

ATTACHMENT B

Revised Photo Renderings



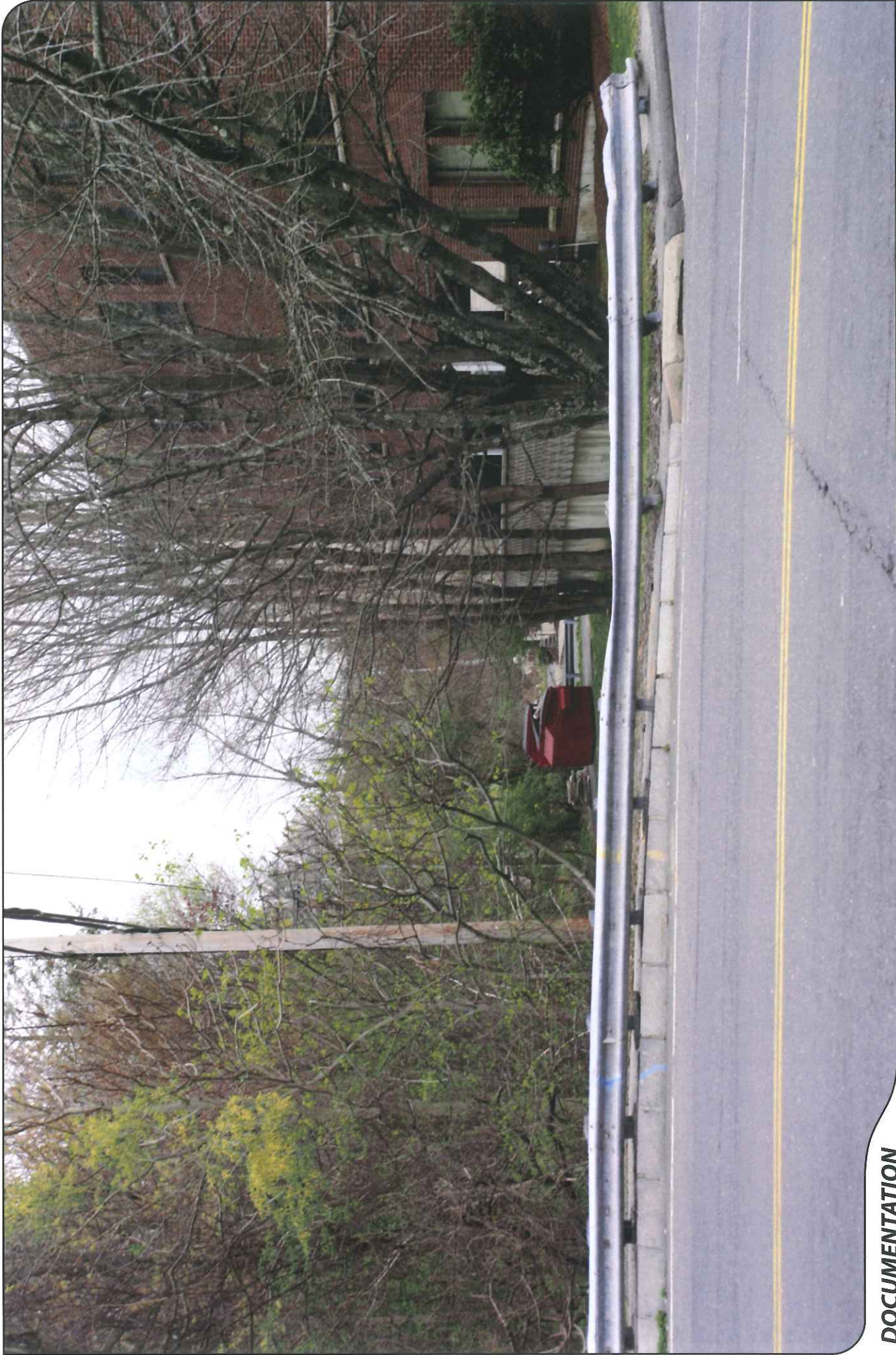
DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	WEST OF HILTON GARDEN INN REAR PARKING LOT	SOUTHEAST	+/- 0.13 MILE	YEAR ROUND



SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
1	WEST OF HILTON GARDEN INN REAR PARKING LOT	SOUTHEAST	+/- 0.13 MILE	YEAR ROUND



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
2	PET SUPPLIES PLUS PARKING AREA LOOKING EAST ACROSS BRIDGEPORT AVENUE	SOUTHEAST	+/- 0.20 MILE	YEAR ROUND



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
3	SOUTH OF MILL STREET-BRIDGEPORT AVENUE INTERSECTION - #656 BRIDGEPORT AVENUE (24mm Focal Length)	SOUTHEAST	+/- 0.19 MILE	YEAR ROUND



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
4	WELL'S HOLLOW CREAMERY, BEARD SAW MILL ROAD	SOUTHEAST	+/- 0.13 MILE	YEAR ROUND



SIMULATION

PHOTO

4

LOCATION

WELL'S HOLLOW CREAMERY, BEARD SAW MILL ROAD

ORIENTATION

SOUTHEAST

DISTANCE TO SITE

+/- 0.13 MILE

VISIBILITY

YEAR ROUND



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
5	BEARD SAW MILL ROAD (24mm Focal Length)	SOUTH	+/- 0.08 MILE	YEAR ROUND



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
6	26 BEARD SAW MILL ROAD (24mm Focal Length)	SOUTHWEST	+/- 0.12 MILE	YEAR ROUND



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
7	HILTON – EAST PARKING LOT AREA (24mm Focal Length)	SOUTHEAST	+/- 0.09 MILE	YEAR ROUND



DOCUMENTATION

PHOTO

8

LOCATION

SPLIT ROCK PLAZA CENTER

ORIENTATION

NORTHEAST

DISTANCE TO SITE

+/- 0.11 MILE

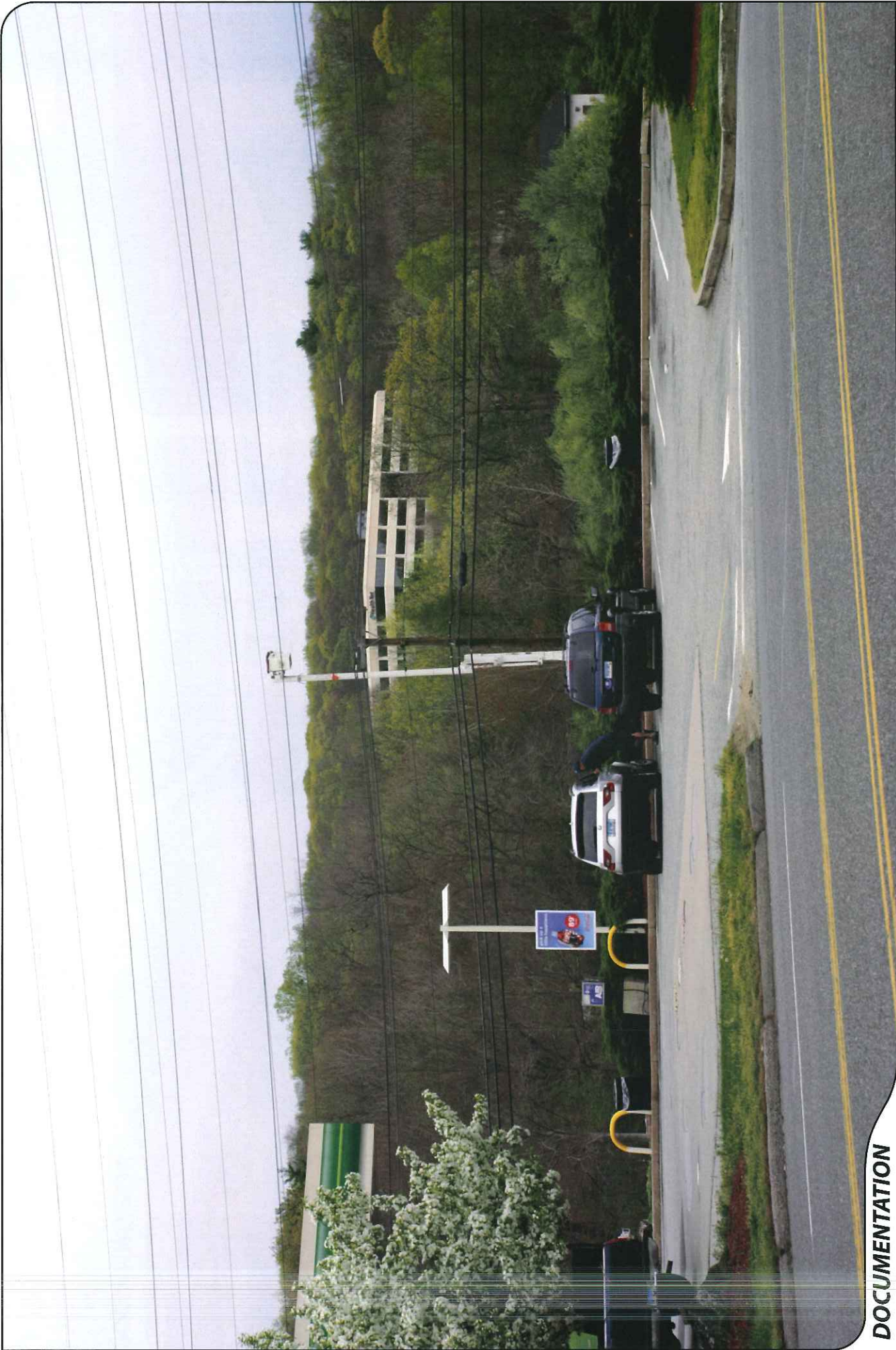
VISIBILITY

SEASONAL



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
9	SPLIT ROCK PLAZA PARKING LOT - EAST SIDE	NORTHEAST	+/- 0.15 MILE	SEASONAL



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
10	COMMERCE STREET ACROSS FROM BP GAS STATION	NORTHEAST	+/- 0.07 MILE	YEAR ROUND



DOCUMENTATION

PHOTO 11	LOCATION BP - EAST SIDE OF BUILDING (24mm Focal Length)	ORIENTATION NORTHEAST	DISTANCE TO SITE +/- 0.05 MILE	VISIBILITY YEAR ROUND
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SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
11	BP - EAST SIDE OF BUILDING (24mm Focal Length)	NORTHEAST	+/- 0.05 MILE	YEAR ROUND



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
12	COMMERCE STREET IN FRONT OF SS YARD - SAME SIDE OF STREET (24mm Focal Length)	NORTHEAST	+/- 0.05 MILE	YEAR ROUND



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	INTERSECTION OF COMMERCE STREET & ROUTE 8 SOUTHBOUND ENTRANCE (24mm Focal Length)	NORTHEAST	+/- 0.06 MILE	YEAR ROUND



SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
13	INTERSECTION OF COMMERCE STREET & ROUTE 8 SOUTHBOUND ENTRANCE (24mm Focal Length)	NORTHEAST	+/- 0.06 MILE	YEAR ROUND



