



Florida Department of Transportation

RON DESANTIS
GOVERNOR

605 Suwannee Street
Tallahassee, FL 32399-0450

JARED W. PERDUE, P.E.
SECRETARY

October 7, 2024

Cathy Kendall
Director, Office of Technical Services
Federal Highway Administration
3500 Financial Plaza, Suite 400
Tallahassee, Florida 32312

Re: State Specifications Office
Section: 911
Proposed Specification: **9110100 Base and Stabilized Base Materials**

Dear Ms. Kendall:

We are submitting, for your approval, two copies of the above referenced Supplemental Specification.

The changes are proposed by John Shoucair to add Calcarenite as an approved base material.

Please review and transmit your comments, if any, within two weeks (10 business days). Comments should be sent via email daniel.strickland@dot.state.fl.us.

If you have any questions relating to this specification change, please call me at (850) 414-4130.

Sincerely,

Signature on File

Daniel Strickland, P.E.
State Specifications Engineer

DS/jb
Attachment

cc: Florida Transportation Builders' Assoc.
State Construction Engineer

BASE AND STABILIZED BASE MATERIALS (REV 8-26-24)

ARTICLE 911-1 is deleted and the following substituted:

911-1 Description.

This Section governs materials to be used in the construction of base and subgrade stabilization including limerock, shell, shell-rock, cemented coquina shell, calcarenite, and recycled concrete aggregate (RCA).

ARTICLE 911-2 is deleted and the following substituted:

911-2 Materials.

911-2.1 General:

911-2.1.1 Approval of Material: Approval of mineral aggregate sources shall be in accordance with 6-2.3.

911-2.1.2 Deleterious Substances: Materials shall not contain deleterious substances that would result in: prevention of the bituminous prime coat from adhering to the base course; a detriment to the finishing, strength, or performance of the base; or a surface which is susceptible to distortion under construction traffic. Such substances include, but are not limited to: cherty or other extremely hard pieces, lumps, balls or pockets of sand or clay size material, organic matter, loose sand, loose, free shells, corals or skeletal remain of other marine invertebrates retained on the No. 4 sieve, or water sensitive clay minerals.

911-2.2 Limerock Composition: Limerock material shall consist of unconsolidated or partly consolidated limestone of marine origin.

911-2.3 Shell Material: Composition: Shell materials shall consist of naturally occurring deposits formed essentially of broken mollusk shell, corals and the skeletal remains of other marine invertebrates. Live or steamed shell, or man-made deposits as a by-product of the shellfish industry will not be permitted.

911-2.3.1 Bank Run Shell: Shell materials meeting the requirements of this Section which are presently found as “dry land” deposits.

911-2.3.2 Dredged Shell: Shell materials meeting the requirements of this Section which are dredged from ocean, bay or lake deposits.

911-2.4 Shell-Rock Material Composition: Shell-rock materials shall consist of naturally occurring heterogeneous deposits of limestone with interbedded layers or lenses of loose and cemented shell, to include cemented sands (calcitic sandstone). This material shall be mined and processed in a manner that will result in a reasonably homogenous finished product.

911-2.5 Cemented Coquina Shell Material Composition: Cemented coquina shell materials to be used as cemented coquina base or stabilized base, shall be defined as naturally occurring deposits formed essentially of broken mollusk shell, corals and the skeletal remains of other marine invertebrates, which are presently found as “dry land” deposits and which have been cemented together by carbonates or other natural cementing agents.

911-2.6 Calcarenite Composition: Calcarenite material shall consist of calcareous clastic sedimentary rock, formed by compaction and cementation of carbonate clasts of size

between 0.06 and 2 mm. It also contains a calcareous cementing material that binds the sand grains together.

