Miami Dade County Beach Sands

What they look like and

Where they come from

How Wide is the Beach?

Miami Beach 1918

LUMUS PARK 1930

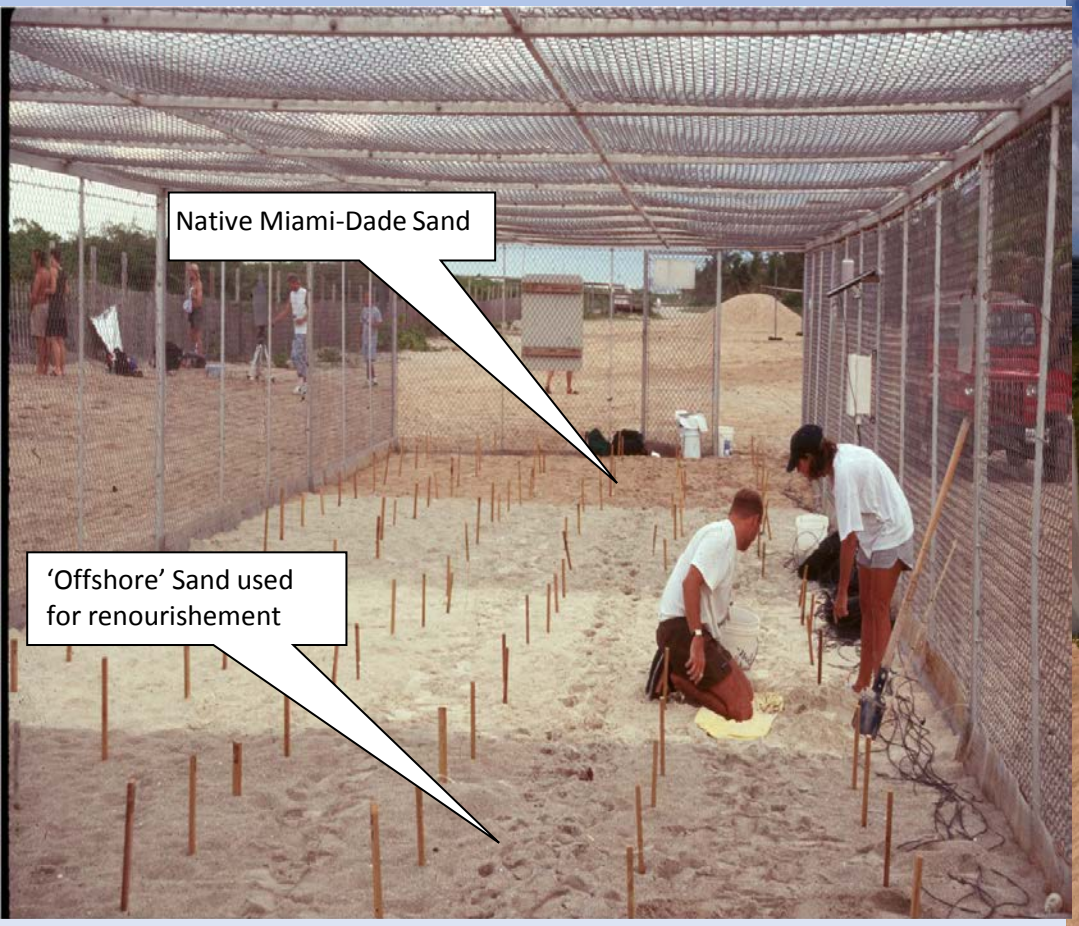
Miami Beach – early 1960's

Surfside Renourishment 1999

Miami-Dade County Sea Turtle Nest Environment Study

- Sand Types in consideration for use:
  1. Native Sand (40% quartz; 60 % $CaC0_3$); Brownish orange, small deposits of this sand still remain east of Collins Ave.
  2. Renourished Sand (100% biogenic $CaC0_3$); Grayish, from offshore areas, which have been consumed. Next sand source?
  3. Aragonite Sand (100% depositional $CaC0_3$); Light colored, Bahamas and Caribbean
  4. Upland Sand (100% quartz sand); Bright-light, upland deposits in central Florida

Native Miami Beach Sand



State Requirements for Beach Sand

- The State requires that sand to be placed on the beach is demonstrated to meet specific requirements prior to it being placed on the beach
- Sand sample test results (as required by the State) must be submitted and approved by the State prior to obtaining approval to place the sand on the beach
- Requirements include:
  - Sand particle size (Grain Size)
  - No more than 5% ‘silts, clays & muds’
  - No more than 5% ‘fine gravel’
  - The color of the material comparable to existing ‘sands in the coastal system’

