

Visual Assessment of the Proposed Concrete Mattresses for the Submarine Transmission Cable across Little Bay

The Visual Assessment (VA) for the Seacoast Reliability Project (“Project”) dated April 2016 concluded that the overall visual sensitivity to change for Little Bay was moderate. This conclusion was based on the methodology employed in the Visual Assessment (set forth on pages 5 through 31 of the VA) and remains unchanged. This methodology identified scenic resources with potential Project visibility and those resources included Little Bay and Little Bay Channel. On page 53 of the Visual Assessment all scenic resources with potential visibility were analyzed for their “Cultural Designation” and “Scenic Quality”. In both these categories, the determination was that there was moderate sensitivity with regard to cultural and scenic values. Resources with moderate sensitivity are not analyzed further—only those with moderate to high or high sensitivity are analyzed in the next step of the methodology, which assesses visual effect and viewer effect. Given that the analysis concluded that the Little Bay resource had only moderate sensitivity, LandWorks determined that the proposed elements described herein and associated with the Project did not rise to a level of concern where the Project would result in an unreasonable adverse effect on aesthetics in the Project area. Nonetheless, LandWorks prepared a narrative as well as photographs and visual simulations that support the review of Project effects on Little Bay and users of that water resource. The LandWorks review concludes that the Project as proposed would be acceptable due to the presence of existing development, the lack of outstanding or unique characteristics associated with the channel, and the fact that the transmission facility was already established across the channel. These factors contributed to the finding that the change associated with the transmission upgrade would not be dramatic and would not substantively affect any users and their boating and recreational activities along this portion of Little Bay. This analysis and its conclusions are set forth on pp. 97 through 101 of the Landworks VA.

This current assessment reviews the Applicant’s proposal to install concrete “mattresses” to protect the cables in nearshore areas where ledge precludes burial to full depth. This proposed component of the Project was not included in the initial analysis, because use of concrete mattresses had not yet been determined to be an essential element of the Project. Based on this current analysis of the proposed concrete mattress installations, it has been determined that the conclusion forwarded in the initial assessment is still valid, and that the concrete mattress installation as designed will not result in an unreasonable effect on aesthetics or scenic beauty of the Project area.

Description of the Specific Project Elements

As part of the installation of the underwater cable for the Seacoast Reliability Project, protective elements referred to as “concrete mattresses” may be installed on either side of Little Bay at that point at which the cables transition from the shoreline to the underwater installation. In the shallow areas of the Bay edges, typically referred to as Tidal Flats, these concrete elements will be placed to protect the cables where they are very shallow in the seafloor in this transition zone. The concrete mattresses are typically mats of interconnected individual precast concrete forms that conform to the bottom contours of the seafloor. Individual mattresses are typically 8’ x 20’ and 4.5-9” thick. On the Durham side the starting width is 24 feet (3 mattresses wide) and it widens to about 30 feet over a distance of approximately 102’, which will take 5 mattresses end to end for each of the 3 sections. On the Newington side, the configuration is also 3 mattresses in width to start, overlapping at the start point along the shore to have a 16’ width and ending at 34’ in width over a distance of approximately 214 feet.

It is our understanding that the Applicants are in the process of finalizing the details and extent of the concrete mattress installation; the information relied on for this assessment may change slightly. At each shoreline there will be a short section of concrete mattress installation that will be placed on the slope of the bay floor before the seabed flattens out, resulting in potential visibility of about 34 feet of the installation on the Durham side, and 50 feet on the Newington side of the Bay. The location for the mattresses and their lengths and widths, as well as how they will relate to seabed contours have been based on discussions with the Project team and contractors, as well as on plans provided in the “Seacoast Reliability Project Amended Environmental Maps” developed by Normandeau

Associates and dated 3-8-17.

Analysis of Proposed Installation

LandWorks conducted a site visit on June 29, 2017 to the Project Area for the expressed purpose of reviewing the locations for the concrete mats and to assess their potential visibility and the effects of that visibility. The site visit was conducted at low tide, and observations made from the Durham shore, just off shore, from the mudflats beyond the shore, and from the navigable channel at low tide. Observations of the Newington transition area and concrete mat location were conducted from the channel. This site visit was also informed by previous visits to this portion of the Project area.

A number of distinct observations and conclusions emerged from both the on-site study and a review of plans, profiles and aerial and site photographs of these 2 areas and they include:

1) Visibility and Viewing Distances at Low Tide.

