



Harbor Rock – a dredged materials beneficial use

Harbors and Navigation Committee and QPI Meeting

New Orleans,

April 18, 2018

HarborRock

a Sediment Reuse Approach



HarborRock is a two stage Process:

Stage 1:

- Separation of the dredged material into its primary components (i.e. cobbles, sand and silt/clay);
- Marketing and sales of the Cobbles and sand
- Placement of the silt/clay material in a separate pile

Stage 2:

- Construction and operation of the Light Weight Aggregate (LWA) facility to convert the silts and clays into LWA using a rotary kiln.
- LWA facilities designed to process 100,000 to 500,000 dry tons of solids per year, per kiln line.

What is Lightweight Aggregate?

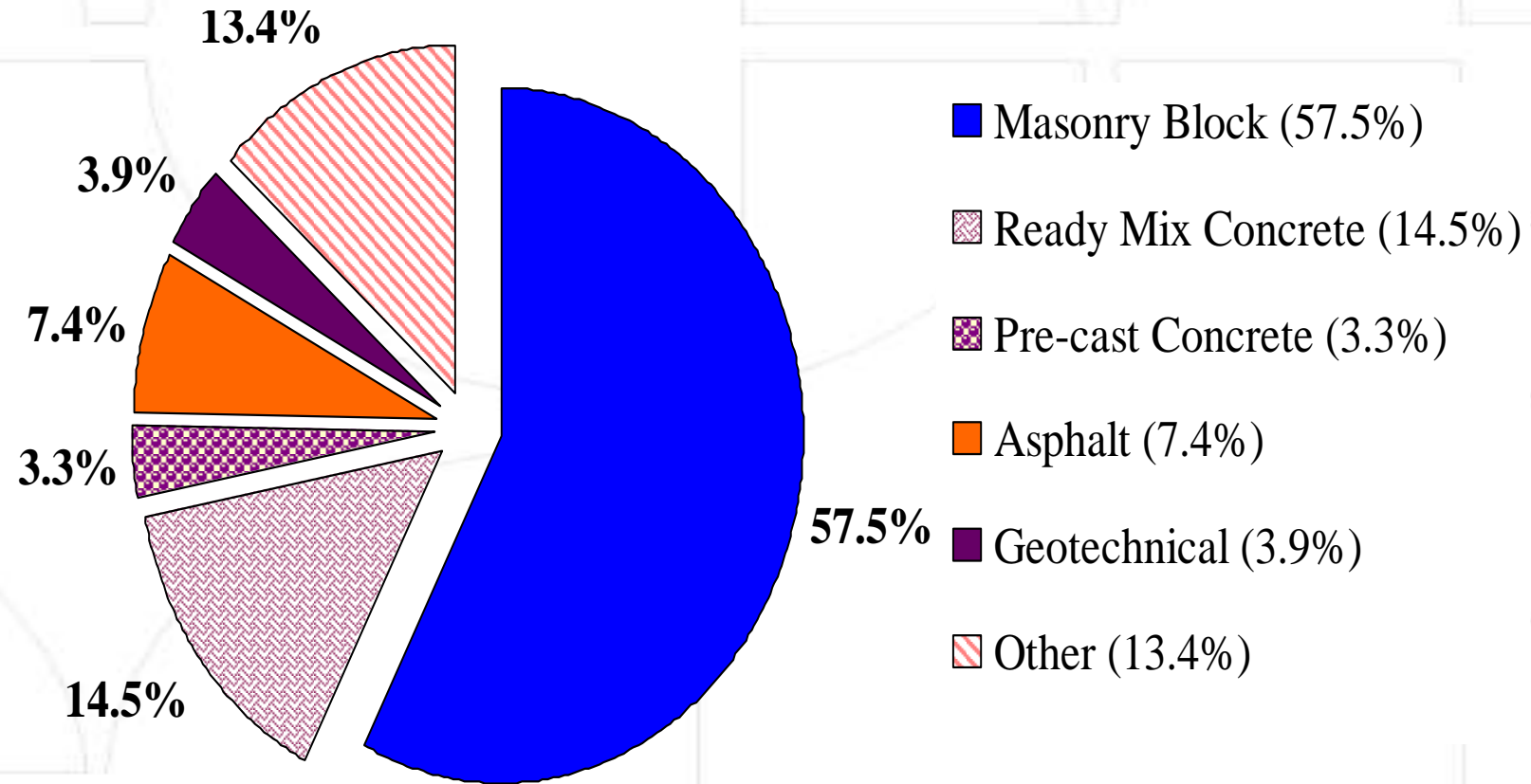
Volcanic stone: pumice, lava

Shale, slate or clay expanded
in rotary kilns that operate at
temperatures over 2,000° F.



