

## **APPENDIX A – Photographs**



Photo 1.



Photo 2.



Photo 3.



Photo 4.



Photo 5.



Photo 6.



Photo 7.



Photo 8.

## **APPENDIX B – Field Data Sheets**

**WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region (Draft)**

Project/Site: LCP Bridge Street Site-Drainage Spoil Area City/County: Geddes/Onondaga Sampling Date: 17-Aug-11

Applicant/Owner: Honeywell State: NY Sampling Point: 1-1U

Investigator(s): J. McMullen, S. Sheridan Landform (hillslope, terrace, etc.): Swale

Soil Map Unit Name: Niaqara silt loam, 0 to 4 percent slopes Cover Type: SSU

Are climatic/hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, et**

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> If yes, optional Wetland Site ID: <input style="width: 100%;" type="text"/>
Remarks: Flag # 1-107, Photo # 1	

**VEGETATION - Use scientific names of plants.**

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
<b>Tree Stratum (Plot size: 30' Radius )</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>0</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>0.0%</u> (A/B)
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: 15' Radius )</b>				
1. <u>Rhamnus cathartica</u>	100	<input checked="" type="checkbox"/> 100.0%	UPL	<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>10</u> x 3 = <u>30</u> FACU species <u>35</u> x 4 = <u>140</u> UPL species <u>125</u> x 5 = <u>625</u> Column Totals: <u>170</u> (A) <u>795</u> (B) Prevalence Index = B/A = <u>4.676</u>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
100 = Total Cover				
<b>Herb Stratum (Plot size: 5' Radius )</b>				
1. <u>Geum canadense</u>	30	<input checked="" type="checkbox"/> 42.9%	FACU	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 <sup>1</sup> <input type="checkbox"/> <u>Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</u> <input type="checkbox"/> <u>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</u>  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Arctium minus</u>	20	<input checked="" type="checkbox"/> 28.6%	UPL	
3. <u>Inula helenium</u>	5	<input type="checkbox"/> 7.1%	UPL	
4. <u>Aster sp.</u>	10	<input type="checkbox"/> 14.3%	FAC	
5. <u>Lonicera morrowii</u>	5	<input type="checkbox"/> 7.1%	FACU	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
70 = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

<sup>1</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**Soil**

Sampling Point: 1-1U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-13	10YR	3/1	100%				Silt	
13-18	10YR	5/3	100%				Silt	

<sup>1</sup> Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains <sup>2</sup>Location: PL=Pore Lining. M=Matrix

- |  |  |  |
|--|--|--|
| <p><b>Hydric Soil Indicators:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Histosol (A1)</li> <li><input type="checkbox"/> Histic Epipedon (A2)</li> <li><input type="checkbox"/> Black Histic (A3) (except in MLRA 143)</li> <li><input type="checkbox"/> Hydrogen Sulfide (A4)</li> <li><input type="checkbox"/> Stratified Layers (A5)</li> <li><input type="checkbox"/> Depleted Below Dark Surface (A11)</li> <li><input type="checkbox"/> Thick Dark Surface (A12)</li> <li><input type="checkbox"/> Sandy Muck Mineral (S1)</li> <li><input type="checkbox"/> Sandy Gleyed Matrix (S4)</li> <li><input type="checkbox"/> Sandy Redox (S5)</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Stripped Matrix (S6) (Drop in LRR R?)</li> <li><input type="checkbox"/> Dark Surface (S7) (MLRA 149B of LRR S)</li> <li><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, S)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (LRR R, S)</li> <li><input type="checkbox"/> Loamy Mucky Mineral (F1)</li> <li><input type="checkbox"/> Loamy Gleyed Matrix (F2)</li> <li><input type="checkbox"/> Depleted Matrix (F3)</li> <li><input type="checkbox"/> Redox Dark Surface (F6)</li> <li><input type="checkbox"/> Depleted Dark Surface (F7)</li> <li><input type="checkbox"/> Redox Depressions (F8)</li> </ul> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, S)</li> <li><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</li> <li><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</li> <li><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</li> <li><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)</li> <li><input type="checkbox"/> Iron-Manganese Masses (F12)</li> <li><input type="checkbox"/> Piedmont Floodplain Soils (F19)</li> <li><input type="checkbox"/> Red Parent Material (TF2)</li> <li><input type="checkbox"/> Other (Explain in Remarks)</li> </ul> |
|--|--|--|

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:  
Dry

**Hydrology**

<p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Surface Water (A1)</li> <li><input type="checkbox"/> High Water Table (A2)</li> <li><input type="checkbox"/> Saturation (A3)</li> <li><input type="checkbox"/> Water Marks (B1)</li> <li><input type="checkbox"/> Sediment Deposits (B2)</li> <li><input type="checkbox"/> Drift deposits (B3)</li> <li><input type="checkbox"/> Algal Mat or Crust (B4)</li> <li><input type="checkbox"/> Iron Deposits (B5)</li> <li><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</li> <li><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</li> <li><input type="checkbox"/> Water-Stained Leaves (B9)</li> <li><input type="checkbox"/> Aquatic Fauna (B13)</li> <li><input type="checkbox"/> Marl Deposits (B15)</li> <li><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</li> <li><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</li> <li><input type="checkbox"/> Presence of Reduced Iron (C4)</li> <li><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</li> <li><input type="checkbox"/> Thin Muck Surface (C7)</li> <li><input type="checkbox"/> Other (Explain in Remarks)</li> </ul>	<p><u>Secondary Indicators (minimum of two required)</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Surface Soil Cracks (B6)</li> <li><input type="checkbox"/> Drainage Patterns (B10)</li> <li><input type="checkbox"/> Moss Trim Lines (B16)</li> <li><input type="checkbox"/> Dry Season Water Table (C2)</li> <li><input type="checkbox"/> Crayfish Burrows (C8)</li> <li><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</li> <li><input type="checkbox"/> Stunted or Stressed Plants (D1)</li> <li><input type="checkbox"/> Geomorphic Position (D2)</li> <li><input type="checkbox"/> Shallow Aquitard (D3)</li> <li><input type="checkbox"/> Microtopographic Relief (D4)</li> <li><input type="checkbox"/> FAC-Neutral Test (D5)</li> </ul>
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**Field Observations:**

Surface Water Present? Yes  No       Depth (inches):

Water Table Present? Yes  No       Depth (inches):

Saturation Present? (includes capillary fringe) Yes  No       Depth (inches):

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

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Remarks:

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**WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region (Draft)**

Project/Site: LCP Bridge Street Site-Drainage Spoil Area City/County: Geddes/Onondaga Sampling Date: 17-Aug-11

Applicant/Owner: Honeywell State: NY Sampling Point: 1-1W

Investigator(s): J. McMullen, S. Sheridan Landform (hillslope, terrace, etc.): Swale

Soil Map Unit Name: Niaqara silt loam, 0 to 4 percent slopes Cover Type: EW

Are climatic/hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, et**

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/> If yes, optional Wetland Site ID: <input style="width: 100%;" type="text"/>
Remarks: Flag # 1-107, Photo # 2	

**VEGETATION - Use scientific names of plants.**

	Absolute % Cover	Dominant Species? Rel. Strat. Cover	Indicator Status	
<b>Tree Stratum (Plot size: 30' Radius )</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: 15' Radius )</b>				
1. <u>Cornus amomum</u>	2	<input checked="" type="checkbox"/> 100.0%	FACW	<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>102</u> x 2 = <u>204</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>102</u> (A) <u>204</u> (B) Prevalence Index = B/A = <u>2.000</u>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
2 = Total Cover				
<b>Herb Stratum (Plot size: 5' Radius )</b>				
1. <u>Phragmites australis</u>	100	<input checked="" type="checkbox"/> 100.0%	FACW	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is > 50% <input checked="" type="checkbox"/> Prevalence Index is ≤ 3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
100 = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

<sup>1</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**Soil**

Sampling Point: 1-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features						Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>				
0-3	10YR	4/1	100%						Silt Loam	
3-11	10YR	5/1	70%	10YR	4/4	30%	C	M	Clay Loam	

<sup>1</sup> Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains <sup>2</sup>Location: PL=Pore Lining. M=Matrix

- |  |   |  |
|--|---|--|
| <p><b>Hydric Soil Indicators:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Histosol (A1)</li> <li><input type="checkbox"/> Histic Epipedon (A2)</li> <li><input type="checkbox"/> Black Histic (A3) (except in MLRA 143)</li> <li><input type="checkbox"/> Hydrogen Sulfide (A4)</li> <li><input type="checkbox"/> Stratified Layers (A5)</li> <li><input type="checkbox"/> Depleted Below Dark Surface (A11)</li> <li><input type="checkbox"/> Thick Dark Surface (A12)</li> <li><input type="checkbox"/> Sandy Muck Mineral (S1)</li> <li><input type="checkbox"/> Sandy Gleyed Matrix (S4)</li> <li><input type="checkbox"/> Sandy Redox (S5)</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Stripped Matrix (S6) (Drop in LRR R?)</li> <li><input type="checkbox"/> Dark Surface (S7) (MLRA 149B of LRR S)</li> <li><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, S)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (LRR R, S)</li> <li><input type="checkbox"/> Loamy Mucky Mineral (F1)</li> <li><input type="checkbox"/> Loamy Gleyed Matrix (F2)</li> <li><input checked="" type="checkbox"/> Depleted Matrix (F3)</li> <li><input type="checkbox"/> Redox Dark Surface (F6)</li> <li><input type="checkbox"/> Depleted Dark Surface (F7)</li> <li><input type="checkbox"/> Redox Depressions (F8)</li> </ul> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, S)</li> <li><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</li> <li><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</li> <li><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</li> <li><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)</li> <li><input type="checkbox"/> Iron-Manganese Masses (F12)</li> <li><input type="checkbox"/> Piedmont Floodplain Soils (F19)</li> <li><input type="checkbox"/> Red Parent Material (TF2)</li> <li><input type="checkbox"/> Other (Explain in Remarks)</li> </ul> |
|--|---|--|

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: \_\_\_\_\_

**Hydrology**

<p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> Surface Water (A1)</li> <li><input type="checkbox"/> High Water Table (A2)</li> <li><input checked="" type="checkbox"/> Saturation (A3)</li> <li><input type="checkbox"/> Water Marks (B1)</li> <li><input type="checkbox"/> Sediment Deposits (B2)</li> <li><input type="checkbox"/> Drift deposits (B3)</li> <li><input type="checkbox"/> Algal Mat or Crust (B4)</li> <li><input type="checkbox"/> Iron Deposits (B5)</li> <li><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</li> <li><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</li> </ul>	<p><u>Secondary Indicators (minimum of two required)</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Surface Soil Cracks (B6)</li> <li><input type="checkbox"/> Drainage Patterns (B10)</li> <li><input type="checkbox"/> Moss Trim Lines (B16)</li> <li><input type="checkbox"/> Dry Season Water Table (C2)</li> <li><input type="checkbox"/> Crayfish Burrows (C8)</li> <li><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</li> <li><input type="checkbox"/> Stunted or Stressed Plants (D1)</li> <li><input type="checkbox"/> Geomorphic Position (D2)</li> <li><input type="checkbox"/> Shallow Aquitard (D3)</li> <li><input type="checkbox"/> Microtopographic Relief (D4)</li> <li><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</li> </ul>
<p><b>Field Observations:</b></p> <p>Surface Water Present? Yes <input checked="" type="radio"/> No <input type="radio"/>      Depth (inches): <input type="text" value="6"/></p> <p>Water Table Present? Yes <input type="radio"/> No <input checked="" type="radio"/>      Depth (inches): <input type="text"/></p> <p>Saturation Present? (includes capillary fringe) Yes <input checked="" type="radio"/> No <input type="radio"/>      Depth (inches): <input type="text"/></p>	<p style="text-align: right;">Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/></p>

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

\_\_\_\_\_

Remarks: \_\_\_\_\_

**WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region (Draft)**

Project/Site: LCP Bridge Street Site-Drainage Spoil Area City/County: Geddes/Onondaga Sampling Date: 17-Aug-11

Applicant/Owner: Honeywell State: NY Sampling Point: 2-1Ua

Investigator(s): J. McMullen, S. Sheridan Landform (hillslope, terrace, etc.): Flat

Soil Map Unit Name: Niaqara silt loam, 0 to 4 percent slopes Cover Type: OF

Are climatic/hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, et**

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> If yes, optional Wetland Site ID: <input style="width: 100%;" type="text"/>
Remarks: Flag # 2-8, Photo # 3	

**VEGETATION - Use scientific names of plants.**

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
<b>Tree Stratum (Plot size: 30' Radius )</b>				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: 15' Radius )</b>				<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>72</u> x 2 = <u>144</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>62</u> x 4 = <u>248</u> UPL species <u>30</u> x 5 = <u>150</u> Column Totals: <u>164</u> (A) <u>542</u> (B) Prevalence Index = B/A = <u>3.305</u>
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Herb Stratum (Plot size: 5' Radius )</b>				
1. Phragmites australis	40	<input checked="" type="checkbox"/> 24.4%	FACW	
2. Daucus carota	30	<input type="checkbox"/> 18.3%	UPL	
3. Cirsium arvense	10	<input type="checkbox"/> 6.1%	FACU	
4. Lolium perenne	50	<input checked="" type="checkbox"/> 30.5%	FACU	
5. Impatiens capensis	30	<input type="checkbox"/> 18.3%	FACW	
6. Lythrum salicaria	2	<input type="checkbox"/> 1.2%	FACW	
7. Picris sp.	2	<input type="checkbox"/> 1.2%	FACU	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
164 = Total Cover				
<b>Woody Vine Stratum (Plot size: _____ )</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				

**Hydrophytic Vegetation Indicators:**  
 Rapid Test for Hydrophytic Vegetation  
 Dominance Test is > 50%  
 Prevalence Index is ≤ 3.0<sup>1</sup>  
 Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)  
 Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes  No

Remarks: (Include photo numbers here or on a separate sheet.)

<sup>1</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**Soil**

Sampling Point: 2-1Ua

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	10YR	4/2	100%				Silt Loam	
5-8	10YR	6/1	100%				Gravelly clay loam	Side casting from west flume
8-14	2.5Y	6/2	100%					Waste material

<sup>1</sup> Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains <sup>2</sup>Location: PL=Pore Lining. M=Matrix

- |  |   |  |
|--|---|--|
| <p><b>Hydric Soil Indicators:</b></p> <input type="checkbox"/> Histic Epipedon (A2)<br><input type="checkbox"/> Black Histic (A3) (except in MLRA 143)<br><input type="checkbox"/> Hydrogen Sulfide (A4)<br><input type="checkbox"/> Stratified Layers (A5)<br><input type="checkbox"/> Depleted Below Dark Surface (A11)<br><input type="checkbox"/> Thick Dark Surface (A12)<br><input type="checkbox"/> Sandy Muck Mineral (S1)<br><input type="checkbox"/> Sandy Gleyed Matrix (S4)<br><input type="checkbox"/> Sandy Redox (S5) | <input type="checkbox"/> Stripped Matrix (S6) (Drop in LRR R?)<br><input type="checkbox"/> Dark Surface (S7) (MLRA 149B of LRR S)<br><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, S)<br><input type="checkbox"/> Thin Dark Surface (S9) (LRR R, S)<br><input type="checkbox"/> Loamy Mucky Mineral (F1)<br><input type="checkbox"/> Loamy Gleyed Matrix (F2)<br><input checked="" type="checkbox"/> Depleted Matrix (F3)<br><input type="checkbox"/> Redox Dark Surface (F6)<br><input type="checkbox"/> Depleted Dark Surface (F7)<br><input type="checkbox"/> Redox Depressions (F8) | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, S)<br><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)<br><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)<br><input type="checkbox"/> Dark Surface (S7) (LRR K, L)<br><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)<br><input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)<br><input type="checkbox"/> Iron-Manganese Masses (F12)<br><input type="checkbox"/> Piedmont Floodplain Soils (F19)<br><input type="checkbox"/> Red Parent Material (TF2)<br><input type="checkbox"/> Other (Explain in Remarks) |
|--|---|--|

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

**Restrictive Layer (if observed):**  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes  No

Remarks:

**Hydrology**

<p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (minimum of two required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
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**Field Observations:**

Surface Water Present? Yes  No       Depth (inches):

Water Table Present? Yes  No       Depth (inches):

Saturation Present? (includes capillary fringe) Yes  No       Depth (inches):

**Wetland Hydrology Present?** Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region (Draft)**

Project/Site: LCP Bridge Street Site-Drainage Spoil Area City/County: Geddes/Onondaga Sampling Date: 17-Aug-11  
 Applicant/Owner: Honeywell State: NY Sampling Point: 2-1Ub  
 Investigator(s): J. McMullen, S. Sheridan Landform (hillslope, terrace, etc.): Flat

Soil Map Unit Name: Fonda mucky silty clay loam Cover Type: OF

Are climatic/hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, et**

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> If yes, optional Wetland Site ID: <input style="width: 100%;" type="text"/>
Remarks: Flag # 2-41, Photo # 6	

**VEGETATION - Use scientific names of plants.**

	Absolute % Cover	Dominant Species? Rel. Strat. Cover	Indicator Status	
<b>Tree Stratum (Plot size: 30' Radius )</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: 15' Radius )</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>60</u> x 2 = <u>120</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>102</u> x 4 = <u>408</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>162</u> (A) <u>528</u> (B) Prevalence Index = B/A = <u>3.259</u>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Herb Stratum (Plot size: 5' Radius )</b>				
1. Phragmites australis	60	<input checked="" type="checkbox"/> 37.0%	FACW	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. Lolium perenne	70	<input checked="" type="checkbox"/> 43.2%	FACU	
3. Trifolium pratense	30	<input type="checkbox"/> 18.5%	FACU	
4. Solidago canadensis	2	<input type="checkbox"/> 1.2%	FACU	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
162 = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

<sup>1</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**Soil**

Sampling Point: 2-1Ub

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix			Redox Features					Texture	Remarks
	Color (moist)		%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>			
0-6	10YR	3/1	100%						Loam	
6-11	10YR	4/2	97%	10YR	4/3	3%	C	M	Silt	
11-14	10YR	7/1	40%	10YR	5/2	60%	D	M		Mixed soil/Waste material

<sup>1</sup> Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains <sup>2</sup>Location: PL=Pore Lining. M=Matrix

**Hydric Soil Indicators:**

Histosol (A1)

Histic Epipedon (A2)

Black Histic (A3) (except in MLRA 143)

Hydrogen Sulfide (A4)

Stratified Layers (A5)

Depleted Below Dark Surface (A11)

Thick Dark Surface (A12)

Sandy Muck Mineral (S1)

Sandy Gleyed Matrix (S4)

Sandy Redox (S5)

Stripped Matrix (S6) (Drop in LRR R?)

