THE MAIN PARKING LOT AT THE MORTON ARBORETUM

BMP’s Five Years Later

Sikich Engineering, Inc.
ECOLOC PAVEMENT SECTION
(NTS)

PERMEABLE PAVEMENT CROSS SECTION
ECOLOC® PERMEABLE PAVERS
TYPICAL BIO-SWALE CROSS SECTION
WATER LEVEL CONTROL STRUCTURE
Energy
Dissipation
Structure
ENERGY DISSIPATION STRUCTURE
STORMWATER DISCHARGE MONITORING

(MONITORING STUDY COURTESY OF THE MORTON ARBORETUM, WILLS BURKE KELSEY ASSOCIATES, AND UNILOCK)

• Continuous monitoring at 5 locations in permeable parking Lot
• Continuous monitoring of conventional asphalt lot on-site Nearby
• Data logged at 15 minute intervals
# PARTIAL RAINFALL/RUN-OFF DATA FROM 2007

(DATA PROVIDED BY THE MORTON ARBORETUM, AS CALCULATED BY WILLS BURKE KELSEY ASSOCIATES)

<table>
<thead>
<tr>
<th>Storm Event</th>
<th>Rainfall (in)</th>
<th>Asphalt P. Lot Runoff (in)</th>
<th>Permeable P. Lot Runoff (in)</th>
<th>Permeable P. Lot Discharge (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>8/24/07</td>
<td>2.63</td>
<td>2.23</td>
<td>1.06</td>
<td>0.03</td>
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<tr>
<td>7/19/07</td>
<td>1.73</td>
<td>1.23</td>
<td>0.53</td>
<td>0.01</td>
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<tr>
<td>8/5/07</td>
<td>0.51</td>
<td>unavailable</td>
<td>0.17</td>
<td>0.00</td>
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OWNER’S OBSERVATIONS AND LESSONS LEARNED

• OVERALL, THE PARKING LOT HAS EXCEEDED THE OWNER’S EXPECTATIONS

• LEVEL SPREADER IS WORKING VERY WELL – HAVE NEVER WITNESSED WATER DISCHARGING FROM OVERFLOW PIPE

• WOULD PREFER FEWER CURB CUTS, OR A “SLIT” IN THE CURB IN LIEU OF DEPRESSIONS (DUE TO PEDESTRIANS CROSSING BIO-SWALES)

• WOULD NOT HAVE USED GRANITE CHIPS IN SURFACE VOIDS

• A FEW LOCATIONS HAVE SETTLED IN HEAVY TRAFFIC AREAS (E.G. NEAR GARBAGE DUMPSTERS AND LOADING DOCK

• SETTLEMENT IS EASY TO REPAIR (PICK UP PAVERS AND RE-LAY)
OWNER’S OBSERVATIONS AND LESSONS LEARNED (cont.)

• ELGIN SWEEPER EASILY REMOVES SURFACE VOID STONE FOR CLEANING OR REPLACEMENT

• THEY HAVE PERFORMED NO OVERALL SWEEPING OR AGGREGATE REPLLENISHMENT; ONLY ON A LOCALIZED BASIS AS NEEDED

• WHEN BIO-SWALES AND PERMEABLE PAVEMENT ARE UTILIZED TOGETHER, IRRIGATION IS IMPORTANT FOR PLANT VIABILITY

• USES LESS DE-ICER THAN A STANDARD ASPHALT PARKING LOT

• HAS BEEN PLOWED WITH STANDARD PLOWING EQUIPMENT SINCE 2005
Acknowledgement

Many of the slides, photographs and details in this presentation were created when I was employed by Christopher B. Burke Engineering West, Ltd. I would like to thank them for allowing me the continued use of the material for presentation purposes.
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