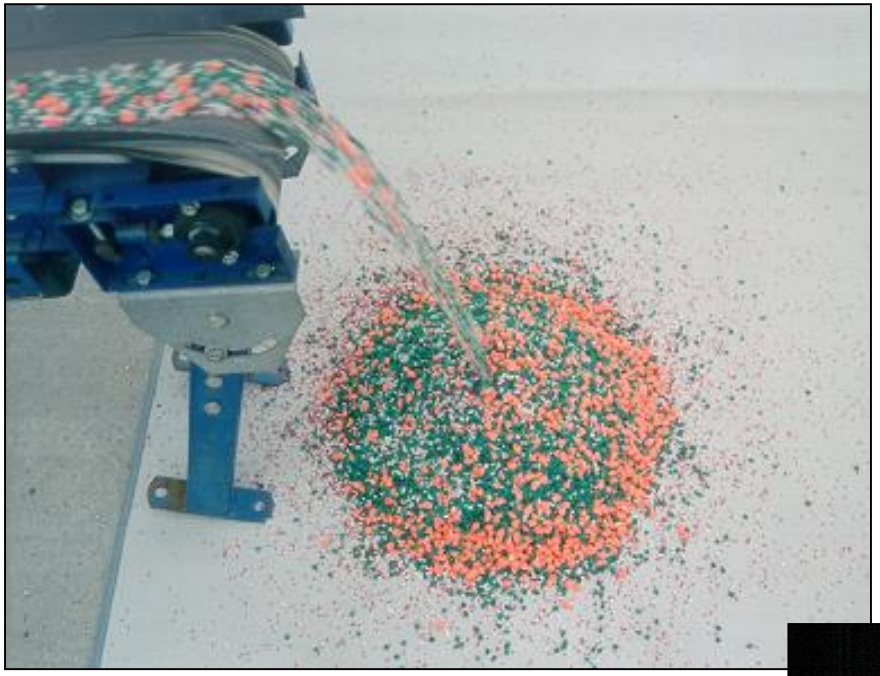
AGGREGATES

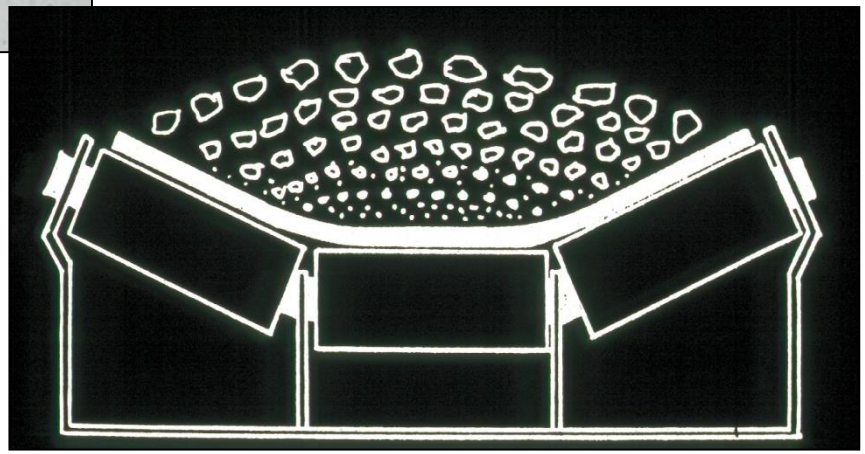
Section 6 – Construction and Points of Acceptance

Crushing and Stockpiling

- **Crushing – all material up to 18 inches in diameter**
- **Stockpiling (Good Practices) WYDOT310.4.1**
  - **6 feet maximum depth**
  - **No coning**
  - **No dumping or casting except fine aggregate**
  - **No contamination from trucks, equipment, etc.**
  - **No degradation**
  - **Separate piles for different sizes when required**

Building Scale-model Stockpile to Illustrate Segregation





Blend Proportions Shown in Pans – White and Red Particles (the Fines) Are “Hidden” in Pile Core

