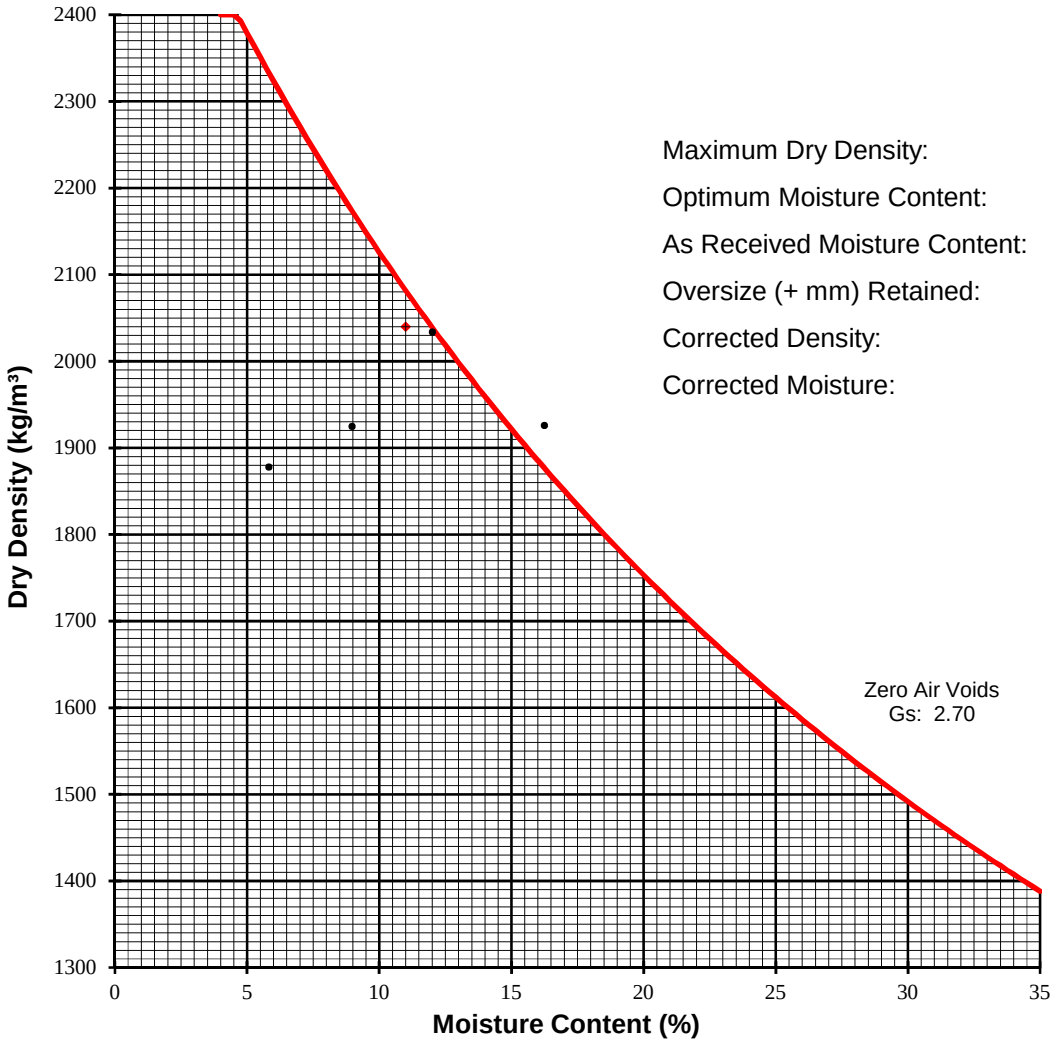
# MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

| | | | |
|---|---|---|---|
| Project: | Meliadine Dike Construction | Sample No.: | SA03 |
| Client: | Agnico Eagle | Sampled By: | IM |
| Attention: | Duy Nguyen | Sample Date: | November 30, 2016 |
| Project No.: | E14103230-01.023 | Test Date: | November 30, 2016 |
| Description: | Type C (20 mm agg.) | Preparation: | Moist |
| Source: | Crusher | Compaction: | Manual |




| | | |
|---|---|---|
| Maximum Dry Density: | **2040** | kg/m³ |
| Optimum Moisture Content: | **11.0** | % |
| As Received Moisture Content: | **14.3** | % |
| Oversize (+ mm) Retained: | | % |
| Corrected Density: | | % |
| Corrected Moisture: | **11.0** | % |

**Remarks:** Same material used for Sieve Sample SA37

**Reviewed By:** _____ C.E.T.

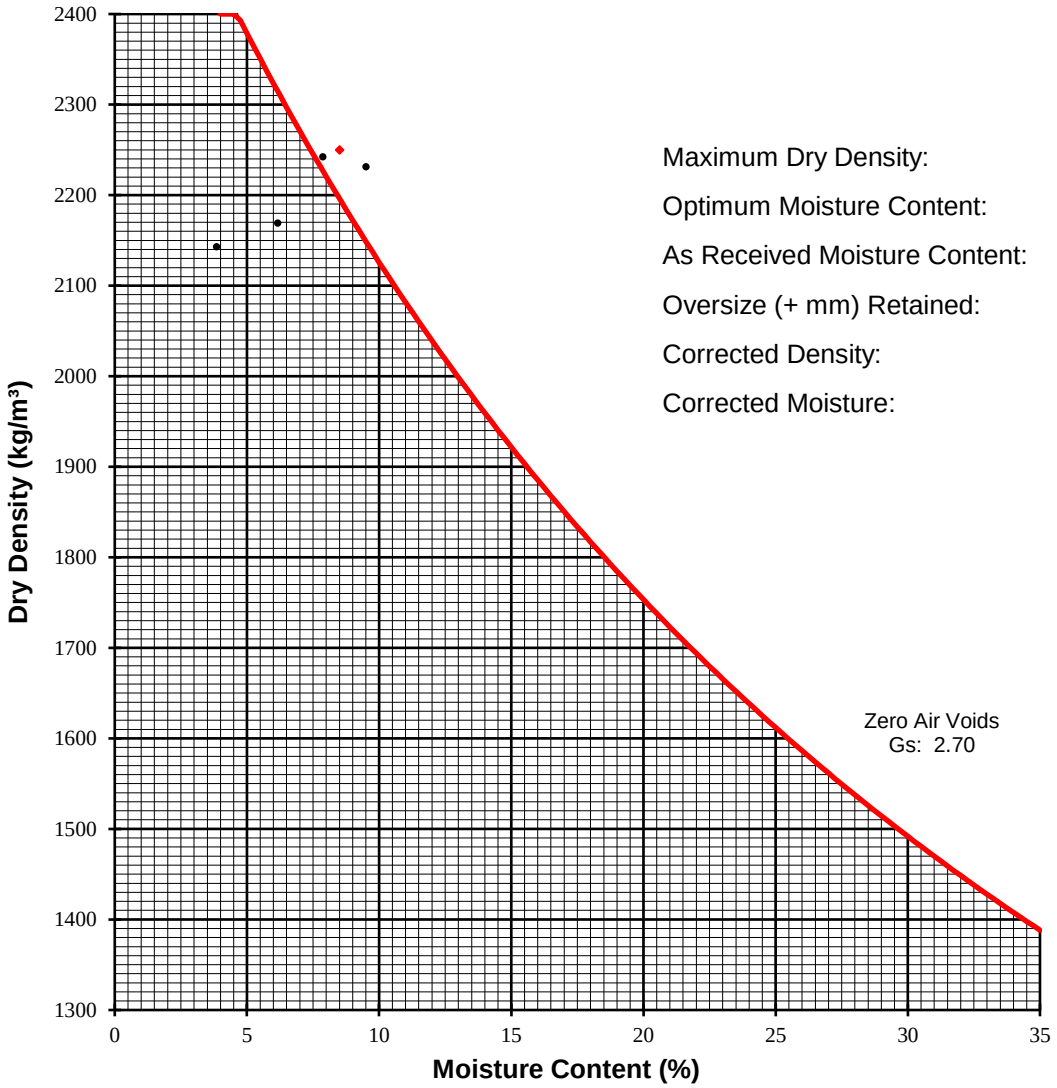


TETRA TECH

# MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

| | | | |
|---|---|---|---|
| Project: | Meliadine Dike Construction | Sample No.: | SA04 |
| Client: | Agnico Eagle | Sampled By: | TW |
| Attention: | Duy Nguyen | Sample Date: | March 29, 2017 |
| Project No.: | E14103230-01 | Test Date: | March 29, 2017 |
| Description: | Type C (20mm agg.) | Preparation: | Moist |
| Source: | Stockpile | Compaction: | Manual |




| | | |
|---|---|---|
| Maximum Dry Density: | **2250** | kg/m³ |
| Optimum Moisture Content: | **8.5** | % |
| As Received Moisture Content: | | % |
| Oversize (+ mm) Retained: | | % |
| Corrected Density: | **2080** | % |
| Corrected Moisture: | **8.5** | % |

