



*www.WatershedEco.com*  
*Creating Value*

April 6, 2021

CDA Engineering, Inc.  
6 Larch Avenue, Suite 401  
Wilmington, DE 19804

Attention: Mr. Colm DeAscanis, P.E.

Subject: Wetland Investigation Summary Letter  
Riveredge Industrial Park  
150 Lukens Drive  
New Castle, DE 19720  
Tax Parcel: 21-022.00-002

Dear Colm:

Watershed Eco, LLC. investigated the above referenced property on April 2, 2021 for the purpose of verifying wetland boundaries previously delineated by Watershed Eco, LLC., in 2012 and confirming the wetlands mapped conform to the Navigable Water Protection Rule (NWPR). The wetland delineation followed the criteria in the 1987 Corps Delineation Manual (Y-87-1) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (Version 2.0). Additionally, I have reviewed the National Wetland Inventory Map, historic aerial photographs, State Wetland Mapping, U.S. Geological Survey mapping, and USDA Soil Survey mapping.

The review of historical aerial imagery revealed that the subject property and surrounding land have been disturbed at some time in the past (Figures 1-7). The site consists primarily of maintained field areas with young forest cover in the northeast, and extensive area of marshland in the north. The subject property is bordered to the north by marshland and industrial and commercial properties, the east by the Delaware River, the south by Pencader Charter School, and the west by Lukens Drive, commercial properties, and a railroad line.

302-464-0831  
*Jim@WatershedEco.com*

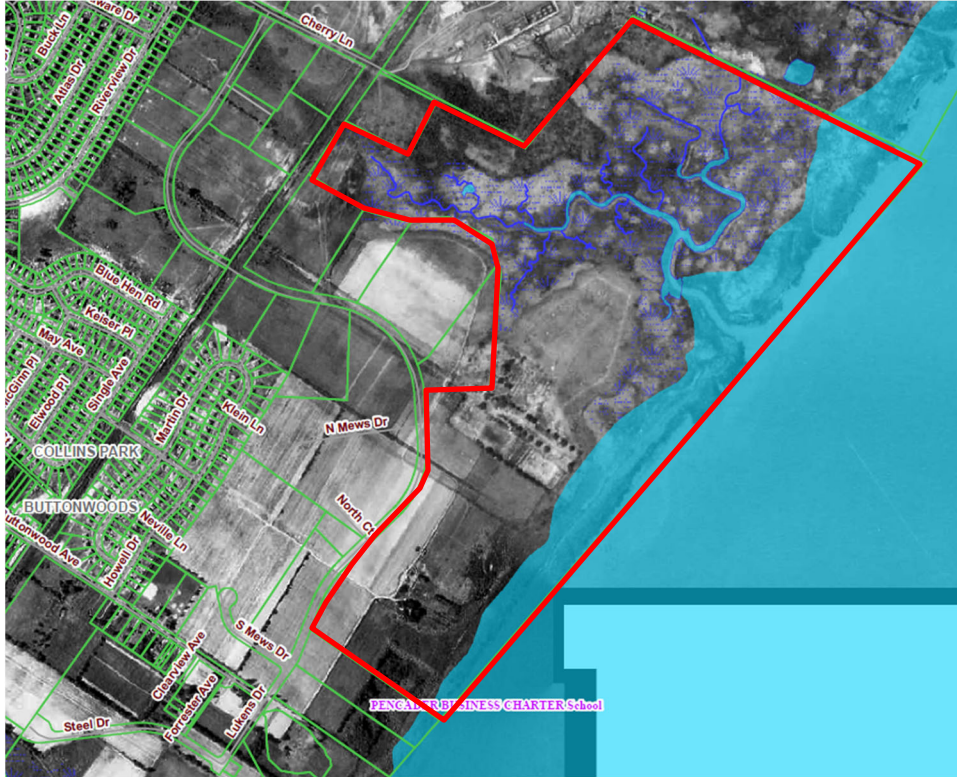


Figure 1: 1954 Aerial Photo.