Dark Surface (S7) (MLRA 149B of LRR S)

Polyvalue Below Surface (S8) (LRR R, S)

Thin Dark Surface (S9) (LRR R, S)

Loamy Mucky Mineral (F1)

Loamy Gleyed Matrix (F2)

Depleted Matrix (F3)

Redox Dark Surface (F6)

Depleted Dark Surface (F7)

Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

2 cm Muck (A10) (LRR K, L, S)

Coast Prairie Redox (A16) (LRR K, L, R)

5 cm Mucky Peat or Peat (S3)

Dark Surface (S7) (LRR K, L)

Polyvalue Below Surface (S8) (LRR K, L)

Thin Dark Surface (S9) (LRR K, L)

Iron-Manganese Masses (F12)

Piedmont Floodplain Soils (F19)

Red Parent Material (TF2)

Other (Explain in Remarks)

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**Hydrology**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

Surface Water (A1)

High Water Table (A2)

Saturation (A3)

Water Marks (B1)

Sediment Deposits (B2)

Drift deposits (B3)

Algal Mat or Crust (B4)

Iron Deposits (B5)

Inundation Visible on Aerial Imagery (B7)

Sparsely Vegetated Concave Surface (B8)

Water-Stained Leaves (B9)

Aquatic Fauna (B13)

Marl Deposits (B15)

Hydrogen Sulfide Odor (C1)

Oxidized Rhizospheres along Living Roots (C3)

Presence of Reduced Iron (C4)

Recent Iron Reduction in Tilled Soils (C6)

Thin Muck Surface (C7)

Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

Surface Soil Cracks (B6)

Drainage Patterns (B10)

Moss Trim Lines (B16)

Dry Season Water Table (C2)

Crayfish Burrows (C8)

Saturation Visible on Aerial Imagery (C9)

Stunted or Stressed Plants (D1)

Geomorphic Position (D2)

Shallow Aquitard (D3)

Microtopographic Relief (D4)

FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches):

Water Table Present? Yes  No  Depth (inches):

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches):

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region (Draft)**

Project/Site: LCP Bridge Street Site-Drainage Spoil Area City/County: Geddes/Onondaga Sampling Date: 17-Aug-11

Applicant/Owner: Honeywell State: NY Sampling Point: 2-1W

Investigator(s): J. McMullen, S. Sheridan Landform (hillslope, terrace, etc.): Flat

Soil Map Unit Name: Niaqara silt loam, 0 to 4 percent slopes Cover Type: EW

Are climatic/hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, et**

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/> If yes, optional Wetland Site ID: <input style="width: 100%;" type="text"/>
Remarks: Flag # 2-8, Photos # 4-5	

**VEGETATION - Use scientific names of plants.**

	Absolute % Cover	Dominant Species? Rel. Strat. Cover	Indicator Status	
<b>Tree Stratum (Plot size: 30' Radius )</b>				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: 15' Radius )</b>				<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <u>10</u> x 1 = <u>10</u> FACW species <u>122</u> x 2 = <u>244</u> FAC species <u>45</u> x 3 = <u>135</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>177</u> (A) <u>389</u> (B) Prevalence Index = B/A = <u>2.198</u>
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Herb Stratum (Plot size: 5' Radius )</b>				
1. Typha latifolia	10	<input type="checkbox"/> 5.6%	OBL	
2. Polygonum pensylvanicum	70	<input checked="" type="checkbox"/> 39.5%	FACW	
3. Phragmites australis	50	<input checked="" type="checkbox"/> 28.2%	FACW	
4. Populus deltoides	30	<input type="checkbox"/> 16.9%	FAC	
5. Panicum sp.	15	<input type="checkbox"/> 8.5%	FAC	
6. Eleocharis sp.	2	<input type="checkbox"/> 1.1%	FACW	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
177 = Total Cover				
<b>Woody Vine Stratum (Plot size: _____ )</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

<sup>1</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**Soil**

Sampling Point: 2-1W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR	3/1	100%				Silt Loam	
4-20	10YR	7/1	100%					Waste material

<sup>1</sup> Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains <sup>2</sup>Location: PL=Pore Lining. M=Matrix

**Hydric Soil Indicators:**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3) (except in MLRA 143)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Muck Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)

- Stripped Matrix (S6) (Drop in LRR R?)
- Dark Surface (S7) (MLRA 149B of LRR S)
- Polyvalue Below Surface (S8) (LRR R, S)
- Thin Dark Surface (S9) (LRR R, S)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- 2 cm Muck (A10) (LRR K, L, S)
- Coast Prairie Redox (A16) (LRR K, L, R)
- 5 cm Mucky Peat or Peat (S3)
- Dark Surface (S7) (LRR K, L)
- Polyvalue Below Surface (S8) (LRR K, L)
- Thin Dark Surface (S9) (LRR K, L)
- Iron-Manganese Masses (F12)
- Piedmont Floodplain Soils (F19)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type:

Depth (inches):

Hydric Soil Present? Yes  No

Remarks:

**Hydrology**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one is required; check all that apply)

- Surface Water (A1)
- High Water Table (A2)
- Saturation (A3)
- Water Marks (B1)
- Sediment Deposits (B2)
- Drift deposits (B3)
- Algal Mat or Crust (B4)
- Iron Deposits (B5)
- Inundation Visible on Aerial Imagery (B7)
- Sparsely Vegetated Concave Surface (B8)
- Water-Stained Leaves (B9)
- Aquatic Fauna (B13)
- Marl Deposits (B15)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Tilled Soils (C6)
- Thin Muck Surface (C7)
- Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- Surface Soil Cracks (B6)
- Drainage Patterns (B10)
- Moss Trim Lines (B16)
- Dry Season Water Table (C2)
- Crayfish Burrows (C8)
- Saturation Visible on Aerial Imagery (C9)
- Stunted or Stressed Plants (D1)
- Geomorphic Position (D2)
- Shallow Aquitard (D3)
- Microtopographic Relief (D4)
- FAC-Neutral Test (D5)

**Field Observations:**

- Surface Water Present? Yes  No
- Water Table Present? Yes  No
- Saturation Present? (includes capillary fringe) Yes  No

Depth (inches):

Depth (inches):

Depth (inches):

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

**WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region (Draft)**

Project/Site: LCP Bridge Street Site-Drainage Spoil Area City/County: Geddes/Onondaga Sampling Date: 17-Aug-11  
 Applicant/Owner: Honeywell State: NY Sampling Point: 2-2U  
 Investigator(s): J. McMullen, S. Sheridan Landform (hillslope, terrace, etc.): Flat

Soil Map Unit Name: Fonda mucky silty clay loam Cover Type: OF

Are climatic/hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, et**

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/> If yes, optional Wetland Site ID: <input style="width: 100%;" type="text"/>
Remarks: Flag # 2-19, Photo # 8	

**VEGETATION - Use scientific names of plants.**

	Absolute % Cover	Dominant Species? Rel. Strat. Cover	Indicator Status	
<b>Tree Stratum (Plot size: 30' Radius )</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>50.0%</u> (A/B)
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: 15' Radius )</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>60</u> x 2 = <u>120</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>145</u> x 4 = <u>580</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>205</u> (A) <u>700</u> (B) Prevalence Index = B/A = <u>3.415</u>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Herb Stratum (Plot size: 5' Radius )</b>				
1. <u>Trifolium hybridum</u>	70	<input checked="" type="checkbox"/> 34.1%	FACU	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is > 50% <input type="checkbox"/> Prevalence Index is ≤ 3.0 <sup>1</sup> <input type="checkbox"/> <u>Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)</u> <input type="checkbox"/> <u>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</u>  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Phragmites australis</u>	60	<input checked="" type="checkbox"/> 29.3%	FACW	
3. <u>Lolium perenne</u>	40	<input type="checkbox"/> 19.5%	FACU	
4. <u>Poa pratensis</u>	30	<input type="checkbox"/> 14.6%	FACU	
5. <u>Cirsium vulgare</u>	5	<input type="checkbox"/> 2.4%	FACU	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
205 = Total Cover				
<b>Woody Vine Stratum (Plot size: _____)</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

<sup>1</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**Soil**

Sampling Point: 2-2U

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features						Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>				
0-10	10YR	3/1	100%						loamy gravel	
10-18	10YR	3/2	80%	10YR	6/1	10%	C	M		waste material
				7.5YR	5/4	10%	C	M		waste material

<sup>1</sup> Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains <sup>2</sup>Location: PL=Pore Lining. M=Matrix

<p><b>Hydric Soil Indicators:</b></p> <input type="checkbox"/> Histosol (A1) <input type="checkbox"/> Histic Epipedon (A2) <input type="checkbox"/> Black Histic (A3) (except in MLRA 143) <input type="checkbox"/> Hydrogen Sulfide (A4) <input type="checkbox"/> Stratified Layers (A5) <input type="checkbox"/> Depleted Below Dark Surface (A11) <input type="checkbox"/> Thick Dark Surface (A12) <input type="checkbox"/> Sandy Muck Mineral (S1) <input type="checkbox"/> Sandy Gleyed Matrix (S4) <input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> Stripped Matrix (S6) (Drop in LRR R?) <input type="checkbox"/> Dark Surface (S7) (MLRA 149B of LRR S) <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, S) <input type="checkbox"/> Thin Dark Surface (S9) (LRR R, S) <input type="checkbox"/> Loamy Mucky Mineral (F1) <input type="checkbox"/> Loamy Gleyed Matrix (F2) <input type="checkbox"/> Depleted Matrix (F3) <input type="checkbox"/> Redox Dark Surface (F6) <input type="checkbox"/> Depleted Dark Surface (F7) <input type="checkbox"/> Redox Depressions (F8)	<p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, S) <input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R) <input type="checkbox"/> 5 cm Mucky Peat or Peat (S3) <input type="checkbox"/> Dark Surface (S7) (LRR K, L) <input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L) <input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L) <input type="checkbox"/> Iron-Manganese Masses (F12) <input type="checkbox"/> Piedmont Floodplain Soils (F19) <input type="checkbox"/> Red Parent Material (TF2) <input type="checkbox"/> Other (Explain in Remarks)
--	--	--

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes  No

Remarks: \_\_\_\_\_

**Hydrology**

<p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <input type="checkbox"/> Surface Water (A1) <input type="checkbox"/> High Water Table (A2) <input type="checkbox"/> Saturation (A3) <input type="checkbox"/> Water Marks (B1) <input type="checkbox"/> Sediment Deposits (B2) <input type="checkbox"/> Drift deposits (B3) <input type="checkbox"/> Algal Mat or Crust (B4) <input type="checkbox"/> Iron Deposits (B5) <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Water-Stained Leaves (B9) <input type="checkbox"/> Aquatic Fauna (B13) <input type="checkbox"/> Marl Deposits (B15) <input type="checkbox"/> Hydrogen Sulfide Odor (C1) <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) <input type="checkbox"/> Presence of Reduced Iron (C4) <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6) <input type="checkbox"/> Thin Muck Surface (C7) <input type="checkbox"/> Other (Explain in Remarks)	<p><u>Secondary Indicators (minimum of two required)</u></p> <input type="checkbox"/> Surface Soil Cracks (B6) <input type="checkbox"/> Drainage Patterns (B10) <input type="checkbox"/> Moss Trim Lines (B16) <input type="checkbox"/> Dry Season Water Table (C2) <input type="checkbox"/> Crayfish Burrows (C8) <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) <input type="checkbox"/> Stunted or Stressed Plants (D1) <input type="checkbox"/> Geomorphic Position (D2) <input type="checkbox"/> Shallow Aquitard (D3) <input type="checkbox"/> Microtopographic Relief (D4) <input type="checkbox"/> FAC-Neutral Test (D5)
--	--	--

**Field Observations:**

Surface Water Present? Yes  No       Depth (inches):

Water Table Present? Yes  No       Depth (inches):

Saturation Present? (includes capillary fringe) Yes  No       Depth (inches):

**Wetland Hydrology Present?** Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

\_\_\_\_\_

Remarks: \_\_\_\_\_

**WETLAND DETERMINATION DATA FORM - Northcentral and Northeast Region (Draft)**

Project/Site: LCP Bridge Street Site-Drainage Spoil Area City/County: Geddes/Onondaga Sampling Date: 17-Aug-11

Applicant/Owner: Honeywell State: NY Sampling Point: 2-2W

Investigator(s): J. McMullen, S. Sheridan Landform (hillslope, terrace, etc.): Flat

Soil Map Unit Name: Fonda mucky silty clay loam Cover Type: EW

Are climatic/hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain in Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

**Summary of Findings - Attach site map showing sampling point locations, transects, important features, et**

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/> If yes, optional Wetland Site ID: <input style="width: 100%;" type="text"/>
Remarks: Flag # 2-19, Photo # 9	

**VEGETATION - Use scientific names of plants.**

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
<b>Tree Stratum (Plot size: 30' Radius )</b>				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>1</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Sapling/Shrub Stratum (Plot size: 15' Radius )</b>				<b>Prevalence Index worksheet:</b> Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>95</u> x 2 = <u>190</u> FAC species <u>19</u> x 3 = <u>57</u> FACU species <u>4</u> x 4 = <u>16</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>118</u> (A) <u>263</u> (B) Prevalence Index = B/A = <u>2.229</u>
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
<b>Herb Stratum (Plot size: 5' Radius )</b>				
1. Phragmites australis	90	<input checked="" type="checkbox"/> 76.3%	FACW	
2. Populus deltoides	15	<input type="checkbox"/> 12.7%	FAC	
3. Phytolacca americana	2	<input type="checkbox"/> 1.7%	FACU	
4. Erechtites hieraciifolia	2	<input type="checkbox"/> 1.7%	FACU	
5. Panicum sp.	2	<input type="checkbox"/> 1.7%	FAC	
6. Polygonum pensylvanicum	5	<input type="checkbox"/> 4.2%	FACW	
7. Solanum dulcamara	2	<input type="checkbox"/> 1.7%	FAC	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
118 = Total Cover				
<b>Woody Vine Stratum (Plot size: _____ )</b>				
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				

Remarks: (Include photo numbers here or on a separate sheet.)

