Flowable Fill

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Outline

- Definition
- Advantages
- Applications
- DOTD Specifications
Definition

- Controlled Low-Strength Material (CLSM)
- Self-compacted
- Cementitious material
- Alternative to compacted fill
- Commonly known as Flowable Fill
- Max compressive strength: 1,200 psi
Advantages...

- Readily available
- Easy to deliver
- Ease of placement
- Product versatility
- Strong and durable
- Easily excavated
- Reduced field inspection
- Fast return to traffic
.. Advantages

- Will not settle
- Reduces excavation costs
- Improves safety
- All-weather construction
- Reduced equipment needs
- Requires no on-site storage
- Makes use of waste by-product
Applications

- Backfills
- Structural fills
- Pavement bases
- Conduit bedding
- Erosion control
- Void filling
DOTD Specifications...

- Alternative to compacted soil
- Backfill for:
  - Drainage structures
  - Trenches across pavement
  - Beddings
  - Void filling
- Cementitious mixture
Materials shall comply to:

- Portland Cement 1001.01
- Fine Aggregate 1003.02
- Admixtures 1011.02
- Water 1018.01
- Fly Ash 1018.15
<table>
<thead>
<tr>
<th>Material</th>
<th>Excavatable</th>
<th>Non-Excavatable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Portland Cement</td>
<td>75-100 lb/yd³</td>
<td>75-150 lb/yd³</td>
</tr>
<tr>
<td>Fly Ash</td>
<td>0-150 lb/yd³</td>
<td>150-600 lb/yd³</td>
</tr>
<tr>
<td>Water**</td>
<td>Proportioned for good consistency</td>
<td></td>
</tr>
<tr>
<td>Air***</td>
<td>10-35%</td>
<td>5-20%</td>
</tr>
<tr>
<td>Concrete Sand</td>
<td>Proportioned to yield 1 yd³</td>
<td></td>
</tr>
<tr>
<td>Unit Weight (wet)**</td>
<td>90-110 lb/ft³</td>
<td>100-125 lb/ft³</td>
</tr>
<tr>
<td>28-day Comp. Strength**</td>
<td>100 psi Max</td>
<td>125 psi Min</td>
</tr>
</tbody>
</table>
Construction Requirements

- Temporary enddams
- Lines & grades
- Freeze protection
- Placement method
- Hydrostatic pressure
- Sampling & testing
...DOTD Specifications

- Measurement & Payment
  - Cubic yards (cubic meters)
  - Unit price by cubic yard (cubic meters)
Questions?