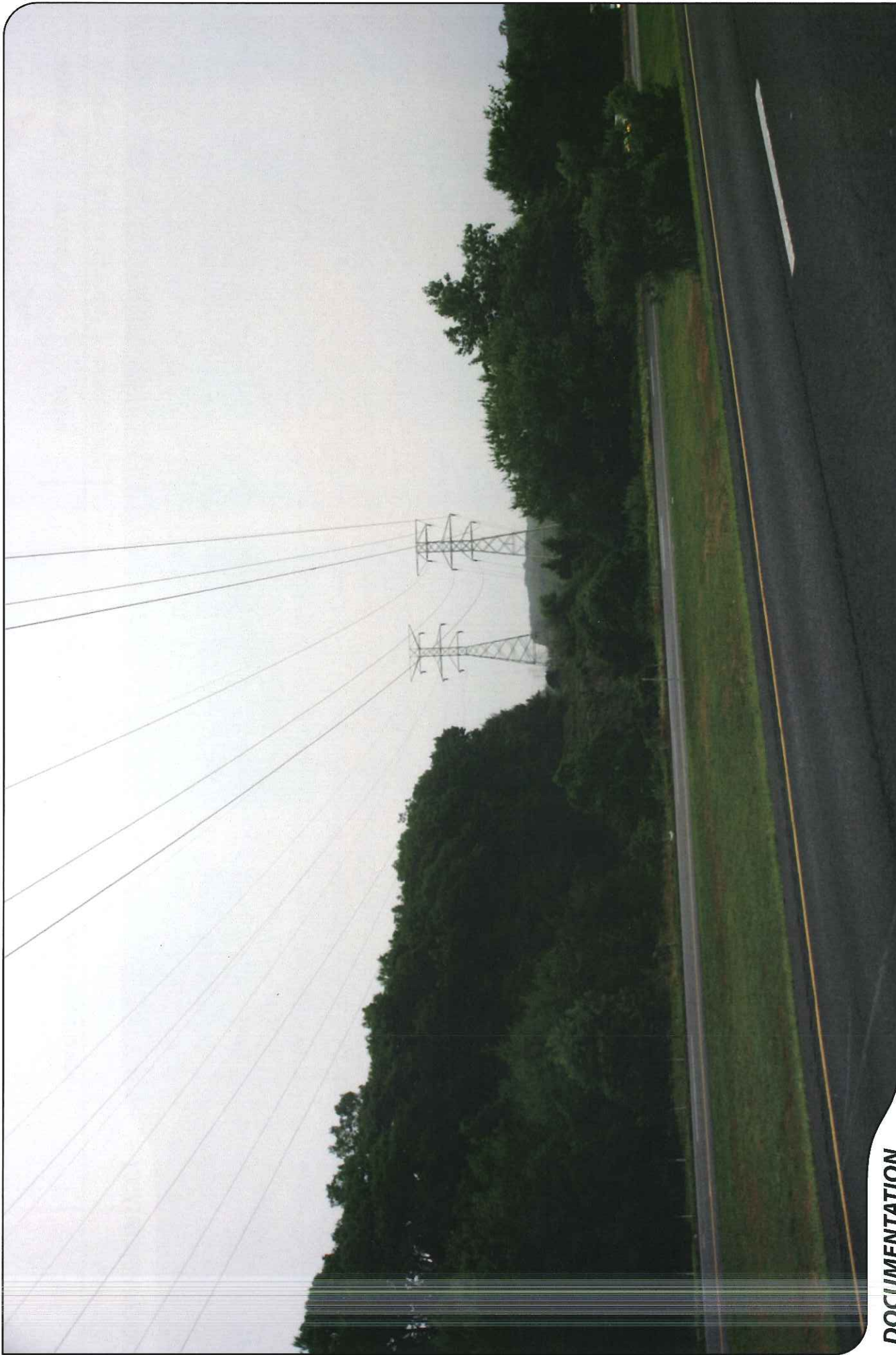
DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
14	INTERSECTION OF COMMERCE STREET & ROUTE 8 SOUTHBOUND ENTRANCE (24mm Focal Length)	NORTH	+/- 0.09 MILE	YEAR ROUND



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
15	SOUTHBOUND LANE OF ROUTE 8 - EXIT 12 OFF RAMP AREA (24mm Focal Length)	WEST	+/- 0.05 MILE	SEASONAL



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	NORTHBOUND LANE OF ROUTE 8 - NEAR EXIT 12 (24mm Focal Length)	NORTH	+/- 0.17 MILE	YEAR ROUND



SIMULATION

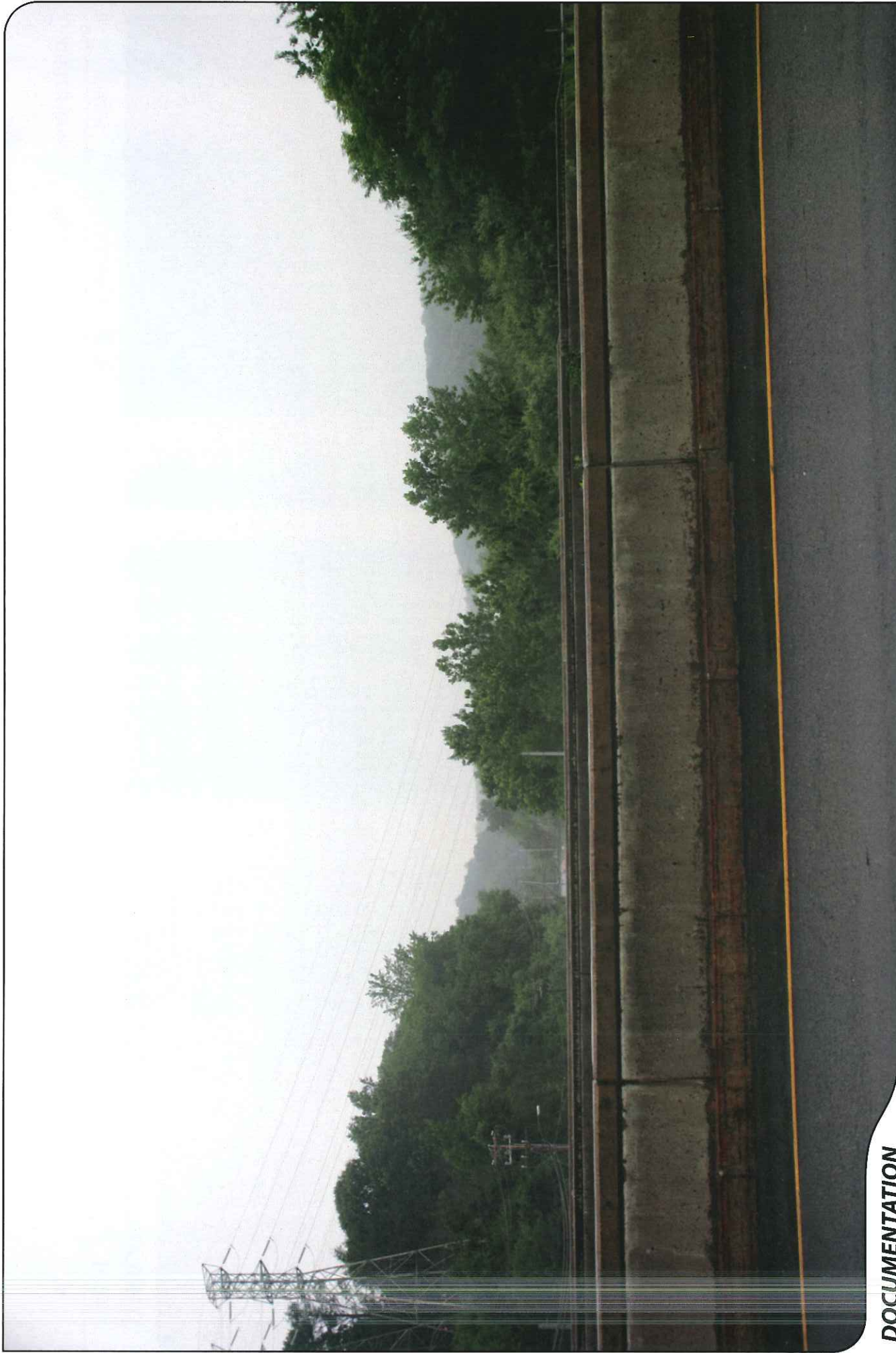
PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
16	NORTHBOUND LANE OF ROUTE 8 - NEAR EXIT 12 (24mm Focal Length)	NORTH	+/- 0.17 MILE	YEAR ROUND



ALL-POINTS
TECHNOLOGY CORPORATION

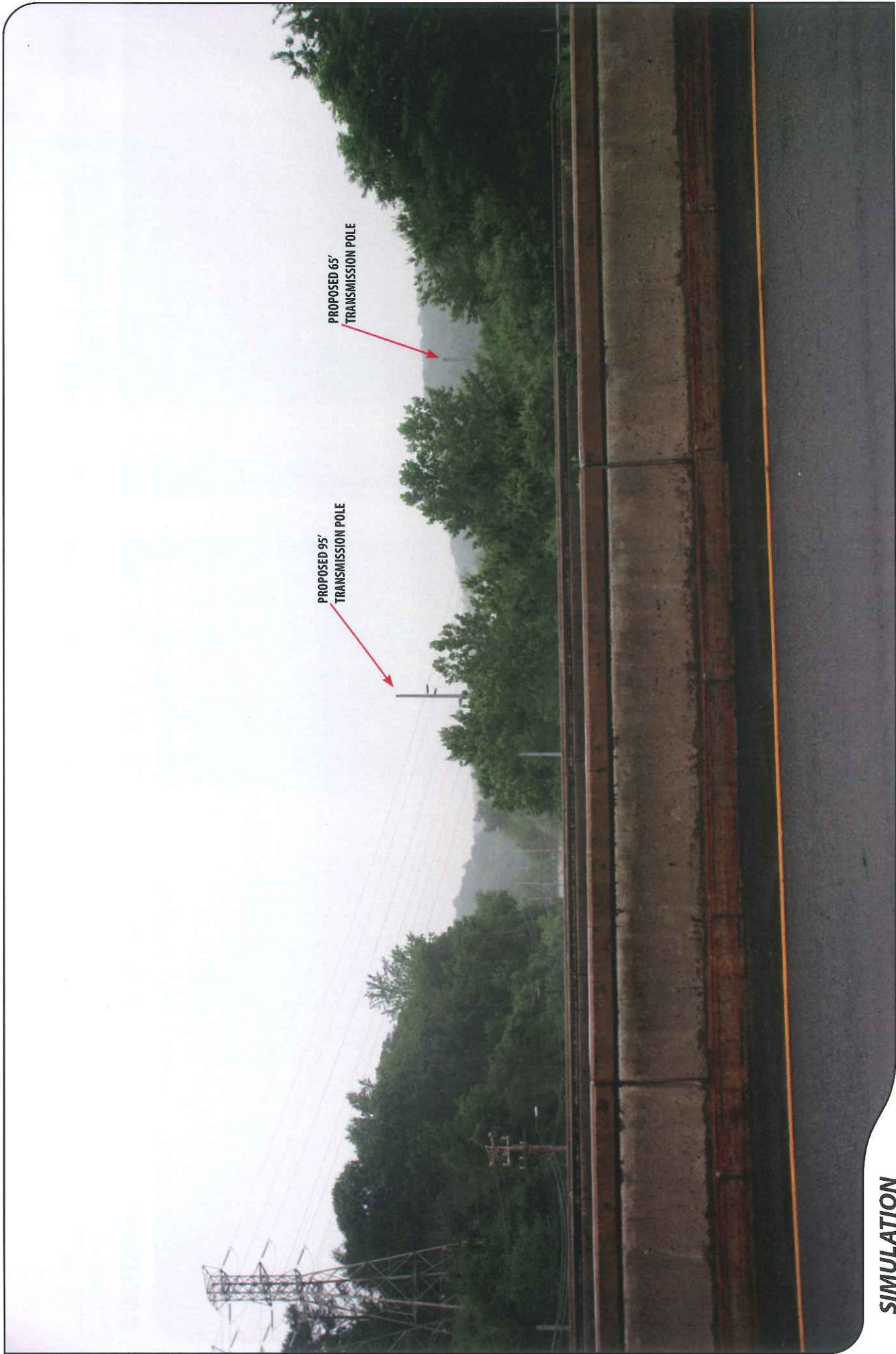


The United Illuminating Company



DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	NORTHBOUND LANE OF ROUTE 8 AT OLD STRATFORD ROAD OVERPASS (24mm Focal Length)	NORTHWEST	+/- 0.10 MILE	YEAR ROUND



SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
17	NORTHBOUND LANE OF ROUTE 8 AT OLD STRATFORD ROAD OVERPASS (24mm Focal Length)	NORTHWEST	+/- 0.10 MILE	YEAR ROUND





DOCUMENTATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	NORTHBOUND LANE OF ROUTE 8, LOOKING WEST AT SOUTHBOUND EXIT 12	WEST	+/- 0.12 MILE	YEAR ROUND



SIMULATION

PHOTO	LOCATION	ORIENTATION	DISTANCE TO SITE	VISIBILITY
18	NORTHBOUND LANE OF ROUTE 8, LOOKING WEST AT SOUTHBOUND EXIT 12	WEST	+/- 0.12 MILE	YEAR ROUND

ATTACHMENT C

Correspondence

Attachment C

From: James Quinn [mailto:jquinn@moheganmail.com]
Sent: Thursday, October 04, 2012 2:02 PM
To: Bruce McDermott
Subject: ACOE NE District Project No. NAE-2012-443

Dear Mr. McDermott,

I have recently reviewed the information you submitted to my office in regards to the proposed Shelton Substation at 14 Old Stratford Road, City of Shelton, Fairfield County, Connecticut. It is the opinion of my office that due to the fact that the proposed APE is located within a previously disturbed location, there are no properties of cultural, religious or historic significance to the Mohegan Tribe that will be affected by this project. The Mohegan Tribe appreciates the opportunity to comment on this project pursuant to the National Historic Preservation Act. If you have any further questions please feel free to contact me.