<sup>1</sup>Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

**Soil**

Sampling Point: 2-2W

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR	3/1	100%				Loam	
4-18	10YR	7/1	100%					Waste material -clayey

<sup>1</sup> Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains <sup>2</sup>Location: PL=Pore Lining. M=Matrix

- |  |   |  |
|--|---|--|
| <p><b>Hydric Soil Indicators:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Histic Sol (A1)</li> <li><input type="checkbox"/> Histic Epipedon (A2)</li> <li><input type="checkbox"/> Black Histic (A3) (except in MLRA 143)</li> <li><input type="checkbox"/> Hydrogen Sulfide (A4)</li> <li><input type="checkbox"/> Stratified Layers (A5)</li> <li><input type="checkbox"/> Depleted Below Dark Surface (A11)</li> <li><input type="checkbox"/> Thick Dark Surface (A12)</li> <li><input type="checkbox"/> Sandy Muck Mineral (S1)</li> <li><input type="checkbox"/> Sandy Gleyed Matrix (S4)</li> <li><input type="checkbox"/> Sandy Redox (S5)</li> </ul> | <ul style="list-style-type: none"> <li><input type="checkbox"/> Stripped Matrix (S6) (Drop in LRR R?)</li> <li><input type="checkbox"/> Dark Surface (S7) (MLRA 149B of LRR S)</li> <li><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR R, S)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (LRR R, S)</li> <li><input type="checkbox"/> Loamy Mucky Mineral (F1)</li> <li><input type="checkbox"/> Loamy Gleyed Matrix (F2)</li> <li><input checked="" type="checkbox"/> Depleted Matrix (F3)</li> <li><input type="checkbox"/> Redox Dark Surface (F6)</li> <li><input type="checkbox"/> Depleted Dark Surface (F7)</li> <li><input type="checkbox"/> Redox Depressions (F8)</li> </ul> | <p><b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> 2 cm Muck (A10) (LRR K, L, S)</li> <li><input type="checkbox"/> Coast Prairie Redox (A16) (LRR K, L, R)</li> <li><input type="checkbox"/> 5 cm Mucky Peat or Peat (S3)</li> <li><input type="checkbox"/> Dark Surface (S7) (LRR K, L)</li> <li><input type="checkbox"/> Polyvalue Below Surface (S8) (LRR K, L)</li> <li><input type="checkbox"/> Thin Dark Surface (S9) (LRR K, L)</li> <li><input type="checkbox"/> Iron-Manganese Masses (F12)</li> <li><input type="checkbox"/> Piedmont Floodplain Soils (F19)</li> <li><input type="checkbox"/> Red Parent Material (TF2)</li> <li><input type="checkbox"/> Other (Explain in Remarks)</li> </ul> |
|--|---|--|

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present unless disturbed or problematic.

**Restrictive Layer (if observed):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: \_\_\_\_\_

**Hydrology**

<p><b>Wetland Hydrology Indicators:</b></p> <p><u>Primary Indicators (minimum of one is required; check all that apply)</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Surface Water (A1)</li> <li><input type="checkbox"/> High Water Table (A2)</li> <li><input type="checkbox"/> Saturation (A3)</li> <li><input checked="" type="checkbox"/> Water Marks (B1)</li> <li><input checked="" type="checkbox"/> Sediment Deposits (B2)</li> <li><input type="checkbox"/> Drift deposits (B3)</li> <li><input checked="" type="checkbox"/> Algal Mat or Crust (B4)</li> <li><input type="checkbox"/> Iron Deposits (B5)</li> <li><input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)</li> <li><input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)</li> <li><input checked="" type="checkbox"/> Water-Stained Leaves (B9)</li> <li><input type="checkbox"/> Aquatic Fauna (B13)</li> <li><input type="checkbox"/> Marl Deposits (B15)</li> <li><input type="checkbox"/> Hydrogen Sulfide Odor (C1)</li> <li><input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)</li> <li><input type="checkbox"/> Presence of Reduced Iron (C4)</li> <li><input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)</li> <li><input type="checkbox"/> Thin Muck Surface (C7)</li> <li><input type="checkbox"/> Other (Explain in Remarks)</li> </ul>	<p><u>Secondary Indicators (minimum of two required)</u></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Surface Soil Cracks (B6)</li> <li><input type="checkbox"/> Drainage Patterns (B10)</li> <li><input type="checkbox"/> Moss Trim Lines (B16)</li> <li><input type="checkbox"/> Dry Season Water Table (C2)</li> <li><input type="checkbox"/> Crayfish Burrows (C8)</li> <li><input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)</li> <li><input type="checkbox"/> Stunted or Stressed Plants (D1)</li> <li><input type="checkbox"/> Geomorphic Position (D2)</li> <li><input type="checkbox"/> Shallow Aquitard (D3)</li> <li><input type="checkbox"/> Microtopographic Relief (D4)</li> <li><input checked="" type="checkbox"/> FAC-Neutral Test (D5)</li> </ul>
--	---

**Field Observations:**

Surface Water Present? Yes  No       Depth (inches):

Water Table Present? Yes  No       Depth (inches):

Saturation Present? (includes capillary fringe) Yes  No       Depth (inches):

Wetland Hydrology Present? Yes  No

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: \_\_\_\_\_

**APPENDIX B**

**WETLANDS MONITORING REPORT YEAR 4 - 2011**

Draft

**WETLAND MONITORING REPORT – YEAR 4 (2011)  
LCP BRIDGE STREET SITE**

**TOWN OF GEDDES  
ONONDAGA COUNTY, NEW YORK**

Prepared for:

**PARSONS  
301 Plainfield Road, Suite 350  
Syracuse, New York 13212**

Prepared by:

**TERRESTRIAL ENVIRONMENTAL SPECIALISTS, INC.  
23 County Route 6, Suite A  
Phoenix, New York 13135**

January 2012

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## 1.0 INTRODUCTION

Terrestrial Environmental Specialists, Inc. (TES) worked with Parsons and the New York State Department of Environmental Conservation (NYSDEC) to develop a wetland restoration plan to restore wetlands and the West Flume following remediation work at the LCP Bridge Street site. The wetland restoration site is located in the Town of Geddes, Onondaga County, New York (Figure 1).

Remediation work involved the excavation of wetlands in portions of NYSDEC freshwater wetland SYW-14 (Figure 2) and an adjacent drainage feature called the West Flume (Figures 1 and 2). An April 2006 aerial photograph (Figure 3) shows the areas while remediation was underway. An April 2009 aerial photograph (Figure 3a) and a November 2008 oblique aerial photograph (Figure 3b) show the areas after completion of the remediation. The wetland restoration area occurred south of a gravel road that parallels the West Flume. The West Flume drains to the northwest into Geddes Brook, which flows under railroad tracks before discharging into Ninemile Creek, a tributary to Onondaga Lake.

In 2011, additional remediation occurred in the West Ditch and the upper (eastern) portion of Wetland A. Excavation occurred in these areas in September 2011.

The wetland areas and the West Flume were restored under a restoration plan approved by the review agencies. The plan is briefly described in Section 2.0 of *Wetland Monitoring Report – Year 1 (2008) LCP Bridge Street Site* (TES 2009).

Wetland monitoring was part of the restoration plan, with monitoring required for a five-year period specified in the *Operation, Maintenance, and Monitoring Plan for the LCP Bridge Street Site, Solvay, New York* (Parsons 2008). Methods and results for Year 4 (2011) of wetland monitoring are provided in Sections 3.0 and 4.0, respectively, of the following report. Maintenance procedures implemented in the wetland restoration area during the year are provided in Section 5.0.

## 2.0 WETLAND REMEDIATION/RESTORATION EFFORTS

Remediation at the LCP Bridge Street site required the excavation of portions of NYSDEC wetland SYW-14 and the adjacent West Flume. The remediation design was presented in the *Final (100%) Design Report for the LCP Bridge Street (OU-1) Site* (Parsons 2004). Details about the wetland restoration and reclamation plans can be found in the *Wetland Monitoring Report – Year 1 (2008) LCP Bridge Street Site* (TES 2009). Additional remediation occurred in the West Ditch and the eastern portion of Wetland A in 2011.

Native plant species were selected for the vegetation restoration efforts. Species, quantities, and types of stock planted in the wetland restoration area, West Flume, and adjacent uplands are presented in Table 1. Seeding and mulching details are provided in Table 2. Some supplemental tree and shrub plantings were performed in 2008. These are detailed in Section 5.0 of the Year 1 report (TES 2009), and are also listed in Table 3.

### **3.0 MONITORING METHODS**

Methods proposed to monitor the restored wetland areas and West Flume are provided in Parsons (2008). The proposed parameters to be monitored included: vegetation, hydrology, wildlife usage, and invasive species.

#### **3.1 Vegetation**

Vegetation monitoring included field reconnaissance surveys, qualitative assessments, and quantitative sampling. Field reconnaissance surveys occurred at several times from May to September, 2011. More detailed qualitative assessments were performed in July and August, 2011. Quantitative sampling of vegetation occurred in August 2011.

Vegetation sampling was conducted on August 30, 2011 to assess the vegetation in Wetland A, Wetland B, and the West Flume. The vegetation data were collected from 18 permanent circular sample plots. The plots were located in each of the three restored areas and in the different vegetation cover types present in each area; plot locations are shown on Figures 5 and 5a.

Each permanent sample plot was 10 feet in diameter. Wooden stakes were installed to mark the center of each plot, which was also located using GPS equipment. To establish the 10-foot diameter, a cloth tape measure was attached to the stake, extended to 5 feet and walked around the stake.

Vegetation data collected in each sample plot consisted of the following: 1) the vegetation cover type present, 2) total percent areal cover of vegetation, 3) plant species observed, and 4) the percent areal cover of each species. Sample plot data sheets used are presented in Appendix A.

Photographs were taken at various times during the 2011 monitoring. At the time of the quantitative sampling, photographs were taken at each plot and at permanent photograph points shown on Figure 5. The location and direction of the photographs are shown on Figure 5a Sheets 1 and 2, and the photographs are presented in Appendix B.

#### **3.2 Hydrology**

The hydrology conditions in the restoration areas were monitored during the growing season using staff gauges. The gauges were installed in Wetland A and Wetland B on June 11, 2008. Staff gauge locations are shown on Figure 5.

Water level monitoring occurred eight times from May through September 2011. Water depths were also recorded at the center of each vegetation sample plot during the quantitative vegetation sampling that occurred on August 30, 2011.

### **3.3 Wildlife**

During field reconnaissance visits to the restoration areas, records were kept of all wildlife species seen in or in the vicinity of the area. Specific efforts occurred during the breeding season for birds and amphibians in 2011.

## **4.0 MONITORING RESULTS**

### **4.1 Introduction**

The restoration area is composed of three areas: Wetland A, Wetland B, and the West Flume. An April 2009 aerial photograph (Figure 3a) and a November 2008 oblique aerial photograph (Figure 3b) show the three areas after restoration. The post-remediation grading plan for these three areas is provided as Figure 4. Figure 6 shows the location and extent of the vegetation cover types found in the restoration areas during the 2011 monitoring effort. Plant species observed in the areas are listed in Table 4. The vegetation, hydrology, and wildlife usage of the restored areas is described in the following sections.

### **4.2 Vegetation**

A total of 148 plant species were recorded in and around Wetlands A and B and the West Flume in 2011 (Table 4). This is an increase of 33 species from the 2010 sampling and an increase of 51 species from the 2009 sampling.

#### **Wetland A**

Plant species observed in Wetland A are presented in Table 4. Vegetation plot data for Wetland A are provided in Appendix A, with a summary of the data presented in Table 5.

Wetland A contained one primary vegetation cover type during the August 2011 quantitative vegetation monitoring, which was emergent wetland. Three sampling plots were located in Wetland A, all occurring in emergent wetland (Figure 5).

The dominant plant in Wetland A was broad-leaf cattail (*Typha latifolia*), which was also closely associated with moss (*Chara* sp.), common reed (*Phragmites australis*), and soft-stem bulrush (*Scirpus tabernaemontani*). These four species account for approximately 96% of the total vegetation cover (Table 5). Broad-leaf cattail, moss and soft-stem bulrush have a wetland indicator status of obligate (OBL). Common reed has an indicator status of facultative-wet (FACW). Broad-leaf cattail continues to be the dominant plant in Wetland A, and this is consistent with what was found by the 2009 and 2010 monitoring efforts. Moss cover decreased from 2010 to 2011, while soft-stem bulrush and common reed cover increased.

#### **Wetland B**

Plant species observed in Wetland B are listed in Table 4. Vegetation plot data are presented in Appendix A, with summaries of the data presented in Tables 6 and 7.

Wetland B contained two vegetation cover types during the August 2011 quantitative vegetation monitoring. The two cover types were emergent wetland and aquatic bed. A total of twelve sampling plots were located in Wetland B, with seven in the emergent wetland area and five in the aquatic bed area. However, two of the five aquatic bed sample plots have begun to exhibit the characteristics of an emergent wetland cover type.

The emergent wetland portions of Wetland B were dominated by broad-leaf cattail and white cattail (*Typha x glauca*). These two dominants were also closely associated with star duckweed (*Lemna trisulca*), lesser duckweed (*Lemna minor*), and soft-stem bulrush. These five species account for approximately 92% of the total plant vegetation cover in the emergent wetland areas of Wetland B (Table 6). Both the dominant plants and the closely associated species have a wetland indicator status of obligate. As in 2010, the 2011 sampling data show broad-leaf cattail as a dominant plant.

The aquatic bed portion of Wetland B contained five dominant plant species: coontail (*Ceratophyllum demersum*), white water lily (*Nymphaea odorata*), broad-leaf cattail, star duckweed, and common bladder-wort (*Utricularia macrorhiza*). The five dominant plant species account for approximately 89% of the total cover in the Wetland B aquatic bed area (Table 7). All of the plant species have a wetland indicator status of obligate. Dominant plants in the aquatic bed of Wetland B in 2011 were the same as 2010, with the exception of waterweed (*Elodea* sp.). Coontail became the dominant species in 2011. However, the percent cover of each dominant plant species in the aquatic bed changed from 2010 to 2011. Water-weed, white water lily, and common bladder-wort decreased in percent cover, while coontail, broad-leaf cattail, and lesser duckweed increased.

### **West Flume**

Plant species observed in the West Flume in 2011 are presented in Table 4. Vegetation plot data for the West Flume are provided in Appendix A, with a summary of the data presented in Table 8.

The West Flume contained one vegetation cover type (emergent wetland) during the August 2011 vegetation monitoring. Three sampling plots were located in the West Flume.

Common reed and white cattail were the dominant plants in the West Flume in 2011, with associates including rice cutgrass (*Leersia oryzoides*), broad-leaf cattail, and devil's beggarticks (*Bidens frondosa*) (Table 8). These species, which all have an indicator status of facultative wet or wetter, account for approximately 90% of the total cover. The relative percent cover of common reed and white cattail increased significantly from 2010 to 2011.

An interesting plant species was found growing in the West Flume during the 2008 monitoring effort. The plant found is seaside bulrush (*Scirpus maritimus* spp. *paludosus*, currently *Bulboschoenus maritimus* spp. *paludosus*). The species has continued to persist in the upper portions of the West Flume through 2011. Seaside bulrush is a state-listed endangered plant. It is listed as endangered in New York under the Protected Plant Act (Section 9-1503 of the Environmental Conservation Law). It has a limited distribution in upstate New York; it is

confirmed extant in Cayuga and Onondaga Counties and also occurs in Nassau and Suffolk Counties (Young 2008).

Seaside bulrush was historically known from several locations in the Onondaga Lake area, including areas near the State Fair Grounds. These historical sitings are summarized in McMullen (1993). Recent records of the species are from near the Onondaga Lake Parkway in the southeastern portion of the lake.

### **4.3 Hydrology**

Water levels in Wetland A were monitored eight times and levels in Wetland B were monitored nine times in 2011. These dates were May 20, June 3, June 16, July 7, July 29, August 17, August 30, September 22, and September 27. Based on the water elevation data collected in 2011 (Table 9), water levels were fairly consistent from May through September.

In Wetland A, the water surface elevation fluctuated between 379.74 feet and 380.30 feet (Table 9). The lowest water elevation was observed on July 29, 2011. The highest water elevation was recorded on August 30, 2011.

In Wetland B, the water surface elevation fluctuated between 375.42 feet and 376.28 feet (Table 9). The lowest water elevation was observed on July 29, 2011. The highest water elevation was observed on May 20, 2011.

### **4.4 Wildlife**

Wildlife observations from the restoration areas are presented in Table 10. These observations were made at various times during the 2011 season. Mammals, fish, and macroinvertebrates collected during the 2011 bioassessment surveys are presented in Table 11.

#### **Fish**

Fish were noted in the West Flume and Wetland B during the 2011 monitoring. TES did not sample for fish, but fish collected during the biota assessment were identified by TES and are presented in Table 11. Fish species collected in the West Flume included brook stickleback (*Culaea inconstans*) and creek chub (*Semotilus atromaculatus*). Creek chub was the most abundant species. Both of these fish species were observed in Wetland B in 2011.