**Remarks:**

**Reviewed By:** _____ C.E.T.

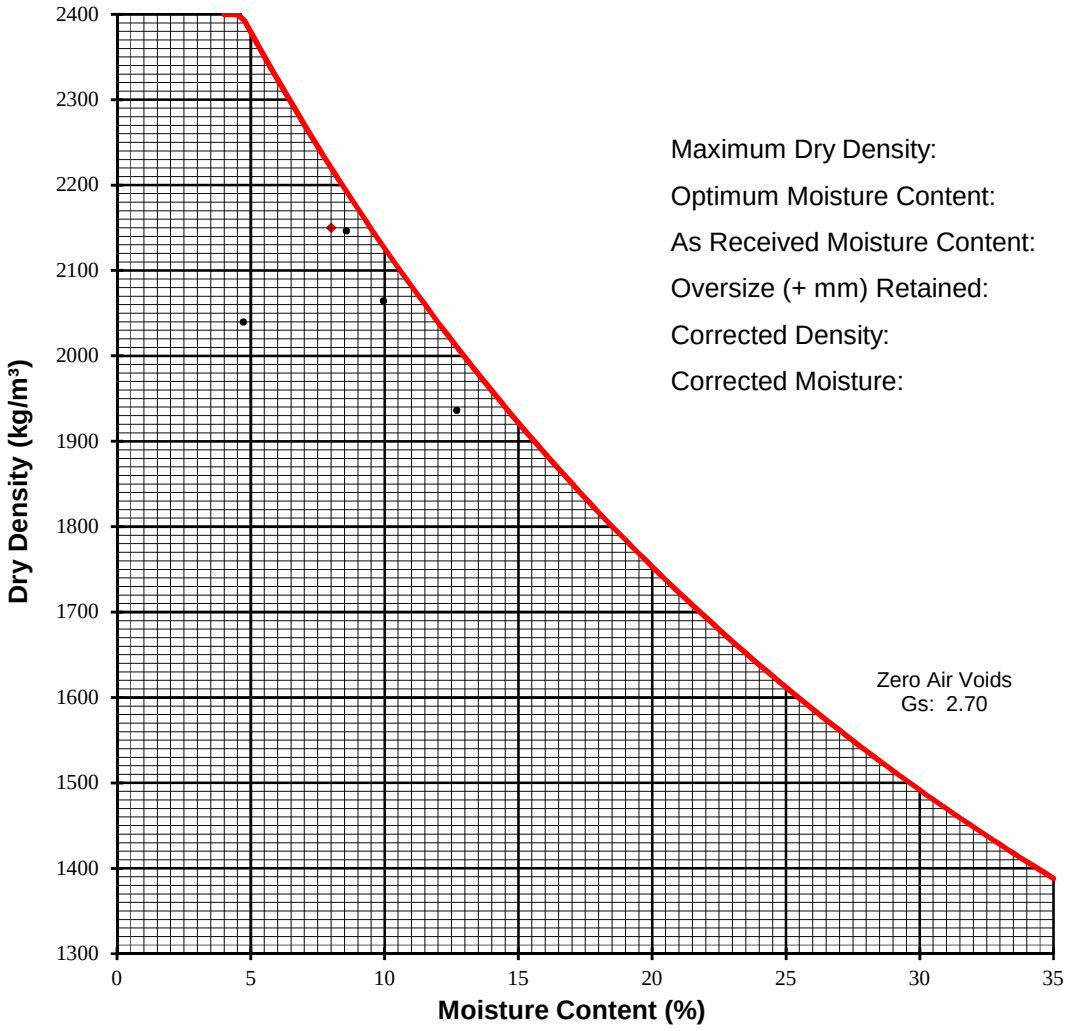


TETRA TECH

# MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 Standard

| | | | |
|---|---|---|---|
| Project: | Meliadine Dike Construction | Sample No.: | SA07 |
| Client: | Agnico Eagle | Sampled By: | TW |
| Attention: | Duy Nguyen | Sample Date: | May 1, 2017 |
| Project No.: | E14103230-01 Task 023 | Test Date: | May 1, 2017 |
| Description: | Type C (20mm minus) | Preparation: | Moist |
| Source: | Type C Stockpile | Compaction: | Manual |




| | | |
|---|---|---|
| Maximum Dry Density: | **2150** | kg/m³ |
| Optimum Moisture Content: | **8.0** | % |
| As Received Moisture Content: | **12.7** | % |
| Oversize (+ mm) Retained: | | % |
| Corrected Density: | | % |
| Corrected Moisture: | | % |

**Remarks:**

**Reviewed By:** _____ C.E.T.



TETRA TECH

## Table E2.1: Moisture Content Results for Granular Fill (20 mm minus) Material - Type C

| Sample No. | Date Tested | Moisture Content (%) | Sample Source |
|---|---|---|---|
| SA01 | 22-Oct-16 | 9.3 | sampled from belt |
| SA02 | 22-Oct-16 | 7.1 | sampled from belt |
| SA03 | 22-Oct-16 | 5.4 | sampled from belt |
| SA04 | 22-Oct-16 | 8.7 | sampled from belt |
| SA05 | 22-Oct-16 | 6.0 | sampled from belt |
| SA06 | 24-Oct-16 | 5.5 | sampled from belt |
| SA07 | 24-Oct-16 | 6.3 | sampled from belt |
| SA08 | 25-Oct-16 | 5.0 | sampled from belt |
| SA09 | 26-Oct-16 | 8.4 | sampled from belt |
| SA10 | 27-Oct-16 | 7.1 | sampled from belt |
| SA11 | 29-Oct-16 | 6.1 | sampled from belt |
| SA12 | 01-Nov-16 | 7.6 | sampled from belt |
| SA13 | 02-Nov-16 | 11.0 | sampled from belt |
| SA14 | 03-Nov-16 | 5.3 | sampled from belt |
| SA15 | 05-Nov-16 | 4.2 | sampled from belt |
| SA16 | 06-Nov-16 | 4.9 | sampled from belt |
| SA17 | 07-Nov-16 | 8.0 | sampled from belt |
| SA18 | 08-Nov-16 | 4.5 | sampled from belt |
| SA19 | 09-Nov-16 | 9.4 | sampled from belt |
| SA20 | 10-Nov-16 | 9.4 | sampled from belt |
| SA21 | 12-Nov-16 | 10.0 | sampled from belt |
| SA22 | 13-Nov-16 | 9.9 | sampled from belt |
| SA23 | 14-Nov-16 | 5.1 | sampled from belt |
| SA24 | 17-Nov-16 | 8.2 | sampled from belt |
| SA25 | 17-Nov-16 | 12.4 | sampled from stockpile |
| SA26 | 17-Nov-16 | 11.5 | sampled from stockpile |
| SA27 | 19-Nov-16 | 11.2 | sampled from stockpile |
| SA28 | 19-Nov-16 | 9.2 | sampled from stockpile |
| SA29 | 19-Nov-16 | 11.9 | sampled from belt |
| SA30 | 21-Nov-16 | 11.1 | sampled from belt |
| SA31 | 23-Nov-16 | 4.5 | sampled from belt |
| SA32 | 23-Nov-16 | 10.3 | sampled from belt |
| SA33 | 26-Nov-16 | 7.5 | sampled from stockpile |
| SA34 | 26-Nov-16 | 6.7 | sampled from belt |
| SA35 | 26-Nov-16 | 8.0 | sampled from stockpile |
| SA36 | 29-Nov-16 | 7.1 | sampled from belt |
| SA37 | 30-Nov-16 | 14.3 | sampled from belt |
| SA38 | 02-Dec-16 | 13.3 | sampled from belt |
| SA39 | 03-Dec-16 | 13.8 | sampled from belt |
| SA40 | 05-Dec-16 | 14.4 | sampled from belt |
| SA41 | 11-Mar-17 | 6.7 | sampled from stockpile |
| SA42 | 12-Mar-17 | 8.2 | sampled from belt |
| SA43 | 18-Apr-17 | 11.5 | sampled from spread |
| SA44 | 29-Apr-17 | 8.5 | sampled from belt |
| SA45 | 29-Apr-17 | 7.8 | sampled from belt |
| SA46 | 30-Apr-17 | 6.9 | sampled from belt |
| SA47 | 30-Apr-17 | 10.9 | sampled from belt |
| SA48 | 01-May-17 | 12.6 | sampled from belt |

