Proposed Billboards
701 Research Parkway
Meriden, Connecticut

Wetland Impact Assessment

Submitted To:

BL Companies
355 Research Parkway
Meriden, CT 06450

Prepared By:

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CONTENTS

APPENDICES

PROJECT PLANS ATTACHED SEPARATELY

1.0 INTRODUCTION

Davison Environmental, LLC has prepared this evaluation for BL Companies in conjunction with an Inland Wetlands and Watercourses Commission ("IWWC") application to the City of Meriden for two proposed billboards on an approximate 13.53-acre property ("project"). The property is located at 701 Research Parkway, in Meriden ("property" or "site") with frontage on Research Parkway to the east and Interstate 91 to the west.

2.0 PROJECT DESCRIPTION

The project includes the construction of two proposed billboards, one static and one digital, and associated gravel access drive originating from a bituminous access drive on the commercial property to the north.

3.0 REGULATED ACTIVITIES

Due to the location of on-site wetlands and watercourses, regulated activities are required. Approximately 1,600 sqft of permanent direct impacts (filling/piping) are required for permanent access to, and installation of the southern billboard. These impacts would occur within a wetland swale which captures and conveys stormwater from Interstate 91 to Foster Lake. Further, approximately 15,800 sqft of activities are proposed within the site's 100-foot upland review area ("URA") of on-site resource areas. Since the proposed access road would be gravel, virtually all proposed URA activities would remain pervious post-construction.

4.0 EXISTING ENVIRONMENT

4.1 General Site Description

The site in its entirety encompasses approximately 13.53-acres of undeveloped land located east of Interstate 91 and west of Research Parkway. The site is dominated by Foster Lake but also includes an area of uplands between Foster lake and Interstate 91 on which the proposed activities would occur. The uplands grade gradually towards the east and Foster Lake and are predominantly vegetated with scrub-shrub vegetation. Autumn olive *(Elaeagnus umbellata)*, a non-native invasive species often associated with previous land disturbance is the dominant representative.

4.2 Watershed

The Site is located within the Harbor Brook Subregional Drainage Basin (5206).

4.3 Wetland and Watercourse Delineation and Description

Site wetlands were delineated on October 18, 2020 by Matthew Davison, Professional Soil Scientist. The delineated resource areas include Foster Lake to the south and east of the site uplands, and a narrow wetland swale located between the site uplands and Interstate 91. Foster Lake drains beneath Research Parkway to Bishop's Pond, from which Willow Brook drains north to Harbor Brook. The wetland swale, which will be subject to temporary disturbance during construction, is likely man-made. It is bound by the Interstate 91 embankment to the west and a constructed berm to the east (on-site). It has a broad bottom, generally vegetated with silky dogwood *(Cornus amomum)*, multiflora rose *(Rosa multiflora)*, bush honeysuckle *(Lonicera sp.)*, and sensitive fern *(Onoclea sensibilis).* It discharges to the south and Foster Lake. Where the

swale approaches the lake the gradient increases and the width decreases resulting in increased flow velocities (likely limited to larger storm events). As a result, there is active erosion in the swale which has discharged sediment to the lake. The eroded portion of the swale is vegetated with autumn olive which eliminates any competition from other plant species, particularly emergent species which could provide more soil stability, whereas flatter areas upgradient which are more densely vegetated with emergent species.

4.4 Soil Types

Digitally available updated soil survey information was obtained from the Natural Resources Conservation Service ("NRCS") and generally confirmed during the field investigations. Refer to the NRCS Soil Mapping in Appendix B. Soil classifications present on the property are as follows:

Wetland Soils – wetland soils consist of Wilbraham silt loam. The Wilbraham series consists of poorly drained loamy soils formed in subglacial till. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level to gently sloping soils in drainageways and low-lying positions of till hills. Wilbraham soils have a water table at or near the surface much of the year. They have an aquic moisture regime.