#### **Macroinvertebrates**

Macroinvertebrates were sampled in the West Flume and Wetlands A and B during the 2011 bioassessment monitoring. Six species of macroinvertebrates were collected (Table 11). These species were crayfish, dragonflies, snails, shrimp, water bugs, and beetles.

## **Amphibians/Reptiles**

Four species of frogs were identified in the restoration area and vicinity during 2011 (Table 10). American bullfrog (*Lithobates catesbeianus*) and gray treefrog (*Hyla versicolor*) were found in Wetland B. Northern green frog (*Lithobates clamitans melanota*) and northern leopard frog (*Lithobates pipiens*) were found in Wetland A, Wetland B, and the West Flume. This was the first record of gray tree frog in the restoration area. It was heard calling near Wetland B.

Painted turtles (*Chrysemys picta*) were observed in Wetland B and the West Flume during the 2011 monitoring effort. As during the 2010 monitoring effort when an eastern snapping turtle (*Chelydra s. serpentina*) was observed in the West Flume, these observations are important because they further indicate the restored site's suitability and success in supporting wildlife.

## **Birds**

Table 10 lists the bird species seen or heard in the vicinity of the restoration areas. Species observed included several wetland species, such as Canada goose (*Branta canadensis*), mallard (*Anas platyrhynchos*), pied-billed grebe (*Podilymbus podiceps*), green heron (*Butorides virescens*), spotted sandpiper (*Actitis macularis*), willow flycatcher (*Empidonax traillii*), and red-winged blackbird (*Agelaius quiscula*). Red-winged blackbird is a common nesting species in the restored wetland areas. Pied-billed grebe is listed as a threatened species by the NYSDEC. Two juveniles were observed in Wetland B in 2011. In June 2010 an adult pied-billed grebe with young were noted in Wetland B. This indicates that the species is continuing to nest in the area, and is another positive indication of the successful restoration of the area.

## **Mammals**

White-tailed deer (*Odocoileus virginianus*) sign was observed in the vicinity of Wetland A. Muskrat (*Ondatra zibeticus*) sign was observed in Wetland A, Wetland B, and the West Flume. In Wetland B under a cover board a meadow vole (*Microtus pennsylvanicus*) was observed. During the bioassessment work, several species of small mammal were collected. These included: meadow vole, deer mouse (*Peromyscus maniculatus*), and short-tailed shrew (*Blarina brevicauda*).

## **5.0 WETLAND RESTORATION SUCCESS AND MAINTENANCE**

Restoration of the LCP remediation areas, including Wetland A, Wetland B, and the West Flume, has been tremendously successful. Areas that were previously dominated by a monoculture of the invasive common reed with little aquatic habitat component, are now diverse wetlands, supporting a mix of plant and animal species and containing an interspersed aquatic habitat. The improvement in habitat value of these areas is significant. As previously noted, the nesting of a state-listed bird and the occurrence of a state-listed plant are also indications of restoration success.

While the restoration of the LCP remediation areas is considered very successful based on the four years of monitoring, maintenance of the areas is considered necessary to maintain the habitat value. The two concerns are: 1) the encroachment of common reed into the areas, and 2) the success of the plantings, particularly woody species.

### **5.1 Invasive Species Control**

Common reed occurs in various locations within and around the edges of Wetlands A and B, and the West Flume. Most of the common reed is in upland areas or in wetland fringes but has increased significantly from 2010 to 2011 in portions of Wetland A and especially the West Flume. The more abundant areas are shown on Figure 7. Additional remediation work occurred in the eastern portion of Wetland A where common reed occurred previously.

No measures to control common reed were implemented in 2011. It is recommended that control measures in the form of the application of the herbicide Rodeo<sup>®</sup>, which is labeled for use in wetlands, be implemented in common reed areas in 2012. Such an application may require a permit from the NYSDEC. The best time for treatment is late August/early September.

### **5.2 Woody Species Plantings**

Many tree and shrub plantings around Wetland B were originally installed at a lower elevation than specified in the plan. This woody material did not survive when the area was recharged with water. Recommendations were made to replace material. On May 19, 2008, forty-eight additional trees and shrubs were planted at the LCP Restoration site. The species and quantities are presented in Table 3.

Additional tree and shrub plantings are recommended around Wetland B. These plantings are primarily needed along the western edge of Wetland B. Details on quantities, species, and location for the plantings could be developed for a 2012 planting.

## **6.0 SUMMARY**

Remediation efforts at the LCP Bridge Street site were focused on impacted wetland areas and a drainage feature called the West Flume. The wetland areas (Wetland A and Wetland B) are part of NYSDEC Wetland SYW-14.

Detailed plans were developed by Parsons, TES, and NYSDEC to restore these areas. These plans are presented in Parsons (2004).

The wetlands and the West Flume were originally dominated by a monoculture of the invasive grass common reed and had limited aquatic habitat. Design for the restoration targeted a wetter wetland system to diversify the habitats, provide areas unsuitable for common reed, and increase the aquatic habitat component. Shrub and tree plantings were provided around the restored areas. Remediation efforts occurred from 2005 to 2007. Some additional remediation occurred in the West Ditch and the eastern portion of Wetland A in 2011. Initial restoration of

the wetlands and West Flume occurred in the latter portion of this time period, with extensive vegetation planting in the fall of 2007.

Monitoring of the restored areas was required and is described in the Operation, Maintenance and Monitoring Plan (Parsons 2008). Monitoring occurred in 2008, 2009, 2010, and 2011. Results of the fourth year of monitoring (2011) are presented in the current report.

Vegetation, hydrology, and wildlife usage were monitored during 2011 in the restored wetlands and the West Flume. A vegetation cover map of the restored areas is provided. Vegetation in the restored wetlands and West Flume was primarily persistent emergent and aquatic bed. A total of 148 plant species were observed in the area, most of which were wetland species. Interestingly, seaside bulrush, a state-listed endangered plant, was found in the restored West Flume in 2008 and has persisted to 2011.

Hydrology was monitored in Wetlands A and B from May through September 2011 using staff gauges. Water levels were fairly consistent throughout the year.

Wildlife usage of the restored wetlands and the West Flume was extensive. Species of fish were observed in Wetland B and the West Flume in 2011. Leopard frogs were particularly abundant in the restored wetlands, with green frogs and bullfrogs being noted as well. Gray tree frogs were noted in 2011. Painted turtles were observed in Wetland B and the West Flume in 2011. Numerous wetland birds were observed in the area during the year, including the state-listed threatened pied-billed grebe. A few mammals were noted, and muskrat usage continues; many additional species likely utilize the area.

Overall, the restored areas were found to be very successful during the first four years of monitoring. Common reed still occurs in several locations in uplands around the restored areas and has increased in percent cover in certain areas, especially the West Flume. Herbicide treatment or cuttings to control common reed occurred in 2008 and 2009. Mowing and hand cutting to control common reed occurred in 2010. Herbicide application is recommended in certain areas in 2012. Additional tree plantings around the edge of the wetlands were performed in 2008 to replace material that died. Additional tree plantings are recommended.

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# **TABLES**

**Table 1.**

**Plantings at the LCP Bridge Street Restoration Area**

<b>WETLAND PLANTING ZONE A2 (edge of water to 2 feet above water)</b>		
<b>Quantity</b>	<b>Scientific Name<sup>(a)</sup></b>	<b>Common Name</b>
118	<i>Populus deltoides</i>	Eastern cottonwood
118	<i>Fraxinus pennsylvanica</i>	Green ash
30	<i>Populus tremuloides</i>	Trembling aspen
88	<i>Quercus bicolor</i>	Swamp white oak
59	<i>Sambucus canadensis</i>	Elderberry
59	<i>Salix amygdaloides</i>	Peach-leaf willow
118	<i>Salix discolor</i>	Pussy willow
118	<i>Cornus amomum</i>	Silky dogwood
<b>WETLAND PLANTING ZONE B1 (water 0 to 1 foot deep)</b>		
348	<i>Sagittaria latifolia</i>	Arrowhead
348	<i>Sparganium americanum</i>	Burreed
348	<i>Scirpus tabernaemontani</i>	Soft-stem bulrush
348	<i>Leersia oryzoides</i>	Rice cutgrass
348	<i>Juncus effusus</i>	Soft rush
348	<i>Eleocharis obtusa</i>	Creeping spikerush
348	<i>Carex vulpinoidea</i>	Fox sedge
348	<i>Scirpus cyperinus</i>	Woolgrass
348	<i>Polygonum hydropiperoides</i>	Swamp smartweed
<b>WETLAND PLANTING SUB-ZONE B2 (water 1 to 2 feet deep)</b>		
3432	<i>Alisma subcordatum</i>	Water plantain
500	<i>Pontederia cordata</i>	Pickerel weed
280	<i>Pontederia cordata</i>	Pickerel weed
624	<i>Utricularia vulgaris</i>	Bladderwort
<b>WETLAND PLANTING ZONE C AQUATIC BED (water 2 to 4 feet deep)</b>		
1155	<i>Elodea canadensis</i>	Water weed
924	<i>Coleogeton pectinatum</i>	Sago pondweed
231	<i>Nymphaea odorata</i>	Water lily
231	<i>Nuphar lutea</i>	Yellow water lily
<b>WEST FLUME AREA (side slopes to flume)</b>		
90	<i>Populus deltoides</i>	Eastern cottonwood
90	<i>Fraxinus pennsylvanica</i>	Green ash
30	<i>Populus tremuloides</i>	Trembling aspen
60	<i>Quercus bicolor</i>	Swamp white oak
45	<i>Sambucus canadensis</i>	Elderberry
45	<i>Salix amygdaloides</i>	Peach-leaf willow
90	<i>Salix discolor</i>	Pussy willow
90	<i>Cornus amomum</i>	Silky dogwood

<sup>(a)</sup> Nomenclature follows Mitchell and Tucker (1997).

**Table 2.**

**Seeding and Mulching at the LCP Bridge Street Restoration Area**

<b>WETLAND SEED MIX<sup>(b)</sup></b>	
<b>Scientific Name<sup>(a)</sup></b>	<b>Common Name</b>
<i>Agrostis alba</i>	Redtop
<i>Carex comosa</i>	Cosmos sedge
<i>Carex vulpinoidea</i>	Fox sedge
<i>Carex scoparia</i>	Blunt broomsedge
<i>Scirpus atrovirens</i>	Green bulrush
<i>Typha latifolia</i>	Broad-leaf cattail
<i>Bidens cernua</i>	Beggars-tick
<i>Glyceria striata</i>	Fowl mannagrass
<i>Polygonum pennsylvanicum</i>	Pennsylvania smartweed
<i>Polygonum hydropiperoides</i>	Marsh smartweed
<i>Eleocharis obtusa</i>	Spikerush
<i>Juncus effusus</i>	Soft rush
<i>Sparganium americanum</i>	Eastern burreed
<i>Verbena hastata</i>	Blue vervain
<i>Leersia oryzoides</i>	Rice cutgrass

<b>CONSERVATION SEED MIX<sup>(c)</sup></b>		
<b>Scientific Name<sup>(a)</sup></b>	<b>Common Name</b>	<b>Lbs./Acre</b>
<i>Trifolium repens</i>	White clover, Dutch	2.5
<i>Agrostis perennans</i>	Autumn bentgrass, PA Ecotype	5
<i>Lolium perenne</i>	Perennial ryegrass, "Saint" (turf type)	10
<i>Phleum pratense</i>	Timothy	10
<i>Dactylis glomerata</i>	Orchard grass, "Potomac"	10
<i>Bromus inermis</i>	Smooth brome	10
<i>Agrostis scabra</i>	Ticklegrass (rough bentgrass), PA Ecotype	4
	Total	51.5

<sup>(a)</sup> Nomenclature follows Mitchell and Tucker (1997).

<sup>(b)</sup> Seeding rate – 15 bulk lbs./acre.

<sup>(c)</sup> Seeding rate – 51.51 lbs./acre.

**Table 3.**

**Supplemental Tree and Shrub Plantings on May 19, 2008**

<b>Quantity</b>	<b>Scientific Name<sup>(a)</sup></b>	<b>Common Name</b>
9	<i>Populus deltoides</i>	Eastern cottonwood
9	<i>Fraxinus pennsylvanica</i>	Green ash
10	<i>Salix purpurea</i>	Streamco willow
10	<i>Salix discolor</i>	Pussy willow
10	<i>Cornus amomum</i>	Silky dogwood

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<sup>(a)</sup> Nomenclature follows Mitchell and Tucker (1997).

Table 4.

## Plant Species Observed in 2011, LCP Wetland Restoration Areas

## TREES

Scientific Name <sup>(a)</sup>	Common Name	Wetland Indicator Status <sup>(b)</sup>	Wetland A	Wetland B	West Flume
<i>Acer negundo</i>	Box elder	FAC	✓	✓(E)	✓(E)
<i>Fraxinus pennsylvanica</i>	Green ash	FACW	✓	✓	✓
<i>Juglans nigra</i>	Black walnut	FACU			✓(E)
<i>Morus</i> sp.	Mulberry	FACU		✓	
<i>Populus deltoides</i>	Eastern cottonwood	FAC	✓	✓	✓(E)
<i>Populus tremuloides</i>	Quaking aspen	FACU	✓(E)	✓(E)	✓(E)
<i>Quercus bicolor</i>	Swamp white oak	FACW	✓(E)	✓(E)	✓(E)
<i>Robinia pseudoacacia</i>	Black locust	FACU	✓	✓(E)	✓(E)
<i>Salix amygdaloides</i>	Peach-leaf willow	FACW	✓	✓	✓(E)
<i>Salix</i> sp.	Willow	FACW			✓(E)

## SHRUBS

Scientific Name <sup>(a)</sup>	Common Name	Wetland Indicator Status <sup>(b)</sup>	Wetland A	Wetland B	West Flume
<i>Cornus amomum</i>	Silky dogwood	FACW	✓	✓	✓
<i>Cornus sericea</i>	Red-osier dogwood	FACW		✓	
<i>Lonicera morrowii</i>	Morrow's honeysuckle	FACU	✓(E)	✓(E)	✓(E)
<i>Rhamnus cathartica</i>	Common buckthorn	FACU		✓(E)	✓(E)
<i>Rhus hirta</i>	Staghorn sumac	UPL		✓(E)	✓(E)
<i>Salix discolor</i>	Pussy willow	FACW	✓	✓	✓(E)
<i>Salix purpurea</i>	Streamco willow	NI	✓(E)	✓(E)	✓(E)
<i>Sambucus canadensis</i>	Elderberry	FACW	✓(E)	✓(E)	✓(E)

## HERBACEOUS

Scientific Name <sup>(a)</sup>	Common Name	Wetland Indicator Status <sup>(b)</sup>	Wetland A	Wetland B	West Flume
<i>Agrostis gigantea</i>	Redtop	FACW	✓	✓	✓
<i>Agrostis stolonifera</i>	Bentgrass	FACW		✓	
<i>Agrostis</i> sp.	Bentgrass	FACW	✓	✓	
<i>Alisma subcordatum</i>	Water plantain	OBL	✓	✓	✓
<i>Ambrosia artemisiifolia</i>	Ragweed	FACU	✓(E)	✓(E)	✓(E)

<sup>(a)</sup> Nomenclature follows Mitchell and Tucker (1997).

<sup>(b)</sup> Obligate Wetland (OBL): occur almost always (estimated probability >99%) in wetlands. Facultative Wetland (FACW): usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands. Facultative (FAC): equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%). Facultative Upland (FACU): usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%). Obligate Upland (UPL): occur almost always (estimated probability >99%) in non-wetlands.

(E) - Found primarily along the edge of the restoration area.

Table 4. (cont.)