| | | | |
|---|---|---|---|
| SA49 | 01-May-17 | 5.6 | sampled from belt |
| SA50 | 09-May-17 | 2.4 | sampled from belt |
| SA51 | 10-May-17 | 14.1 | sampled from belt |
| SA52 | 14-May-17 | 1.4 | sampled from belt |
| SA53 | 15-May-17 | 2.1 | sampled from stockpile |
| SP1 | 16-Jan-17 | 15.3 | Sampled from stockpile at Mix Pit |
| SP2 | 16-Jan-17 | 15.5 | Sampled from stockpile at Mix Pit |
| SP3 | 16-Jan-17 | 8.4 | Sampled from North Crusher Stockpile |
| SP4 | 16-Jan-17 | 5.6 | Sampled from North Crusher Stockpile |
| SP5 | 16-Jan-17 | 4.2 | Sampled from North Crusher Stockpile |
| SP6 | 16-Jan-17 | 6.4 | Sampled from North Crusher Stockpile |
| SP7 | 16-Jan-17 | 5.7 | Sampled from North Crusher Stockpile |
| SP8 | 16-Jan-17 | 5.3 | Sampled from North Crusher Stockpile |
| SP9 | 16-Jan-17 | 16.3 | Sampled from Middle Crusher Stockpile, North End |
| SP10 | 16-Jan-17 | 6.2 | Sampled from Middle Crusher Stockpile, North End |
| SP11 | 16-Jan-17 | 6.9 | Sampled from South Crusher Stockpile |
| SP12 | 16-Jan-17 | 9.4 | Sampled from South Crusher Stockpile |
| SP13 | 16-Jan-17 | 8.2 | Sampled from South Crusher Stockpile |
| SP14 | 16-Jan-17 | 13.3 | Sampled from East Crusher Stockpile |
| SP15 | 16-Jan-17 | 8.7 | Sampled from East Crusher Stockpile |
| SP16 | 18-Jan-17 | 6.3 | Sampled from Type K Mixing Station |
| SP17 | 18-Jan-17 | 6.8 | Sampled from Type K Mixing Station |
| SP18 | 18-Jan-17 | 7.3 | Sampled from Type K Mixing Station |
| SP19 | 29-Jan-17 | 10.2 | Sampled from reject pile North of Type F Mixing Station |
| SP20 | 29-Jan-17 | 16.9 | Sampled from reject pile North of Type F Mixing Station |
| SP21 | 29-Jan-17 | 16.3 | Sampled from reject pile North of Type F Mixing Station |
| SP22 | 30-Jan-17 | 7.7 | Sampled from stockpile North of Type F Mixing Station |
| SP23 | 30-Jan-17 | 6.3 | Sampled from stockpile North of Type F Mixing Station |
| SP24 | 31-Jan-17 | 7.7 | Sampled from stockpile used for Type F |
| SP25 | 31-Jan-17 | 7.0 | Sampled from stockpile used for Type F |
| SP26 | 01-Feb-17 | 8.2 | Sampled from stockpile North of Type F Mixing Station |
| SP27 | 11-Feb-17 | 6.7 | Dike D-CP1 fillet zone Station 0+300, -0.3 m |
| SP28 | 11-Feb-17 | 7.4 | Dike D-CP1 fillet zone Station 0+340, -0.3 m |
| SP29 | 11-Feb-17 | 6.9 | Dike D-CP1 fillet zone Station 0+380, -0.3 m |
| SP30 | 16-Mar-17 | 8.3 | Dike D-CP1 first lift over liner Station 0+425 |
| SP31 | 05-Apr-17 | 8.2 | Recyled Type C from Stockpile |
| SP32 | 05-Apr-17 | 9.0 | Recyled Type C from Stockpile |
| SP33 | 05-Apr-17 | 9.1 | Recyled Type C from Stockpile |
| SP34 | 07-Apr-17 | 9.2 | Recyled Type C from Stockpile |
| SP35 | 07-Apr-17 | 11.8 | Recyled Type C from Stockpile |
| SP36 | 08-Apr-17 | 11.4 | Recyled Type C from Stockpile |
| SP37 | 08-Apr-17 | 11.5 | Recyled Type C from Stockpile |
| SP38 | 09-Apr-17 | 9.2 | Recyled Type C from Stockpile |
| SP39 | 09-Apr-17 | 8.6 | Recyled Type C from Stockpile |
| SP40 | 02-May-17 | 8.2 | Sampled from Type C Stockpile 1 |
| SP41 | 02-May-17 | 7.9 | Sampled from Type C Stockpile 1 |
| SP42 | 02-May-17 | 9.3 | Sampled from Type C Stockpile 5 |
| SP43 | 02-May-17 | 16.2 | Sampled from Type C Stockpile 3 - Material Rejected |
| SP44 | 02-May-17 | 19.8 | Sampled from Type C Stockpile 3 - Material Rejected |
| SP45 | 05-May-17 | 6.9 | Sampled from Type C stockpile floor |
| SP46 | 05-May-17 | 6.5 | Sampled from Type C stockpile floor |

| | | | |
|---|---|---|---|
| SP47 | 05-May-17 | 8.4 | Sampled from Type C stockpile floor |
| SP48 | 13-May-17 | 5.4 | Sampled from Type C stockpile |
| SP49 | 13-May-17 | 4.2 | Sampled from Type C stockpile |
| SP50 | 13-May-17 | 3.3 | Sampled from Type C stockpile |
| SP51 | 13-May-17 | 4.0 | Sampled from Type C stockpile |