Non-Wetland Soils - The non-wetland soils were not examined in detail, except as was necessary to determine the wetland boundary. Non-wetland soils consist of Udorthents. Udorthents is a miscellaneous land type used to denote moderately well to excessively drained earthen material which has been so disturbed by cutting, filling, or grading that the original soil profile can no longer be discerned.

4.5 Rare Species Habitat

Based on a review of the most recently updated (June 2020) Connecticut Department of Energy and Environmental Protection Natural Diversity Database mapping, no State-listed species or critical habitats are located on, or in close proximity to the site.

5.0 WETLAND FUNCTIONS AND VALUES

5.1 Wetland Functions and Values

The functions and values of the wetland which will be subject to temporary impacts (matting) are summarized in Table 1 and discussed in Sections 5.2 and 5.3. The *Highway Methodology* recognizes 13 separate wetland functions and values which are listed in Table 1.

The degree to which a wetland provides each of these functions is determined by one or more of the following factors: landscape position, substrate, hydrology, vegetation, history of disturbance, and size. Each wetland may provide one or more of the listed functions at significant levels. The determining factors that affect the level of function provided by a wetland can often be broken into two categories. The effectiveness of a wetland to provide a specified function is generally dependent on factors within the wetland whereas the opportunity to provide a function is often influenced by the wetland's position in the landscape as well as adjacent land uses. For example, a depressed wetland with a restricted outlet may be considered highly effective in trapping sediment due to the long residence time of runoff water passing through the system. If this wetland is located in gently sloping woodland, however, there is no significant

source of sediment in the runoff therefore the wetland is considered to have a small opportunity of providing this function.

Table 1: Summary of Wetland (Watercourse) Functions and Values

Wetland Functions and Values	Groundwater Recharge/Discharge	Sediment/Shoreline Stabilization	Floodflow Alteration	Fish & Shellfish Habitat	Sediment/Toxicant/ Pathogen Retention	Nutrient Removal/Attenuation	Production Export	Wildlife Habitat	Recreation	Educational/Scientific Value	Uniqueness/Heritage	Visual Quality/Aesthetics	Listed Species Habitat
On-Site Wetlands Subject to Impacts	S	U	P	S	P	P	U	U	U	U	U	U	U
Suitability P = principal function S = secondary function U = function unlikely to be provided at a significant level N/A = not applicable													

5.2 Functions and Values of Impacted On-Site Wetland

This on-site wetland would be subject to approximately 1,600 sqft of permanent impacts (filling/piping) to facilitate construction. The principal function of this resource area is described below.

Floodflow Alteration functions are provided at a principal level. This wetland area collects stormwater runoff from Interstate 91 (opportunity). It provides some flood storage (effectiveness) but is limited to some extent by a lack of depth (capacity) or constricted outlet which would provide for more detention.

Sediment/Toxicant/Pathogen Retention and Nutrient Removal/Attenuation functions are provided at a principal level. This wetland area captures and conveys stormwater runoff from Interstate 91 (opportunity). Upper portions of the swale, where it is broad and flat, are generally densely vegetated with emergent and shrubs which enhance these functions by trapping and attenuating pollutants (effectiveness). Where this feature discharges down a slope to Foster Lake, a lack of dense vegetation has limited this function.

6.0 POTENTIAL EFFECTS ON WATER RESOURCES, FLORA, AND FAUNA

The following describes potential short-term (construction phase) and long-term wetland impacts, along with comments and recommendations. Note that recommendations are in *italics*. With adherence of these recommendations, along with incorporation of the proposed mitigation (refer to Section 7), DE anticipates that the proposed project will not adversely affect water resources both on and off-site.

6.1 Potential Short-term Impacts

Potential short-term impacts are primarily associated with sediment discharge to site water resources during construction. This is especially pertinent to the construction of the two watercourse crossings.