Best regards,

James

James Quinn

The Mohegan Tribe

Tribal Historic Preservation Officer

13 Crow Hill Rd.

Uncasville, CT 06382

Cell # (860) 367-1573

Office# (860) 862-6893

Fax# (860) 862-6395

ATTACHMENT D

Revised Site Selection Study



The United Illuminating Company

Shelton Substation Site Selection Study
City of Shelton, Connecticut

June 2012
Updated January 2013

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ATTACHMENTS

- A UI *Transmission and Distribution Guideline for Substation Site Selection (TDG 002) 2007*
- B Review of Substation Sites and Site Screening
(MAP POCKET: General Locations of Sites Screened)

EXECUTIVE SUMMARY

In order to respond to the current and projected increased demands for electricity in the Greater Shelton Area, The United Illuminating Company (UI) proposes to construct and operate a new 115/13.8 kilovolt (kV) substation in the City of Shelton, Fairfield County, Connecticut. The Greater Shelton Area is defined as the service area supplied by Trap Falls, Indian Well, Ansonia, and Trumbull Substations. This area includes the entire municipalities of Shelton, Derby, Ansonia and parts of the municipalities of Trumbull, Stratford, and Orange. The planned substation will provide both a new interconnection to the existing 115 kilovolt (kV) electric transmission grid and a new location at which the high voltage power from the transmission system will be “stepped down” (i.e., the voltage will be decreased and current increased) for distribution to residential, commercial, and industrial customers.)

The proposed substation will supplement UI’s four existing substations that presently serve the Greater Shelton Area (i.e., the Indian Well and Ansonia Substations located in the Town of Derby and the Town of Ansonia respectively, east of the Housatonic River, and the Trap Falls and Trumbull Substations, located in the City of Shelton and the Town of Trumbull respectively, west of the Housatonic River). The results of 115/13.8 kV distribution substation capacity analyses indicate that by 2015 these four substation will not have adequate available capacity to reliably serve the customers in the Greater Shelton Area and to meet the area’s growing demands for electricity.

To select feasible alternative sites for the development of the new substation, and from among these to choose a proposed site, UI used an iterative process whereby potential locations were first identified and screened in accordance with UI’s standard objectives for substation siting. These standard criteria, which are detailed in UI’s *Transmission and Distribution Guideline for Substation Site Selection* (2007), include the following guiding principles:

- Minimize the need to acquire residences and viable commercial/industrial uses to accommodate substation development.
- Maintain consistency/compatibility with existing land uses and land use plans to the extent possible.
- Minimize adverse effects on sensitive environmental resources and the social environment.
- Maintain public health and safety.
- Demonstrate cost-effectiveness, while adhering to good engineering and sound environmental planning practices.
- Present the public with a clear and well documented methodology for the identification of the proposed and alternative sites.

Applying these siting criteria and then consulting with City officials and performing baseline field reconnaissance, UI initially identified 36 potential sites. UI then performed screening analyses of the sites, followed by more detailed evaluations of sites that appeared potentially feasible for the location of the proposed new distribution substation facilities.

Key considerations in the site evaluation process were the locations of the potential sites in relation to projected areas of electric load growth in Shelton and to the existing transmission lines that traverse Shelton and feed the Indian Well and Trap Falls substations, as well as the length of new transmission and distribution lines that would have to be developed to effectively interconnect the new substation to the transmission network and to UI's distribution system. The existing transmission lines that traverse Shelton include:

- Three Connecticut Light and Power Company (CL&P) 115 kilovolt (kV) transmission lines that extend from north to south through Shelton (including the lines from the Stevenson Substation in the Town of Monroe to the Devon Switching Station in the City of Milford) and are located adjacent to the Trap Falls Substation.
- Two UI 115 kV transmission lines that extend west from UI's Indian Well and Ansonia substations (referred to as the Derby – Ansonia Lines) to interconnect to the Stevenson – Devon Line at Derby Junction, which is located in central Shelton, north of North Constitution Boulevard.

This alternative evaluation process led to the selection of the proposed substation site, as well as one alternative, but not preferred, site¹. The preferred and alternative site are illustrated on Figure ES-1 and briefly described as follows:

- **The proposed substation site.** This preferred site is located at 14 Old Stratford Road, on land presently owned by UI that was formerly used for industrial purposes. The site is adjacent to Old Stratford Road, State Route 8, and Pootatuck Place. The property is currently vacant and is fenced. UI presently uses portions of the property for staging equipment and vehicles used in vegetation maintenance activities along its distribution and transmission lines. The site is preferred for the development of the new substation because of its proximity to both the 115 kV transmission corridor and distribution load center.
- **Alternative Trap Falls Substation site.** The alternative site is a portion of undeveloped property that is owned by UI, adjacent to the existing Trap Falls Substation at 102 Armstrong Road in the southern portion of Shelton. UI does not prefer the Trap Falls site for the new substation based on cost, engineering design complexity, and potential environmental and social impacts. In addition, if developed at this alternative site, the new substation would be located close to residential areas and would pose significant distribution line construction challenges. Due to underground facilities congestion within Armstrong Road, use of this site would hinder the future expandability of distribution infrastructure to support additional potential future load. Overall, the development of the new substation at the Trap Falls site alternative would be approximately 20% more costly than the development of the substation at the preferred Old Stratford Road site.

¹ A third potential site, Derby Junction, was considered in some detail but ultimately eliminated due to cost and other factors.

Figure ES-1
Location of Proposed Shelton Substation Site and Alternative Trap Falls Substation Site



1. INTRODUCTION

1.1 SUMMARY OF PROJECT NEED

In recent years, electric demand in the Greater Shelton Area has been growing, as a result of both increased power consumption by existing customers and new economic development. This upward trend in the demand for electricity is expected to continue, as new commercial and industrial customers, including new data centers, locate in this area.

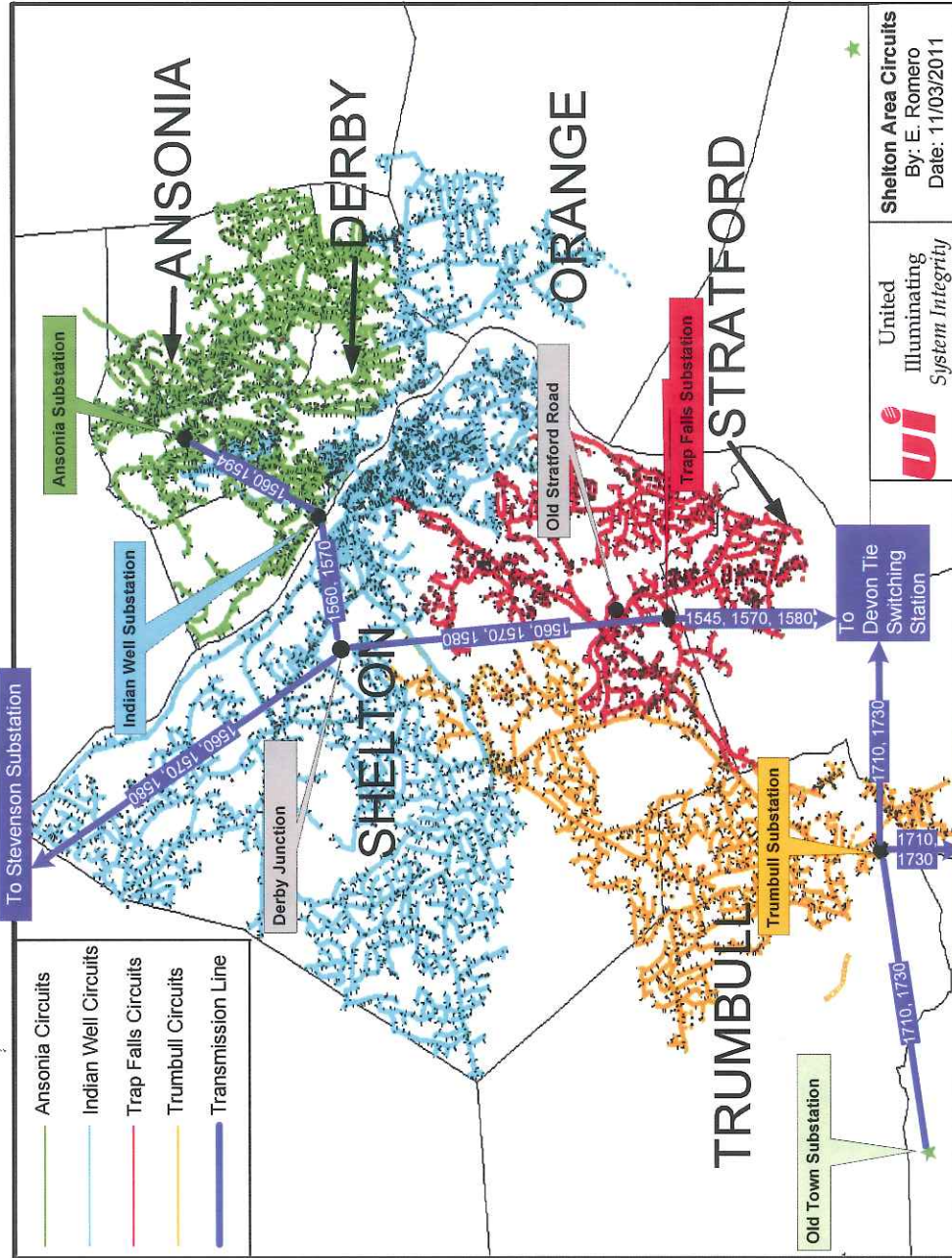
In response to the identification of the new customer load in the Greater Shelton Area and to relieve one of the area's four substations in order to eliminate a voltage collapse risk and possible rolling blackouts during contingency conditions, The United Illuminating Company (UI), which provides electric service to this area, analyzed the projected electric load growth in the area, compared to the existing capacity of the area's substations and transmission grid to reliably meet such electric needs. UI's evaluation (*Shelton Area Capacity Analysis*, May 2008 – revised May, 2012) concluded that load growth in the Greater Shelton Area is expected to increase substantially over the next ten years, with particular new demands for electricity centered in the vicinity of the State Route 8 corridor, near where commercial and industrial uses are planned. Further, the results of the *Shelton Area Capacity Analysis* demonstrate that these demands cannot be reliably met by supplying the new loads from the existing substations in the Greater Shelton Area.

As Figure 1-1 illustrates, Shelton's electric supply is currently provided by distribution circuits that emanate from four existing UI distribution substations:

- The Indian Well Substation, located in the Town of Derby, east of the Housatonic River, distributes power to the northern portion of Shelton.
- The Trap Falls Substation, located in the southeastern portion of Shelton adjacent to Armstrong Road, distributes power to the southern portion of Shelton.
- The Ansonia Substation, located in the west region of Ansonia, distributes power to the municipalities of Ansonia and Derby.
- The Trumbull Substation, located in the southeast region of the Town of Trumbull, distributes power mainly to Trumbull and Shelton and part of Stratford



Figure 1-1
Greater Shelton Area Electric Distribution System



Shelton Area Circuits
By: E. Romero
Date: 11/03/2011

United Illuminating System Integrity



All four distribution substations are interconnected to the transmission network by 115 kilovolt (kV) transmission lines. The existing transmission lines that traverse Shelton are:

- The Connecticut Light and Power Company's (CL&P's) 115 kV overhead transmission lines that extend from the Stevenson Substation in the Town of Monroe to the Devon Switching Station in the City of Milford. These Stevenson – Devon transmission lines traverse north-south through Shelton and are aligned west of and adjacent to the Trap Falls Substation.
- UI's 115 kV overhead transmission lines that extend west from UI's Ansonia Substation and Indian Well Substation and interconnect to the Stevenson – Devon Lines at Derby Junction. Derby Junction, which refers to the point at which these transmission lines interconnect, is located on undeveloped land in central Shelton, north of North Constitution Boulevard.