## HERBACEOUS

Scientific Name <sup>(a)</sup>	Common Name	Wetland Indicator Status <sup>(b)</sup>	Wetland A	Wetland B	West Flume
<i>Andropogon gerardii</i>	Big bluestem	FAC	✓(E)		
<i>Apocynum cannabinum</i>	Indian hemp	FACU	✓(E)	✓(E)	✓(E)
<i>Arctium minus</i>	Common burdock	FACU	✓(E)	✓(E)	
<i>Artemisia vulgaris</i>	Felon-herb mugwort	FACU	✓(E)	✓(E)	✓(E)
<i>Asclepias syriaca</i>	Common milkweed	FACU			✓(E)
<i>Aster lanceolatus</i>	Lance-leaved aster	FACW	✓(E)	✓(E)	✓(E)
<i>Aster lateriflorus</i>	Calico aster	FACW	✓	✓(E)	
<i>Aster novae-angliae</i>	New England aster	FACW	✓(E)	✓(E)	✓(E)
<i>Aster pilosum</i>	Old field aster	UPL	✓(E)	✓(E)	✓(E)
<i>Aster puniceus</i>	Purple-stemmed aster	OBL		✓	✓
<i>Aster racemosus</i>	Small white aster	FACW		✓(E)	
<i>Aster sp.</i>	Aster	FAC	✓	✓(E)	✓
<i>Bidens coronata</i>	Large-fruit beggar-ticks	OBL		✓	
<i>Bidens frondosa</i>	Devil's Beggar-ticks	FACW		✓	✓
<i>Bromus inermis</i>	Smooth brome	FACU	✓(E)	✓(E)	✓(E)
<i>Carex comosa</i>	Long-hair sedge	OBL	✓	✓	✓
<i>Carex crinita</i>	Fringed sedge	OBL			✓
<i>Carex granularis</i>	Meadow sedge	FACW			✓
<i>Carex lupulina</i>	Hop sedge	OBL			✓
<i>Carex lurida</i>	Shallow sedge	OBL	✓	✓	✓
<i>Carex scirpoidea</i>	Northern single-spike sedge	FACU	✓(E)	✓(E)	✓(E)
<i>Carex scoparia</i>	Broom sedge	FACW	✓		✓
<i>Carex sp.</i>	Sedge	FACW	✓	✓	
<i>Carex stipata</i>	Awlfruit sedge	OBL		✓	✓
<i>Carex vulpinoidea</i>	Fox sedge	OBL	✓	✓	✓
<i>Centaurea maculosa</i>	Spotted knapweed	FACU	✓(E)	✓(E)	✓(E)
<i>Ceratophyllum demersum</i>	Coontail	OBL		✓	
<i>Chara sp.</i>	Moss	OBL	✓	✓	✓
<i>Cichorium intybus</i>	Chicory	FACU	✓(E)	✓(E)	✓(E)
<i>Cirsium arvense</i>	Canada thistle	FACU	✓(E)	✓(E)	✓(E)
<i>Coleogeton pectinatum</i>	Sago pondweed	OBL	✓	✓	✓
<i>Convolvulus arvensis</i>	Field bindweed	FACU			✓(E)
<i>Cyperus esculentus</i>	Yellow nutsedge	FACW		✓	
<i>Dactylis glomerata</i>	Orchard grass	FACU		✓(E)	✓(E)
<i>Daucus carota</i>	Wild carrot	FACU	✓(E)	✓(E)	✓(E)
<i>Dipsacus fullonum</i>	Teasel	FACU	✓(E)	✓(E)	✓(E)
<i>Echinochloa crusgalli</i>	Barnyard grass	FACU	✓(E)		
<i>Eleocharis sp.</i>	Spikerush	FACW		✓	
<i>Elodea canadensis</i>	Broad water-weed	OBL		✓	✓
<i>Elodea sp.</i>	Water-weed	OBL		✓	
<i>Elymus virginicus</i>	Virginia wild rye	FACW		✓(E)	
<i>Epilobium ciliatum</i>	Hairy willow-herb	FAC	✓	✓	✓

Table 4. (cont.)

## HERBACEOUS

Scientific Name <sup>(a)</sup>	Common Name	Wetland Indicator Status <sup>(b)</sup>	Wetland A	Wetland B	West Flume
<i>Epilobium coloratum</i>	Purple-leaf willow-herb	OBL	✓	✓	✓
<i>Erechtites hieracifolia</i>	Pilewort	FACU			✓
<i>Erigeron annuus</i>	Daisy fleabane	FACU			✓(E)
<i>Eupatorium perfoliatum</i>	Boneset	FACW	✓	✓	✓
<i>Euthamia graminifolia</i>	Flat-top goldenrod	FAC	✓(E)	✓	✓
<i>Galium</i> sp.	Bedstraw	FAC	✓(E)	✓	✓(E)
<i>Galium palustre</i>	Marsh bedstraw	OBL	✓	✓	✓
<i>Geum laciniatum</i>	Rough avens	FAC	✓		
<i>Geum macrophyllum</i>	Large leaf avens	FACW		✓(E)	✓
<i>Glechoma hederacea</i>	Ground ivy	FACU			✓(E)
<i>Glyceria grandis</i>	Reed meadowgrass	OBL		✓	
<i>Glyceria striata</i>	Fowl meadowgrass	OBL	✓	✓	✓
<i>Inula helenium</i>	Elecampane	FACU		✓	✓
<i>Impatiens capensis</i>	Jewelweed	FACW		✓	✓
<i>Juncus brachycephalus</i>	Small-headed rush	OBL	✓	✓	✓
<i>Juncus canadensis</i>	Canada rush	OBL			✓
<i>Juncus effusus</i>	Soft rush	FACW	✓	✓	✓
<i>Juncus</i> sp.	Rush	FAC	✓	✓	✓
<i>Juncus tenuis</i>	Slender rush	FAC	✓(E)	✓(E)	✓(E)
<i>Lactuca</i> sp.	Lettuce	FACU		✓(E)	✓(E)
<i>Lathyrus sylvestris</i>	Flat pea	FAC	✓(E)	✓(E)	✓(E)
<i>Leersia oryzoides</i>	Rice cutgrass	OBL	✓	✓	✓
<i>Lemna minor</i>	Lesser duckweed	OBL	✓	✓	
<i>Lemna trisulca</i>	Star duckweed	OBL		✓	
<i>Leucanthemum vulgare</i>	Ox-eye daisy	FACU	✓(E)		
<i>Lolium arundinaceum</i>	Tall fescue	FACU	✓(E)	✓(E)	✓(E)
<i>Lotus corniculata</i>	Bird's-foot trefoil	FACU	✓(E)	✓(E)	✓(E)
<i>Ludwigia palustris</i>	Water purslane	OBL			✓
<i>Lythrum salicaria</i>	Purple loosestrife	FACW	✓	✓	✓
<i>Melilotus alba</i>	White sweet clover	FACU	✓(E)	✓(E)	✓(E)
<i>Melilotus officinalis</i>	Yellow sweet clover	FACU	✓(E)	✓(E)	✓(E)
<i>Mimulus ringens</i>	Winged monkeyflower	OBL			✓
<i>Myosotis</i> sp.	Forget-me-not	OBL		✓	
<i>Nymphaea odorata</i>	White water-lily	OBL		✓	
<i>Oenothera biennis</i>	Evening primrose	FACU	✓(E)	✓(E)	✓(E)
<i>Onoclea sensibilis</i>	Sensitive fern	FACW		✓	
<i>Panicum virgatum</i>	Panic grass	FACW	✓	✓(E)	✓
<i>Parthenocissus quinquefolia</i>	Virginia creeper	FACU	✓(E)		
<i>Phalaris arundinacea</i>	Reed canary grass	FACW	✓	✓	✓
<i>Phleum pratense</i>	Timothy	FACU	✓(E)	✓(E)	✓(E)
<i>Phragmites australis</i>	Common reed	FACW	✓	✓	✓

Table 4. (cont.)

## HERBACEOUS

Scientific Name <sup>(a)</sup>	Common Name	Wetland Indicator Status <sup>(b)</sup>	Wetland A	Wetland B	West Flume
<i>Picris hieracoides</i>	Ox-tongue	FACU	✓(E)	✓(E)	✓(E)
<i>Plantago lanceolata</i>	Narrow-leaf plantain	UPL	✓(E)	✓(E)	✓(E)
<i>Plantago major</i>	Common plantain	FACU	✓(E)	✓(E)	✓(E)
<i>Poa compressa</i>	Canada bluegrass	FACU		✓(E)	
<i>Poa palustris</i>	Fowl bluegrass	FACW			✓
<i>Poa pratensis</i>	Kentucky bluegrass	FACU			✓(E)
<i>Polygonum amphibium</i>	Water smartweed	OBL		✓	
<i>Polygonum hydropiperoides</i>	Marsh water pepper	OBL		✓	✓
<i>Polygonum lapathifolium</i>	Willow-weed	FACW			✓
<i>Polygonum pensylvanicum</i>	Pennsylvania smartweed	FACW		✓	
<i>Pontederia cordata</i>	Pickerelweed	OBL		✓	
<i>Potamogeton crispus</i>	Curly pondweed	OBL		✓	✓
<i>Potamogeton sp.</i>	Pondweed	OBL		✓	
<i>Ranunculus acris</i>	Tall Buttercup	FAC		✓	✓
<i>Ranunculus sp.</i>	Buttercup	FAC	✓(E)	✓(E)	✓(E)
<i>Rorippa nasturtium-aquaticum</i>	Watercress	OBL			✓
<i>Rudbeckia hirta</i>	Black-eyed Susan	FACU	✓(E)		
<i>Rumex sp.</i>	Dock	FAC	✓(E)	✓(E)	✓(E)
<i>Scirpus atrovirens</i>	Green bulrush	OBL	✓	✓	✓
<i>Scirpus cyperinus</i>	Woolgrass	FACW		✓	
<i>Scirpus maritimus</i>	Saltmarsh bulrush	OBL			✓
<i>Scirpus tabernaemontani</i>	Soft-stem bulrush	OBL	✓	✓	✓
<i>Solidago canadensis</i>	Canada goldenrod	FACU	✓(E)	✓(E)	✓(E)
<i>Solidago rugosa</i>	Rough goldenrod	FAC	✓(E)	✓(E)	✓
<i>Solanum carolinense</i>	Horse nettle	UPL			✓(E)
<i>Solanum dulcamara</i>	Bittersweet	FAC		✓	✓
<i>Solanum nigrum</i>	Black nightshade	FACU			✓
<i>Sparganium americanum</i>	Burreed	OBL		✓	
<i>Taraxacum officinale</i>	Dandelion	FACU	✓(E)	✓(E)	
<i>Trifolium hybridum</i>	Alsike clover	FACU	✓(E)	✓(E)	✓(E)
<i>Trifolium pratense</i>	Red clover	FACU	✓(E)	✓(E)	✓(E)
<i>Tussilago farfara</i>	Colt's foot	FACU	✓(E)		
<i>Typha angustifolia/glauca</i>	Narrow-leaf/White cattail	OBL	✓	✓	
<i>Typha x glauca</i>	White cattail	OBL	✓	✓	✓
<i>Typha latifolia</i>	Broad-leaf cattail	OBL	✓	✓	✓
<i>Utricularia macrorhiza</i>	Common bladder-wort	OBL		✓	
<i>Verbascum blattaria</i>	Moth-mullein	UPL	✓(E)	✓(E)	✓(E)
<i>Verbena hastata</i>	Blue vervain	FACW		✓	✓
<i>Verbena urticifolia</i>	White vervain	FACU		✓	
<i>Veronica americana</i>	American brooklime	OBL		✓	
<i>Veronica anagallis-aquatica</i>	Water speedwell	OBL		✓	

Table 4. (cont.)

**HERBACEOUS**

<b>Scientific Name<sup>(a)</sup></b>	<b>Common Name</b>	<b>Wetland Indicator Status<sup>(b)</sup></b>	<b>Wetland A</b>	<b>Wetland B</b>	<b>West Flume</b>
<i>Vicia sp.</i>	Vetch	FAC	✓(E)		✓(E)
<i>Vitis sp.</i>	Grape	FAC		✓(E)	✓(E)

**Table 5.**

**Vegetation Data Summary, Wetland A, Emergent Cover Type  
LCP Bridge Street Restoration Area (2011)**

<b>Scientific Name<sup>(a)</sup></b>	<b>Common Name</b>	<b>Indicator Status<sup>(b)</sup></b>	<b>Relative Cover (%)</b>
<i>Typha latifolia</i>	Broad-leaf cattail	OBL	58.17
<i>Chara</i> sp.	Moss	OBL	13.85
<i>Phragmites australis</i>	Common reed	FACW	12.47
<i>Scirpus tabernaemontani</i>	Soft-stem bulrush	OBL	11.08
<i>Lemna minor</i>	Lesser duckweed	OBL	3.60
<i>Lythrum salicaria</i>	Purple loosestrife	FACW	0.83
Total			100.00

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<sup>(a)</sup> Nomenclature follows Mitchell and Tucker (1997).

<sup>(b)</sup> Obligate Wetland (OBL): occur almost always (estimated probability >99%) in wetlands. Facultative Wetland (FACW): usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands. Facultative (FAC): equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%). Facultative Upland (FACU): usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%). Obligate Upland (UPL): occur almost always (estimated probability >99%) in non-wetlands.

**Table 6**

**Vegetation Data Summary, Wetland B, Emergent Cover Type  
LCP Bridge Street Restoration Area (2011)**

<b>Scientific Name<sup>(a)</sup></b>	<b>Common Name</b>	<b>Indicator Status<sup>(b)</sup></b>	<b>Relative Cover (%)</b>
<i>Typha latifolia</i>	Broad-leaf cattail	OBL	35.57
<i>Typha x glauca</i>	White cattail	OBL	21.74
<i>Lemna trisulca</i>	Star duckweed	OBL	20.75
<i>Lemna minor</i>	Lesser duckweed	OBL	8.20
<i>Scirpus tabernaemontani</i>	Soft-stem bulrush	OBL	5.43
<i>Phragmites australis</i>	Common reed	FACW	2.77
<i>Lythrum salicaria</i>	Purple loosestrife	FACW	2.47
<i>Ceratophyllum demersum</i>	Coontail	OBL	1.98
<i>Utricularia macrorhiza</i>	Common bladder-wort	OBL	0.49
<i>Potamogeton</i> sp.	Pondweed	OBL	0.30
<i>Polygonum hydropiperoides</i>	Marsh water pepper	OBL	0.30
		Total	100.00

<sup>(a)</sup> Nomenclature follows Mitchell and Tucker (1997).

<sup>(b)</sup> Obligate Wetland (OBL): occur almost always (estimated probability >99%) in wetlands. Facultative Wetland (FACW): usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands. Facultative (FAC): equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%). Facultative Upland (FACU): usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%). Obligate Upland (UPL): occur almost always (estimated probability >99%) in non-wetlands.

**Table 7.**

**Vegetation Data Summary, Wetland B, Aquatic Bed Cover Type  
LCP Bridge Street Restoration Area (2011)**

<b>Scientific Name<sup>(a)</sup></b>	<b>Common Name</b>	<b>Indicator Status<sup>(b)</sup></b>	<b>Relative Cover (%)</b>
<i>Ceratophyllum demersum</i>	Coontail	OBL	37.91
<i>Nymphaea odorata</i>	White water lily	OBL	16.59
<i>Typha latifolia</i>	Broad-leaf cattail	OBL	13.63
<i>Lemna trisulca</i>	Star duckweed	OBL	11.26
<i>Utricularia macrorhiza</i>	Common bladder-wort	OBL	10.07
<i>Typha x glauca</i>	White cattail	OBL	4.74
<i>Coleogeton pectinatum</i>	Sago pondweed	OBL	3.55
<i>Elodea canadensis</i>	Water-weed	OBL	2.25
Total			100.00

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<sup>(a)</sup> Nomenclature follows Mitchell and Tucker (1997).

<sup>(b)</sup> Obligate Wetland (OBL): occur almost always (estimated probability >99%) in wetlands. Facultative Wetland (FACW): usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands. Facultative (FAC): equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%). Facultative Upland (FACU): usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%). Obligate Upland (UPL): occur almost always (estimated probability >99%) in non-wetlands.

**Table 8.**

**Vegetation Data Summary, West Flume, Emergent Cover Type  
LCP Bridge Street Restoration Area (2011)**

<b>Scientific Name<sup>(a)</sup></b>	<b>Common Name</b>	<b>Indicator Status<sup>(b)</sup></b>	<b>Relative Cover (%)</b>
<i>Phragmites australis</i>	Common reed	FACW	42.86
<i>Typha x glauca</i>	White cattail	OBL	26.19
<i>Leersia oryzoides</i>	Rice cutgrass	OBL	8.33
<i>Typha latifolia</i>	Broad-leaf cattail	OBL	7.14
<i>Bidens frondosa</i>	Devil's beggar-ticks	FACW	5.48
<i>Epilobium ciliatum</i>	Hairy willow-herb	FAC	3.57
<i>Lythrum salicaria</i>	Purple loosestrife	FACW	2.38
<i>Solanum dulcamara</i>	Bittersweet nightshade	FAC	1.19
<i>Erechtites hieracifolia</i>	Pilewort	FACU	1.19
<i>Daucus carota</i>	Wild carrot	FACU	0.71
<i>Scirpus tabernaemontani</i>	Soft-stem bulrush	OBL	0.48
<i>Rumex sp.</i>	Dock	FAC	0.48
		Total	100.00

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<sup>(a)</sup> Nomenclature follows Mitchell and Tucker (1997).