Comments & Recommendations:

1. *In order to minimize the potential for impacts, erosion and sedimentation control measures should be designed and installed in accordance with CTDEEP's 2002 Connecticut Guidelines for Soil Erosion and Sediment Control. A detailed plan should be developed for installation of the proposed wetland crossing and southern billboard location foundation, specifically in regard to dewatering and soil handling given its close proximity to wetlands and Foster Lake.*

6.2 Potential Long-term Impacts

Potential long-term impacts to water resources are primarily related to the loss of functions and values and/or water quality degradation resulting from alterations to wetland hydrology and stormwater discharges. The following are comments and recommendations related to the minimization of potential long-term impacts to water resources.

Comments & Recommendations:

1. Approximately 1,600 square feet (sqft) of wetlands would be subject to direct, permanent impacts (filling/piping) associated with one wetland crossing. Wetland filling will result in a slight diminishment of Sediment/Toxicant/Pathogen Retention and Nutrient Removal/Attenuation ("water quality") functions due to the loss of wetlands and characteristics that promote these functions. The proposed mitigation (refer to Section 7) would compensate for this loss by planting this wetland with species that are intended to enhance water quality functions. Since this swale receives stormwater from Interstate 91 and discharges this stormwater to Foster Lake, enhancement of water quality functions is a meaningful goal.

   Floodflow alteration functions may be enhanced by the proposed crossing. While it is anticipated that the crossing will be designed to freely convey surface water, incorporation of an outlet control structure or other means of reducing the velocity of discharge on the outlet side of the crossing will help to rectify ongoing erosion at this location (refer to Comment #4).

2. The site is an undeveloped, scrub-shrub dominated property bounded to the west by Interstate 91, to the north by commercial development, and to the east and south by Foster Lake. Due to this fact, which effectively creates a habitat island, suitable habitat is limited to species that are commonly referred to as "disturbance tolerant". Such species are capable of thriving in urban environments in which the habitat is largely fragmented, and wetlands are often disturbed, subject to light pollution, and lack contiguous riparian buffer habitat.

   There is some potential for wetland dependent species with limited use of upland habitat to occupy Foster Lake. Species such as painted and snapping turtles, bull and green

frogs and water snake may be utilizing Foster Lake and site uplands, particularly immediately adjacent to the lake. Project activities are concentrated along Interstate 91 and uplands adjacent to the lake would not be affected by the project. Further, the aquatic species that may occupy the site are adaptable to the types of urbanized aquatic habitat exemplified by the site and the proposed development would not have a likely adverse impact on their populations.

No rare species habitat was identified (refer to Section 4.5). Due to these facts and the very limited area of proposed development, the project would not adversely affect flora, fauna, or rare species.

3. Due to the limited area of site development, minimal alteration of existing drainage patterns is proposed. However, the proposed wetland crossing will bisect a wetland system perpendicular to the direction of flow (refer to Comment #4).

4. *Detailed plans should be developed for the proposed wetland crossing, as there is currently ongoing erosion in this area. Filling and piping at this location has the potential to increase erosion if the crossing is not designed properly. Detailed crossing plans should include invert and outlet elevations to demonstrate that flow velocities will not be excessive when they discharge into the swale. Consideration may be given to incorporating a plunge pool or outlet control structure within the wetland at the pipe outlet to manage flow velocities.*

7.0 MITIGATION RECOMMENDATIONS

The following mitigation recommendations are intended to improve existing resource conditions by stabilizing and eroded swale to reduce ongoing erosion and sedimentation and enhance existing principal wetland functions. Refer to Photo 3 and Plan Sheet SP-1.

Wetland Enhancement Area Construction Sequence

The wetland enhancement area includes an eroded swale that discharges to Foster Lake. Wetland enhancement plantings include shrubs and emergent species that are intended to promote soil stability to minimize future soil erosion in this area.

1. A pre-construction meeting shall be held with the general contractor, installation contractor and project wetland scientist prior to any work in this area. The purpose of this meeting will be to discuss plant species and planting locations.