These area distribution substations, which are interconnected to these 115 kV transmission lines, step down the voltage to 13.8 kV via the substation transformers and then distribute the power to UI's local distribution network, which provides electricity to customers in the Greater Shelton Area. However, Indian Well Substation presently exceeds its firm load serving capability rating (firm rating) during periods of high electric demand. For example, the projected peak electric demand in the summer of 2015 is expected to be approximately 122% of Indian Well Substation's firm rating. For the same period, Trap Falls Substation is projected to be at approximately 94% of its firm rating, Trumbull Substation and Ansonia Substation are projected to be at 87% and 75% of their respective ratings for this same period. The overall Greater Shelton Area is projected to be at approximately 93% of the total area capacity by 2015.

To address the possible risk of overloading the Indian Well substation transformers and mitigate the voltage collapse risk at this substation during high load periods, UI implemented short term operational procedures as well as 13.8 kV distribution load transfers to neighboring substations. Trumbull Substation was energized in 2008 and its primary need was to provide load relief for Trap Falls Substation and Old Town Substation². At the time of the Trumbull Substation site selection and siting process, the recently identified load growth for the Greater Shelton Area were not known.

However, based on the results of the *Capacity Analysis*, UI determined that, even with other electric distribution system improvements, the existing substations in the Greater Shelton Area will not be adequate to meet the area's reliability and growing demands for electricity.

² Old Town Substation is considered outside of the Greater Shelton Area.

As a result, UI determined that a new distribution substation would be needed to meet current and projected electric demands in the Greater Shelton Area. Such a new distribution substation would preferably be located to optimize interconnections to both the existing transmission line infrastructure and the existing electric distribution system, thereby allowing the additional power to be provided to customers efficiently and cost-effectively, while minimizing environmental and social impacts.

1.2 OBJECTIVES OF THE SUBSTATION SITE SELECTION STUDY

After determining that a new substation would be required to meet current and projected electric demands in the Greater Shelton Area, UI identified and evaluated alternative substation configurations and sites that would meet distribution system needs and provide a cost-effective solution for interconnecting to the existing transmission network. The primary objectives of the alternatives evaluation which was performed in accordance with the requirements of the Connecticut Siting Council's *Application Guide: Electric Substation Facility* (April 2010), were to:

- a) Identify and assess potential substation sites that would meet distribution system needs, including distribution substation requirements (size, design), as well as the new or upgraded distribution lines that would be required to interconnect any new substation site to the projected load centers in Shelton.
- b) Evaluate potential substation sites based on engineering, constructability, environmental, social, and cost considerations, applying in particular the criteria contained in UI's *Transmission and Distribution Guideline for Substation Site Selection* (TDG 002; June 2007; refer to Attachment A).
- c) Select from among the locations identified in (a) and (b), potential sites that could be feasibly developed for a distribution substation to meet the overall demands for electricity in Shelton, taking into consideration UI's site selection guidelines.

This *Site Selection Report* describes the approach that was used to apply the site selection guidelines in order to:

- Identify potential candidate sites for the new substations;
- Conduct screening level analyses to review the sites, based on engineering and environmental factors, to identify locations that would address the distribution requirements; and
- Identify a proposed site for the new substation, as well as an alternative site, that would address the distribution capacity issues in Shelton.

2. SUBSTATION SITE IDENTIFICATION AND SELECTION CRITERIA

2.1 STANDARDS AND GUIDELINES

To identify and evaluate alternative sites for a new substation, UI followed its *Transmission and Distribution Guideline for Substation Site Selection (Guideline)*. This *Guideline* describes the standard procedures and criteria to be used in the substation site selection process. Key factors considered in the site selection process include:

- Distance to load centers and to existing electric transmission lines.
- Site size requirements.
- Site terrain.
- Environmental and land use compatibility.
- Substation construction issues.
- Transmission and distribution line construction requirements.
- Accessibility.
- Cost.

To conduct the alternative siting analyses, UI assembled a multi-disciplinary team comprised of personnel with expertise in electrical distribution and transmission system planning, design, and construction; environmental science; and real estate. The team followed a step-by-step process, whereby potential distribution substation locations were first identified and screened in accordance with UI's standard objectives for substation siting. In addition to the factors listed above, the team took into consideration the following guiding principles, as detailed in the *Guideline*:

- Minimize the need to acquire residences and viable commercial/industrial uses to accommodate substation development.
- Maintain consistency/compatibility with existing land uses and land use plans to the extent possible.
- Minimize adverse effects on sensitive environmental resources and the social environment.

- Maintain public health and safety.
- Demonstrate cost-effectiveness, while adhering to good engineering and sound environmental planning practices.
- Present the public with a clear and well documented methodology for the identification of the proposed and alternative sites.

2.2 DISTRIBUTION SYSTEM CONSIDERATIONS IN THE GREATER SHELTON AREA

In order to meet the distribution capacity need in the Greater Shelton Area, UI determined that any new substation should be sited to facilitate interconnections to the existing electric transmission and distribution systems, and particularly to allow cost-effective interconnections to existing and projected load areas. The following primary factors were considered when identifying and assessing potential substation sites:

- Location of potential sites in relation to load growth centers. The *Shelton Area Capacity Analysis* determined that the primary areas of load growth in the Greater Shelton Area are in the southern portion of the City of Shelton and the southeastern portion of the Town of Trumbull, generally in the vicinity of State Route 8 and along the Bridgeport Avenue corridor.
- Location of potential sites in relation to the existing electric distribution network. For distribution interconnections, sites are typically preferred that are near existing distribution lines or in areas where new distribution lines could be economically developed to reach load centers. In certain areas, the development of new distribution lines is constrained by land uses, physical encumbrances or by the presence of other utilities (which can limit options for the routing of either overhead or underground distribution lines).
- Availability of land for development of a distribution substation. The minimum required area for a “distribution only” open air substation, meaning a substation supplied by two transmission lines with one transmission tie circuit breaker, no expansion capability on the transmission side and appropriate buffers and setbacks, is 2 acres.

3. GEOGRAPHICAL SITING REGION AND INITIAL SITE IDENTIFICATION

3.1 GEOGRAPHIC SITING AREA BOUNDARIES

Taking into consideration the overall substation siting *Guidelines*, the locations of the major load growth centers in Shelton, proximity to transmission corridors, and distribution system needs, UI defined the preferred geographic location area for the substation as within an approximately 1-mile-wide corridor along the existing Devon – Stevenson transmission line corridor between Derby Junction and the Trap Falls Substation.

This siting region was selected because the majority of the load growth is expected to be located around this portion of the area. Further, the loads in the Greater Shelton Area diminish rapidly north of Derby Junction and the majority of the load relief is needed at Indian Well Substation and Trap Falls Substation.

3.2 IDENTIFICATION AND SCREENING OF POTENTIAL SITES

Within the geographic siting region, UI conducted map and baseline research, performed field reconnaissance, and consulted with municipal officials to identify a range of potential sites for initial consideration for the development of the new substation. These sites were identified based on the UI *Guidelines* and the distribution capacity need and transmission considerations specific to the Greater Shelton Area, including:

- Greater than or equal to 2 acres of developable land (the estimated minimum size for the development of an open air distribution substation)
- Sites with at least one of the following characteristics:
 - ✓ Land adjacent to the Devon-Stevenson transmission line corridor between Derby Junction and the Trap Falls Substation.
 - ✓ Land owned by UI.
 - ✓ Land that is vacant, available for sale, under-developed (e.g., formerly developed properties that are available for reuse), or otherwise undeveloped.

To aid in the identification of potential sites, UI compiled information on properties within a 1-mile corridor of the Derby Junction – Trap Falls Substation transmission line corridor and conducted preliminary field reconnaissance of potential sites. As a result of these initial analyses, UI identified 36 parcels that appeared to meet some of the siting criteria for the development of a new substation, and therefore warranted review. These sites are identified on the Siting Map in the Map Pocket and listed in the Table B in Attachment B.

UI then qualitatively evaluated this set of potential sites in order to narrow the number of potentially viable candidate sites by taking into further consideration the following factors:

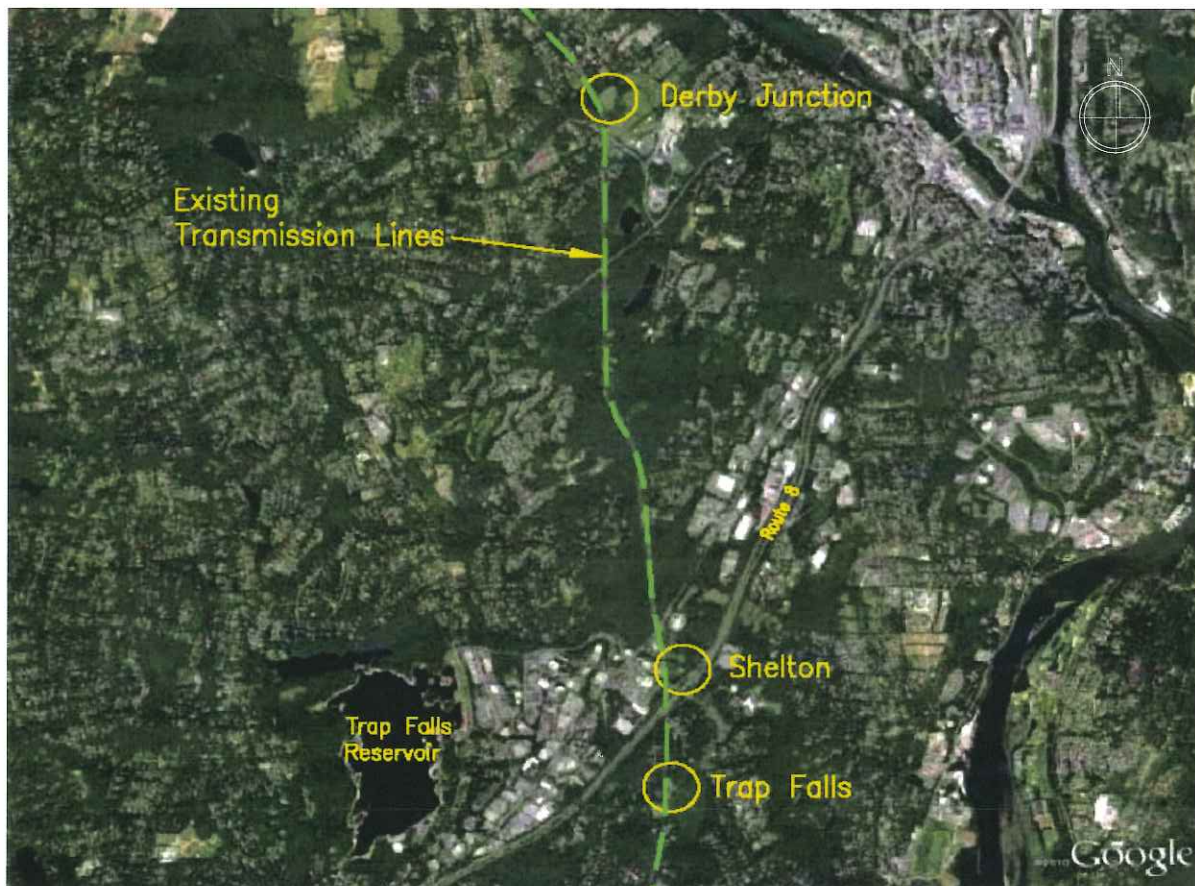
- Environmental – Environmental issues, including site character, present and past land uses of the property, cultural resources, threatened and endangered species, tidal or inland wetlands, ponds, aquifers, watercourses, public watersheds and floodplains, potential need for environmental remediation (for previously developed sites), encumbrances.
- Surroundings – Zoning and description of surrounding area, including proximity to statutory facilities (schools, playgrounds, daycares, nursery schools, day camps, and residential neighborhoods).
- Transmission and Distribution System – System transmission and distribution interconnection costs and other considerations including system impacts, accessibility and right-of-way requirements.
- Construction – Substation construction and vehicular access costs and other related considerations, including the effects of site size, shape, and subsurface/topographical conditions.
- Acreage available – Property availability, additional land for buffer or expansion, expected cost, and availability of easements.
- Permitability – Anticipated ability to obtain all the required siting, land use, environmental and construction permits.