<sup>(b)</sup> Obligate Wetland (OBL): occur almost always (estimated probability >99%) in wetlands. Facultative Wetland (FACW): usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands. Facultative (FAC): equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%). Facultative Upland (FACU): usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%). Obligate Upland (UPL): occur almost always (estimated probability >99%) in non-wetlands.

**Table 9.**

**Staff Gauge Readings, 2011  
LCP Wetland Restoration Areas**

**Wetland A**

<b>Date</b>	<b>Reading on Gauge (feet)</b>	<b>0.0 Elevation (feet)</b>	<b>Water Elevation (feet)</b>
5/20/11	1.50	378.84	380.34
6/3/11	1.40	378.84	380.24
6/17/11	1.27	378.84	380.11
7/7/11	1.28	378.84	380.12
7/29/11	0.90	378.84	379.74
8/17/11	1.45	378.84	380.29
8/30/11	1.46	378.84	380.30
9/27/11	1.34	378.84	380.18

**Wetland B**

<b>Date</b>	<b>Reading on Gauge (feet)</b>	<b>0.0 Elevation (feet)</b>	<b>Water Elevation (feet)</b>
5/20/11	2.12	374.16	376.28
6/3/11	1.94	374.16	376.10
6/17/11	1.78	374.16	375.94
7/7/11	1.68	374.16	375.84
7/29/11	1.26	374.16	375.42
8/17/11	1.68	374.16	375.84
8/30/11	1.76	374.16	375.92
9/22/11	2.00	374.16	376.16
9/27/11	2.00	374.16	376.16.

**Table 10.**

**Wildlife Observed, 2011, LCP Wetland Restoration Areas**

<b>BIRDS<sup>(a)</sup></b>				
<b>Common Name</b>	<b>Scientific Name</b>	<b>LCP Wetland Restoration Areas</b>		
		<b>Wetland A</b>	<b>Wetland B</b>	<b>West Flume</b>
Canada Goose	<i>Branta canadensis</i>		X	
Mallard	<i>Anas platyrhynchos</i>		X	X
Pied-billed Grebe	<i>Podilymbus podiceps</i>		X	
Cedar waxwing	<i>Bombycilla cedrorum</i>	X	X	
Green Heron	<i>Butorides virescens</i>	X	X	X
Red-tailed Hawk	<i>Buteo jamaicensis</i>	f.o. <sup>(b)</sup>	f.o.	
Turkey vulture	<i>Cathartes aura</i>		f.o.	
Yellow warbler	<i>Dendroica petechiax</i>	X		
Killdeer	<i>Charadrius vociferus</i>	X	X	
Barn swallow	<i>Hirundo rustica</i>	X	X	X
Spotted Sandpiper	<i>Actitis macularius</i>		X	
Rock Pigeon	<i>Columba livia</i>	f.o.		
Mourning Dove	<i>Zenaida macroura</i>	X	X	X
Northern Flicker	<i>Colaptes auratus</i>	X	X	X
Willow Flycatcher	<i>Empidonax traillii</i>	X		
American Crow	<i>Corvus brachyrhynchos</i>	f.o.		
Tree Swallow	<i>Tachycineta bicolor</i>	X	X	X
American Robin	<i>Turdus migratorius</i>	X	X	X
Northern Mockingbird	<i>Mimus polyglottos</i>			X
European Starling	<i>Sturnus vulgaris</i>	X	X	X
Common Yellowthroat	<i>Geothlypis trichas</i>		X	
Song Sparrow	<i>Melospiza melodia</i>	X		
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	X	X	X
Common Grackle	<i>Quiscalus quiscula</i>	X	X	X
American Goldfinch	<i>Carduelis tristis</i>	X	X	X

a. Common and scientific names according to AOU (1998) and supplements through 2008.

b. f.o. = fly over.

Table 10. (cont.)

AMPHIBIANS AND REPTILES <sup>(c)</sup>				
Common Name	Scientific Name	LCP Wetland Restoration Areas		
		Wetland A	Wetland B	West Flume
Gray Treefrog	<i>Hyla versicolor</i>		X	
American Bullfrog	<i>Lithobates catesbeianus</i>		X	
Northern Green Frog	<i>Lithobates clamitans melanota</i>	X	X	X
Northern Leopard Frog	<i>Lithobates pipiens</i>	X	X	X
Painted Turtle	<i>Chrysemys picta</i>		X	X

MAMMALS <sup>(d)</sup>				
Common Name	Scientific Name	LCP Wetland Restoration Areas		
		Wetland A	Wetland B	West Flume
Short-tailed Shrew <sup>(e)</sup>	<i>Blarina brevicauda</i>			
Deer Mouse <sup>(e)</sup>	<i>Peromyscus maniculatus</i>			
Meadow Vole <sup>(e)</sup>	<i>Microtus pennsylvanicus</i>		X	
Common Muskrat	<i>Ondatra zibethicus</i>	X	X	X
White-tailed Deer	<i>Odocoileus virginianus</i>	X		

c. Common and scientific names according to Crother *et al.* (2008).

d. Common and scientific names according to Whitaker and Hamilton (1998).

e. Collected during Bioassessment

**Table 11.**

**Mammals, Fish, and Macroinvertebrates Collected during 2011  
Bioassessment Surveys, LCP Wetland Restoration Area**

**MAMMALS**

<b>Common Name</b>	<b>Scientific Name</b>
Short-tailed Shrew	<i>Blarina brevicauda</i>
Deer Mouse	<i>Peromyscus maniculatus</i>
Meadow Vole	<i>Microtus pennsylvanicus</i>

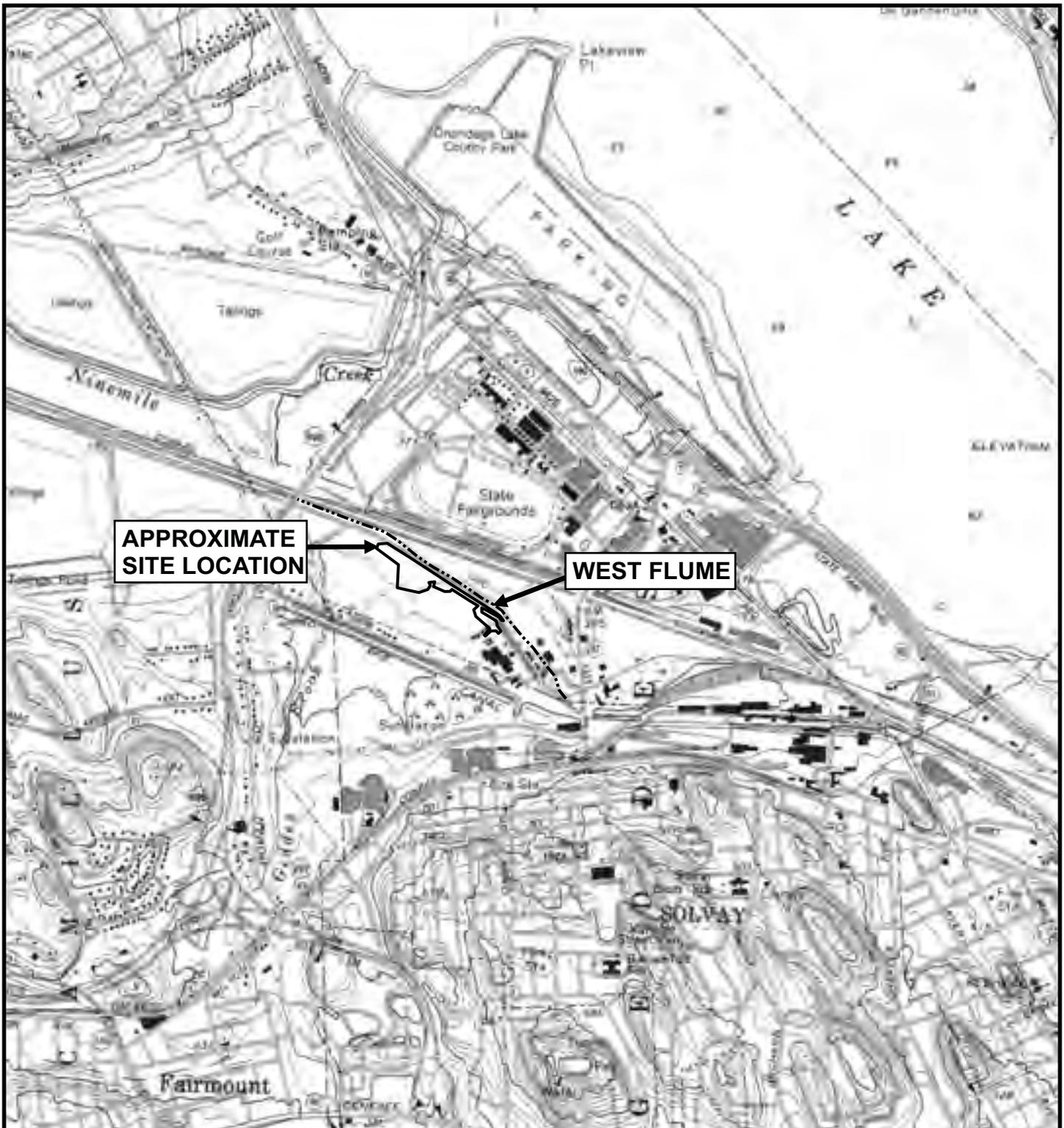
**FISH**

<b>Common Name</b>	<b>Scientific Name</b>
Creek Chub	<i>Semotilus atromaculatus</i>
Brook Stickleback	<i>Culaea inconstans</i>

**MACROINVERTEBRATES**

<b>Common Name</b>	<b>Invertebrate Order</b>
Crayfish	Decapoda
Dragonflies	Odonata
Snails	Gastropoda
Shrimp	Amphipoda
Giant Water Bug	Hemiptera
Beetles	Coleoptera

# **FIGURES**

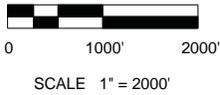


**APPROXIMATE  
SITE LOCATION**

**WEST FLUME**



QUADRANGLE LOCATION

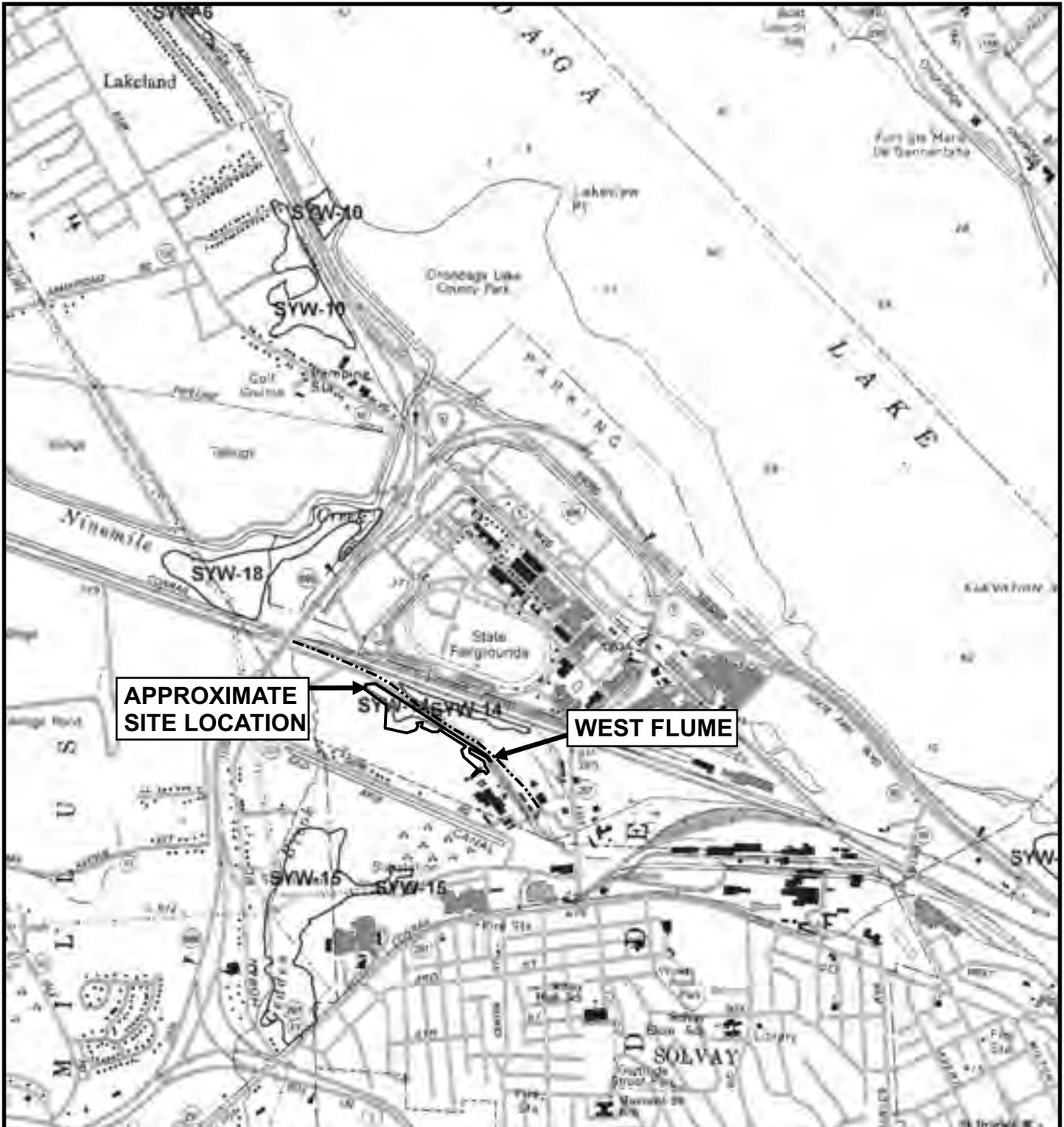


NORTH



**Figure 1. Site Location  
LCP Bridge Street  
Restoration Area**

NYS DOT Topographic Map  
Syracuse West Quadrangle  
1990

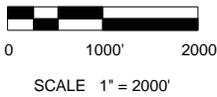


**APPROXIMATE  
SITE LOCATION**

**WEST FLUME**



QUADRANGLE LOCATION



NORTH



**Figure 2. NYS Freshwater  
Wetlands Map**

**LCP Bridge Street  
Restoration Area**

NYS Dept. of Environmental Conservation  
[cugir.mannlib.cornell.edu](http://cugir.mannlib.cornell.edu)  
 Syracuse West Quadrangle  
 2007



APPROXIMATE  
SITE LOCATION

WEST FLUME

NORTH



APPROXIMATE SCALE IN FEET

Aerial Photograph  
obtained from  
NYS GIS Clearinghouse

Figure Prepared by  
Terrestrial Environmental  
Specialists, Inc.

**Figure 3.**  
**April 2006**  
**Aerial Photograph**  
**Showing**  
**Remediation Work**  
**(in progress)**  
**LCP Bridge Street**  
**Restoration Area**



APPROXIMATE  
SITE LOCATION

WEST FLUME

NORTH



APPROXIMATE SCALE IN FEET

Aerial Photograph  
obtained from  
NYS GIS Clearinghouse

Figure Prepared by  
Terrestrial Environmental  
Specialists, Inc.

