**Fine Aggregate Technician Assessment & IA Split Sampling**

**Summary Sheet**

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| Technician Name: | Click or tap here to enter text. |  | Technician ID#: | Click or tap here to enter text. |
| Technician Assessor Name: | Click or tap here to enter text. |  | Assessment Date: | Click or tap to enter a date. |
| IA Sampling Assessor Name: | Click or tap here to enter text. |  | IA Sampling Date: | Click or tap to enter a date. |
|  |  |  | HiCAMS #: | Click or tap here to enter text. |

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| **Fine Aggregate Technician Assessment Results** |
| **Test Procedure** | **Assessment Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Stockpile Sampling | Choose an item. | Click or tap here to enter text. |
| Gradation & Fineness Modulus | Choose an item. | Click or tap here to enter text. |
| Loss By Washing | Choose an item. | Click or tap here to enter text. |

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| **Fine Aggregate IA Split Sampling Results** |
| **Test Procedure** | **Assessment Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Gradation & Fineness Modulus | Choose an item. | Click or tap here to enter text. |
| Loss By Washing | Choose an item. | Click or tap here to enter text. |

Notes:

Click or tap here to enter text.

**Fine Aggregate Stockpile Sampling**

**NCDOT IA Assessment**

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| Technician Name: | Click or tap here to enter text. |  | Technician ID#: | Click or tap here to enter text. |
| **Procedure** | **1st Trial** | **2nd Trial** |
| 1. | Verify all equipment and tools meet all requirements per Standard. | Choose an item. | Choose an item. |
| 2. | **Stockpile Sampling** |  |  |
|  | 1. Obtain the sample from an area that represents material being shipped.
 | Choose an item. | Choose an item. |
|  | 1. The sample shall be obtained from an aggregate that has been picked up by a loading unit from the existing stockpile. The material from which the samples are to be obtained should be approximately one full loader bucket.
 | Choose an item. | Choose an item. |
|  | 1. The loading unit shall dump the material on the ground as if loading a truck. Care shall be taken not to drop material from an excessive height, which could cause material to segregate. Then, strike off and level to approximately half the original pile height.
 | Choose an item. | Choose an item. |
|  | 1. The flat surface shall be divided into four sections. Identify sampling areas as A, B, C, D.
 | Choose an item. | Choose an item. |
|  | 1. Opposite quadrants, such as A and D, or B and C shall be used to acquire the sample.
 | Choose an item. | Choose an item. |
|  | 1. While obtaining material with the shovel, care shall be taken to prevent spillage of material while transferring material to the sample container.
 | Choose an item. | Choose an item. |
|  | **Tube Sampling (Optional)** |  |  |
|  | 1. Obtain the sample from an area that represents material being shipped.
 | Choose an item. | Choose an item. |
|  | 1. Fine aggregate samples may be obtained from the stockpile using a tube approved by the Department. The tube shall be a minimum of 11/4” (30mm) in diameter by 6 feet (2m) in length. The tube shall be constructed of aluminum or PVC.
 | Choose an item. | Choose an item. |
|  | 1. The sample is obtained by inserting the tube into the stockpile at evenly spaced locations across the load face of the stockpile. A minimum of five insertions of the tube shall be made.
 | Choose an item. | Choose an item. |
|  | 1. The insertions are to be made at a minimum height of three feet from the bottom of the stockpile.
 | Choose an item. | Choose an item. |
| 3. | **Sample Splitter** |  |  |
|  | 1. Splitter is resting level on a stable surface.
 | Choose an item. | Choose an item. |
|  | 1. Finger gate settings open at least 11/2 times larger than the materials nominal size to be split.
 | Choose an item. | Choose an item. |
|  | **Method A** |  |  |
|  | 1. Place half of the material on the top of the splitter.
 | Choose an item. | Choose an item. |
|  | 1. Open the splitter slowly, allowing the material to flow into the two catch pans.
 | Choose an item. | Choose an item. |
|  | 1. Switch the pans from one side of the splitter to the other and place the remainder of the material on top of the splitter.
 | Choose an item. | Choose an item. |
|  | 1. Open the splitter slowly, allowing the remainder of the material to flow into the two catch pans.
 | Choose an item. | Choose an item. |
|  | **Method B** |  |  |
|  | 1. Place all the material on the top of the splitter.
 | Choose an item. | Choose an item. |
|  | 1. Open the splitter slowly, allowing the material to flow into the two catch pans.
 | Choose an item. | Choose an item. |
|  | 1. Compare the weights of the two pans to see if they are within 3% of each other.
 | Choose an item. | Choose an item. |
|  | 1. If they are not within this tolerance, place all the material back on top of the splitter and repeat the procedure.
 | Choose an item. | Choose an item. |
|  | **Sampling Using A Divider** – This procedure may be required for fine aggregates if the material has a moisture content that prevents the material from freely falling through a sample splitter. |  |  |
|  | 1. Use of an impervious surface such as a steel plate, and a four-way divider.
 | Choose an item. | Choose an item. |
|  | 1. If a table is used, it shall be approximately 28 inches deep by 32 inches wide.
 | Choose an item. | Choose an item. |
|  | 1. The four-way divider shall have legs approximately 28 inches long the intersect in the middle, forming a right angle. The device shall be approximately 5 inches tall.
 | Choose an item. | Choose an item. |
|  | 1. The material shall be split before the material is completely dry.
 | Choose an item. | Choose an item. |
|  | 1. Place all the moist material in the center of the table. Remix the sample thoroughly and mound it in a cone shaped pile approximately 6 inches high.
 | Choose an item. | Choose an item. |
|  | 1. Push the four-way divider down through the center of the pile until contact with the table surface is made. Slide the divider back and forth on the table surface to separate the fine aggregate sections from each other slightly.
 | Choose an item. | Choose an item. |
|  | 1. Remove two of the opposite quadrants (sections) of material. Remix the remaining two quadrants and repeat the procedure as necessary until the remaining material is the correct quantity for the test to be run.
 | Choose an item. | Choose an item. |