State Requirements for Beach Sand

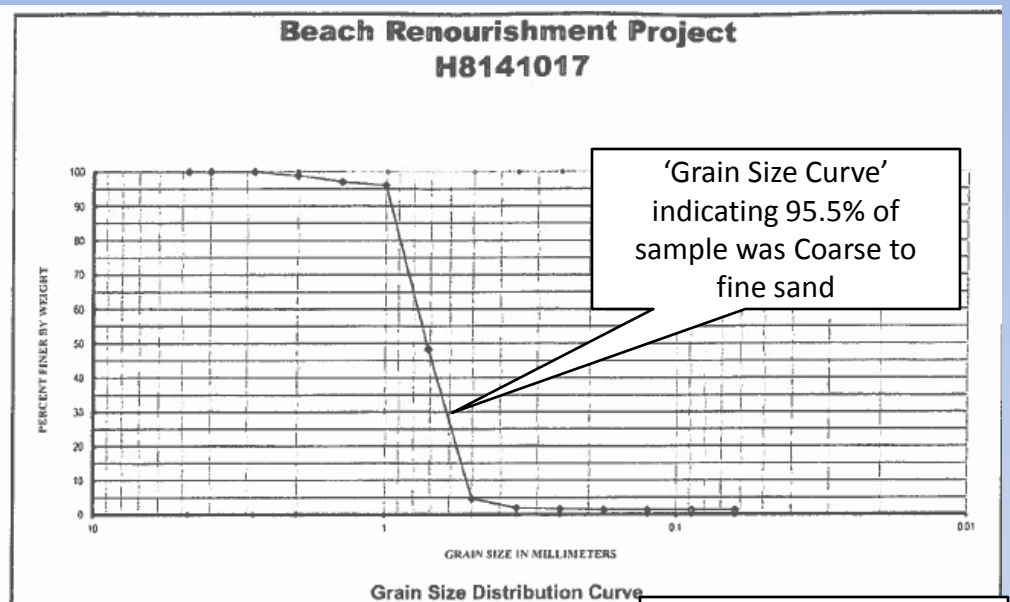
Florida Administrative Code (FAC) Chapter 62-41.007(1)(j)

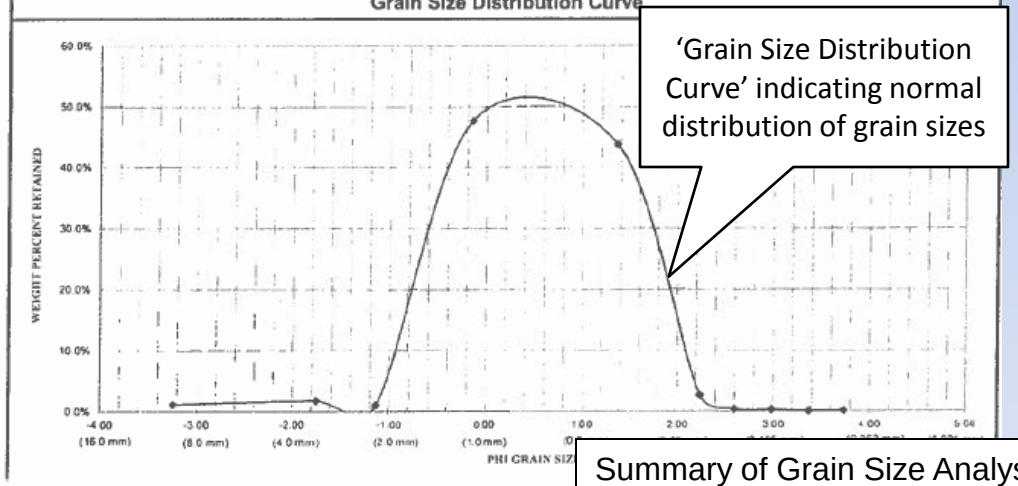
(j) To protect the environmental functions of Florida's beaches, only beach compatible fill shall be placed on the beach or in any associated dune system. Beach compatible fill is material that maintains the general character and functionality of the material occurring on the beach and in the adjacent dune and coastal system. Such material **shall be predominately of carbonate, quartz or similar material** with a **particle size distribution ranging between 0.062mm (4.0f) and 4.76mm** (-2.25f) (classified as sand by either the Unified Soils or the Wentworth classification), shall be similar in color and grain size distribution (sand grain frequency, mean and median grain size and sorting coefficient) to the material in the existing coastal system at the disposal site **and shall not contain**:

1. **Greater than 5 percent, by weight, silt**, clay or colloids passing the #230 sieve (4.0f);
2. **Greater than 5 percent, by weight, fine gravel** retained on the #4 sieve (-2.25f);
3. **Coarse gravel, cobbles or material retained on the 3/4 inch sieve** in a percentage or size greater than found on the native beach;
4. Construction debris, toxic material or other foreign matter; and
5. Not result in cementation of the beach.

If rocks or other non-specified materials appear on the surface of the filled beach in excess of 50% of background in any 10,000 square foot area, then surface rock should be removed from those areas. These areas shall also be tested for subsurface rock percentage and remediated as required.

Sand Quality





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Summary of Grain Size Analysis

Class of material		Gravel					Sand				Muds
Grade of Class	Coarse	Fine		Coarse	Medium		Fine		Very Fine Sand		Silt/mud
Sieve #	3/4"	4	8	10	30	60	80	100	140	170	230
Sieve Size (mm)	19.00	4.75	2.36	2.00	0.600	0.250	0.180	0.150	0.106	0.090	0.063
% of material	**0%**	**1.20%**	**1.7%**	**1.1%**	**47.7%**	**43.7%**	**2.7%**	**0.3%**	**0.2%**	**0.1%**	**1.2%**