| | |
|---|---|
| **Average Moisture Content** | **8.6%** |

## Table E2.2: Frozen / In-situ Single Point Proctors for Type C Material

| Date/Shift | Material Type | Sample | Mass of Soil in Mold (g) | Mold Volume (cm2) | Frozen Compacted Density (kg/m3) | Mass of Weight Soil and Tare (g) | Mass of Tare (g) | Mass of Dry Soil and Tare (g) | Moisture Content (%) | Dry Density (kg/m3) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov 26, 2016 / NS | Type C | SA01 | 4056.8 | 2122.5 | 1911 | 3701.3 | 1650.9 | 3568.8 | 6.9 | 1788 | |
| Mar 5, 2017 / DS | Type C | SA02 | 3844.0 | 2122.5 | 1811 | 410.8 | 15.8 | 382.6 | 7.7 | 1682 | Type C stockpile at Type F mixing station |
| Mar 7, 2017 / DS | Type C | SA03 | 3712.0 | 2122.5 | 1749 | 417.0 | 16.7 | 383.7 | 9.1 | 1603 | Type C stockpile at Type F mixing station |
| Mar 11, 2017 / DS | Type C | SA04 | 3874.0 | 2122.5 | 1825 | 670.6 | 16.9 | 629.3 | 6.7 | 1710 | Type C stockpile at Type F mixing station |
| Mar 12, 2017 / DS | Type C | SA05 | 3794.0 | 2122.5 | 1788 | 361.5 | 15.8 | 332.5 | 9.2 | 1638 | Type C stockpile at Type F mixing station |
| April 5, 2017 / NS | Type C | SA06 | 3858.9 | 2122.5 | 1818 | 3509.4 | 1651.2 | 3377.4 | 7.6 | 1689 | Type C used at DCP5 for U/S fillet |
| April 17, 2017 / DS | Type C | SA07 | 3890.0 | 2122.5 | 1833 | 5508.0 | 1634.0 | 5130.0 | 10.8 | 1654 | Type C used at DCP 5 for U/S fillet between Stations 0+210 and 0+270 |
| April 18, 2017 / DS | Type C | SA08 | 3694.0 | 2122.5 | 1740 | 4334.0 | 690.0 | 3934.0 | 12.3 | 1549 | Sampled from U/s Type C fillet at D-CP5; Station ~0+280 |
| April 30, 2017 / NS | Type C | SA09 | 3759.0 | 2126.6 | 1768 | 3562.5 | 695.5 | 3281.6 | 10.9 | 1594 | Sampled from crusher belt |

## D-CP5 Type C Material Field Density Testing (Nuclear Densometer) Summary

| Date | Density Test # | Tech | Probe Depth (mm) | Station | Depth from OG (m) | Wet Density (Mg/m3) | Moisture Content (%) | Dry Density (M/m3) | Single Point Frozen Proctor Dry Density (kg/m3) | % SPFPDD | Standard Proctor Maximum Dry Density (kg/m3) | % SPMDD | Comments (All tests approx. along Centreline unless otherwise noted) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2017-04-01 | 1 | TW | 200 | 0+015 | 0.9 | 1969 | 6.2 | 1854 | 1685 | 110.0 | 2100 | 88.3 | 1st lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-01 | 2 | TW | 200 | 0+005 | 0.9 | 1908 | 6.4 | 1793 | 1685 | 106.4 | 2100 | 85.4 | 1st lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-01 | 3 | TW | 200 | 0+020 | 0.9 | 1900 | 6.2 | 1789 | 1685 | 106.2 | 2100 | 85.2 | 1st lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-01 | 4 | TW | 200 | 0+035 | 0.9 | 1936 | 6.3 | 1821 | 1685 | 108.1 | 2100 | 86.7 | 1st lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-02 | 5 | WW | 200 | 0+045 | 0.8 | 1836 | 6.8 | 1719 | 1685 | 102.0 | 2100 | 81.9 | 2nd lift Type C us fillet - frozen |
| 2017-04-02 | 6 | WW | 200 | 0+020 | 0.8 | 1840 | 6.3 | 1731 | 1685 | 102.7 | 2100 | 82.4 | 2nd lift Type C us fillet - frozen |
| 2017-04-02 | 7 | WW | 200 | 0+055 | 0.6 | 1856 | 6.2 | 1748 | 1685 | 103.7 | 2100 | 83.2 | 3rd lift Type C us fillet - frozen |
| 2017-04-02 | 8 | WW | 200 | 0+025 | 0.6 | 1966 | 6.1 | 1853 | 1685 | 110.0 | 2100 | 88.2 | 3rd lift Type C us fillet - frozen |
| 2017-04-03 | 9 | WW | 200 | 0+070 | 0.4 | 1852 | 6.4 | 1741 | 1685 | 103.3 | 2100 | 82.9 | 4th lift u/s fillet - frozen |
| 2017-04-03 | 10 | WW | 200 | 0+030 | 0.4 | 1864 | 6.4 | 1752 | 1685 | 104.0 | 2100 | 83.4 | 4th lift u/s fillet - frozen |
| 2017-04-03 | 11 | WW | 200 | 0+060 | 0.4 | 1880 | 6.5 | 1765 | 1685 | 104.8 | 2100 | 84.1 | 4th lift u/s fillet - frozen |
| 2017-04-03 | 12 | WW | 200 | 0+023 | 0.4 | 1840 | 7.5 | 1712 | 1685 | 101.6 | 2100 | 81.5 | 4th lift u/s fillet - frozen |
| 2017-04-03 | 13 | WW | 200 | 0+035 | 0.2 | 1858 | 7.4 | 1730 | 1685 | 102.7 | 2100 | 82.4 | 5th lift u/s fillet |
| 2017-04-03 | 14 | WW | 200 | 0+035 | 0.2 | 1881 | 6.6 | 1765 | 1685 | 104.7 | 2100 | 84.0 | 6th lift u/s fillet |
| 2017-04-03 | 15 | WW | 200 | 0+035 | 0.2 | 1894 | 6.4 | 1780 | 1685 | 105.6 | 2100 | 84.8 | 7th lift u/s fillet |
| 2017-04-03 | 16 | WW | 200 | 0+035 | 0.2 | 1861 | 7.3 | 1734 | 1685 | 102.9 | 2100 | 82.6 | 8th lift u/s fillet |
| 2017-04-03 | 17 | TW | 200 | 0+085 | 1.05 | 1842 | 7.0 | 1721 | 1685 | 102.2 | 2100 | 82.0 | 1st lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-03 | 18 | TW | 200 | 0+097 | 1.05 | 1876 | 6.7 | 1758 | 1685 | 104.3 | 2100 | 83.7 | 1st lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-03 | 19 | TW | 200 | 0+113 | 1.05 | 1952 | 5.3 | 1854 | 1685 | 110.0 | 2100 | 88.3 | 1st lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-03 | 20 | TW | 200 | 0+081 | 0.75 | 1925 | 5.6 | 1823 | 1685 | 108.2 | 2100 | 86.8 | 2nd lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-03 | 21 | TW | 200 | 0+098 | 0.75 | 1877 | 6.9 | 1756 | 1685 | 104.2 | 2100 | 83.6 | 2nd lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-03 | 22 | TW | 200 | 0+098 | 0.75 | 1857 | 7.0 | 1736 | 1685 | 103.0 | 2100 | 82.6 | 2nd lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-03 | 23 | TW | 200 | 0+098 | 0.75 | 1838 | 5.4 | 1744 | 1685 | 103.5 | 2100 | 83.0 | 2nd lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-03 | 24 | TW | 200 | 0+098 | 0.75 | 1865 | 5.9 | 1761 | 1685 | 104.5 | 2100 | 83.9 | 2nd lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-03 | 25 | TW | 200 | 0+080 | 0 (OG) | 1835 | 5.6 | 1738 | 1685 | 103.1 | 2100 | 82.7 | 4th lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-03 | 26 | TW | 200 | 0+108 | 0 (OG) | 1863 | 6.2 | 1754 | 1685 | 104.1 | 2100 | 83.5 | 4th lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-04 | 27 | WW | 200 | 0+122 | 0.9 | 1938 | 5.6 | 1835 | 1685 | 108.9 | 2100 | 87.4 | u/s fillet 1st lift |
| 2017-04-04 | 28 | WW | 200 | 0+127 | 0.2 | 1974 | 6.0 | 1862 | 1685 | 110.5 | 2100 | 88.7 | u/s fillet final lift |
| 2017-04-05 | 29 | WW | 200 | 0+170 | 0.75 | 1921 | 4.9 | 1831 | 1685 | 108.7 | 2100 | 87.2 | u/s fillet 1st lift |
| 2017-04-05 | 30 | TW | 200 | 0+182 | 0.3 | 1812 | 6.3 | 1705 | 1685 | 101.2 | 2100 | 81.2 | 2nd lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-05 | 31 | TW | 200 | 0+192 | 0.3 | 1824 | 6.7 | 1709 | 1685 | 101.5 | 2100 | 81.4 | 2nd lift of Type C U/S fillet (below liner) -frozen |
| 2017-04-06 | 32 | WW | 200 | 0+153 | 0.2 | 1926 | 5.3 | 1829 | 1685 | 108.5 | 2100 | 87.1 | top lift of Type C us fillet |
| 2017-04-06 | 33 | WW | 200 | 0+185 | 0.4 | 1891 | 5.7 | 1789 | 1685 | 106.2 | 2100 | 85.2 | us fillet Type C underliner - frozen |
| 2017-04-06 | 34 | WW | 200 | 0+185 | 0.4 | 1895 | 5.7 | 1793 | 1685 | 106.4 | 2100 | 85.4 | us fillet Type C underliner - frozen |
| 2017-04-06 | 35 | WW | 200 | 0+185 | 0.4 | 1913 | 5.6 | 1812 | 1685 | 107.5 | 2100 | 86.3 | us fillet Type C underliner - frozen |
| 2017-04-06 | 36 | WW | 200 | 0+185 | 0.4 | 1929 | 5.9 | 1822 | 1685 | 108.1 | 2100 | 86.7 | us fillet Type C underliner - frozen |
| 2017-04-15 | 37 | WW | 200 | 0+210 | 0.4 | 1840 | 7.5 | 1712 | 1685 | 101.6 | 2100 | 81.5 | us fillet Type C underliner |
| 2017-04-16 | 38 | IM | 200 | 0+260 | 1.8 | 1864 | 7.3 | 1737 | 1685 | 103.1 | 2100 | 82.7 | 3rd Lift Type C U/S Fillet - Frozen |
| 2017-04-16 | 39 | IM | 200 | 0+245 | 1.5 | 1850 | 6.9 | 1731 | 1685 | 102.7 | 2100 | 82.4 | 4th Lift Type C U/S Fillet - Frozen |
| 2017-04-16 | 40 | IM | 200 | 0+230 | 1.5 | 1857 | 7.5 | 1727 | 1685 | 102.5 | 2100 | 82.3 | 4th Lift Type C U/S Fillet - Frozen |
| 2017-04-22 | 41 | TW | 200 | 0+160 | 0.3 | 1865 | 6.5 | 1751 | 1685 | 103.9 | 2101 | 83.3 | 2nd Lift of the Type C D/S Fillet - Frozen |
| 2017-04-22 | 42 | TW | 200 | 0+180 | 0.3 | 1876 | 6.8 | 1757 | 1685 | 104.2 | 2102 | 83.6 | 2nd Lift of the Type C D/S Fillet - Frozen |
| 2017-05-03 | 43 | TW | 200 | 1+080 | 66.1 elev | 1845 | 7.2 | 1721 | 1685 | 102.1 | 2102 | 81.9 | First lift of Type C material placing on the U/S slope |
| 2017-05-03 | 44 | TW | 200 | 1+150 | 65.3 elev | 1790 | 6.4 | 1682 | 1685 | 99.8 | 2102 | 80.0 | First lift of Type C material placing on the U/S slope |
| 2017-05-03 | 45 | TW | 200 | 1+195 | 64.9 elev | 1798 | 6.6 | 1687 | 1685 | 100.1 | 2102 | 80.2 | First lift of Type C material placing on the U/S slope |
| 2017-05-03 | 46 | TW | 200 | 1+235 | 64.9 elev | 1823 | 7.0 | 1704 | 1685 | 101.1 | 2102 | 81.1 | First lift of Type C material placing on the U/S slope |
| 2017-05-04 | 47 | TW | 200 | 1+270 | 66.3 elev | 1970 | 6.2 | 1855 | 1685 | 110.1 | 2102 | 88.2 | Third lift of Type C material placed on the U/S slope |
| 2017-05-04 | 48 | TW | 200 | 1+239 | 65.95 elev | 1902 | 8.4 | 1755 | 1685 | 104.1 | 2102 | 83.5 | Third lift of Type C material placed on the U/S slope |
| 2017-05-04 | 49 | TW | 200 | 1+166 | 65.6 elev | 1940 | 6.1 | 1828 | 1685 | 108.5 | 2102 | 87.0 | Third lift of Type C material placed on the U/S slope |
| 2017-05-05 | 50 | TW | 200 | 1+180 | 66 elev | 1905 | 7.3 | 1775 | 1685 | 105.4 | 2102 | 84.5 | Fifth lift of Type C material placed on the U/S slope |
| 2017-05-05 | 51 | TW | 200 | 1+125 | 66.1 | 1920 | 6.4 | 1805 | 1685 | 107.1 | 2102 | 85.8 | Fifth lift of Type C material placed on the U/S slope |

