2011

Final Report: Appendix H. LID Parking Lot Retrofit at Belmont Street Soccer Fields, East Bridgewater - Supporting Information

Horsley Witten Group, Inc.

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APPENDIX H. LID PARKING LOT RETROFIT AT BELMONT STREET SOCCER FIELDS, EAST BRIDGEWATER - SUPPORTING INFORMATION
TAUNTON RIVER WATERSHED PLAN
EAST BRIDGEWATER YOUTH SOCCER FACILITY
DEMONSTRATION PROJECT
75% DESIGN PLANS

SEPTEMBER 10, 2010

VICINITY MAP

LOCATION

SITE

MASSACHUSETTS

EAST BRIDGEWATER

LOCUS
### Table 1. Materials Specifications for Constructed Wetlands

<table>
<thead>
<tr>
<th>Material</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Soil Media</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Subgrade Soil</strong></td>
<td>Well-compacted, fine-grained, stable soil. Native materials may be used if appropriate. USDA Soil Groups C and/or D are best.</td>
</tr>
<tr>
<td><strong>Geomembrane Liner</strong></td>
<td>Ultraviolet resistant, HDPE impermeable liner from Environmental Protection, Inc. or an approved equal. 30MIL Liner shall be installed per manufacturer recommendations with proper seam sealing and penetration sealing methods.</td>
</tr>
<tr>
<td><strong>Outlet Pipe</strong></td>
<td>Non-perforated PVC pipe and all associated fittings</td>
</tr>
</tbody>
</table>

### CONSTRUCTED WETLANDS SCHEDULE:

**ANNUAL FLOOD OPERATIONS:**

- **High Marsh:** 100 year control outlet.
- **Low Flow Outlet:** Structure.
- **Structure Rim:** OVF Spillway.
- **Overflow:** Est GW.
- **WQ:** Elev. N
- **2 YR Storm Elev. O**
- **10 YR Storm Elev. P**
- **100 YR Storm Elev. Q**

**STORMWATER MANAGEMENT:**

- **Est GW Elev. M**
- **WQ Elev. N**
- **2 YR Storm Elev. O**
- **10 YR Storm Elev. P**
- **100 YR Storm Elev. Q**

**EQUIPMENT AND MATERIALS:**

- **Geosynthetic Clay Liner (GCL):** Synthetic clay liner with a thickness of 10 MIL and a minimum E-modulus of 1,000 kips/ft², as required by the project specifications.
- **Silt Fence:** Metal silt fence with a minimum height of 4 feet, as specified by the project specifications.
- **Soil Stabilization:** Soil stabilization with a minimum of 5% calcium chloride, as required by the project specifications.
- **Rock Mulch:** Rock mulch with a minimum thickness of 6 inches, as specified by the project specifications.
- **Pond Liner:** Pond liner with a minimum thickness of 40 MIL HDPE, as required by the project specifications.

**CONSTRUCTION ACCESS FOR CONSTRUCTED WETLAND SYSTEM:**

- **Inlet Pipe:** Elev. A
- **Bottom Forebay Elev. B**
- **Berm Elev. C**
- **High Marsh Elev. D**
- **Low Marsh Elev. E**
- **Wetland Cell Berm Elev. F**
- **Micro Pool Bottom Elev. G**
- **Low Flow Outlet Elev. H1**
- **100 year Control Outlet Elev. H2**
- **Outlet Structure Pipe Elev. I**
- **Outlet Structure Rim Elev. J**
- **OVF Spillway Elev. K**
- **Overflow Elev. L**
- **Est GW Elev. M**
- **WQ Elev. N**
- **2 YR Storm Elev. O**
- **10 YR Storm Elev. P**
- **100 YR Storm Elev. Q**

**NOTES:**

- **1** See Section 1.1 for any additional notes on construction.  
- **2** See Section 1.2 for any additional notes on construction details.  
- **3** See Section 1.3 for any additional notes on construction requirements.

**CONSTRUCTION PLAN FOR CONSTRUCTED WETLANDS:**

- **Inlet Pipe:** Elev. A
- **Bottom Forebay Elev. B**
- **Berm Elev. C**
- **High Marsh Elev. D**
- **Low Marsh Elev. E**
- **Wetland Cell Berm Elev. F**
- **Micro Pool Bottom Elev. G**
- **Low Flow Outlet Elev. H1**
- **100 year Control Outlet Elev. H2**
- **Outlet Structure Pipe Elev. I**
- **Outlet Structure Rim Elev. J**
- **OVF Spillway Elev. K**
- **Overflow Elev. L**
- **Est GW Elev. M**
- **WQ Elev. N**
- **2 YR Storm Elev. O**
- **10 YR Storm Elev. P**
- **100 YR Storm Elev. Q**

**CONSTRUCTION WETLAND PROFILE VIEW:**

- **Pipe Outfall Details**
- **Typical Grass Channel Detail**

**ARCHITECT/ENGINEER:**

- Monument Valley Group, Inc.

**ARCHITECT/ENGINEER:**

- DCPA Engineering, Inc.

**CONSTRUCTION REPRESENTATIVE:**

- DCPA Engineering, Inc.

**CONSTRUCTION SUPERINTENDENT:**

- Monument Valley Group, Inc.

**CONSTRUCTION MANAGER:**

- Monument Valley Group, Inc.

**CONSTRUCTION SITE SUPERVISOR:**

- DCPA Engineering, Inc.

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- Monument Valley Group, Inc.

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**CONSTRUCTION SITE SUPERVISOR:**

- DCPA Engineering, Inc.
<table>
<thead>
<tr>
<th>ITEM NUMBER</th>
<th>DESCRIPTION</th>
<th>ESTIMATED QUANTITY</th>
<th>UNIT</th>
<th>UNIT PRICE</th>
<th>TOTAL AMOUNT</th>
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<td>3.0</td>
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<td>6.0</td>
<td>CONSTRUCTED WETLAND AREA 2</td>
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<td>CONSTRUCTED WETLAND AREA 4</td>
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<td>10.0</td>
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<td>TON</td>
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<td>PAVED ENTRANCES ROADWAY - 6&quot; DENSE GRADE SUBBASE</td>
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<td>TON</td>
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<td>REMOVE EXISTING GRAVEL</td>
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<td>CUBIC YARD</td>
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<td>PRECAST CONCRETE PARKING BUMPERS INSTALLED</td>
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<td>DEWATERING PROVISIONS</td>
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<td>LOAM (4&quot; THICK SPREAD)</td>
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<td>LUMP SUM</td>
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**SUB TOTAL** $446,491
<table>
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<th>Description</th>
<th>Amount</th>
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<tbody>
<tr>
<td>ESTIMATED BID PRICE</td>
<td>$447,000</td>
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<tr>
<td>Owner Contingency</td>
<td>30%</td>
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<tr>
<td>ESTIMATED CONSTRUCTION BUDGET</td>
<td>$582,000</td>
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**NOTES:**

Contingency is provided based on 75% design plans reflecting the fact that uncertainty exists between this stage and construction stage drawings. Final construction estimates will be dependent on factors resolved at the construction bidding stage.