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| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Technician Assessment Requirements**

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| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

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| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

Note: An IA-Split Sampling is not required for this procedure.

**Fine Aggregate Gradation and Finess Modulus Method**

**AASHTO T27**

**NCDOT IA Assessment & Split Sampling**

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| --- | --- | --- | --- | --- |
| Technician Name: | Click or tap here to enter text. |  | Technician ID#: | Click or tap here to enter text. |
| **Procedure** | **1st Trial** | **2nd Trial** |
| 1. | Verify all equipment and tools meet all requirements per the AASHTO Standard. | Choose an item. | Choose an item. |
| 2. | Once the sample is dried to a constant mass, it is allowed to cool to the touch prior to proceeding with any testing procedures.  | Choose an item. | Choose an item. |
| 3. | Based on the Specifications for the material being tested, the proper sieves are selected. Additional sieve(s) may be added as needed to determine Fineness Modulus or to prevent sieve overloading. | Choose an item. | Choose an item. |
| 4. | The sieves are placed into the mechanical vibrator with the smallest opening on bottom and largest opening on top. | Choose an item. | Choose an item. |
| 5. | Weigh and record the weight of the sample. | Choose an item. | Choose an item. |
| 6. | Place the sample in the mechanical shaker and agitate for 10 minutes. | Choose an item. | Choose an item. |
| 7. | Carefully weigh and record the retained material on each sieve (cumulatively) using the following steps: |  |  |
|  | 1. Carefully remove the nest of sieves from the shaker.
 | Choose an item. | Choose an item. |
| 1. Remove the top sieve, weigh and record material retained.
 | Choose an item. | Choose an item. |
| 1. Remove the next sieve and add the retained material to the material from the first sieve.
 | Choose an item. | Choose an item. |
| 1. Record cumulative weight from both sieves.
 | Choose an item. | Choose an item. |
| 1. Remove the next sieve and add the retained material to the material from the two previous sieves.
 | Choose an item. | Choose an item. |
| 1. Record cumulative weight from all three sieves.
 | Choose an item. | Choose an item. |
| 1. Repeat this process for each of the remaining sieves to the catch pan.
 | Choose an item. | Choose an item. |
| 8. | Verify mass of sample after sieving is within 0.3% of sample mass originally placed on nest of sieves. | Choose an item. | Choose an item. |
| 9. | Calculate the cumulative percent retained for each sieve. | Choose an item. | Choose an item. |
| 10. | Calculate the percent passing for each sieve. | Choose an item. | Choose an item. |

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| --- | --- | --- | --- | --- |
| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Technician Assessment Requirements**

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| --- |
| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

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| **Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

**IA Split Sampling Requirements**

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| --- | --- | --- | --- |
| **Correlation**  | **Acceptable****(<= 10% per sieve)** | **Un-Acceptable****(> 10% per sieve)** | **Investigation Notes****(greater than 10% difference)** |

**IA Split Sampling Results**

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| --- | --- | --- | --- |
|  | **Technician Results** | **IA Assessor Results** | **Correlation Results** |
| Trial 1 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Trial 2 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