## Dike D-CP5 Type C Material Sand Cone Tests 2017 Summary

| Date | Material Type | Station | Dry Density (kg/m3) (Densometer Avg.) | Densometer Moisture Content (% Avg.) | Bentonite placed (g) | Bentonite Bulk Density* (kg/m3) | Pit Volume (m3) | Soil weight (g) | Soil Bulk Density (kg/m3) | Moisture Content (%) | Soil Dry Density (kg/m3) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3-Apr-17 | Type C | 0+098 | 1749 | 6.3 | 2810 | 1056 | 0.00266 | 6696 | 2516.4 | 8.5 | 2319.2 | TW- Type C Material was frozen |
| 6-Apr-17 | Type C | 0+185 | 1804 | 5.7 | 3159 | 1056 | 0.00299 | 5606 | 1874.0 | 6.2 | 1764.6 | WW - Type C material was frozen |
| 17-Apr-17 | Type C | 0+240 | 1667 | 8.8 | 2620 | 1089 | 0.00241 | 4204 | 1747 | 10.5 | 1581 | WW- Material was u/s fillet, frozen and appeared to have a high sand content. |

# APPENDIX E3

## TYPE F MATERIAL QA/QC TEST RESULTS

## Table E3.1: Moisture Content Results for Bentonite Augmented Material - Type F

| Sample No. | Date Tested | Moisture Content (%) | Sample Source |
|---|---|---|---|
| SA01 | 29-Jan-17 | 8.2 | 20 mm minus mixed with bentonite |
| SA02 | 30-Jan-17 | 7.2 | 20 mm minus mixed with bentonite |
| SA03 | 31-Jan-17 | 8.4 | 20 mm minus mixed with bentonite |
| SA04 | 31-Jan-17 | 7.4 | 20 mm minus mixed with bentonite |
| SA05 | 01-Feb-17 | 8.0 | 20 mm minus mixed with bentonite |
| SA06 | 18-Feb-17 | 6.4 | 20 mm minus mixed with bentonite |

| Average Moisture Content | 7.6% |
|---|---|

## Table E3.2: Frozen / In-situ Single Point Proctors for Type F Material

| Date/Shift | Material Type | Sample | Mass of Soil in Mold (g) | Mold Volume (cm3) | Frozen Compacted Density (kg/m3) | Mass of Wet Soil and Tare (g) | Mass of Tare (g) | Mass of Dry Soil and Tare (g) | Moisture Content (%) | Dry Density (kg/m3) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Nov 20, 2016 / NS | Type F | SA01 | 3847.6 | 2122.5 | 1813 | 4024.1 | 1643.7 | 3850.6 | 7.9 | 1681 | |
| Nov 26, 2016 / NS | Type F | SA02 | 3879.6 | 2122.5 | 1828 | 1961.1 | 681.6 | 1839.4 | 10.5 | 1654 | |
| Jan 31, 2017 / DS | Type F | SA03 | 3662.3 | 2122.5 | 1725 | 2690.7 | 696.7 | 2536.2 | 8.4 | 1592 | |
| Jan 31, 2017 / DS | Type F | SA04 | 3712.4 | 2122.5 | 1749 | 2675.5 | 694.8 | 2539.3 | 7.4 | 1629 | |
| Jan 31, 2017 / NS | Type F | SA05 | 3704.5 | 2122.5 | 1736 | 2783.5 | 693.2 | 2629.5 | 8.0 | 1608 | |
| Feb 1, 2017 / DS | Type F | SA06 | 3707.0 | 2122.4 | 1747 | 2965.8 | 697.6 | 2814.9 | 7.1 | 1631 | |
| Feb 1, 2017 / NS | Type F | SA07 | 3704.5 | 2122.5 | 1736 | 2783.5 | 693.2 | 2629.5 | 8.0 | 1608 | |
| March 14, 2017 / DS | Type F | SA08 | 3865.4 | 2122.5 | 1821 | 160.2 | 4.3 | 148.2 | 8.3 | 1681 | Mixing station - sampled from batch after mixing |
| April 10, 2017 / DS | Type F | SA09 | 3804.0 | 2122.5 | 1792 | 1438.6 | 690.3 | 1363.0 | 11.2 | 1611 | |