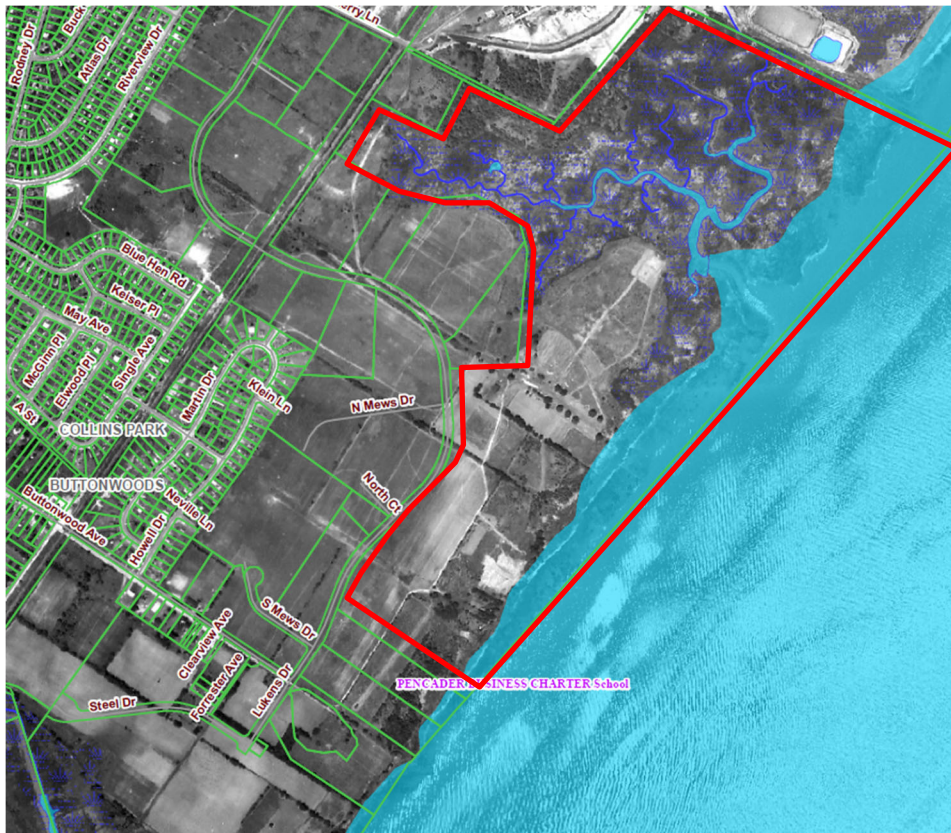


Figure 2: 1961 Aerial Photo.



Figure 3: 1992 Aerial Photo.

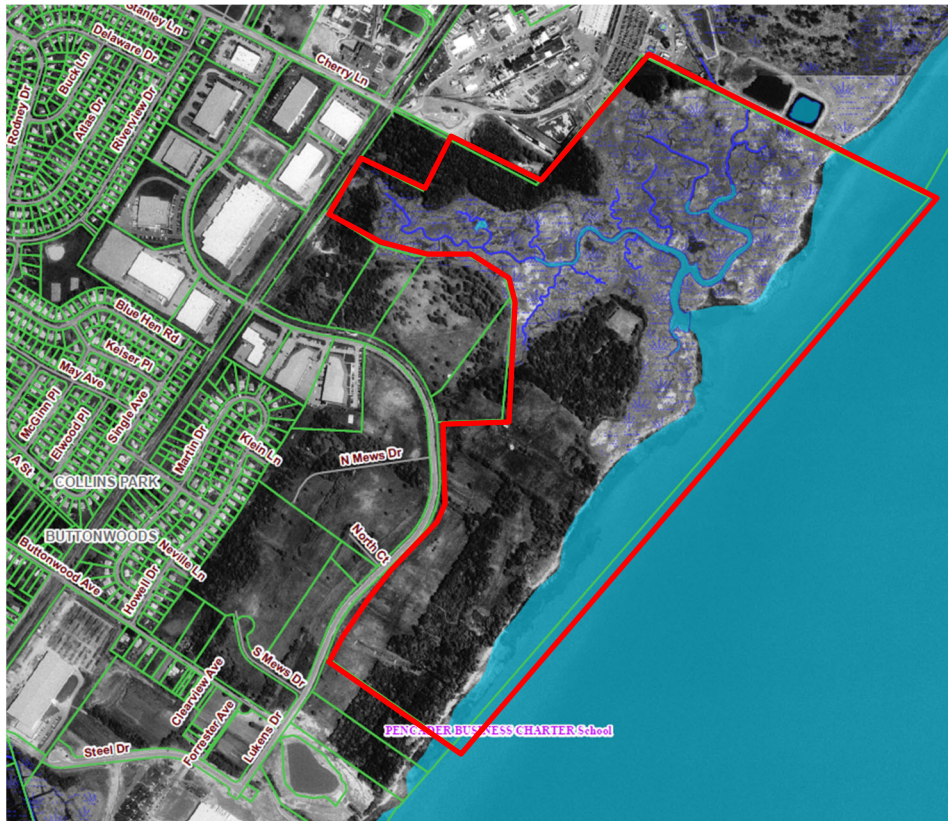


Figure 4: 1997 Aerial Photo.