Using this process, most of the initially identified sites were eliminated from further consideration. The reasons for eliminating a particular site varied, and ranged from environmental issues (e.g., presence of wetlands, rock, and insufficient developable area) to the identification of new information regarding alternative development plans for vacant property, etc.

Based on the results of the qualitative screening, the initial set of 36 sites was reduced to a list of three properties.³ These three properties, which are illustrated on Figure 3-1, were evaluated in greater detail:

- Derby Junction 1, Lot 137-116
- Shelton Substation, 14 Old Stratford Rd, Lot 29-8 (UI property)
- Trap Falls Substation Lot 19-9 (UI property)

Figure 3-1
Location of Three Alternative Sites
Source: Google Earth, April 2012



³ A fourth site, located at 801 Bridgeport Avenue, was initially evaluated in more detail as a potential location for the new substation. This site, which encompasses approximately 16.8 acres, was occupied by UI's Electric System Work Center (ESWC). However, in the spring of 2012, UI relocated the ESWC to the Town of Orange. The former ESWC site is expected to be used for commercial / retail development. As a result, 801 Bridgeport Avenue was eliminated as a potentially viable site for the new distribution substation.

4. DETAILED EVALUATION OF ALTERNATIVE SUBSTATION SITES

4.1 DETAILED SITE EVALUATION CRITERIA

For each of the three alternative sites, UI conducted more detailed evaluations, considering substation layouts and estimated costs and assessing each site based on more of the following, more specific siting criteria:

- Property / land issues (e.g., available useable and buffer acreage, site acquisition costs, existing and former land uses).
- Environmental and social / cultural resource factors (e.g., proximity to wetlands and watercourses, vegetative communities, wildlife resources, species of concern, visual resources, archaeological and historic resources, recreational and public resources, among others).
- Surrounding land uses (e.g., distance to the nearest residence and abutting property line, potential visibility of the substation, effect on public health and safety, consistency with local, state, and regional land use plans and future development, effects on transportation and access).
- Electric transmission and distribution system considerations (e.g., length of distribution and / or transmission system interconnections that would be required, consistency with long-range plan for the expansion of UI's electric power system).
- Construction costs.
- Permitability (e.g., identification of any issues that could affect the ability to obtain approvals for substation site development).

As discussed in the following subsections, UI determined that the development of the new substation at the Old Stratford Road site would best meet the project objectives, based on environmental, technical, and economic considerations. The Trap Falls Substation alternative site is less preferable based on cost, constructability, environmental, and land use considerations, but offers a second siting option. In contrast, the Derby Junction site alternative was found to be impractical for the development of the new distribution substation.

4.2 DERBY JUNCTION SITE ALTERNATIVE: ELIMINATED FROM CONSIDERATION

This undeveloped 5.2-acre site (Lot 137-116) is located at the north of the end of North Constitution Boulevard, at the intersection of CL&P's 115 kV overhead Stevenson – Devon transmission line and UI's 115 kV Derby – Ansonia overhead transmission lines (refer to Figure 4-1). As a result of its location at the intersection of these major transmission lines, the development of a distribution substation at this site would provide the opportunity to connect to and, in the future, sectionalize multiple transmission lines, and thereby substantially increase UI's customer reliability in the Shelton, Ansonia, Derby and Orange areas. Further, the site is set back from roads and houses and could be screened to minimize or avoid visual and noise effects. New distribution circuits would have to be constructed along North Constitution Boulevard and Shelton Avenue.

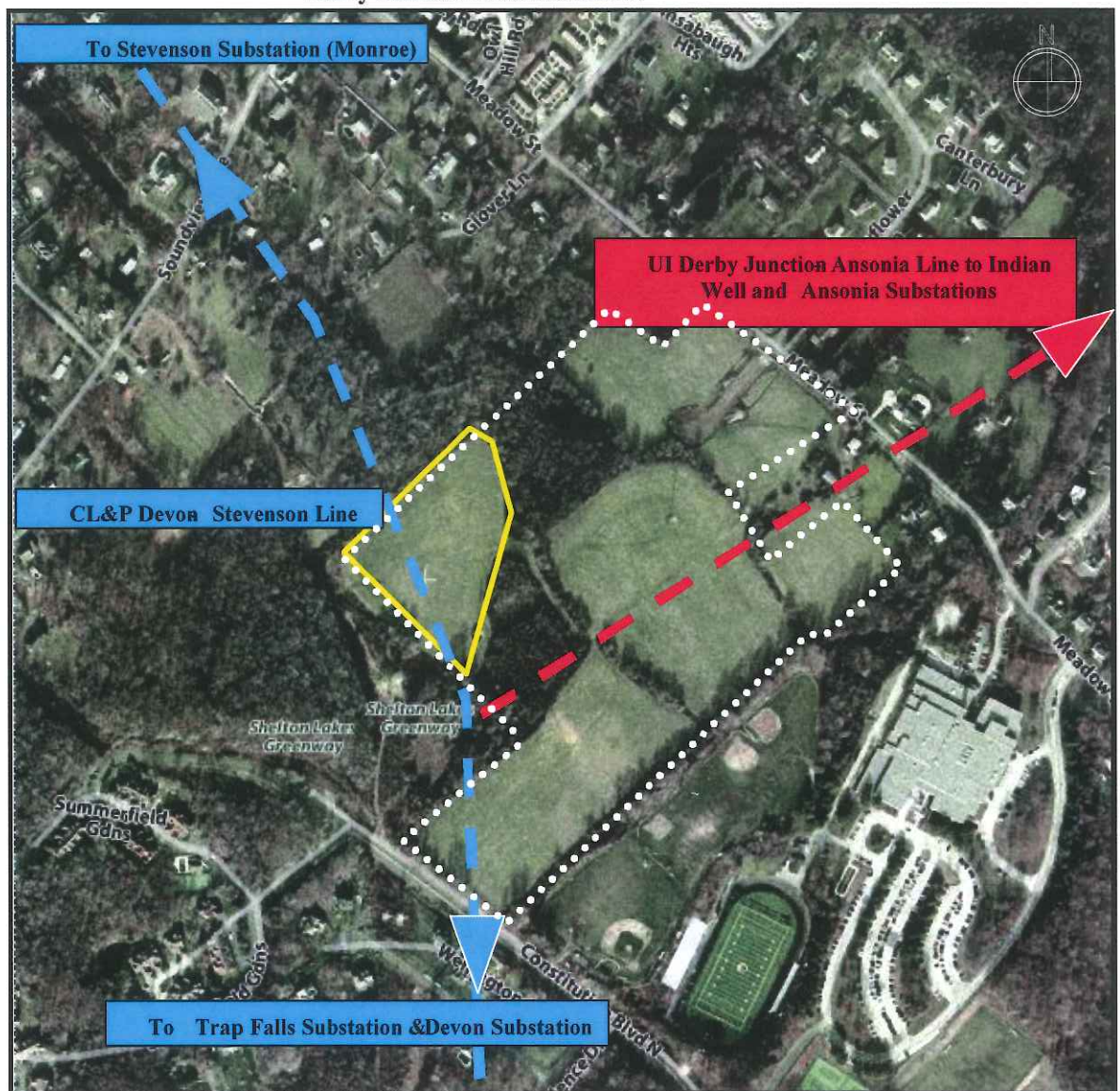
However, the site is within a 40.3-acre property owned by the City of Shelton and identified as conserved open space. The property is characterized by old field vegetation, bordered by forest lands and wetlands. In addition, the site is just to the east of the Summerfield Gardens residential area (townhouses) and is located approximately 0.2 mile to the northwest of Shelton High School. The site is separated from the high school by the City's open space, with associated wooded buffer areas, as well as the school playing fields (e.g., softball, track).

Although Derby Junction would offer benefits in terms of transmission system interconnections, the development of a substation on this municipal open space would not be consistent with UI's objectives for minimizing adverse environmental effects to the extent possible and would not necessarily be consistent with the City of Shelton's land use plans, especially in consideration of other apparent feasible sites that do not introduce these concerns. In addition, the distribution lines that would have to extend from the Derby Junction site would be difficult and costly to construct.

While a substation at this site can supply relatively easily the residential load in the northern section of Shelton to relieve Indian Well Substation, the challenge is to deliver the available capacity to the Bridgeport Avenue area to relieve Trap Falls Substation in the southern part of the City. This would be difficult since there are limited north-south roads with existing overhead mainline construction close to the Derby Junction site.

These factors contributed to UI's determination that the use of Derby Junction for a new distribution substation would not be preferable. If the Derby Junction site is required for a future UI 115 kV transmission facility or a 115/13.8 kV substation, the site may be reconsidered at a later date, pending the specific future need and further analyses of construction costs associated with the development of facilities at this location.

**Figure 4-1
Derby Junction Site Alternative**



4.3 TRAP FALLS SUBSTATION SITE ALTERNATIVE

This alternative site, which is owned by UI, is located in the southern portion of the City of Shelton, near the Stratford boundary, and is immediately adjacent to UI's existing Trap Falls Substation at 102 Armstrong Road (refer to Figure 4-2). The Devon – Derby Junction transmission lines abut the site on the west. Forested vegetation screens the site from residential areas located to the north and east, whereas Armstrong Road forms the southern boundary of the site. A cranberry bog is located across Armstrong Road in Stratford. The characteristics of the Trap Falls Substation site alternative with respect to the development of the new substation are described below and summarized in Table 4-1.

In the general vicinity of the site, single-family residences border Armstrong Road and also characterize areas to the north of the substation (i.e., residential subdivisions along Daybreak Lane and Partridge Lane). Areas farther to the west along Armstrong Road, near the intersection with Bridgeport Avenue, are developed as office parks and for various commercial / retail uses. The site is zoned for Planned Residential District (PDR-23) and is surrounded by residentially-zoned land.

The availability of land for the development of new substation facilities adjacent to the existing Trap Falls Substation is constrained by the presence of the existing CL&P transmission line corridor, relatively steep topography (with rock outcrops), and existing residential areas. As a result, a new substation at this location would have to be developed within an approximately 2.5-acre site situated adjacent to and northeast of the existing substation (refer to Figure 4-2).

The development of the new substation at the Trap Falls site would have a number of attributes, including general proximity to the load centers in southern Shelton. Other benefits include the site's current UI ownership, existing use as a substation, location next to the Devon – Derby Junction transmission lines, and the availability of land.

Although the existing substation site is buffered from nearby land uses by the existing transmission line corridor and forest lands, several residential areas are located to the northwest and northeast of the substation, and residential areas also border Armstrong Road, principally to the east of the substation. In addition, a new ductline and splicing chamber system would have to be constructed from the substation to interconnect new electric distribution lines to existing lines.