**Figure 3a.**

**April 2009  
Aerial Photograph  
Showing  
Remediation Work  
(completed)**

**LCP Bridge Street  
Restoration Area**



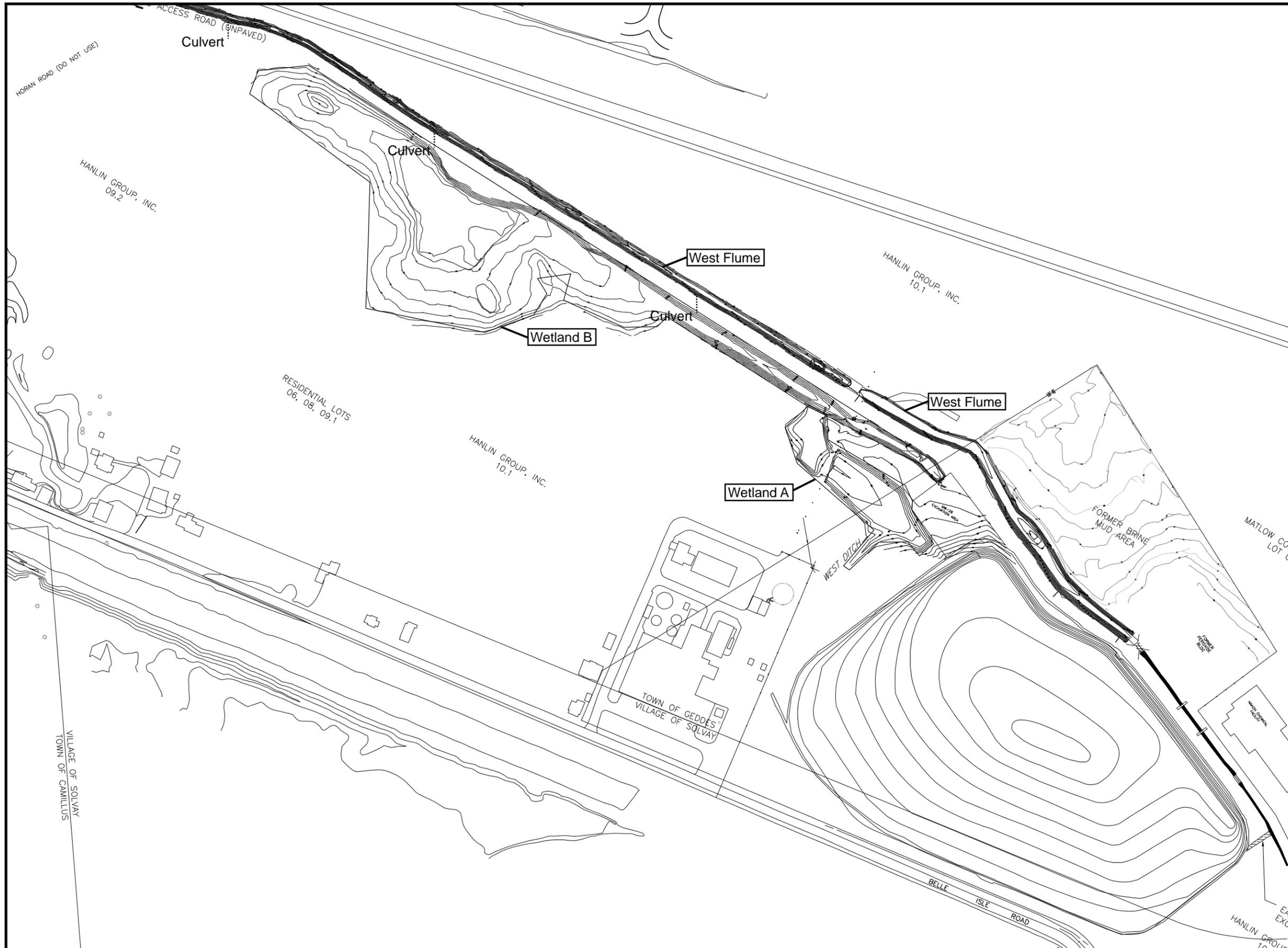
Oblique Aerial  
Photograph provided  
by Parsons

Figure Prepared by  
Terrestrial Environmental  
Specialists, Inc.

**Figure 3b.**

**November 2008  
Oblique  
Aerial Photograph**

**LCP Bridge Street  
Restoration Area**

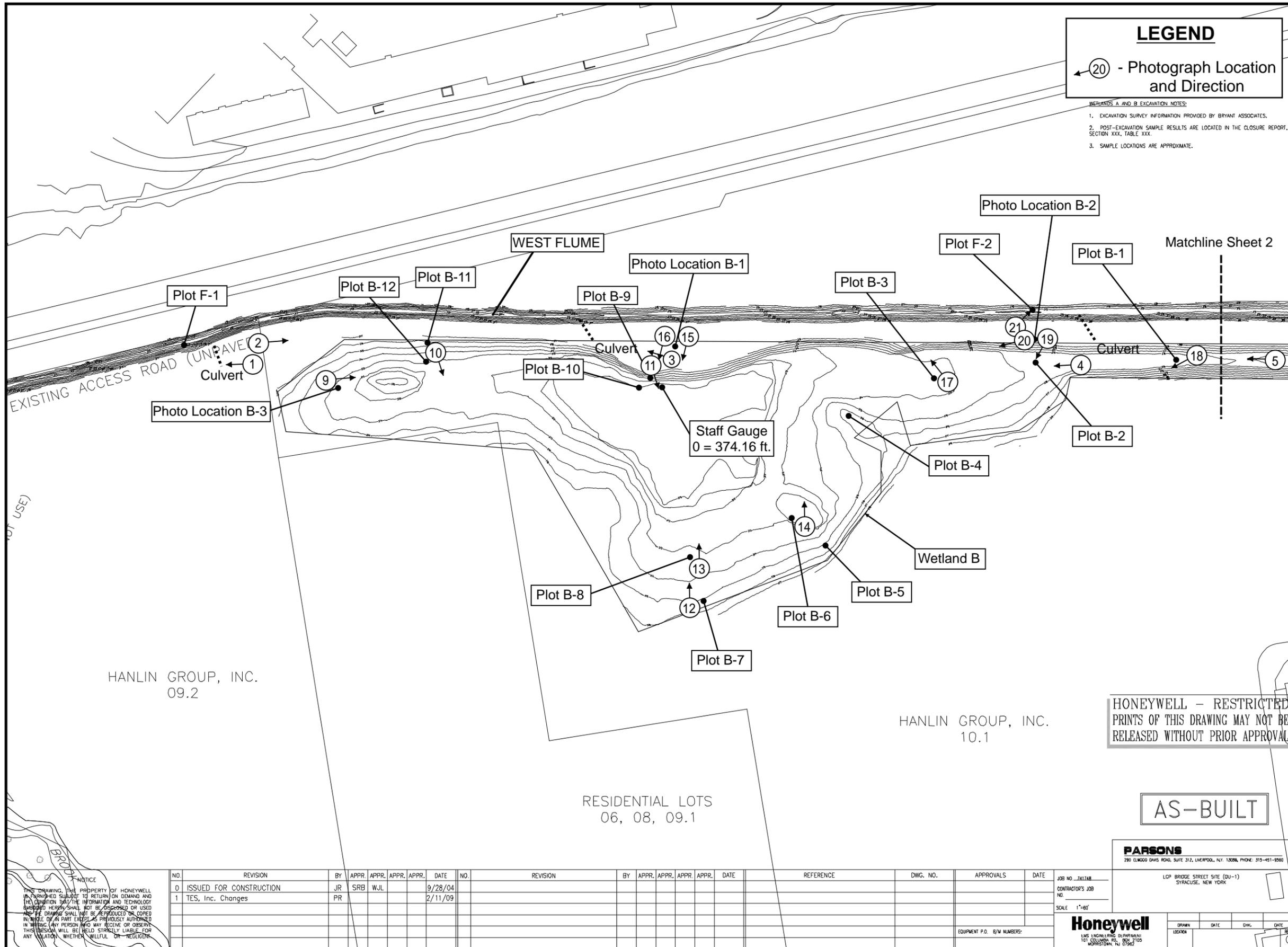


APPROXIMATE SCALE IN FEET

Figure Prepared by  
Terrestrial Environmental  
Specialists, Inc.

Base Map Provided by  
Parsons

**Figure 4.**  
**Post Remediation  
Grading Plan**  
**LCP Bridge Street  
Restoration Area**



**LEGEND**

⑳ - Photograph Location and Direction

- REMARKS A AND B EXCAVATION NOTES:**
- EXCAVATION SURVEY INFORMATION PROVIDED BY BRYANT ASSOCIATES.
  - POST-EXCAVATION SAMPLE RESULTS ARE LOCATED IN THE CLOSURE REPORT, SECTION XXX, TABLE XXX.
  - SAMPLE LOCATIONS ARE APPROXIMATE.

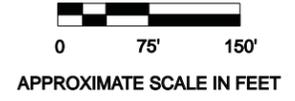


Figure Prepared by  
Terrestrial Environmental  
Specialists, Inc.

Base Map Provided by  
Parsons

**Figure 5.**  
**Post Remediation  
Grading Plan  
with Locations of  
Staff Gauges, Sampling  
Plots, and Photograph  
Points**

**LCP Bridge Street  
Restoration Area**

(Sheet 1 of 2)

HANLIN GROUP, INC.  
09.2

HANLIN GROUP, INC.  
10.1

RESIDENTIAL LOTS  
06, 08, 09.1

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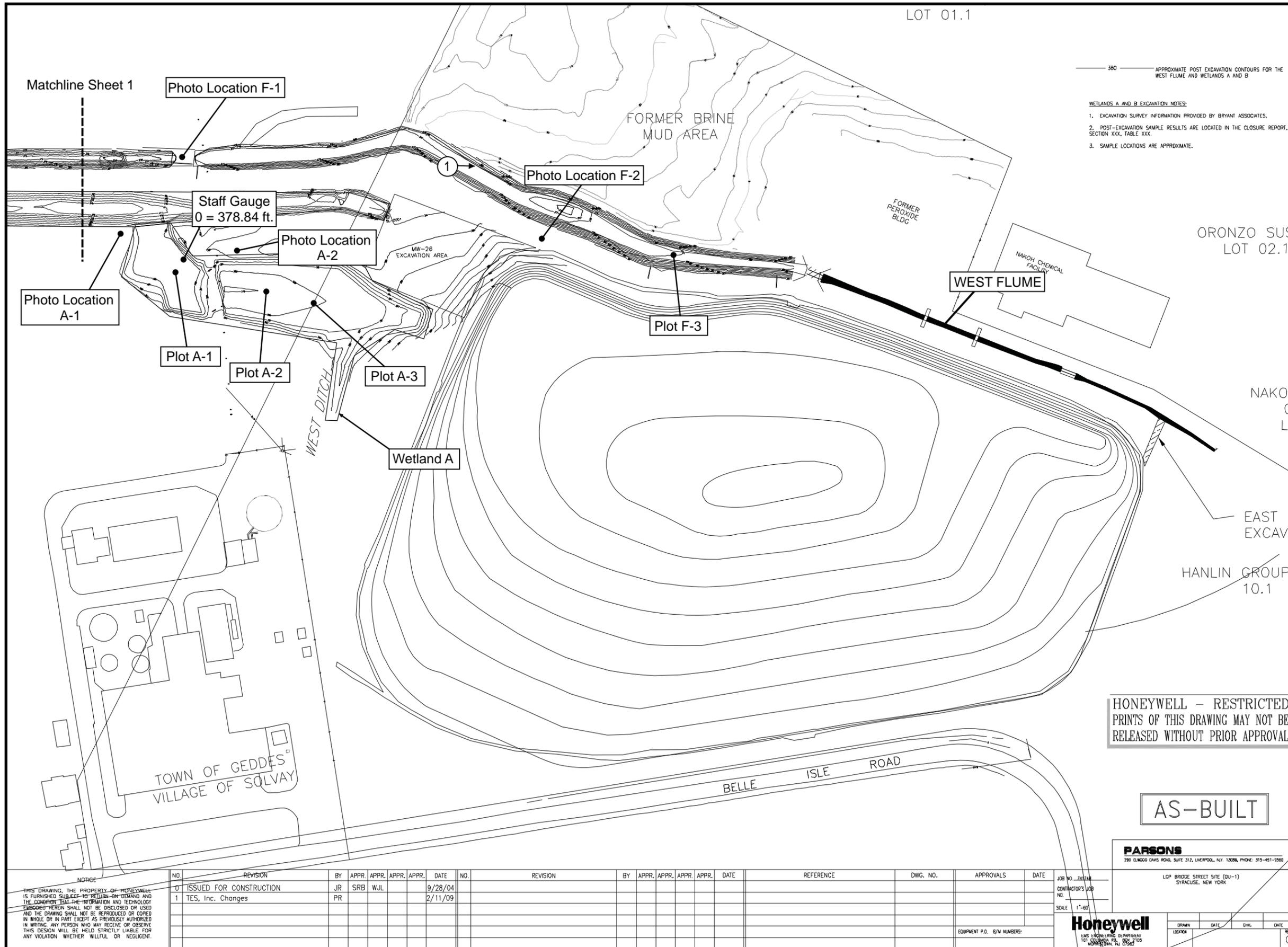
**AS-BUILT**

**PARSONS**  
280 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-8560

JOB NO. ...24174R	LCP BRIDGE STREET SITE (DU-1)
CONTRACTOR'S JOB NO.	SYRACUSE, NEW YORK
SCALE 1"=60'	
<b>Honeywell</b>	
1405 ENGINEERING DEPARTMENT 101 COLUMBIA RD. BOX 2105 MORRISTOWN, NJ 07962	
DRWN	DATE
CHK	DATE
REV	DATE

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0	ISSUED FOR CONSTRUCTION	JR	SRB	WJL			9/28/04												
1	TES, Inc. Changes	PR					2/11/09												



380 ——— APPROXIMATE POST EXCAVATION CONTOURS FOR THE WEST FLUME AND WETLANDS A AND B

- WETLANDS A AND B EXCAVATION NOTES:
1. EXCAVATION SURVEY INFORMATION PROVIDED BY BRYANT ASSOCIATES.
  2. POST-EXCAVATION SAMPLE RESULTS ARE LOCATED IN THE CLOSURE REPORT, SECTION XXX, TABLE XXX.
  3. SAMPLE LOCATIONS ARE APPROXIMATE.



0 75' 150'  
APPROXIMATE SCALE IN FEET

Figure Prepared by  
Terrestrial Environmental  
Specialists, Inc.

Base Map Provided by  
Parsons

**Figure 5.**  
**Post Remediation  
Grading Plan  
with Locations of  
Staff Gauges, Sampling  
Plots, and Photograph  
Points**

**LCP Bridge Street  
Restoration Area**

(Sheet 2 of 2)

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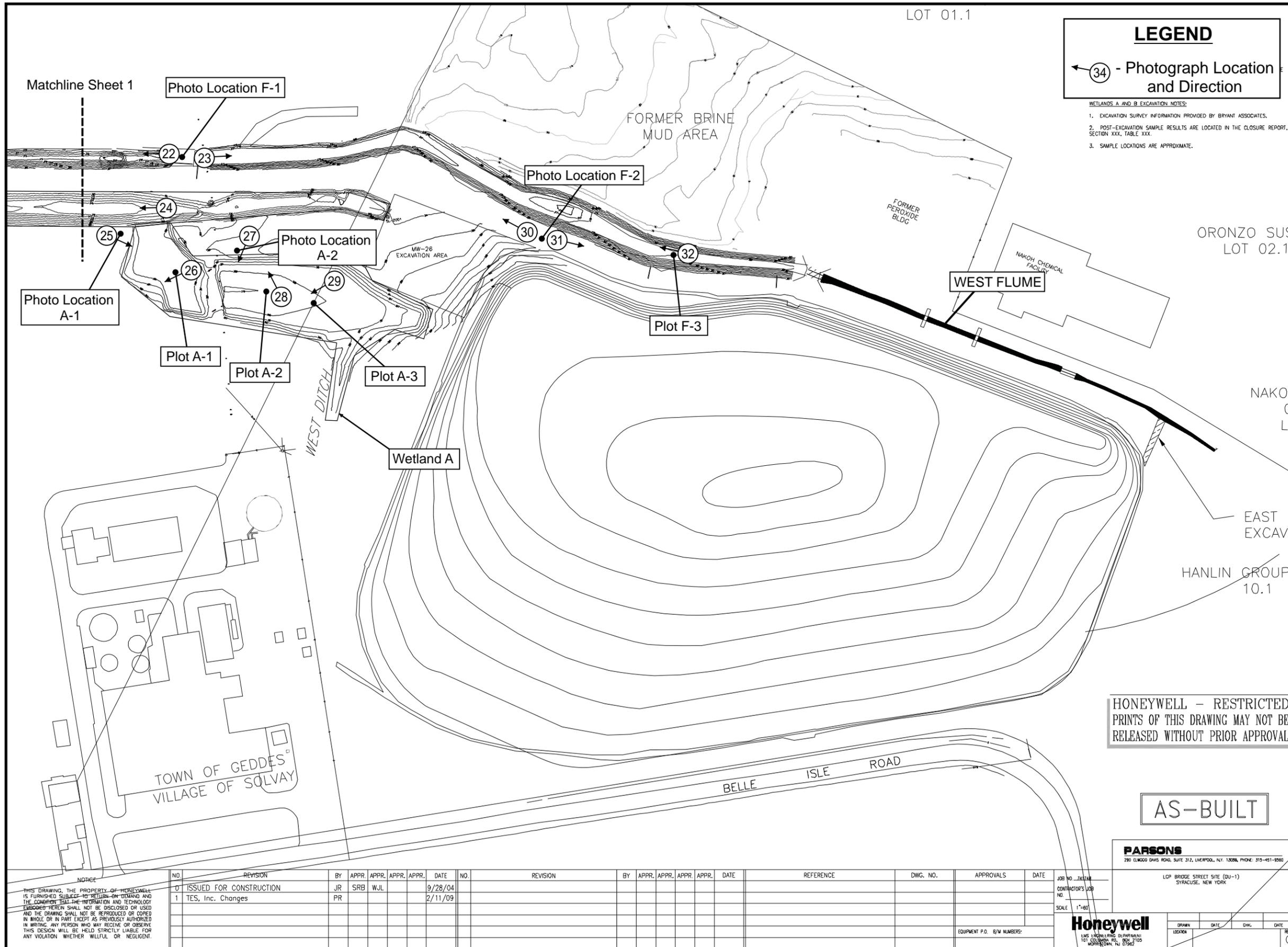
**Honeywell**  
ENVIRONMENTAL SERVICES DEPARTMENT  
101 COLUMBIA RD., BOX 2105  
MORRISTOWN, NJ 07962

DATE	CHK.	DATE

NO.	REVISION	BY	APPR.	APPR.	APPR.	APPR.	DATE	NO.	REVISION	BY	APPR.	APPR.	APPR.	APPR.	DATE	REFERENCE	DWG. NO.	APPROVALS	DATE
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**LEGEND**

← (34) - Photograph Location and Direction

- WETLANDS A AND B EXCAVATION NOTES:
1. EXCAVATION SURVEY INFORMATION PROVIDED BY BRYANT ASSOCIATES.
  2. POST-EXCAVATION SAMPLE RESULTS ARE LOCATED IN THE CLOSURE REPORT, SECTION XXX, TABLE XXX.
  3. SAMPLE LOCATIONS ARE APPROXIMATE.