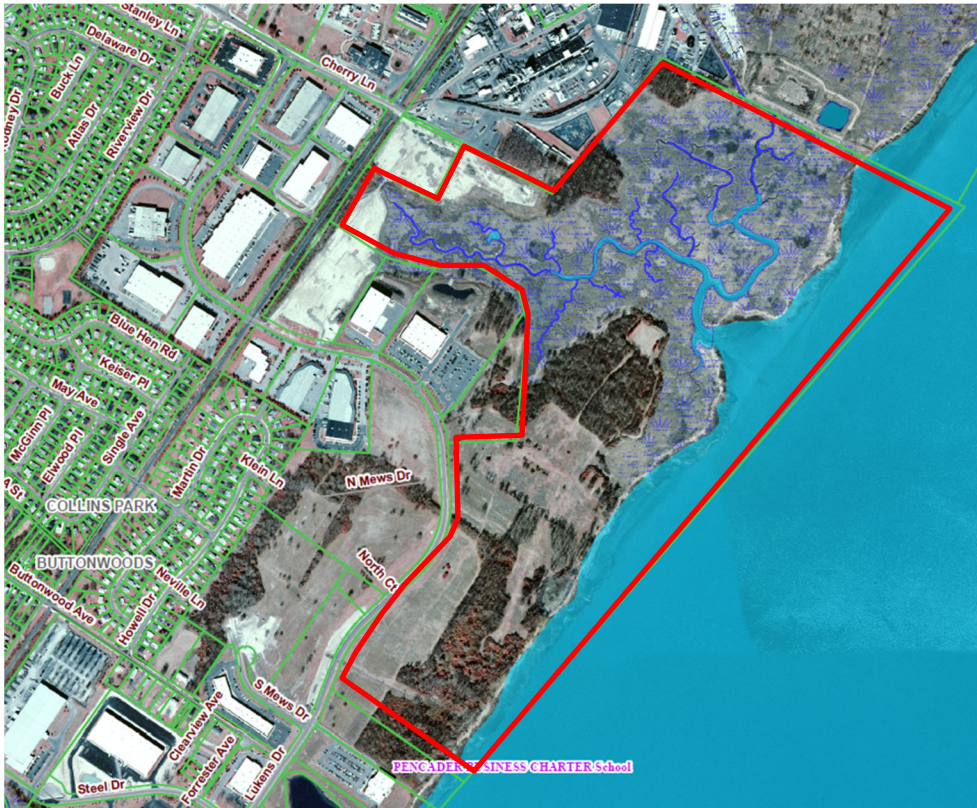


Figure 5: 2002 Aerial Photo.



Figure 6: 2007 Aerial Photo.



Figure 7: 2019 Aerial Photo.

