

# Materials Sampling Guide

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### Section 13

#### Granular Base, Granular Fill, Granular Backfill, Sand Blanket & MSE Walls

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Minimum Material Certificate, Sample and Inspection Requirements							
MATERIAL	TYPE OF TEST	Q.C. SAMPLING AND TESTING BY CONTRACTOR	VERIFICATION SAMPLING AND TESTING BY NDOR			LOCATION OF ADDITIONAL INFORMATION	
Section: 13 – Granular Base, Granular Fill, Granular Backfill, Sand Blanket and MSE Walls			FIELD PERSONNEL	BRANCH LAB	LINCOLN LAB	NOTE No.	PAGE No.
1) All – Mineral Aggregates & Soil Binder	Experimental Base Course Mixtures (When mix design required)	Contractor to submit the 60 pound sample of sand and the 20 pound sample of soil binder needed to perform the testing shown under the Lincoln lab column.  The contractor needs to submit the anticipated percentages of granular material and soil binder that will be used for stabilization.	-----	-----	Approximately 60 pounds of each aggregate and approximately 20 pounds of soil binder for EBCM mix design. To be submitted prior to mixture production.	---	---
2) Mineral Aggregates (Commercial Production)	Quality & Gradation (if specified)	-----	One sample for gradation each 300 cubic yards either at the source or on the project. A minimum of one check sample for each 1000 cubic yards or fraction thereof shall be taken at the point material is incorporated in the work or at the point the materials is to be mixed with other materials. The gradation sample required may also serve as this acceptance and job control sample if it is taken at the point indicated above. Additional samples should be taken at the discretion of the Project Manager to confirm his judgment that segregation, degradation or contamination of the material has not occurred prior to incorporation into the work.  Project personnel will submit the 10 and 60 pound samples needed to perform the testing shown under the Lincoln Lab column.	-----	One 60 pound sample for quality tests first 1000 cubic yards if so designated on DR FORM 324 "Source of Aggregates to be Used", or when changes in quality or characteristics occur.  One 10 pound sample for gradation tests each 1000 cubic yard or fraction thereof. (Duplicate of sample tested in the field)	1 4	1 4
Laboratory samples must be submitted in a canvas bag or clean five gallon bucket with lid.							

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3) Coarse Sand	Quality & Gradation (if specified)	-----	<p>One sample for gradation tests each 300 cubic yards or fraction thereof.</p> <p>Project personnel will submit the 10 and 60 pound samples needed to perform the testing shown under the Lincoln Lab column.</p> <p>Sample shall be taken at the project.</p>	-----	<p>One 60 pound sample for quality tests first 1000 cubic yards if so designated on DR FORM 324"Source of Aggregates to be Used", or when changes in quality or characteristics occur.</p> <p>One 10 pound sample for gradation tests each 1000 cubic yard or fraction thereof. (Duplicate of sample tested in the field)</p>	1 4	1 4
4) Fine Sand	Gradation (if specified)	-----	<p>One sample for gradation tests each 300 cubic yards or fraction thereof.</p> <p>Project personnel to submit the 10 pound sample needed to perform the testing shown under the Lincoln lab column.</p> <p>Sample shall be taken at the project.</p>	-----	<p>One 10 pound sample for gradation tests each 1000 cubic yards or fraction thereof (Duplicate of sample tested in the field)</p>	1 4	1 4
5) Soil Binder	Plasticity Index & Gradation	-----	<p>One sample for gradation tests each 50 cubic yards or fraction thereof. If less than 10 percent retained on the No. 200 sieve, one sample for each 200 cubic yards or fraction thereof.</p> <p>Project personnel to submit the 10 pound sample needed to perform the testing shown under the Lincoln lab column.</p> <p>Samples shall be taken at the project.</p>	-----	<p>One 10 pound sample for gradation test (lab to run P.I.) each 1000 cubic yards or fraction thereof (Duplicate of sample tested in the field)</p>	---	---

Laboratory samples must be submitted in a canvas bag or clean five gallon bucket with lid.

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6) Granular Base, Granular Fill, Granular Backfill and Sand Blanket	Moisture – Density	-----	In place moisture density tests for each 1000 feet, or less and for each one foot in thickness, or fraction thereof. In cases of short section, moisture density tests to confirm the Project Managers judgment on compliance with specification requirements. NOTE: If the layer is 2" or less, in thickness, density tests may be omitted. If curve data is not furnished, as in cases of some pit run materials, it will be necessary for the project personnel to submit the necessary samples to the Lincoln or Branch laboratories for the determination of this information.	One sample to be submitted if necessary to perform curve data.	One sample to be submitted if necessary to perform curve data.	---	---
	Gradation (if specified)	-----	Each fifth station for gradation or in cases of short sections the number of samples is to be increased to adequately represent the material in the fill.  Project personnel will supply the 10 pound sample needed to perform the testing shown under the Lincoln Lab column.  Sample to be taken at the project.	-----	One 10 pound sample for gradation test each mile, or in cases of short sections the number of samples is to be increased to adequately correlate the samples taken in the field (Duplicate of sample tested in the field)	1 4	1 4
Laboratory samples must be submitted in a canvas bag or clean five gallon bucket with lid.							