LWA exiting rotary kiln

Light Weight Aggregates Uses & Applications



ASTM certified LWA and a patent pending for the process

LWA provides more than twice the volume for the same weight as conventional aggregates



1 lb. Soil

1 lb. Lightweight
Aggregate

1 lb. Sand

1 lb. Gravel

1 lb.
Limestone

Process Attributes & Environmental Controls

- 1. No chemicals are added to the dredged sediments**
- 2. All components of the dredged material are reused:**
 - Cobbles, Sand, Silt/Clay**
- 3. The cobbles & sand are washed, screened & sold**
- 4. The silt/clay is fired & tested to ASTM standards**
- 5. All wash/process water is sent to WWT for pH control**
- 6. Air emissions are controlled by the Best Available Technologies**

Advantages of HarborRock's LWA

1. Is Extruded & Highly Engineered:

- Uniform and consistent properties

2. Meets ASTM standards

- C330 LWA for Structural Concrete
- C331 LWA for Concrete Masonry Units
- C90 for Concrete Masonry Units

3. Is Inert & Highly Marketable:

- Complete destruction of organic contaminants
- Metals immobilized magnitudes below RCRA TCLP limits
- Not blended or mixed with other products
- Eligible for LEED Certification

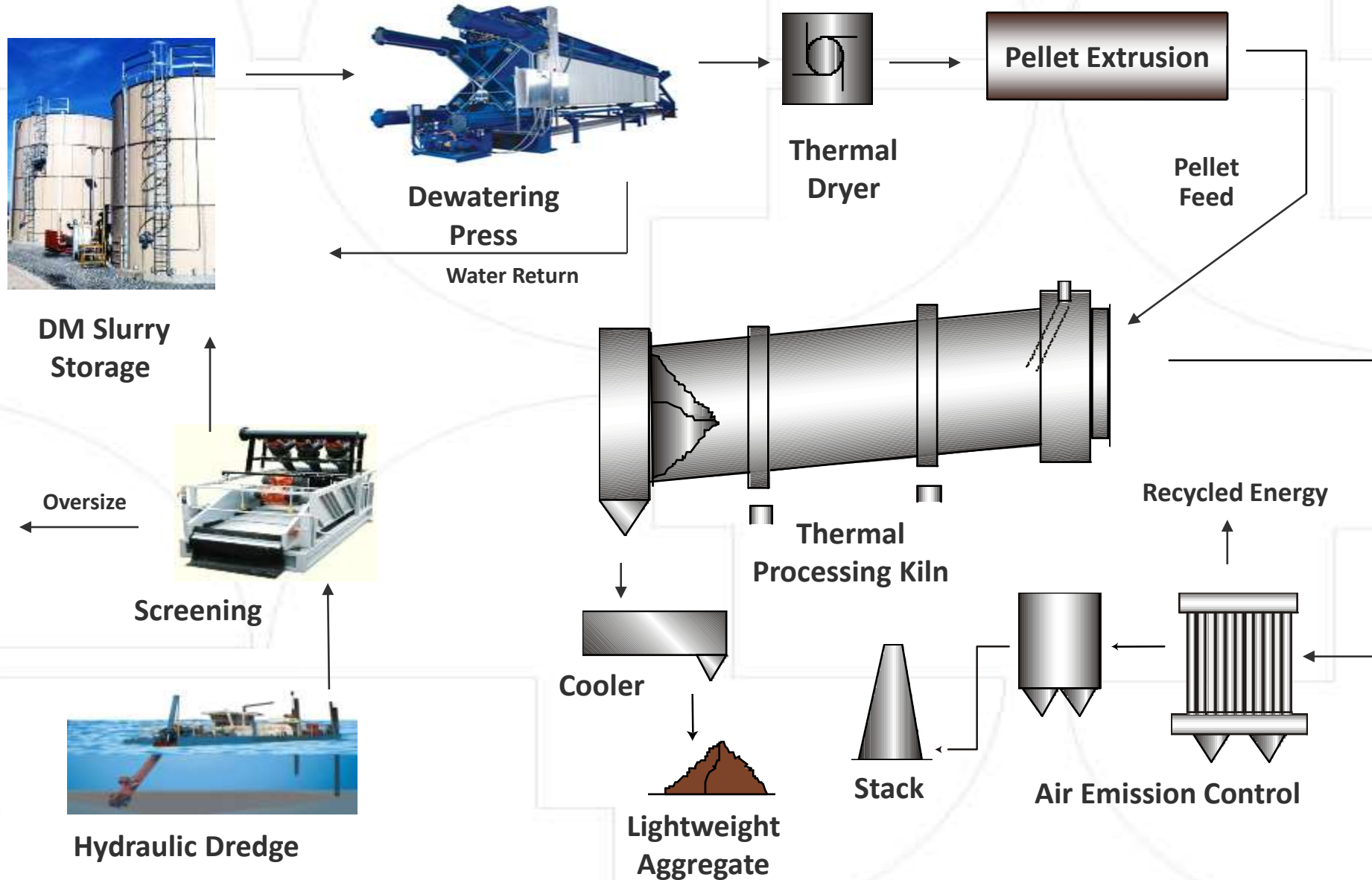


U.S. HarborRock Test Locations

Beginning in 1996, HarborRock has made structural grade LWA in bench and pilot scale tests using dredged materials obtained from the following U.S. locations



HarborRock - Simplified Process Flowsheet



Potential Applications

Hamburg Port

Baltimore Harbor

Savannah Port

Cleveland Port

***Conowingo Dam - Susquehanna
River Sediments***



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