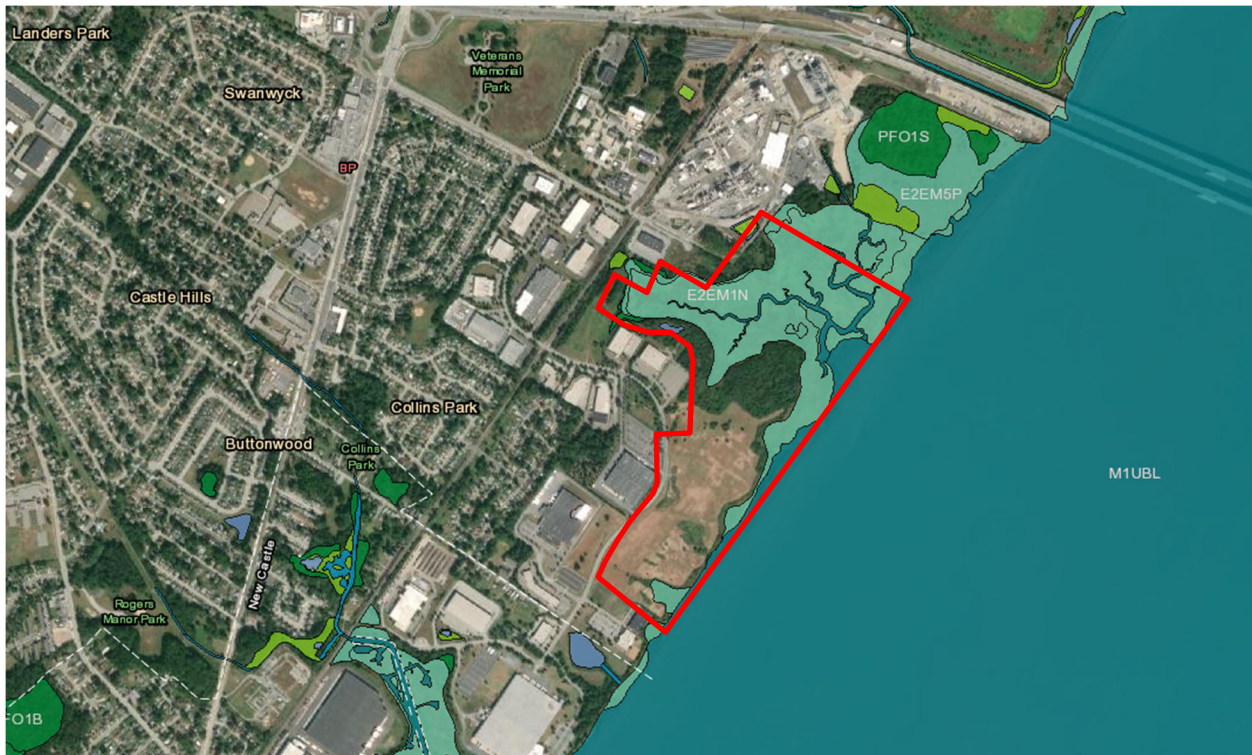


Figure 8: NWI Map



Figure 9: USGS Map.



Figure 10: USDA Soil Map

The current USDA Soil Survey Mapping (Figure 13) depicts the western portion of the site as underlain primarily with well-drained Reybold silt loam (ReB), Nassawango silt loam (NsA), Udorthents (UzC), and Urban land (Up). Areas of poorly-drained, frequently flooded Transquaking and Mispillion soils (TP) soils are depicted in the north-central and northeastern portions. Open water (W) is depicted along the entire eastern border of the property.

Dominant hydrophytic plant communities were observed within the tidal wetlands in the southeastern and northern portions of the property. Shrub/herbaceous species observed along the wetland edge in these areas included boxelder, northern arrowwood, and common reed. Upland forest areas and scrub-shrub areas within the property consisted of sweetgum, black cherry, eastern red cedar, black locust, Bradford pear, multiflora rose, blackberry, and Japanese Knotweed. The maintained field area was dominated by orchard grass, meadow onion, Japanese honeysuckle, Virginia broomsedge, and dogbane.

Hydrology to wetlands within the subject property is a combination of sheet flow run off from impervious areas within the surrounding industrial park, spring seeps, and daily tidal inundation of the Delaware River.

In conclusion and based on all of the evidence above and attached, Watershed Eco, LLC. validates the jurisdictional limits of wetlands and waterways as previously delineated in 2012. It is the professional opinion of Watershed Eco, LLC. that federal and state regulated wetlands and waterways are located within the subject property as depicted on the Wetland Delineation Plan. The limits of State regulated wetlands are depicted on DNR398 attached to this document.

If you have any questions or concerns, please feel free to give me a call.