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7) Stabilized Portion of Granular Base, Granular Fill, Granular Backfill and Sand Blanket	Moisture – Density	-----	<p>In place moisture-density tests for each 1000 feet, or less, or in cases of short sections, moisture-density tests to confirm the Project Manager's judgment on compliance with specification requirements. If tested layer is disturbed by construction operations, rain etc., check tests shall be taken to assure compliance with specifications prior to subsequent construction.</p> <p>The sample shall be taken at the project.</p>	-----	-----	---	---
	Gradation (if specified)	-----	<p>One sample each fifth station for gradation, or in cases of short sections the number of samples is to be increased to adequately represent the material in the field.</p> <p>Project personnel will supply the 10 pound sample needed to perform the testing shown under the Lincoln Lab column.</p> <p>The sample shall be taken at the project.</p>	-----	<p>One 10 pound sample for gradation test each mile, or in case of short sections the number of samples is to be increased to adequately correlate the samples taken in the field.</p> <p>(Duplicate of sample tested in the field)</p>	---	---
Laboratory samples must be submitted in a canvas bag or clean five gallon bucket with lid.							

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8) Granular Backfill for Structures	Quality & Gradation	-----	<p>One sample for gradation tests each 50 cubic yards or fraction thereof.</p> <p>Project personnel will submit the 10 and 60 pound samples needed to perform the testing shown under the Lincoln lab column.</p> <p>The sample shall be taken at the project.</p>	-----	<p>One 60 pound sample for quality tests if so designated on DR FORM 324 "Source of Aggregates to be Used", or when changes in quality or characteristics occur.</p> <p>One 10 pound sample for gradation tests each 150 cubic yards or fraction thereof (Duplicate of sample tested in the field)</p>	1 4	1 4
	Moisture – Density	-----	<p>In place density test each lift of aggregate placed. In case of short sections moisture density tests to confirm compliance with specifications.</p> <p>Project personnel will supply the 60 pound sampled needed to perform the testing shown under the Lincoln Lab column.</p> <p>The sample shall be taken on the project.</p>	-----	<p>One 60 pound sample for compaction curve data.</p>	---	---
Laboratory samples must be submitted in a canvas bag or clean five gallon bucket with lid.							

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9) Granular Subdrains	Gradation & Quality	-----	<p>One sample for gradation tests each 50 cubic yards or fraction thereof.</p> <p>Project personnel will supply the 10 and 60 pound samples needed to perform the testing shown under the Lincoln Lab column.</p> <p>The sample shall be taken at the project.</p>	-----	<p>One 60 pound sample for quality tests if so designated on DR FORM 324 "Source of Aggregates to be Used", or when changes in quality or characteristics occur.</p> <p>One 10 pound sample for gradation tests each 150 cubic yards of aggregate.</p> <p>(Duplicate of sample tested in the field)</p>	1 4	1 4	
10) Granular Backfill for Pipe Underdrain	Gradation & Quality	-----	<p>One sample for gradation tests each 50 cubic yards or fraction thereof.</p> <p>Project personnel will supply the 10 and 60 pound samples needed to perform the testing shown under the Lincoln lab column.</p> <p>The sample shall be taken at the project.</p>	-----	<p>One 60 pound sample for quality tests if so designated on DR FORM 324 "Source of Aggregates to be Used", or when changes in quality or characteristics occur.</p> <p>One 10 pound sample for gradation tests each 150 cubic yards of aggregate.</p> <p>(Duplicate of sample tested in the field)</p>	1 4	1 4	
Laboratory samples must be submitted in a canvas bag or clean five gallon bucket with lid.								

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11) Select & Random Granular Backfill for MSE Walls	Quality Gradation Compaction Chemical Friction Angle	<p><u>Before the wall is constructed</u>, the Contractor shall furnish to the Engineer a Certificate of Compliance certifying that the Granular backfill material complies with Section 714 or 715 of the Specifications. If more than one source is used, a Certificate of Compliance is Required from each Source.</p>	<p>Project personnel will submit one 60 pound sample per Wall needed to perform the testing shown under the Lincoln Lab column.</p> <p>No further samples required if material is from the same source (pit location) or unless changes in Quality or Characteristics occur.</p> <p>One Gradation for every 1000 cubic yards of material or portion thereof.</p>	-----	One 60 pound sample for quality, gradation, compaction and chemical tests.	---	---	
Laboratory samples must be submitted in a canvas bag or clean five gallon bucket with lid.								