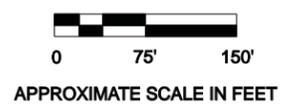


Figure Prepared by  
Terrestrial Environmental  
Specialists, Inc.

Base Map Provided by  
Parsons

**Figure 5a.**  
**Post Remediation  
Grading Plan  
with  
Sampling Plots  
and  
Photograph Locations**

**LCP Bridge Street  
Restoration Area**

**(Sheet 2 of 2)**

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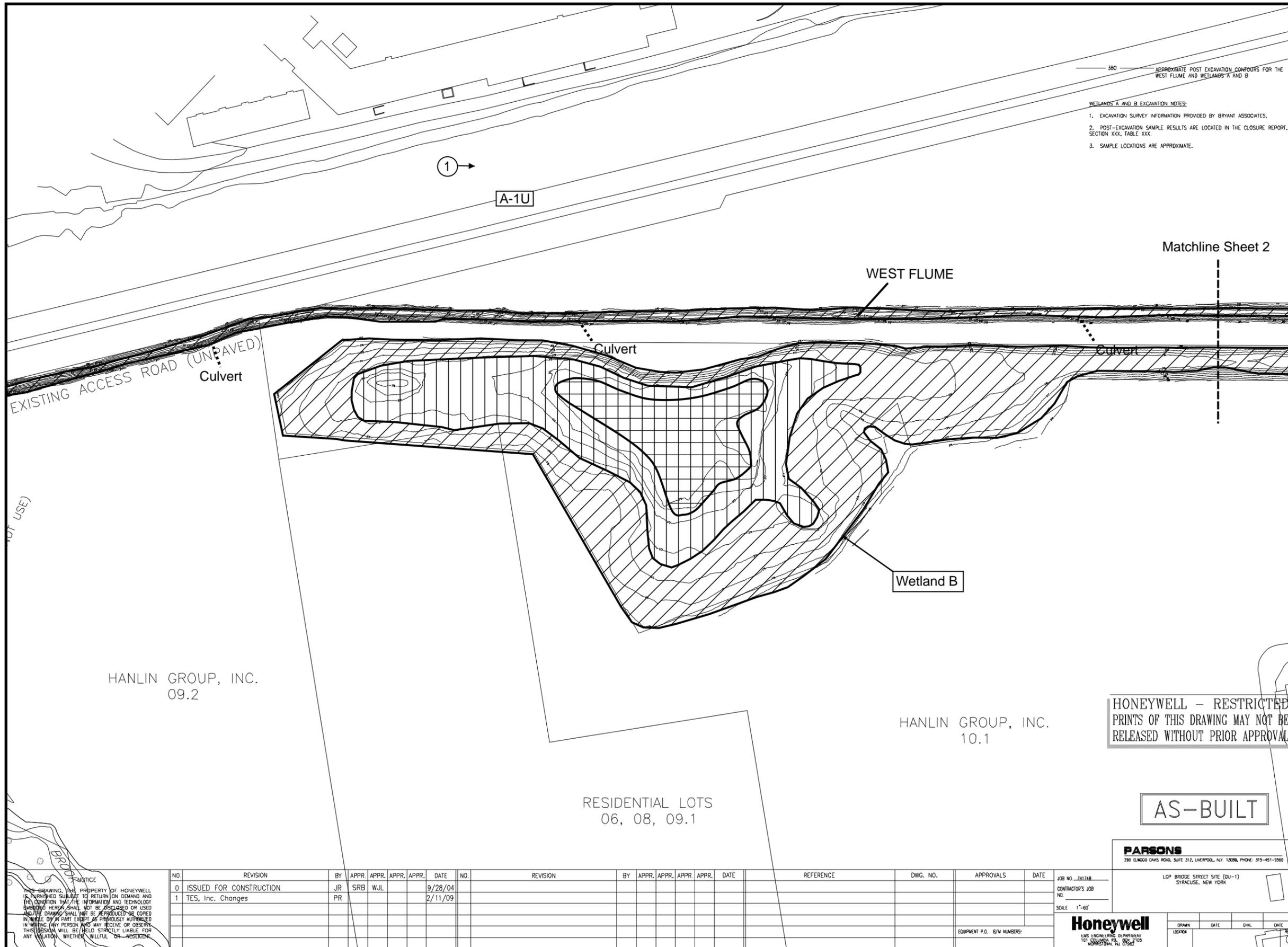
**AS-BUILT**

**PARSONS**  
290 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13090, PHONE: 315-451-8500

**Honeywell**  
1405 LAMAR BLVD. SUITE 2105  
MORRISTOWN, NJ 07962

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0	ISSUED FOR CONSTRUCTION	JR	SRB	WJL			9/28/04												
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**LEGEND**

-  - Aquatic Bed
-  - Emergent Wetland

WETLANDS A AND B EXCAVATION NOTES:  
 1. EXCAVATION SURVEY INFORMATION PROVIDED BY BRYANT ASSOCIATES.  
 2. POST-EXCAVATION SAMPLE RESULTS ARE LOCATED IN THE CLOSURE REPORT, SECTION XXX, TABLE XXX.  
 3. SAMPLE LOCATIONS ARE APPROXIMATE.

North  
Open Water



0 75' 150'

APPROXIMATE SCALE IN FEET

Figure Prepared by  
Terrestrial Environmental  
Specialists, Inc.

Base Map Provided by  
Parsons

**Figure 6.**  
**Vegetation Cover Types,**  
**Year 4 (2011) of**  
**Monitoring**

**LCP Bridge Street**  
**Restoration Area**

(Sheet 1 of 2)

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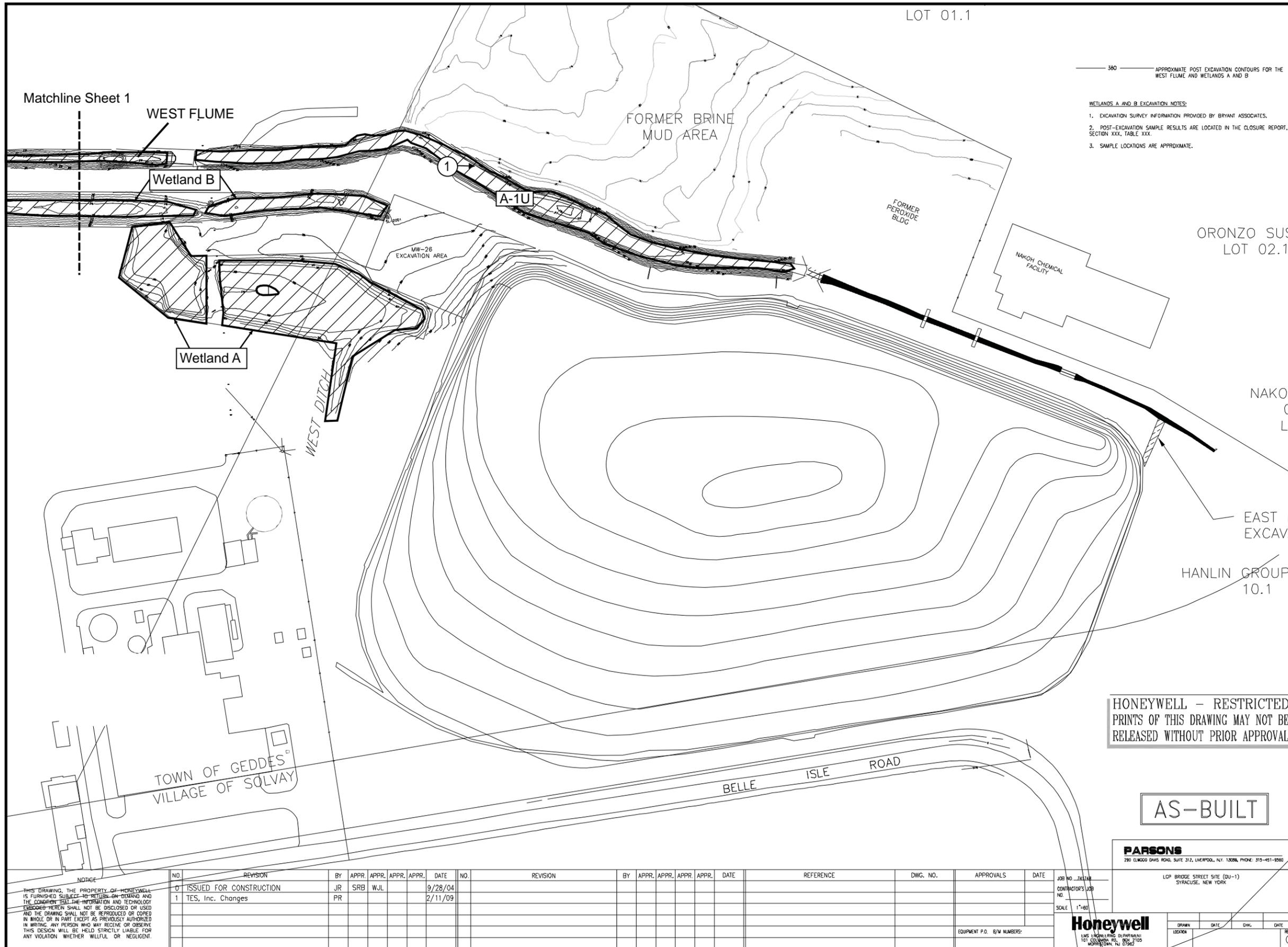
**AS-BUILT**

**PARSONS**  
280 ELWOOD DAWS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-8560

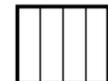
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ENVIRONMENTAL ENGINEERING  
101 COLUMBIA RD., BOX 2105  
MORRISTOWN, NJ 07962

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0	ISSUED FOR CONSTRUCTION	JR	SRB	WJL			9/28/04												
1	TES, Inc. Changes	PR					2/11/09												

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**LEGEND**

-  - Aquatic Bed
-  - Emergent Wetland

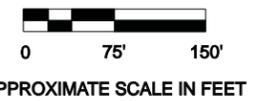


Figure Prepared by  
Terrestrial Environmental  
Specialists, Inc.

Base Map Provided by  
Parsons

**Figure 6.**  
**Vegetation Cover Types,**  
**Year 4 (2011) of**  
**Monitoring**

**LCP Bridge Street**  
**Restoration Area**

(Sheet 2 of 2)

380 ——— APPROXIMATE POST EXCAVATION CONTOURS FOR THE WEST FLUME AND WETLANDS A AND B

**WETLANDS A AND B EXCAVATION NOTES:**

- EXCAVATION SURVEY INFORMATION PROVIDED BY BRYANT ASSOCIATES.
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**AS-BUILT**

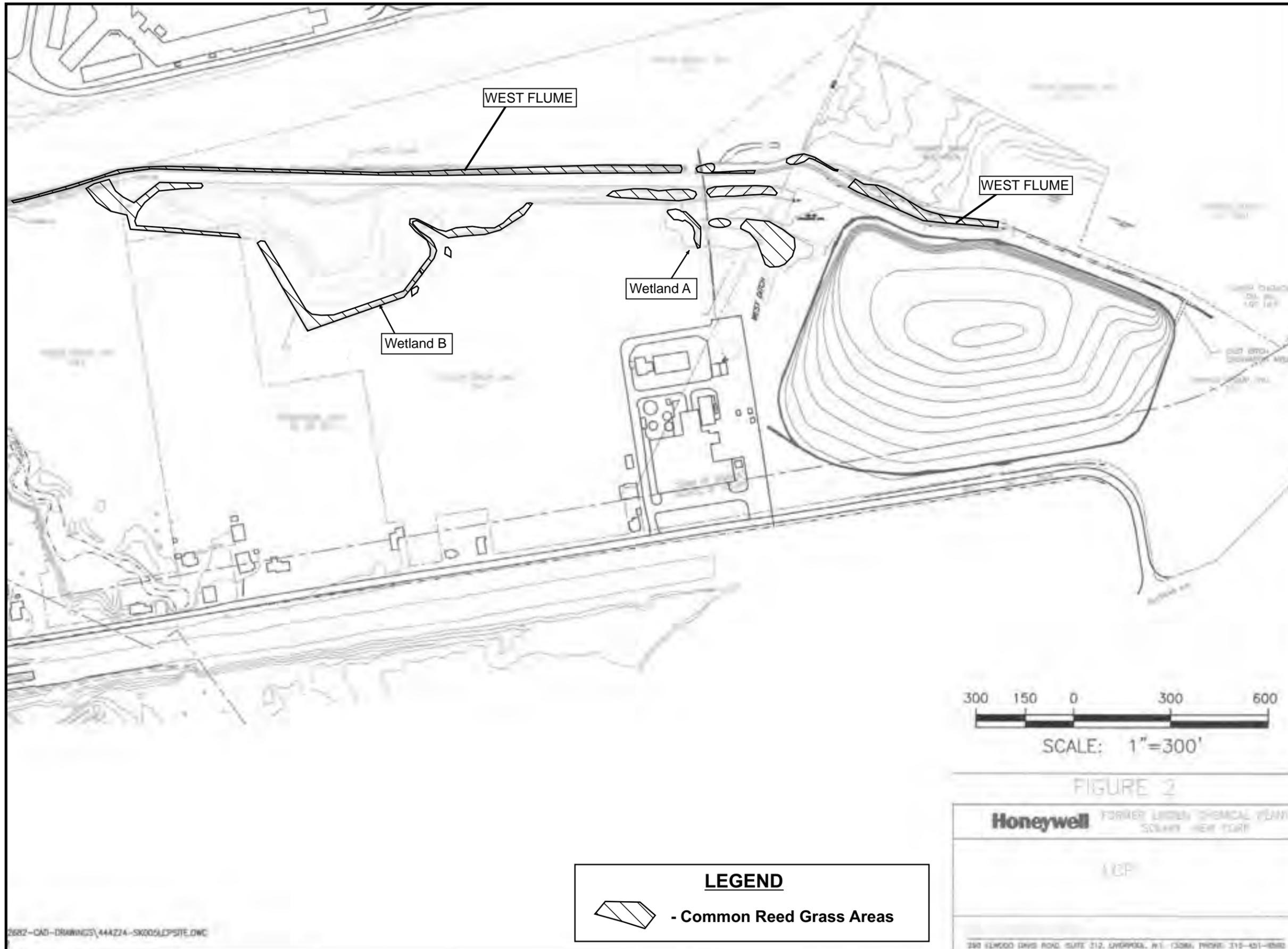
**PARSONS**  
280 ELWOOD DAVIS ROAD, SUITE 312, LIVERPOOL, N.Y. 13088, PHONE: 315-451-8500

**Honeywell**  
1405 LIVINGSTON DRIVE  
101 COLUMBIA RD. BOX 2105  
MORRISTOWN, NJ 07962

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0	ISSUED FOR CONSTRUCTION	JR	SRB	WJL			9/28/04												
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JOB NO. 24274E	LCP BRIDGE STREET SITE (DU-1)
CONTRACTOR'S JOB NO.	SYRACUSE, NEW YORK
SCALE 1"=60'	
EQUIPMENT P.O. #/M NUMBERS:	
DATE	DATE
LOCATION	REV 0



APPROXIMATE SCALE IN FEET

Figure Prepared by  
Terrestrial Environmental  
Specialists, Inc.

Base Map Provided by  
Parsons

**Figure 7.**  
**Invasive Species  
Areas**  
**Year 4 (2011)  
of Monitoring**  
**LCP Bridge Street  
Restoration Area**