Roller Integrated Compaction Monitoring
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Machine Drive Power (MDP) RICM Overview

CS56 (84") 800-series
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MDP Principle: Stiffness Indicated by Rolling Resistance

Soft ground condition = hard to push

Firm ground condition = easy to push
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Soil Stiffness indicated by Vehicle Rolling Resistance.
RICM Compaction Model Simulation
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RICM Specification - Meet the Pavement Design

- Production Rolling
- Proof Mapping
- QC Testing (Process Control)
- QA Testing (Project Acceptance)
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Proof Mapping

Compaction Target Value (CTV) = 42
Current TxDOT QA

<table>
<thead>
<tr>
<th>% Target</th>
<th>CCV</th>
<th>IC Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;130%</td>
<td>55</td>
<td>26%</td>
</tr>
<tr>
<td>90-130%</td>
<td>38 - 55</td>
<td>68%</td>
</tr>
<tr>
<td>80-90%</td>
<td>34 - 38</td>
<td>4%</td>
</tr>
<tr>
<td>70-80%</td>
<td>29 - 34</td>
<td>1%</td>
</tr>
<tr>
<td>&lt;70%</td>
<td>&lt;=120</td>
<td></td>
</tr>
</tbody>
</table>

Acceptance Criteria:
>90% of IC Data should be greater than 80% of CTV

Courtesy of Dr. David White – Iowa State University
Intelligent Compaction

Moisture Testing by Nuclear Gauge
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QC Testing

Light Weight Deflectometer
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QA Testing

Plate Load Testing

Measures Modulus of Subgrade Reaction

Strength not Density
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Block 73 Compaction Summary

Compaction Report

Data Model: DFW SITE
Display: CCV %
Site: DFW SITE
Date: Monday, March 07, 2011

Compaction Analysis

- > 116.0% (24%)
- 100.0% (92%)
- 80.0% (13%)
- 50.0% (0%)
- 0.0% (0%)

- Target CCV
- Decoupled
- Target CCV

Target Range: 100% - 125%
Target CCV: 120.0

CCV % Summary

Over compacted: 0%
Compacted: 87%
Under compacted: 13%
Total Area Covered: 20038.3 sq ft
Duration: 3h 26m 6s

Filter Settings

Filter: <Not Specified>
Machine: 2CS56 11-1753
Time Start: 3/7/2011 - 11:34:21 am
Time End: 3/7/2011 - 12:02:29 pm
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Bik. 73 Lime 03/07/2011 Proctor D.D. 92.4 @ 28.0% Moisture

QA Results: Rc% 95.1% D.D. 88.8@28.5% Moisture
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Blk. 73 Lime 03/07/2011 Proctor D.D. 92.4 @ 28.0% Moisture

Pave Tech: Rc% 99.6% D.D. 92.1@30.2% Moisture

Length 710.79FT
Azimuth S6°49'52"W
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Questions?