Such distribution infrastructure would likely have to be aligned underground along Armstrong Road toward Old Stratford Road. A new underground ductline could be constructed on Armstrong Road

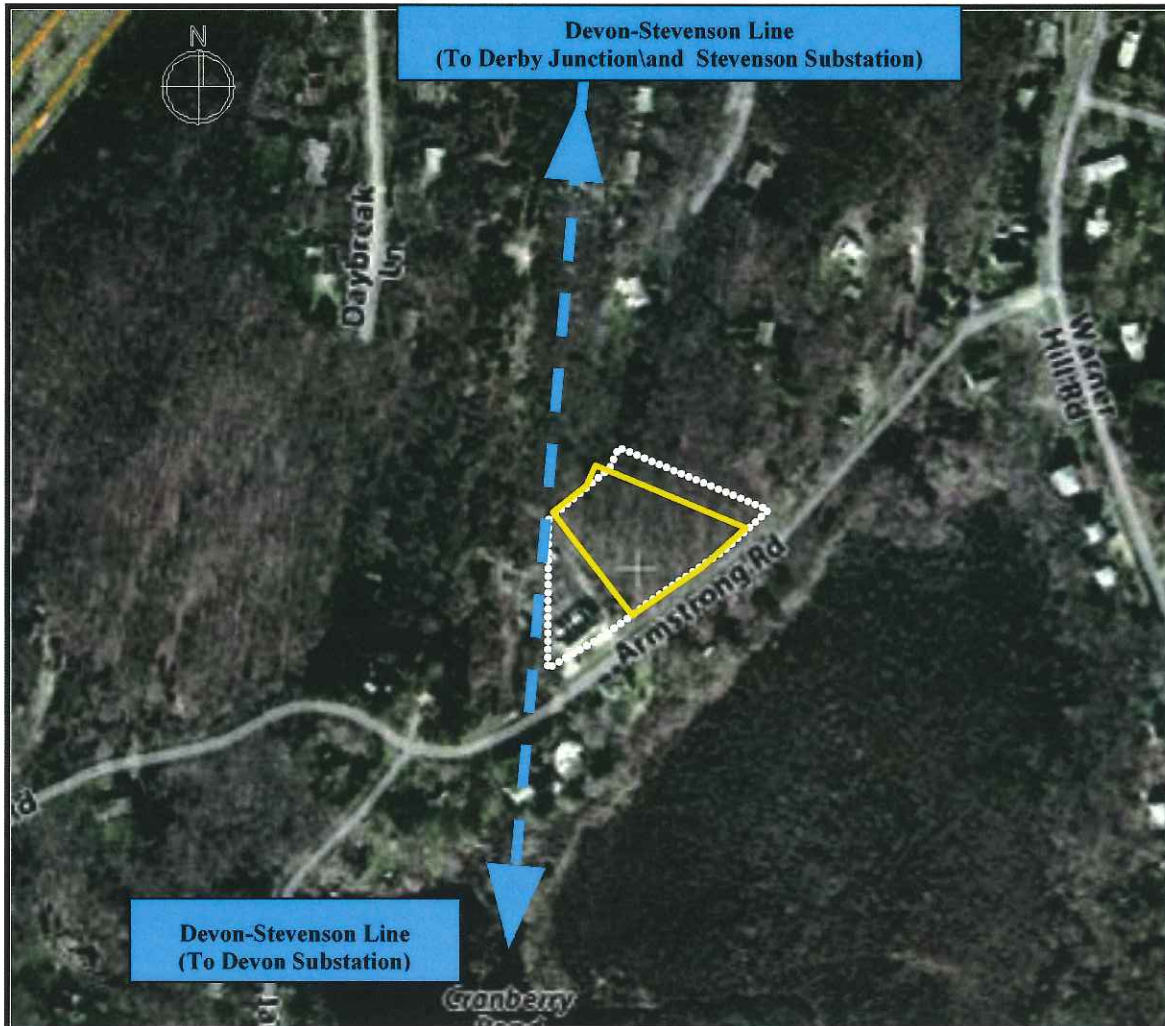
toward Old Stratford Road to accommodate the capacity of a two-transformer substation after relocation of a water main and modification to the existing ductline. However, due to the number of existing underground utilities within Armstrong Road, an additional, third ductline could not be accommodated within the road for expansion to a three-transformer substation. Instead, the additional ductline would have to be aligned from the northern portion of the new substation, north toward either Daybreak Lane or Partridge Lane. The development of the ductline along such a new ROW would involve the acquisition of land rights.

Due to the relatively steep topography of the site and the abundance of rock, the development of the new substation at this alternative location would require extensive preparation work, including blasting, drilling, and grading, to level the site for the safe installation of the new substation facilities.⁴

Overall, UI's analyses determined that the new distribution substation could be developed at the Trap Falls Substation site, but that this option poses challenges that make it less preferable than the use of the preferred Old Stratford Road site. However, the need for extensive site preparation work at this site and the lack of space for additional underground infrastructure on Armstrong Road for future expandability of distribution lines from the substation, coupled with the constraints posed by the relatively small size of the site, make this site alternative less attractive than the preferred Old Stratford Road site.

⁴ Based on preliminary analyses conducted in 2012, UI's engineering consultant (Black & Veatch) estimated site preparation costs of approximately \$4.9 million for the Trap Falls Substation site.

Figure 4-2
Trap Falls Substation Site Alternative



**Table 4-1
Trap Falls Site Evaluation Summary**

CRITERIA	KEY CHARACTERISTICS
Costs, including Substation, Transmission and Distribution	<p><u>Estimated costs (\$ millions)</u></p> <ul style="list-style-type: none"> • Substation with two transformers \$35.8 • Overhead transmission lines \$0.0 • <u>Distribution circuits</u> \$12.25 • Total \$48.05
Site layout	<ul style="list-style-type: none"> • Supports open air substation design. • Direct interconnection to Stevenson – Devon transmission line.
Environment	<ul style="list-style-type: none"> • No designated wetlands mapped on site. • CTDEEP NDDB designated areas in vicinity.
Surroundings	<ul style="list-style-type: none"> • Adjacent residential uses. • Commercial uses farther to west, near Bridgeport Avenue. • Cranberry bog (wetland) to south of Armstrong Road in Stratford. • Stevenson-Devon transmission line along western boundary. • 60 feet south to nearest residence. • 216 feet to next nearest residence to the west. • Limited visual screening potential. • Road is narrow with a sharp blind corner near substation. • Limited available setback from Armstrong Road and residences.
Transmission system	<ul style="list-style-type: none"> • Adjacent to existing Stevenson – Devon 115 kV corridor • No transmission line required for interconnection
Distribution system	<ul style="list-style-type: none"> • Approximately 9,850 ft. of new ductline, 19 new splicing chambers, and 57,200 feet of distribution circuit cable is required for initial 39 MVA of capacity. Approximately 7,000 feet from load center. Existing utilities in Armstrong Road pose issues regarding underground distribution line locations for future capacity expandability at this site.
Land	<ul style="list-style-type: none"> • Approximately 2.5 acres provides ability for future distribution capacity additions, however is unable to accommodate future expansion of transmission infrastructure. • Owned by UI • Site zoned for PRD-23 use and surrounded by residentially-zoned areas • Existing land uses in immediate vicinity are undeveloped forest land, residential areas, and the cranberry bog

4.4 PREFERRED SITE: 14 OLD STRATFORD ROAD

This UI-owned site, which encompasses approximately 6 acres, was formerly developed for industrial purposes (a metal finishing plant). The property is currently vacant, zoned for Office Park District (OPD) with a Special Development Area (SDA) overlay use, and is fenced. Public utility substations are a permitted use in the OPD under Section 23 of the *Zoning Regulations of the City of Shelton, Connecticut (amended August 1, 2011)*. UI presently uses portions of the property for staging equipment and vehicles used in vegetation maintenance activities along its distribution and transmission lines.

The Devon – Derby Junction transmission lines traverse the western portion of the site, which is bordered to the east by the Far Mill River and agricultural areas, to the south by State Route 8, to the west by Old Stratford Road, and to the north by Pootatuck Place and commercial uses, including a gas station, convenience store, and hotel (refer to Figure 4-3).

The property has a long industrial history, and is undergoing environmental remediation. The previous site owner coordinated the remediation work with the Connecticut Department of Energy and Environmental Protection (CT DEEP). This remediation activity is confined to the treatment of ground water for chlorinated solvent pollution; groundwater monitoring wells associated with the remediation effort are located principally on the northeastern portion of the property.

The development of a 115/13.8 kV distribution substation at this site would be consistent with the former use of the property for industrial purposes. For the substation development, UI would use an approximately 2-acre portion of the 6-acre site. Specifically, the new substation would be developed on the western portion of the site, adjacent to the CL&P transmission lines.

The substation development would be compatible with (and would not conflict with) the current remediation of groundwater contamination at the site. The site size and location adjacent to the Devon – Derby Junction transmission lines would allow the development of a cost-effective open air substation design. Further, the site is relatively close to the load growth pockets in the southern portion of the city, and thus distribution line interconnection costs and impacts would be minimized. Underground distribution infrastructure congestion is not an issue at the Old Stratford Road site since there are currently no UI underground distribution facilities installed on Old Stratford Road.

Portions of the site encompass the floodplain and floodway of the Far Mill River. The floodplain boundaries (both 100- and 500-year), as designated by the Federal Emergency Management Agency (FEMA), extend into the Old Stratford Road site. Portions of these FEMA-designated floodplains would be within areas that would be developed for the substation. The FEMA-designated floodway of the river extends along the northern boundary of the site, along and directly adjacent to the river. UI could design the new substation to avoid impacts to flood storage capacity.

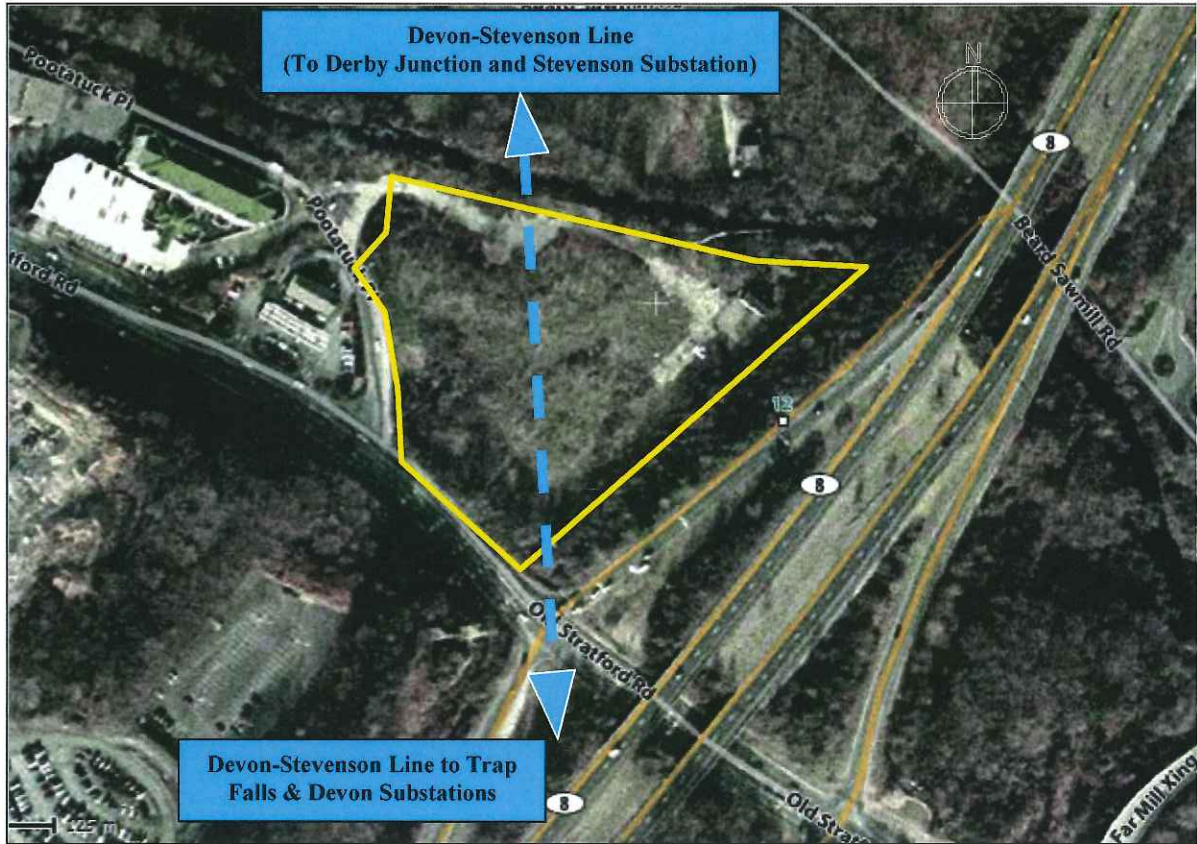
No locations of state or federally listed threatened, endangered, or species of concern are located near the site, based on the review of CT DEEP NDDDB data and on consultations directly with the CT DEEP.