Sincerely,



James C. McCulley IV, PWS (#000471)  
Environmental Scientist





Wetland Delineation Map



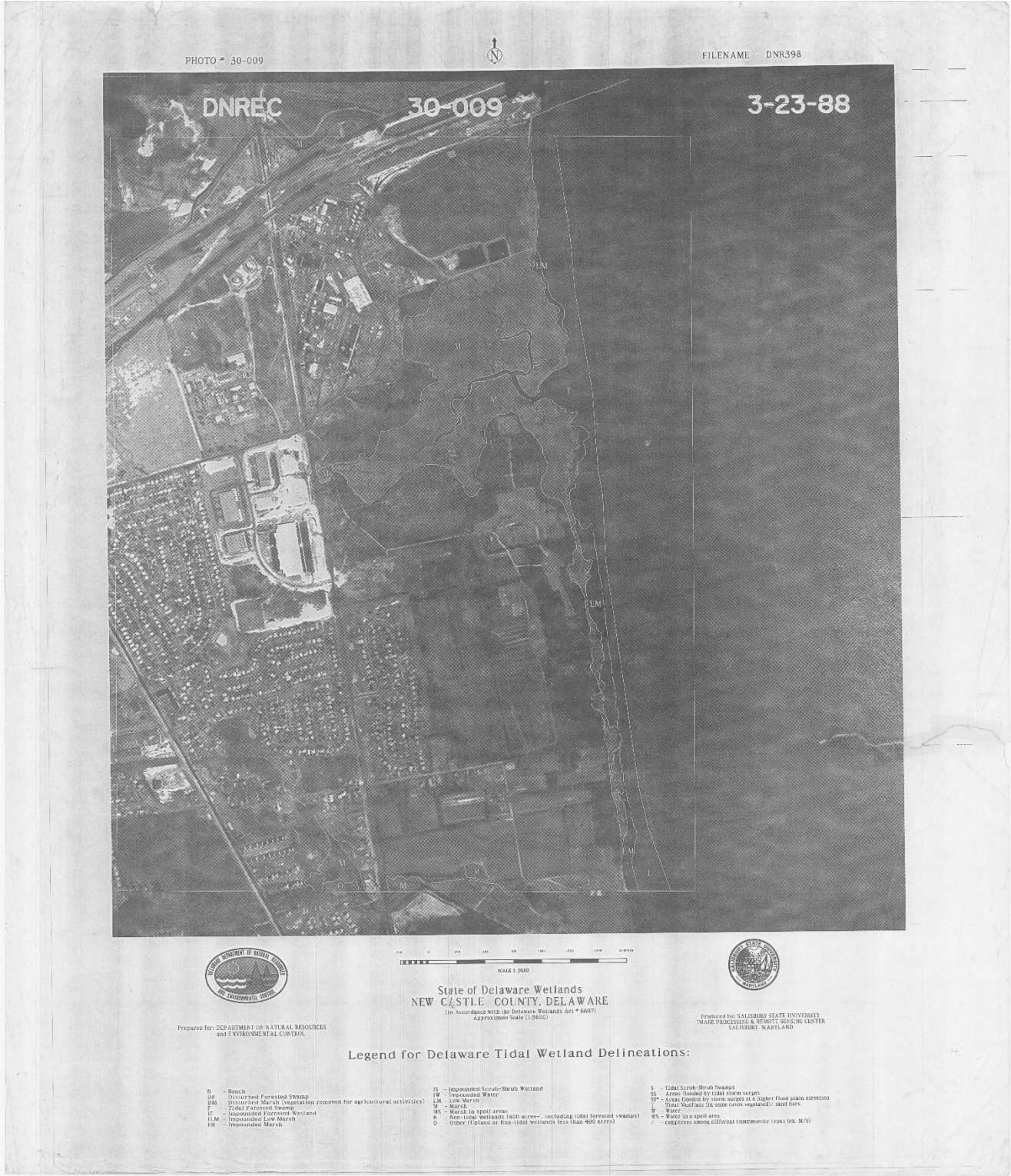


PHOTO # 30-009

FILENAME - DNR398

DNREC

30-009

3-23-88



Prepared for: DEPARTMENT OF NATURAL RESOURCES  
 and ENVIRONMENTAL CONTROL



State of Delaware Wetlands  
 NEW CASTLE COUNTY, DELAWARE  
 (in accordance with the Delaware Wetlands Act # 6607)  
 Approximate Scale 1:3640



Prepared by: SALISBURY STATE UNIVERSITY  
 IMAGE PROCESSING & PHOTO COPYING CENTER  
 SALISBURY, MARYLAND

Legend for Delaware Tidal Wetland Delineations:

- |   |   |  |
|---|---|--|
| D - Beach   | IS - Impounded Scrub-Shrub Wetland                                    | S - Tidal Scrub-Shrub Swamps   |
| DF - Disturbed Forested Swamp   | IW - Impounded Water  | SS - Areas flooded by tidal storm surges                             |
| DM - Disturbed Marsh (vegetation removed for agricultural activities) | LM - Low Marsh  | SP - Areas flooded by storm surges at a higher flood plain elevation |
| TF - Tidal Forested Swamp   | M - Marsh   | TN - Tidal Wetland (in some cases wetlands - open here)              |
| IF - Impounded Forested Wetland                                       | MS - Marsh in spoil areas   | W - Water  |
| ILM - Impounded Low Marsh   | A - Artificial Wetlands (400 acres - including tidal forested swamps) | WS - Water in a spoil area   |
| IM - Impounded Marsh  | O - Other (Tidal or Non-tidal wetlands less than 400 acres)           | Z - complexes among all/other community types (ex. M/S)              |

DNREC Tidal Wetland Map 398

**Site Photographs:**



**Photo 1: Mowed field area in the southern portion of the property, facing east.**



**Photo 2: Stormwater drainage swale from Lukens Drive in the southern portion of the property, facing west.**



**Photo 3: Tidal emergent wetland in the southeastern portion of the property, facing south.**



**Photo 4: Tidal water boundary along the eastern property boundary, facing northeast.**



**Photo 5: Mowed field area in the central portion of the property, facing southeast.**



**Photo 6: Tidal emergent wetlands in the north-central portion of the property, facing north.**



**Photo 7: Tidal wetlands in the northwestern portion of the property, facing east.**



**Photo 8: Emergent wetland area abutting railroad line along the northwestern property boundary, facing west.**