911-2. ~~6~~7 Recycled Concrete Aggregate (RCA) Composition: RCA shall consist of concrete material derived from the crushing of hard portland cement concrete. In addition to the deleterious materials noted in 911-2.1.2, RCA shall be asbestos free. The following limits shall not be exceeded:

- Bituminous Concrete 1% by weight
- Bricks 1% by weight
- Glass and Ceramics 1% by weight
- Wood and other organic substances 0.1% by weight
- Reinforcing steel and welded wire fabric 0.1% by weight
- Plaster and gypsum board 0.1% by weight

ARTICLE 911-3 is deleted and the following substituted:

911-3 Material Requirements.

911-3.1 Limerock Bearing Ratio (LBR): Materials shall meet the requirements in Table 911-1 in accordance with FM 5-515:

Table 911-1 Limerock Bearing Ratio (LBR)	
Material	Requirement
Limerock	Average Results per LOT - 100, minimum Individual Results - 90, minimum
Shell	
Shell-Rock	
Cemented Coquina Shell	
<u>Calcarenite</u>	
RCA	Individual Results - 150, minimum

911-3.2 Liquid Limit and Plasticity: Materials shall meet the requirements in Table 911-2 in accordance with AASHTO T 89 and AASHTO T 90:

Table 911-2 Liquid Limit and Plastic Properties		
Material	Liquid Limit	Plastic Properties
Limerock	Base	Non-Plastic (NP)
	Stabilized Base	Plasticity not to exceed 10
Shell	-	NP
Shell-Rock	-	NP
Cemented Coquina Shell	-	NP
<u>Calcarenite</u>	<u>-</u>	<u>NP</u>
RCA	-	NP

911-3.3 Carbonates: Materials shall meet the carbonate requirements in Table 911-3 in accordance with FM 5-514:

Table 911-3 Percentage of Carbonates (Calcium and Magnesium)	
Material	Requirement
Limerock	minimum - 70%
Shell	minimum - 50%
Shell-Rock	minimum - 50%
Cemented Coquina Shell	minimum - 50%
<u>Calcarenite</u>	<u>minimum - 45%</u>
RCA	Not Applicable

911-3.4 Gradation and Size Requirements: Materials shall meet the gradation and size requirements in Table 911-4 in accordance with ~~FM 1-T27~~ AASHTO T 27 and FM 1-T11:

Table 911-4 ⁽¹⁾ Gradation Requirements		
Material		Requirement
Limerock	Base	<u>Passing 3-1/2 inch sieve - 97%, minimum</u> At least 97% shall pass a 3-1/2 inch sieve ⁽²⁾
	Stabilized Base	<u>Passing 3-1/2 inch sieve - 97%, minimum</u> At least 97% shall pass a 1-1/2 inch sieve ⁽²⁾
Shell	Dredged shell	Passing 3-1/2 inch sieve - 97%, <u>minimum</u> Passing No. 4 sieve - 50%, maximum Passing No. 200 sieve - maximum 7.5% (washed)
	Bank-run shell	Passing 3-1/2 inch sieve - 97%, <u>minimum</u> Passing No. 4 sieve - 80%, maximum Passing No. 200 sieve - 20%, maximum (washed)
Shell-Rock		Passing 3-1/2 inch sieve - 97%, minimum Passing No. 4 sieve - 70%, maximum
Cemented Coquina Shell		Passing No. 200 sieve - 20%, maximum (washed)
<u>Calcarenite</u>		<u>Passing 3-1/2 inch sieve - 97%, minimum</u> ⁽²⁾
RCA	Sieve Size	Percent by Weight Passing
	2 inch	100
	3/4 inch	65 to 95
	3/8 inch	40 to 85
	No. 4	25 to 65
	No. 10	20 to 50
	No. 50	5 to 30
No. 200	0 to 10	

(1) The maximum dimension shall not exceed six inches.

(2) The material shall be well graded down to dust. The fine material shall consist entirely of dust of fracture.

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	Stabilized Base	Passing 3-1/2 inch sieve - 97%, minimum (2)
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