UI selected the 14 Old Stratford Road property as the preferred site for the new substation due primarily to the following factors:

- The site provides the lowest evaluated cost option.
- The site offers favorable set-back and visual screening potential, and is located adjacent to the State Route 8 corridor. Although located near the major distribution load centers and near commercial areas, the site is relatively isolated.
- The site is located directly along the existing 115 kV transmission ROW.
- The site is a former industrial property that is presently vacant and therefore underutilized. The development of this site for a substation would effectively re-adapt this brownfield site for productive use and therefore enhance its property value.

Table 4-2 summarizes the characteristics of the substation development at the Old Stratford Road Site.

Figure 4-3
14 Old Stratford Road: Preferred Site



**Table 4-2
Old Stratford Road Site Evaluation Summary**

CRITERIA	KEY CHARACTERISTICS
Costs, including Substation, Transmission and Distribution	<p><u>Estimated costs (\$ millions)</u></p> <ul style="list-style-type: none"> • Substation with two transformers \$33.1 • Overhead transmission lines \$0.0 • <u>Distribution circuits</u> \$7.04 • Total \$38.3
Site layout	<ul style="list-style-type: none"> • Supports open air substation design. • Uses approximately 2 acres of 6-acre site • Abuts with direct interconnection to Stevenson – Devon transmission line. • Design can accommodate floodplain management requirements
Environment	<ul style="list-style-type: none"> • Former industrial site requiring remediation, currently under study. • Adaptive reuse potential. • Far Mill River along northern site boundary; FEMA-designated 100- and 500-year floodplain boundaries extend into the property; FEMA-designated floodway along river • No CTDEEP NDDB designated areas in vicinity.
Surroundings	<ul style="list-style-type: none"> • Commercial land uses along Old Stratford Road; agricultural areas to north • Bordered and buffered by State Route 8 to the south / east. • Far Mill River and wooded riparian corridor to the north, bordered by agricultural land • Visual screening afforded by existing transmission line and forested buffers.
Transmission system	<ul style="list-style-type: none"> • Adjacent to existing Stevenson – Devon 115 kV corridor. • Good location for transmission interconnections and improved system reliability.
Distribution system	<ul style="list-style-type: none"> • Approximately 3,000 feet from load center • Approximately 2,800 ft. of new ductline, 10 new splicing chambers and 38,800 feet of distribution circuit cable is required for initial 36 MVA of capacity.
Land	<ul style="list-style-type: none"> • Approximately 6 acres provides ability to use site for future distribution capacity and transmission infrastructure additions. • Site zoned for OPD / SDA overlay use, consistent with utility use.

5. CONCLUSIONS

UI conducted a comprehensive alternatives evaluation process first to identify potential sites for the new distribution substation in the project area and then to assess each site based on established site selection criteria. As a result of these alternatives analyses, 14 Old Stratford Road in Shelton was selected as the preferred site for the new 115/13.8 kV Substation in the Greater Shelton Area.

The Old Stratford Road site represents the least-cost option for the development of the new Shelton Substation. The UI-owned site is located near the Greater Shelton Area's major distribution load centers, and is optimally located directly along CL&P's existing 115 kV transmission line ROW. Further, the site is a brownfield property, which would be returned to productive economic use with the development of the new substation.

The Trap Falls Substation represents a feasible, but less preferable, alternative to the Old Stratford Road site. Although also owned by UI and adjacent to the 115 kV transmission line, the Trap Falls Substation site would be more costly to develop and would require longer new distribution lines to interconnect to UI's existing distribution line network since the site is also farther from the load center than the Old Stratford Road site. Furthermore, construction of additional underground distribution infrastructure on Armstrong Road to support future capacity expansion represents a challenge since this road is already congested.



ATTACHMENT A

**Transmission and Distribution Guideline for Substation Site Selection
(TDG 002)**

Transmission & Distribution Guideline

for

Substation Site Selection

TDG 002

Transmission and Distribution Engineering Department

The United Illuminating Company

June 8, 2007

Revision 1

SUBSTATION SITE SELECTION GUIDELINE

I GENERAL

This guideline applies to The United Illuminating Company's internal procedures for identification, evaluation, and selection of proposed and alternative sites for substations. The process of identifying, evaluating, and ultimately selecting a substation site should be project-specific, with appropriate input and participation by a team of participants representing Transmission Engineering, Substation Engineering, System Integrity, Transmission Asset Planning, Real Estate, Operations, Maintenance, Construction and Environmental Management (Siting Team). In addition to the company's internal procedures, public and agency input on potentially feasible sites also is solicited through the Connecticut Siting Council's (CSC's) municipal consultation and application processes.

This guideline, which addresses the company's internal substation siting procedures, defines the preferred process through which site selection is made, and the criteria upon which site selection is based. The site selection criteria includes, among other topics: distance to load centers, distance to interconnecting transmission lines, description of surrounding areas, site size requirements, site terrain, environmental and land use compatibility, substation construction, transmission and distribution line construction, access, and costs. This guideline is intended as a summary of the preferred process for identifying and analyzing sites for new substations and is intended for use in assisting the preparation of requisite documentation for the Connecticut Siting Council application process, including municipal consultation and other potential regulatory siting reviews as may be applicable. Specific project requirements or constraints may dictate that alternate or modified methods be used for certain substation siting projects.

II GUIDING PRINCIPALS

UI is committed to maintaining or improving the reliability and operability of the electric system while recognizing its responsibility to locate, construct and operate its facilities in an environmentally responsible manner consistent with the spirit, as well as the express provisions of all applicable regulations. Therefore, UI has developed and endorses the following guiding principals for siting its facilities:

- i. Minimize the need to acquire residences and viable commercial/industrial uses to accommodate substation development
- ii. Maintain consistency/compatibility with existing land uses and land use plans to the extent possible
- iii. Minimize adverse effects on sensitive environmental resources and the social environment
- iv. Maintain public health and safety

- v. Demonstrate cost-effectiveness, while adhering to good engineering and sound environmental planning practices.
- vi. Present the public with a clear and well documented methodology for the identification of the proposed and alternate sites.

II SITE SELECTION PROCESS OVERVIEW

A summary of the site selection process is shown in Figure 1 and described in the following sections.

Task 1 - Define Substation Need – The Statement of Need for the substation provides the basis for the site selection process and is the foundation document for the development, design and presentation of any substation project. Need is determined by system analyses and can be due to numerous electrical system issues but is typically based on requirements associated with system reliability and/or load growth. The Statement of Need, along with a description of the analyses conducted and the system alternatives considered that led to the determination that a substation is the preferred solution, is typically summarized in a separate document that is suitable for inclusion in CSC submissions.

The Statement of Need should define the geographical region (“Siting Region”) where a substation is required. The Siting Region is determined by proximity to the load that is intended to be served, existing or planned transmission and distribution lines, system access considerations and cost. UI System Integrity should begin this process by identifying one or more general geographical areas within which the new substation can provide the necessary system support. Multiple Siting Regions may be used to focus substation siting around a particular load center. Where more than one Siting Region is designated, the evaluation of transmission costs and access considerations should permit the identification of a single, preferred Siting Region. The weight of transmission costs and access considerations may also result in the adjustment of the size and shape of the Siting Region identified by System Integrity. If changes are made, the resulting Siting Region(s) should be reviewed with System Integrity prior to proceeding with the identification of possible sites.

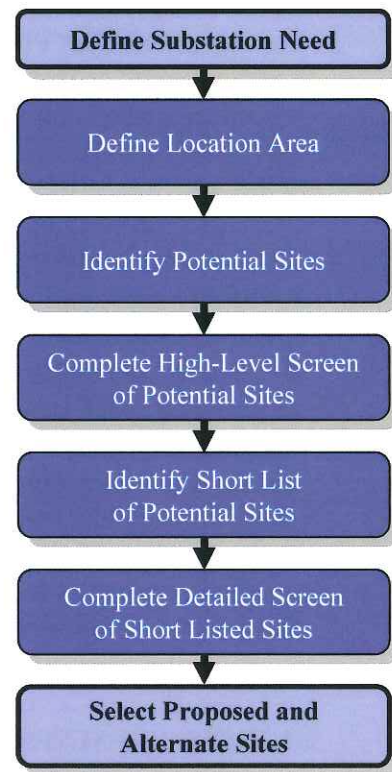


Figure 1
Site Selection Process

Task 2 - Define Location Area – The substation location must be located within reasonable proximity to the distribution load center identified in the Statement of Need and, preferably, adjacent to a transmission line. Increased distance from the interconnections typically has the detrimental impacts of: increased costs (due to the cost of constructing a tie-line), increased environmental impact (from visual, land and other impacts associated with the tie-lines, even if the line is underground), and reduced reliability and increased maintenance costs (due to increased length of line exposed to failures and damage). Figure 2 provides a representation of a potential Substation Location Area within a Siting Region (cross-hatched area on either side of the transmission line and surrounding the load center).

The desirability of locating a substation near a transmission line must be balanced against locational impacts associated with the other substation siting criteria. The width of the Location Area is determined on a project-specific basis, taking into consideration factors such as environmental constraints, land availability, development, and similar factors that may affect the identification of potential candidate sites. An initial Location Area typically

may range in width from one-half mile to one mile on either side of the transmission line and around the load center. However, this width may be modified during the siting process, depending on the number of potential sites initially identified or anticipated to be available within the Location Area. In addition, sites adjacent to and beyond the Location Area may be considered in the process, depending on the beneficial characteristics of these sites relative to other sites identified within the Location Area.

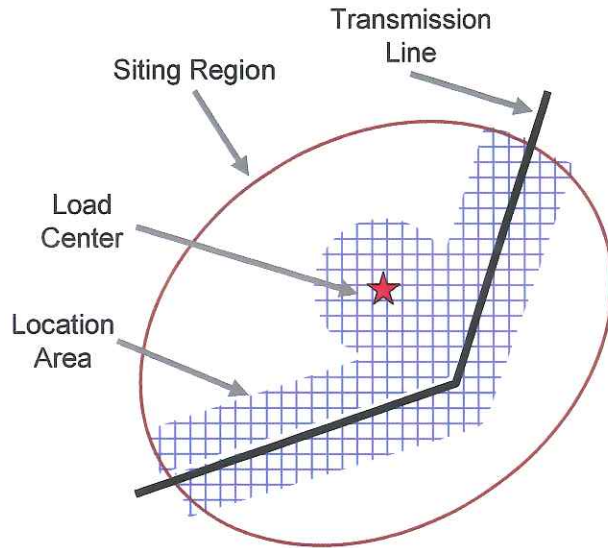


Figure 2
Location Area

Task 3 - Identify Potential Sites – The identification of potential sites within the Location Area should follow a three-step, sub-process:

i. Define Substation Land Area (acreage) Requirements

The anticipated amount of land (acreage) required for the substation must be defined. The substation land area used in the site selection process and may reflect any future plans for substation expansion. A one-line diagram indicating the anticipated design of the substation should be developed by UI Substation & Transmission Engineering. The diagram should include the possible future addition of transformers, 13.8-kV buses, 115-kV bus and breakers, transmission and substation capacitors, transmission

line terminations, etc. The one-line diagram should be reviewed and approved by, Substation & Transmission Engineering, Transmission Asset Planning, System Integrity, Operations, Maintenance and Construction. From this approved one-line diagram, one or more preliminary substation layouts should be developed and provided to aid in the identification of possible sites. The substation layouts should reflect the minimum required property for access, maintenance, replacement of equipment, and mobile transformer transport and connection. The required land area should consider sufficient land to allow vegetative screening of the substation. The specific physical characteristics of the site, access considerations and property line setbacks required by zoning may increase substation land requirements on a site-specific basis. Zoning setback requirements within each portion of the geographical site selection area may be determined from applicable town/city planning and zoning documents. Though UI is not required to adhere to local zoning requirements, UI prefers to accommodate local zoning ordinances when practicable, consistent with the guiding principals.

ii. Create Composite Map

To aid in the identification of a range of potential sites, a composite map of the Siting Region should be prepared, using available town/city maps, which delineate the boundaries of all land parcels within the Location Area. Also, to aid in the identification and evaluation of possible sites, the following features should be superimposed on this composite map: tidal and inland wetlands, ponds, lakes, watercourses, large hills, ridges and other significant topographical features, flood plains and land use zones from town/city zoning regulations. This information is available from various town/city, state and federal government sources. The identification of land use areas, such as industrial sites, business parks, shopping centers, schools, parks, playgrounds, hospitals, nursery schools, day-camps, churches, designated open space, residential neighborhoods, and condominiums/apartment complexes, would also be advantageous. Large scale aerial photographs and topographic maps of the site selection area also facilitate the potential site identification process.

iii. Identification of Potential Sites

Potential sites should be identified using the information from the composite map, region and site inspections and, suitable reductions of possible substation layouts. The Siting Team should identify one or more contiguous parcels of land which provide the designated site size located within the Siting Region, which are vacant or otherwise not presently being utilized. Because of the large land area of some sites identified in this manner, and the varying economic and other factors related to specific location within these sites, the proposed and alternate substation locations within these larger sites should also be identified for evaluation. The possible effect of town/city zoning property line setbacks may also be considered in the potential site identification process.