## Dike D-CP5 Type F Material Field Density Testing (Nuclear Densometer) Summary

Note: Densities and saturation are based on Nuclear Gauge results which may not be accurate for frozen aggregate

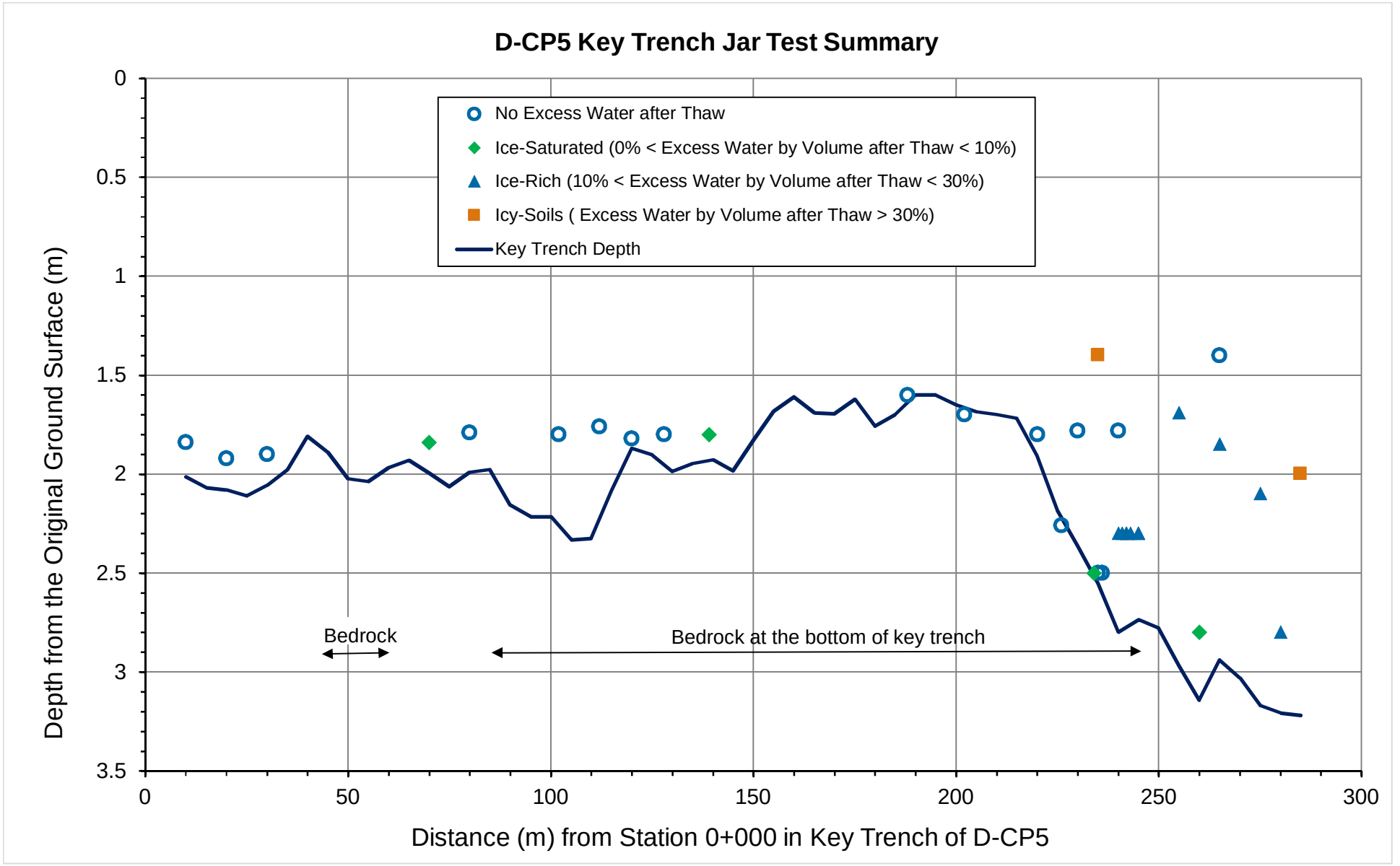
| Date | Density Test # | Tech | Probe Depth (mm) | Station | Depth from OG (m) | Wet Density (kg/m3) | Moisture Content (%) | Dry Density (kg/m3) | Single Point Frozen Proctor Dry Density Average (kg/m3) | % SPFPDD | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 31-Mar-17 | 001 | TW | 200 | 0+006 | 1.65 | 1842 | 6.6 | 1728 | 1635 | 105.7 | Top of Type F below liner - frozen |
| 31-Mar-17 | 002 | TW | 200 | 0+010 | 1.65 | 1848 | 7.2 | 1724 | 1635 | 105.4 | Top of Type F below liner - frozen |
| 31-Mar-17 | 003 | TW | 200 | 0+015 | 1.65 | 1947 | 5.7 | 1842 | 1635 | 112.7 | Top of Type F below liner - frozen |
| 31-Mar-17 | 004 | TW | 200 | 0+015 | 1.65 | 1883 | 6.9 | 1761 | 1635 | 107.7 | Top of Type F below liner - frozen |
| 31-Mar-17 | 005 | TW | 200 | 0+015 | 1.65 | 1889 | 6.6 | 1772 | 1635 | 108.4 | Top of Type F below liner - frozen |
| 31-Mar-17 | 006 | TW | 200 | 0+015 | 1.65 | 1890 | 6.4 | 1776 | 1635 | 108.6 | Top of Type F below liner - frozen |
| 31-Mar-17 | 007 | TW | 200 | 0+025 | 1.65 | 1867 | 6.8 | 1748 | 1635 | 106.9 | Top of Type F below liner - frozen |
| 1-Apr-17 | 008 | TW | 200 | 0+058 | 1.65 | 1885 | 6.3 | 1773 | 1635 | 108.5 | Top of Type F below liner - frozen |
| 1-Apr-17 | 009 | TW | 200 | 0+067 | 1.65 | 1846 | 6.5 | 1733 | 1635 | 106.0 | Top of Type F below liner - frozen |
| 1-Apr-17 | 010 | TW | 200 | 0+056 | 1.25 | 1856 | 6.8 | 1738 | 1635 | 106.3 | Top of Type F U/S fillet - frozen |
| 1-Apr-17 | 011 | TW | 200 | 0+072 | 1.25 | 1873 | 6.3 | 1762 | 1635 | 107.8 | Top of Type F U/S fillet - frozen |
| 1-Apr-17 | 012 | WW | 150 | 0+047 | 1.65 | 1862 | 7.3 | 1735 | 1635 | 106.1 | Top lift of KT floor - frozen |
| 1-Apr-17 | 013 | WW | 150 | 0+055 | 1.65 | 1882 | 6.1 | 1774 | 1635 | 108.5 | Top lift of KT floor - frozen |
| 1-Apr-17 | 014 | WW | 200 | 0+058 | 1.5 | 1871 | 5.8 | 1768 | 1635 | 108.2 | Lift 1 of u/s Type F fillet |
| 1-Apr-17 | 015 | WW | 150 | 0+040 | 1.5 | 1935 | 5.5 | 1834 | 1635 | 112.2 | Lift 1 of u/s Type F fillet |
| 1-Apr-17 | 016 | WW | 200 | 0+025 | 1.3 | 1933 | 5.3 | 1836 | 1635 | 112.3 | Lift 2 of u/s Type F fillet |
| 1-Apr-17 | 017 | WW | 200 | 0+060 | 1.35 | 1881 | 6.4 | 1768 | 1635 | 108.1 | Lift 2 of u/s Type F fillet |
| 1-Apr-17 | 018 | WW | 200 | 0+072 | 1.5 | 1862 | 6.2 | 1753 | 1635 | 107.2 | Lift 1 of u/s Type F fillet |
| 2-Apr-17 | 019 | WW | 200 | 0+070 | 1.5 | 1862 | 7.3 | 1735 | 1635 | 106.1 | 1st lift u/s fillet |
| 2-Apr-17 | 020 | WW | 200 | 0+084 | 1.65 | 1862 | 6.2 | 1753 | 1635 | 107.2 | 1st lift above KT floor |
| 3-Apr-17 | 021 | WW | 200 | 0+095 | 1.8 | 1859 | 6.5 | 1746 | 1635 | 106.8 | 1st lift above KT floor |
| 3-Apr-17 | 022 | WW | 200 | 0+108 | 1.8 | 1840 | 7.5 | 1712 | 1635 | 104.7 | 1st lift above KT floor |
| 3-Apr-17 | 023 | TW | 200 | 0+080 | 1.5 | 1852 | 8.4 | 1708 | 1635 | 104.5 | 1st lift of Type F U/S fillet -frozen |
| 3-Apr-17 | 024 | TW | 200 | 0+095 | 1.5 | 1860 | 7.7 | 1727 | 1635 | 105.6 | 1st lift of Type F U/S fillet -frozen |
| 3-Apr-17 | 025 | TW | 200 | 0+095 | 1.5 | 1840 | 8.1 | 1702 | 1635 | 104.1 | 1st lift of Type F U/S fillet -frozen |
| 3-Apr-17 | 026 | TW | 200 | 0+095 | 1.5 | 1873 | 8.1 | 1733 | 1635 | 106.0 | 1st lift of Type F U/S fillet -frozen |
| 3-Apr-17 | 027 | TW | 200 | 0+095 | 1.5 | 1805 | 7.9 | 1673 | 1635 | 102.3 | 1st lift of Type F U/S fillet -frozen |
| 3-Apr-17 | 028 | TW | 200 | 0+100 | 1.35 | 1900 | 7.4 | 1769 | 1635 | 108.2 | Top of Type F U/S fillet -frozen |
| 3-Apr-17 | 029 | TW | 200 | 0+112 | 1.35 | 1948 | 7.4 | 1814 | 1635 | 110.9 | Top of Type F U/S fillet -frozen |
| 4-Apr-17 | 030 | WW | 200 | 0+122 | 1.5 | 1946 | 6.7 | 1824 | 1635 | 111.5 | 2nd lift above KT floor |
| 5-Apr-17 | 031 | WW | 200 | 0+170 | 1.25 | 1897 | 6.1 | 1788 | 1635 | 109.4 | 1st lift u/s fillet |
| 5-Apr-17 | 032 | WW | 200 | 0+165 | 1.4 | 1930 | 5.6 | 1828 | 1635 | 111.8 | 2nd lift above KT floor |
| 5-Apr-17 | 033 | TW | 200 | 0+185 | 1.5 | 1823 | 6.8 | 1707 | 1635 | 104.4 | Top of Type F U/S fillet (below liner) -frozen |
| 7-Apr-17 | 034 | WW | 200 | 0+070 | 0.0 | 1904 | 7.0 | 1779 | 1635 | 108.8 | Type F u/s fillet hinge under liner |
| 7-Apr-17 | 035 | WW | 200 | 0+090 | 0.0 | 1844 | 6.7 | 1728 | 1635 | 105.7 | Type F u/s fillet hinge under liner |
| 14-Apr-17 | 036 | WW | 200 | 0+215 | 1.95 | 1820 | 7.9 | 1687 | 1635 | 103.2 | 2nd lift above KT floor |
| 14-Apr-17 | 037 | WW | 200 | 0+210 | 1.8 | 1827 | 9.1 | 1675 | 1635 | 102.4 | 3rd lift above KT floor |
| 16-Apr-17 | 038 | WW | 200 | 0+230 | 2.1 | 1910 | 7.7 | 1773 | 1632 | 108.6 | Final lift above KT floor under liner |
| 16-Apr-17 | 039 | WW | 250 | 0+245 | 2.4 | 1861 | 8.0 | 1723 | 1632 | 105.6 | Final lift above KT floor under liner |
| 16-Apr-17 | 040 | WW | 200 | 0+260 | 2.55 | 1949 | 7.7 | 1810 | 1632 | 110.9 | Final lift above KT floor under liner |
| 16-Apr-17 | 041 | WW | 200 | 0+260 | 2.55 | 1916 | 8.0 | 1774 | 1632 | 108.7 | Final lift above KT floor under liner |
| 16-Apr-17 | 042 | WW | 200 | 0+260 | 2.55 | 1908 | 8.2 | 1763 | 1632 | 108.0 | Final lift above KT floor under liner |
| 16-Apr-17 | 043 | WW | 200 | 0+260 | 2.55 | 1905 | 7.5 | 1772 | 1632 | 108.6 | Final lift above KT floor under liner |
| 16-Apr-17 | 044 | WW | 200 | 0+225 | 1.8 | 1881 | 8.3 | 1737 | 1632 | 106.4 | Final (2nd) lift of U/S fillet under liner |
| 16-Apr-17 | 045 | WW | 200 | 0+250 | 2.1 | 1917 | 7.6 | 1782 | 1632 | 109.2 | Final (2nd) lift of U/S fillet under liner |
| 17-Apr-17 | 046 | WW | 200 | 0+250 | 2 | 1917 | 7.4 | 1785 | 1632 | 109.4 | 2nd lift of U/S fillet above KT floor |
| 18-Apr-17 | 047 | IM | 200 | 0+295 | 1 | 1749 | 7.4 | 1628 | 1632 | 99.8 | North Abutment Type F U/S U/L |
| 18-Apr-17 | 048 | IM | 200 | 0+295 | 0.85 | 1756 | 7.7 | 1630 | 1632 | 99.9 | North Abutment Type F U/S U/L |