2. Prior to the start of plant installation, woody debris within and adjacent to the eroded swale shall be removed by hand. Following removal of woody debris the swale and adjacent wetland shall be seeded with the referenced seed mixture and covered with a bio-degradable erosion control blanket. The remaining plantings will be installed through the blanket.

3. Wetland enhancement area plantings shall take place once the above listed tasks have been completed. The enhancement area will be planted with native shrubs and emergent species. All woody plant stock will be either bare-root or container-grown. All plantings to be spaced randomly to simulate natural growth patterns. Plantings

downgradient of the crossing should be concentrated within flow patterns to achieve the desired wetland function enhancement.

4. Additional shrub and emergent herbaceous plantings may be added provided species used are native and spacing simulates natural growth patterns. Species not specified in the restoration plan shall not be used without approval from the city.

5. The contractor responsible for the plantings shall be responsible for the careful installation, maintenance (including watering), and establishment of the plant material in the restoration area. All plants shall be guaranteed by the contractor to remain alive and healthy for a full twenty four (24) month period.

6. Once vegetation has become established, erosion controls (excluding blanket) shall be removed and properly disposed of.

Wetland Enhancement Area Planting Schedule

Botanical Name	Common Name	Size	Min. Spacing	Quantity
Shrubs				
Cornus Amomum	Silky Dogwood	3 – 4’	4’	20
Ilex Verticillata	Winterberry	3 – 4’	4’	20
Spiraea Tomentosa	Steeplebush	3 – 4’	4’	20
Emergents				
Eupatorium Maculatum	Joe-Pye Weed	2” Plug	2’	100
Euthamia Graminifolia	Grass-Leaved Goldenrod	2” Plug	2	100
Juncus Effuses	Soft Rush	2” Plug	2’	100
Vernonia Noveboracensis	New York Ironweed	2” Plug	2’	100

All exposed soils, particularly in eroded swale, will be planted with New England Erosion Control/Restoration Mix for Detention Basins and Moist Sites (or equivalent) at 1,250 sqft/lb or as recommended by manufacturer. Seed mixture and wetland plugs to be provided by New England Wetland Plants, Inc. (413-548-8000), or approved nursery.

8.0 REFERENCES

Connecticut Environmental Conditions Online (CTECO) (http://www.cteco.uconn.edu/)

Dowhan, J. and R. J. Craig. 1976. Rare and Endangered Species of Connecticut and Their Habitats. State Geological and Natural History Survey of Connecticut.

Mitsch, W.J. and Gosselink, J.G. 2007. Wetlands, fourth edition. John Wiley and Sons, Inc.

New England Wetland Plants, Inc. http://newp.com/catalog/seed-mixes/

U.S. Army Corp of Engineers. 1995. The Highway Methodology Workbook – Wetland Functions and Values: A Descriptive Approach.