Based on the analysis of the composite map, a list of possible alternative site locations, sizes and property owners should be prepared. The number of potential sites identified may vary from project to project but a reasonable target would be to identify from 5 to 15 potential sites for further review.

iv. Third Party Input

Though the local municipality will have an opportunity to review and comment on UI's proposed and alternate sites during the formal municipal consultation period preceding the filing of an application to the CSC, local input from the municipality and regional planning organization (RPA) should be sought in order to further refine the list of potential sites. This step benefits the site selection process in two ways 1) by possibly alerting the site selection team to unknown potential sites, or 2) giving the site selection team a leading indication of sites or areas that the municipality would want removed from consideration. NOTE: no input from the municipality or RPA should take place unless or until the senior elected official of the municipality, or their representative, has been briefed by UI, following approval of the UI Project Executive Sponsor(s).

Task 4 – Complete High-Level Screen of Potential Sites – A high-level qualitative evaluation of the significant considerations for each potential site should be performed. Consideration should be given to evaluating each of the following criteria; additional or alternative criteria may also be used:

- i. Environmental – Environmental issues including site character, present and past land uses of the property, cultural resources, threatened and endangered species, tidal or inland wetlands, ponds, aquifers, watercourses, public watersheds and floodplains.
- ii. Surroundings – Zoning and description of surrounding area, including proximity to residential areas, private or public schools, licensed day care facilities, licensed youth camps or public playgrounds.
- iii. T&D System – System transmission and distribution interconnection costs and other considerations including system impacts, access problems and right-of-way requirements.
- iv. Construction – Substation construction and vehicular access costs and other related considerations including the effects of site size and shape, topographical factors, present land uses, floodplain and zoning requirements, potential environmental remediation, and encumbrances.
- v. Land – Property availability, additional land for buffer or expansion, expected cost, and availability of easements.
- vi. Permitability – Anticipated ability to obtain all the required siting, land use, environmental and construction permits.

For this preliminary screening step, a high-level, qualitative evaluation should be completed for each criterion and for each site. A matrix presenting the results of this evaluation should be developed similar to the one shown in Figure 3. A suggested scoring to summarize the conclusions of the site evaluations is shown below:

- = Favorable evaluation
- ◐ = Neutral or average evaluation
- = Unfavorable evaluation

	Site 1	Site 2	Site 3	Site 4
Environmental				
Surroundings				
System				
Construction				
Land				
Permitability				
Overall Score				

Figure 3
Evaluation Matrix

Task 5 – Identify Short List of Potential Sites – Using the results of the High-Level Screen in Task 4 and the Evaluation Matrix, the Siting Team should identify 3 to 5 potentially feasible sites for the more detailed review described in Task 6. The primary factors that eliminate the non-short-listed sites from further consideration should be summarized and documented. The evaluation matrix of Task 4 is a tool used to assist in the organization and evaluation of broad and varied data. The results of the evaluation matrix should be used as an input to the ultimate selection of the proposed and alternate site and not be considered as the definitive selection.

Task 6 – Complete Detailed Evaluation of Short-Listed Sites – The detailed evaluation of the short-listed sites should follow a two-step, sub-process:

i. Estimate Site Layouts and Costs

To facilitate a more detailed evaluation of each of the short-listed sites, a general drawing, of suitable scale showing the proposed substation should be prepared for each identified site and alternate location identified within that site. Preferred or existing Substation access right-of-way for vehicles, transmission, and distribution should be shown. All identified site factors affecting permitting, temporary construction access, permanent access and site purchase should also be clearly indicated on the drawing. The costs for substation construction and

vehicular access associated with site size, shape, access, topography, site preparation, anticipated soil conditions, potential environmental remediation and known encumbrances should be derived for each site with the assistance of members of the Siting Team, as appropriate. Significant qualitative factors pertaining to substation construction and site access should be identified. To facilitate a comparison of the costs associated with individual sites, one substation site should be chosen as a reference site, and differential costs relative to that site developed for the remaining sites.

ii. Evaluate Detailed Siting Criteria

In this detailed analysis of the short-listed sites, consideration should be given to evaluating each of the following criteria; additional or alternative criteria may also be used:

A. Environmental Concerns

- a. Federal and state jurisdictional wetlands and other water resources and public drinking water supply areas
- b. Plant communities/vegetation
- c. Wildlife and aquatic resources
- d. Threatened, endangered and other species of concern
- e. Recreational and public resources (e.g., forests, parks, public lands, hunting and wildlife management areas)
- f. Visual resources
- g. Archaeological or geological areas of interest
- h. Noise
- i. Floodplains
- j. Water quality and storm water
- k. Historic areas
- l. Proximity to areas regulated under the Coastal Zone Management Act or Tidal Wetlands Act

B. Surroundings

- a. Distance to nearest residence and nearest abutting property line
- b. Visibility of substation
- c. Distance to residential areas, private or public schools, licensed day care facilities, licensed youth camps or public playgrounds or other potential sensitive receptors
- d. Effect on cultural and historic resources
- e. Effect on public health and safety
- f. Effect on local, state, federal land use plans, including existing and future development
- g. Effect on roads (e.g., traffic patterns, access for construction and maintenance)

- C. System
 - a. Length of interconnection to transmission
 - b. Length of interconnection to distribution
 - c. How does the facility conform to the long-range plan for the expansion of the electric power grid serving the state and interconnected utility systems to meet the public need for adequate, reliable, economic service?
 - d. How is the proposal consistent with the Siting Council’s annual forecast reports and life-cycle cost analysis?

- D. Construction
 - a. Comparative construction costs of alternatives considered

- E. Land
 - a. Available usable acreage
 - b. Available buffer acreage
 - c. Cost of site
 - d. Cost of rights-of-way and access-way
 - e. Current land use of site and surrounding area
 - f. Zoning
 - g. Available easements
 - h. Former land use

- F. Permitability (i.e., are there red flags or fatal flaws associated with the anticipated ability to permit the site?)

For this step, an evaluation should be considered for all the criteria elements listed above for each site. A matrix presenting the results of this evaluation for each site should be developed similar to the one shown in Figure 3, but with the expanded detail as noted in the list of criteria above. An attempt should be made to evaluate each criterion using quantitative metrics where they are appropriate and can be estimated. A suggested rating scale to summarize the conclusions of the site evaluations is shown below.

- = Favorable evaluation
- = Better than neutral or average evaluation
- = Neutral or average evaluation
- = Less than neutral or average evaluation
- = Unfavorable evaluation

Task 7 – Select Proposed and Alternate Sites – The proposed site and an alternate site should be selected based on the results of the detailed analysis and the decision matrix completed in Task 6. The evaluation tool of Task 6 is used to assist in the organization

and evaluation of broad and varied data. The results of the evaluation matrix should be used as an input to the selection of the proposed and alternate sites and not be considered as the definitive selection, though the Siting Team should be mindful that the selection of the proposed and alternate sites must adhere to Connecticut Siting Council (CSC) requirement that UI justify its proposed site through “a comparison with alternative sites which are environmentally, technically, and economically practicable.” Should the Siting Team recommend a proposed and/or alternate site that did not rank as favorably as other potential sites using this method, there must be a compelling and defensible reason for this recommendation.

Task 8 – Document Site Selection Study in a Report - A written report documenting the site selection process and the justification for the proposed and alternate sites should be prepared for the review and approval of the Siting Team. The report should provide a list and an estimated schedule for securing the expected Federal, State and local permits needed for the project. The site selection report documenting this analysis will form a portion of the CSC application and will also be provided to the municipality during the municipal consultation phase.



ATTACHMENT B

REVIEW OF SUBSTATION SITES AND SITE SCREENING

Screening Criteria Summary

To evaluate the feasibility of developing the substation at each of the 36 sites initially identified (refer to list in Table B-1 and to the map in the Map Pocket that shows general site locations), UI performed a high-level, qualitative screening of each property. The high-level screening consisted of first assessing each site to determine whether any characteristics posed constraints that would immediately eliminate the location from consideration for the development of the substation. Such constraints included, among others:

- Lack of adequate developable land (e.g., due to the presence of steep slopes, rock outcrops, or wetlands, which limited the amount of land available for development within a parcel).
- Sale of the site for other uses during the course of the study
- Privately-owned land that could not be acquired.

The screening consisted of reviewing each site based on constructability (including land availability, lot size and shape, topography and access); ability to meet UI's transmission and distribution system objectives; and potential for minimizing adverse environmental and social effects related to the site and its surroundings. If the screening analyses revealed a fatal flaw, the site was eliminated from further consideration for the development of the substation.

Based on the screening analyses, UI identified four sites that initially appeared feasible for the development of the new substation:

- Derby Junction
- Trap Falls Substation (UI property)
- 14 Old Stratford Road (UI property)
- 801 Bridgeport Avenue (was UI property, eliminated from consideration pending sale for commercial type use)

Table B-1
List of Potential Substation Sites, by Name, Lot Address, and Initial Selection Criteria

Site No.*	Undeveloped Sites Adjacent to the Derby Junction –Trap Falls Substation Transmission Line	Sites Owned by UI	Sites Initially Identified as Available for Development; Not Adjacent to Derby Junction – Trap Falls Substation Transmission Line
1	Derby Junction 1, Lot 137-116		
2	Derby Junction 2, Lot 126-29		
3	Beard Sawmill Rd, Lot 29-3		
4	Bridgeport Ave, Lot 39-17		
5		14 Old Stratford Rd, Lot 29-8	
6		Trap Falls Substation Lot 19-9	
7	Bridgeport Ave Rd. Lot 50-9		
8	Kings Highway Lot 76-1		
9	John Dominick Dr, Lot 76-2		
10	Buddington Rd. Lot 75-2		
11	Buddington Rd. Lot 75-3		
12	Oak Valley Rd. extension Lot 89-20		
13	Oak Valley Rd. extension Lot 90-9		
14	Nells Rd. Rd, Lot 90-7		
15	234 Shelton Ave, Lot 115-1		
16	Shelton Ave. Lot 103-1		
17	Willoughby Rd. Lot 114-46		
18	Independence Dr, Lot 114-75		
19	279 Soundview Ave, Lot 136-23		
20		801 Bridgeport Ave.,18**	
21			Shelton Ave, Lot 102-38
22			71 Long Hill Cross Rd, Lot 51-7
23			Bridgeport Ave, Lot 50-15
24			8 Forest Parkway, Lot 51-18
25			15 Forest Parkway, Lot 63-35
26			28 Platt Rd, Lot 63-33
27			Waterview Dr, Lots 65-27 & 28
28			561 Bridgeport Ave, Lot 50-10
29			74 Todd Rd, Lot 63-22
30			Long Hill Cross Rd, Lot 51-29
31			Long Hill Cross Rd, Lot 51-13
32			Cots St, Lots 91-29, 104-25 & 28 to 31
33			Beard Sawmill Rd, Lots 29-3 & 39-17
34			6 Waterview Dr, Lot 79-9
35			Mountain View Dr, Site Lot 65-12
36			88 Long Hill Cross Rd, Lot 51-12

*Refers to site number assigned on map of sites initially reviewed (see map pocket). **Site owned by UI during initial screening study but now under contract for sale to others.

Bold Typeface = denotes site evaluated in more detail after initial screening.