**Fine Aggregate Loss By Washing**

**AASHTO T11**

**NCDOT IA Assessment & Split Sampling**

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| --- | --- | --- | --- | --- |
| Technician Name: | Click or tap here to enter text. |  | Technician ID#: | Click or tap here to enter text. |
| **Procedure** | **1st Trial** | **2nd Trial** |
| 1. | Verify all equipment and tools meet all requirements per NCDOT and AASHTO Standard. | Choose an item. | Choose an item. |
|  | **Rapid Drying** |  |  |
| 2. | Use metal frame (angle iron) to support standard drying pans a minimum of 4" above gas burner units. Pans may be placed directly on electric heating elements.  | Choose an item. | Choose an item. |
| 3. | Uniformly spread sample in pan. | Choose an item. | Choose an item. |
| 4. | For gas drying, adjust flame from burner units to avoid excessive heat directly to bottom of pan. | Choose an item. | Choose an item. |
| 5. | During the drying of the sample, the assessor and Technician shall be present at all times to conduct the following: |  |  |
|  | 1. Monitor and adjust the heat, when necessary.
 | Choose an item. | Choose an item. |
| 1. Mix, stir, and turn the aggregate over in the pan to prevent scorching of the sample.
 | Choose an item. | Choose an item. |
| 6. | Dry the sample until no moisture is present. Allow the sample to cool, stirring the sample occasionally to assist in uniform cooling. | Choose an item. | Choose an item. |
| 7. | Process the sample promptly after it is cool to avoid the absorption of additional moisture from the air. | Choose an item. | Choose an item. |
|  | **Oven or Air Drying** |  |  |
| 8. | The washed aggregate shall be dried to a constant mass at a temperature of 1100 C (+/- 50) or 2300 F (+/- 90). | Choose an item. | Choose an item. |
|  | **Fine Aggregate Wash Test Procedure** |  |  |
| 9. | Once the sample is dried to a constant mass it is allowed to cool to the touch prior to proceeding with any testing procedures. | Choose an item. | Choose an item. |
| 10. | Split sample until a workable size of 400 to 600 grams is obtained (Note: this sample size deviates from standard AASHTO procedures).  | Choose an item. | Choose an item. |
| 11. | Weigh and record weight of sample (Total dry Wt.). | Choose an item. | Choose an item. |
| 12. | Place sample in a container and cover with water to assure a thorough separation of material finer than the No. 200 sieve from the coarser particles (ex. #8 - #16 plus #200 sieves). | Choose an item. | Choose an item. |
| 13. | Using a large spoon vigorously agitate contents within the container. | Choose an item. | Choose an item. |
| 14. | Immediately pour the wash water over a nest of sieves that are arranged with the coarser sieve on top. | Choose an item. | Choose an item. |
| 15. | Care should be used to avoid pouring the coarse particles out of the container. | Choose an item. | Choose an item. |
| 16. | Add water as previously described and repeat the procedures. | Choose an item. | Choose an item. |
| 17. | Repeat this process until the wash water is clear. | Choose an item. | Choose an item. |
| 18. | All material retained on the nested sieves shall be returned to the washed sample. | Choose an item. | Choose an item. |
| 19. | The washed aggregate shall be dried to a constant mass at a temperature of 110° C (+/- 5° C [230° F (+/- 9° F)]. If using the Rapid Dry method follow the procedures in Exhibit E. | Choose an item. | Choose an item. |
| 20. | Weigh and record weight of the sample (Wt. after washing). | Choose an item. | Choose an item. |
| 21. | Calculate the percent passing the No. 200 sieve. | Choose an item. | Choose an item. |

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| **Technician Assessor Name:** | Click or tap here to enter text. |  | **Assessment Date:** | Click or tap to enter a date. |
| **IA Sampling Assessor Name:** | Click or tap here to enter text. |  | **IA Sampling Date:** | Click or tap to enter a date. |

**Technician Assessment Requirements**

|  |
| --- |
| **To successfully complete each step in the above procedure within two trials.** |

**Technician Assessment Results**

|  |  |  |
| --- | --- | --- |
| ­**Technician Assessment** | **Results** | **Investigation Notes (Required if Un-Acceptable)** |
| Trial 1 | Choose an item. | Click or tap here to enter text. |
| Trial 2 | Choose an item. | Click or tap here to enter text. |

**IA Split Sampling Requirements**

|  |  |  |  |
| --- | --- | --- | --- |
| **Correlation**  | **Acceptable****(<= 10%)** | **Un-Acceptable****(> 10%)** | **Investigation Notes****(greater than 10% difference)** |

**IA Split Sampling Results**

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Technician Results** | **IA Assessor Results** | **Correlation Results** |
| Trial 1 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |
| Trial 2 | Click or tap here to enter text. | Click or tap here to enter text. | Click or tap here to enter text. |

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