APPENDIX A – WETLAND / WATERCOURSE PHOTOS

Photo 1: View of Foster Lake looking south

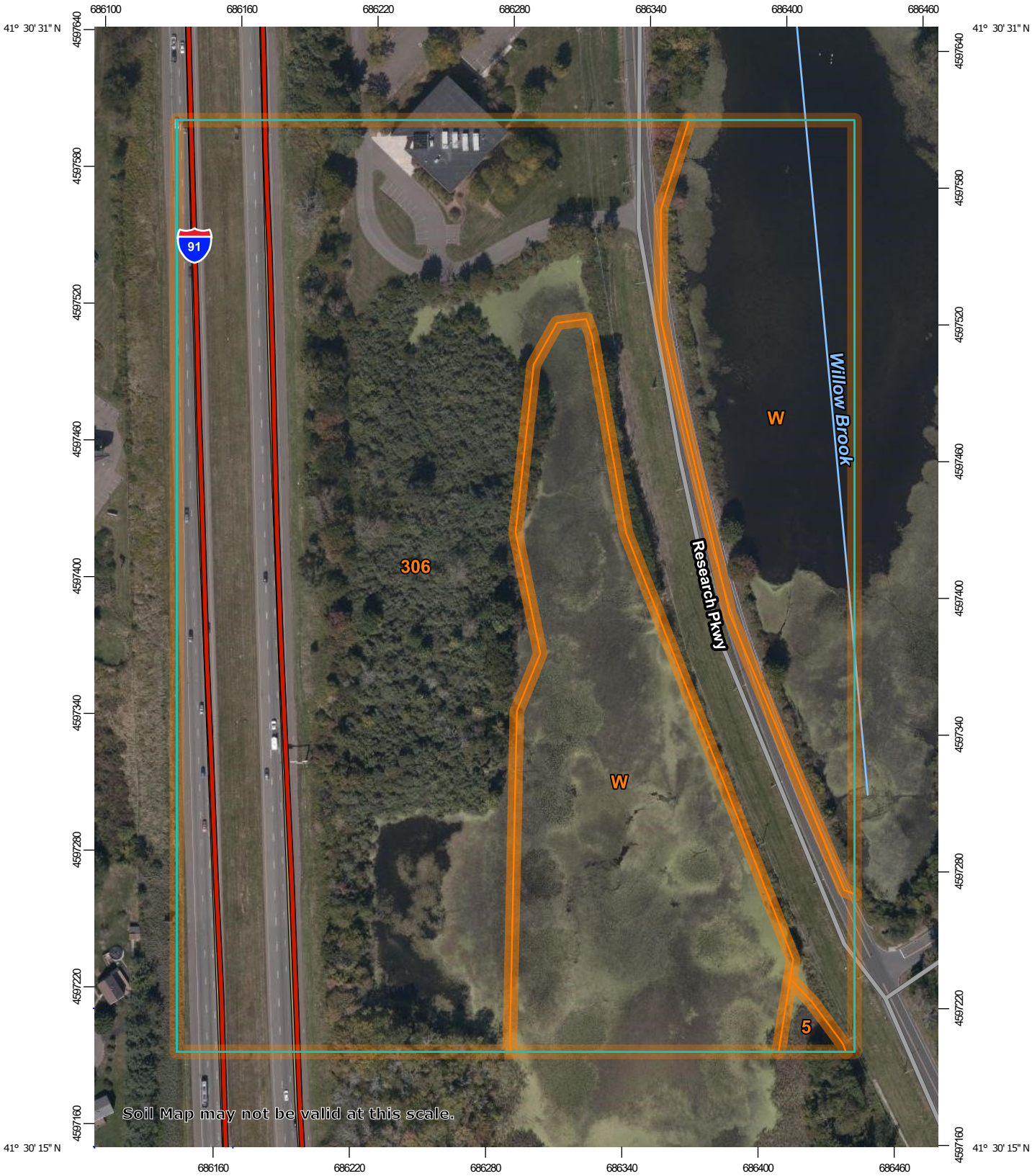
Photo 2: View of wetland swale near it's northern tip looking south

Photo 3: View of wetland swale where it discharges to Foster Lake

Photo 4: View of proposed billboard location, wetland swale is to left

APPENDIX B – NRCS SOIL MAP

Soil Map—State of Connecticut
(701 Research Parkway, Meriden, CT)



Map Scale: 1:2,390 if printed on A portrait (8.5" x 11") sheet.

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Meters: 0 35 70 140 210

Feet: 0 100 200 400 600

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut
Survey Area Data: Version 20, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 30, 2019—Oct 15, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
5	Wilbraham silt loam, 0 to 3 percent slopes	0.1	0.4%
306	Udorthents-Urban land complex	19.3	63.8%
W	Water	10.8	35.8%
Totals for Area of Interest		**30.3**	**100.0%**