## Dike D-CP5 Type F Material Sand Cone Tests 2017 Summary

| Date | Material Type | Station | Dry Density (kg/m3) (Densometer Avg.) | Densometer Moisture Content (% Avg.) | Bentonite placed (g) | Bentonite Bulk Density* | Pit Volume (m3) | Soil weight (g) | Soil Bulk Density (kg/m3) | Moisture Content (%) | Soil Dry Density (kg/m3) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 03-04-2017 | Type F | 0+095 | 1709 | 8 | 2998 | 1056 | 0.0028 | 5546 | 1953.5 | 8.9 | 1793.8 | |
| 16-04-2017 | Type F | 0+260 | 1780 | 7.9 | 2552 | 1089 | 0.0023 | 4412 | 1882.7 | 9.1 | 1725.7 | WW- Type F Material was frozen |

# APPENDIX E4

## KEY TRENCH BASE MATERIAL JAR AND MOISTURE CONTENT TEST RESULTS


D-CP5 Key Trench Jar Test Summary
No Excess Water after Thaw
Ice-Saturated (0% < Excess Water by Volume after Thaw < 10%)
Ice-Rich (10% < Excess Water by Volume after Thaw < 30%)
Icy-Soils ( Excess Water by Volume after Thaw > 30%)
Key Trench Depth
Bedrock
Bedrock at the bottom of key trench
Depth from the Original Ground Surface (m)
Distance (m) from Station 0+000 in Key Trench of D-CP5
0
0.5
1
1.5
2
2.5
3
3.5
0
50
100
150
200
250
300