Close-Up Showing Coarsest Particles to Front and Bottom

“Sampling” Pile With Remote Controlled Equipment –

Realistic Training Tool for Stockpile Recovery Techniques

Layered Stockpile

Segregated Stockpile

Compaction

- **Definition – act of decreasing material volume**
- **If a soil is being compacted, what phase is changing?**
- **Accomplished by:**
  - **Rolling**
  - **Tamping**
  - **Vibration**
  - **Combination**

Compaction (continued)

- **Factors affecting compaction**
  - **Particle size**
  - **Angularity**
  - **Compactive effort – types, weights, applications, etc.**
  - **Lift thickness**
  - **Moisture content**

Compaction (continued)

- **Compaction:**
  - **Increases density**
  - **Increases strength or stability**
  - **Increases moisture resistance**
  - **Increases resistance to swell or frost**
  - **Decreases air voids**
  - **Decreases permeability**
- **Effect of Layer Thickness on Density**

Compaction (continued)

- **Compaction specifications**
  - **Typical subgrade or base maximum lift – 8”**
  - **Equipment – Contractor option**
  - **Minimum levels for acceptance;**
    - **Untreated subbase and base – 95% of T-180**
    - **CTB – 100% of AASHTO T 99**
    - **Soils – typically 95% of AASHTO T 99**

Sampling AASHTO T 2

- **Locations**
  - **Conveyor belt**
  - **Windrow**
  - **Stockpile**
  - **Mechanical sampler**

Sampling AASHTO T 2 (continued)

WYDOT MTM 804.0

- Conveyor belt
  - Preferred
  - Before additives
  - Stop belt
  - Select a location in the middle third of the belt between rollers
  - Belt should be filled to 80% of capacity
  - Use contractor furnished template
  - Collect sample including fines
  - The sample must yield 30 lbs minimum

Belt Sampling

Sampling Template

Sampling (continued)

- **Windrow**
  - **Random location**
  - **Flatten windrow to 8 inches for at least 6 feet**
  - **Divide into quarters**
  - **Sample each quarter**
  - **Combine quarter samples to equal 30 lbs min.**

Sampling (continued)

- **Stockpile – avoid if possible**
  - **Random location**
  - **Use loader to dig into stockpile and transport to level area**
  - **Dump and spread to 8 inches**
  - **Divide into quarters**
  - **Sample quarters**
  - **Combine quarter samples to equal 30lb min.**
- **Mechanical Sampler**
  - **Must be correlated to belt samples per WYDOT 804.0 Materials Testing Manual**

Points of Acceptance

- **Sub base and Base**
  - **Conveyor between stockpile or crusher and hauling unit**
  - **Windrow if belt not used**
- **Treated base**
  - **Conveyor prior to additives**
- **Plant Mix Materials**
  - **Conveyor prior to asphalt or additives**
- **Concrete Aggregates**
  - **Conveyor between stockpile and plant**

Points of Acceptance

- **Seal Coat Aggregate**
  - **Final stockpile before hauling to spreader**
- **Miscellaneous aggregates**
  - **Conveyor between stockpile and hauling unit**
  - **Stockpile if belt not used**

Point of Sampling

Aggregates	Stockpile [1]	Conveyor Belt [2]	Windrow
Plant Mix Materials (PMB, RPMPB, PMP, RPMP & PMWC)		X	
Subbase		X	X [3]
Base		X	X [3]
Maintenance Stockpile		X	X [3]
Pervious Backfill Material & Bridge Approach Backfill Material		X	X [3]
Gravel for Drains	X		
Chip Seal	X		
Microsurfacing	X		
Concrete	X [4]		
Blotter	X		
Bed Course Material	X		
Class B Bedding	X		
Riprap, Stone Filled Gabions & Stone Mattress Aggregates	X		
Filter Aggregate	X		
Flowable Backfill	X		
Grout	X		

[1] Sample the last stockpile prior to final placement of the aggregate material.

[2] Sample from the conveyor belt used to load the hauling unit for final

[3] When not using a conveyor belt.

[4] Stockpile or storage bin.