## TABLE E4: DIKE D-CP5 KEY TRENCH JAR TEST SAMPLES SUMMARY RESULTS

| Sample # | Date Tested | Sample Type | Survey Data | | Jar Test Results | | | | | | | Soil Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Approx. Station | Sample Depth (m) | Height of Supernatant Water (mm) | Height of Saturated Sediment (mm) | Percentage of Excess Supernatant Water in Thawed Soil Sample (by volume) (%) | Moisture Content (%) | Bulk Density (kg/m3) | Ice Content Description | Material Acceptance | |
| 1 | 16-Jan-17 | Disturbed core | 0+235 | 1.40 | 40 | 12 | 76.9 | 184% | 1099 | Icy Soil | Not Acceptable | SAND, some gravel, trace silt |
| 2 | 16-Jan-17 | Disturbed | 0+265 | 1.40 | 0 | 65 | 0.0 | 4% | - | Non- Ice Saturated | Not Acceptable | SILT, some sand |
| 3 | 19-Jan-17 | Core | 0+285 | 2.00 | 42 | 60 | 41.2 | 63% | 1205 | Icy Soil | Not Acceptable | SILT, some sand, some gravel |
| 4 | 19-Jan-17 | Core | 0+275 | 2.10 | 25 | 60 | 29.4 | 55% | 1457 | Ice-Rich Soil | Not Acceptable | SILT |
| 5 | 19-Jan-17 | Core | 0+265 | 1.85 | 15 | 90 | 14.3 | 29% | 1761 | Ice-Rich Soil | Not Acceptable | SILT, some gravel, trace sand |
| 6 | 19-Jan-17 | Core | 0+255 | 1.69 | 16 | 54 | 22.9 | 70% | 1080 | Ice-Rich Soil | Not Acceptable | SILT, trace gravel |
| 7 | 23-Jan-17 | Disturbed | 0+226 | 2.26 | 0 | 125 | 0.0 | 12% | ' | Non- Ice Saturated | Not Acceptable | SILT, some gravel |
| 8 | 23-Jan-17 | Disturbed | 0+202 | 1.90 | 0 | 130 | 0.0 | 13% | ' | Non- Ice Saturated | Not Acceptable | SILT, some gravel |
| 9 | 23-Jan-17 | Disturbed | 0+188 | 1.75 | 0 | 145 | 0.0 | 11% | ' | Non- Ice Saturated | Not Acceptable | SILT, some gravel |
| 10 | 23-Jan-17 | Disturbed Core | 0+020 | 1.92 | 0 | 110 | 0.0 | 13% | ' | Nearly ice-saturated | Acceptable | SILT, some gravel |
| 11 | 23-Jan-17 | Disturbed Core | 0+010 | 1.84 | 0 | 110 | 0.0 | 12% | - | Nearly ice-saturated | Acceptable | SILT, some gravel |
| 12 | 23-Jan-17 | Disturbed Core | 0+002 | 1.74 | 0 | 115 | 0.0 | 15% | - | Nearly ice-saturated | Acceptable | SILT, some gravel |
| 13 | 25-Jan-17 | Disturbed Core | 0+070 | 1.84 | 3 | 75 | 3.8 | 12% | - | Nearly ice-saturated | Acceptable | SILT, some gravel |
| 14 | 25-Jan-17 | Disturbed Core | 0+080 | 1.79 | 0 | 80 | 0.0 | 12% | - | Nearly ice-saturated | Acceptable | SILT, some gravel |
| 15 | 26-Jan-17 | Disturbed Core | 0+230 | 1.78 | 0 | 118 | 0.0 | 8% | - | Non- Ice Saturated | Not Acceptable | SILT, some gravel |
| 16 | 26-Jan-17 | Disturbed Core | 0+240 | 1.78 | 0 | 118 | 0.0 | 10% | - | Non- Ice Saturated | Not Acceptable | SILT, some gravel |
| 17 | 26-Jan-17 | Disturbed Core | 0+220 | 1.80 | 0 | 125 | 0.0 | 8% | - | Non- Ice Saturated | Not Acceptable | SILT, some gravel |
| 18 | 4-Feb-17 | Disturbed Core | 0+128 | 1.80 | 0 | 55 | 0.0 | 17.4% | - | Nearly ice-saturated | Acceptable | SILT, sandy; fine sand |
| 19 | 4-Feb-17 | Disturbed Core | 0+139 | 1.80 | 3 | 45 | 6.3 | 26.4% | - | Ice-saturated | Acceptable | SAND, silty; predominately fine sand |
| 20 | 10-Feb-17 | Disturbed Core | 0+112 | 1.76 | 0 | 60 | 0.0 | 7.7% | V. SMALL SAMPLE | Non- Ice Saturated | Not Acceptable | SAND, silty, some gravel, fine gravel, rock cuttings |
| 21 | 10-Feb-17 | Disturbed Core | 0+102 | 1.80 | 0 | 20 | 0.0 | 6.9% | - | Non- Ice Saturated | Not Acceptable | SAND, some silt, some gravel, fine and medium gravel (subangular) |
| 22 | 11-Feb-17 | Disturbed Core | 0+120 | 1.82 | 0 | 60 | 0.0 | 10.1% | - | Non- Ice Saturated | Not Acceptable | SAND, silty, some gravel, rock cuttings; predominately fine grained sand and silt |
| 23 | 11-Feb-17 | | 0+090 | UNABLE TO OBTAIN CORE - BEDROCK | | | | | | | | BEDROCK |
| 24 | 13-Feb-17 | Disturbed Core | 0+030 | 1.90 | 0 | 80 | 0.0 | 12.0% | - | Nearly ice-saturated | Acceptable | SILT, sandy or SAND, silty, some gravel; when thawed: moist, grey, firm/compact, |
| 25 | 6-Apr-17 | Disturbed Core | 0+243 | 2.30 | 13 | 37 | 26.0 | 30.7% | 1651 | Ice-Rich Soil | Not Acceptable | SILT, some gravel |
| 26 | 6-Apr-17 | Disturbed Core | 0+242 | 2.30 | 13 | 50 | 20.6 | 33.9% | -- | Ice-Rich Soil | Not Acceptable | SILT, some gravel |
| 27 | 6-Apr-17 | Disturbed Core | 0+245 | 2.30 | 16 | 57 | 21.9 | 24.6% | 1543 | Ice-Rich Soil | Not Acceptable | SILT, some gravel |
| 28 | 6-Apr-17 | Disturbed Core | 0+245 | 2.30 | 10 | 32 | 23.8 | 19.2% | 1660 | Ice-Rich Soil | Not Acceptable | SILT, some gravel |
| 30 | 10-Apr-17 | Disturbed Core | 0+240 | 2.30 | 5 | 35 | 12.5 | 19% | -- | Ice-Rich Soil | Not Acceptable | SILT, some sand, trace gravel |
| 31 | 10-Apr-17 | Disturbed Core | 0+242 | 2.30 | 14 | 40 | 25.9 | 33% | -- | Ice-Rich Soil | Not Acceptable | SILT, some sand, trace gravel |
| 32 | 10-Apr-17 | Disturbed Core | 0+241 | 2.30 | 12 | 28 | 30.0 | 48% | -- | Ice-Rich Soil | Not Acceptable | SILT, some sand, trace gravel |
| 33 | 10-Apr-17 | Disturbed Core | 0+235 | 2.50 | 0 | 80 | 0.0 | 15% | -- | Nearly ice-saturated | Acceptable | SILT, some sand, trace gravel |
| 34 | 10-Apr-17 | Disturbed Core | 0+236 | 2.50 | 0 | 70 | 0.0 | 22% | -- | Ice Saturated | Acceptable | SILT, some sand, trace gravel |
| 35 | 10-Apr-17 | Disturbed Core | 0+234 | 2.50 | 3 | 45 | 6.3 | 24% | -- | Ice Saturated | Acceptable | SILT, some sand, trace gravel |
| 36 | 14-Apr-17 | Disturbed Core | 0+260 | 2.80 | 5 | 52 | 8.8 | 27% | | Ice Saturated | Acceptable | SILT, some sand, trace gravel |
| 37 | 14-Apr-17 | Disturbed Core | 0+280 | 2.80 | 6 | 46 | 11.5 | 31% | | Slightly IceRich Soil | Acceptable | SILT, some sand, trace gravel |