The visible area of the concrete mattresses will be primarily just off the shoreline at the point where the mattresses begin and for the distance that mattresses are located on the initial slope coming off the shore. Each shoreline has a short distance of sloping seabed and then a more level expanse of seabed and tidal flats stretching out into the Bay. The sloped area will be where the mattresses will be most visible. On the Durham side, the actual area of visible mats will be limited to an expanse of approximately 24-28' wide and 34 feet long. Beyond the 34' sloping section the mats will be located along a more gradual, almost level expanse of the tidal flat. At that size and with the typical viewing distance in the middle of the channel at almost 2/3 of a mile (3315' from the shoreline) during low tide, these mats will be an unobtrusive element and even difficult to pick out. The closest view at low tide is at just under a 1/2 mile (2055') from the shore due to the presence of very shallow tide flats which stretch out that distance from the shore—so shallow that even kayaks would be unlikely to paddle to close to shore at low tide. At that vantage point of about 1/2 mile the mattresses will be difficult to even pick out and/or focus on.

On the Newington side, the area of visible mattresses will be approximately 16-18' by 60 feet in length before the mattresses lie flat on the seabed/tidal flat area, and below the water level at low tide. The center of the channel, where most boat traffic occurs at low tide, is just under 1/2 mile from shore at 2060'. As with the Durham side, the view of the mats from this distance will not result in an intrusion or visible element that will necessarily draw the eye and be prominent at all within that view.

Overall, in periods of low tide, paddlers on either side will not be drawn to the locations of the transmission corridor's transition to the underwater design. On both sides, there are areas of very shallow water which, even if navigable for kayaks or canoes would be difficult for paddling as the paddles will inevitably hit the bottom during the periods of lower tide. The navigable channel is closer to the Newington side, and yet not an ideal location for non-motorized watercraft to linger. Based on boating enthusiast's typical behaviors and observations on site and in the water, it was readily concluded that motorized and non-motorized watercraft will typically be too far away to be affected by the view of this relatively small scale element near to the shoreline. Additionally, motorized boat traffic is moving faster and in a direction that does not focus on or put the transition areas in the primary angle of view or cone of vision. The visual context, as described in the next section of this narrative, further diminishes the potential for negative effects on the visual quality or viewer's experience.

2) Characteristics of the View

As stated, the typical viewing distances at low tide will reduce the prominence and presence of the concrete mattresses in the view and reduce their visual effect. Other factors also contribute to the conclusion that the proposed concrete mattress installation will not be obtrusive or have any real negative effect to the viewscape of the Little Bay Channel. These factors include the nature of the view and the context of the view. The views of the two sites are to the side of the channel as opposed to being in the foreground or direct view of boaters and paddlers. Observations on several site visits indicated primarily north south traffic and the eye and the experience tend to be focused on points to the north and south rather than directly at the shorelines perpendicular to the view.

Additionally the context for the view is one of a developed and residential appearing shoreline, with larger homes, extensive

clearings and numerous docks and shoreline elements such as outdoor furniture (See Exhibits 21A and 22A which accompany this review). This is not a pristine shore on either side. There are no distinctive landscapes or scenic elements that are unique or constitute a draw for boaters (and most of the land in this section appears to be privately owned on both shores – Adams Point and Great Bay National Wildlife Refuges are located to the south of this section of Little Bay). When directly opposite the Project ROW along the Durham shore, the view takes in the presence of the transmission infrastructure that has been well established, with the Cable House and existing transition structure readily visible. These existing elements and the aforementioned docks, shoreline rocks and bedrock, and other objects such as boats, lounge chairs and landscape components provide a visual pattern which can readily accommodate the proposed mattresses and their limited visibility.

3) Viewer Effect

The foregoing narrative highlights how the visibility of the concrete mattresses will be limited, and how the small scale of and minimal presence of the visible portion of the mattresses, when viewed from the water, will limit the visual effects. These factors translate directly into a limited effect on the viewer as well—one that will not undermine the viewer's enjoyment to any great extent, and one that will not discourage people from boating in this portion of Little Bay. Given the long established presence of the underwater transmission cables and the associated structures and Cable Houses on the shore, there already is an established expectation related to the infrastructure, and this new element is not a substantive change nor would it be a surprise to see another small scale element that is part of it.

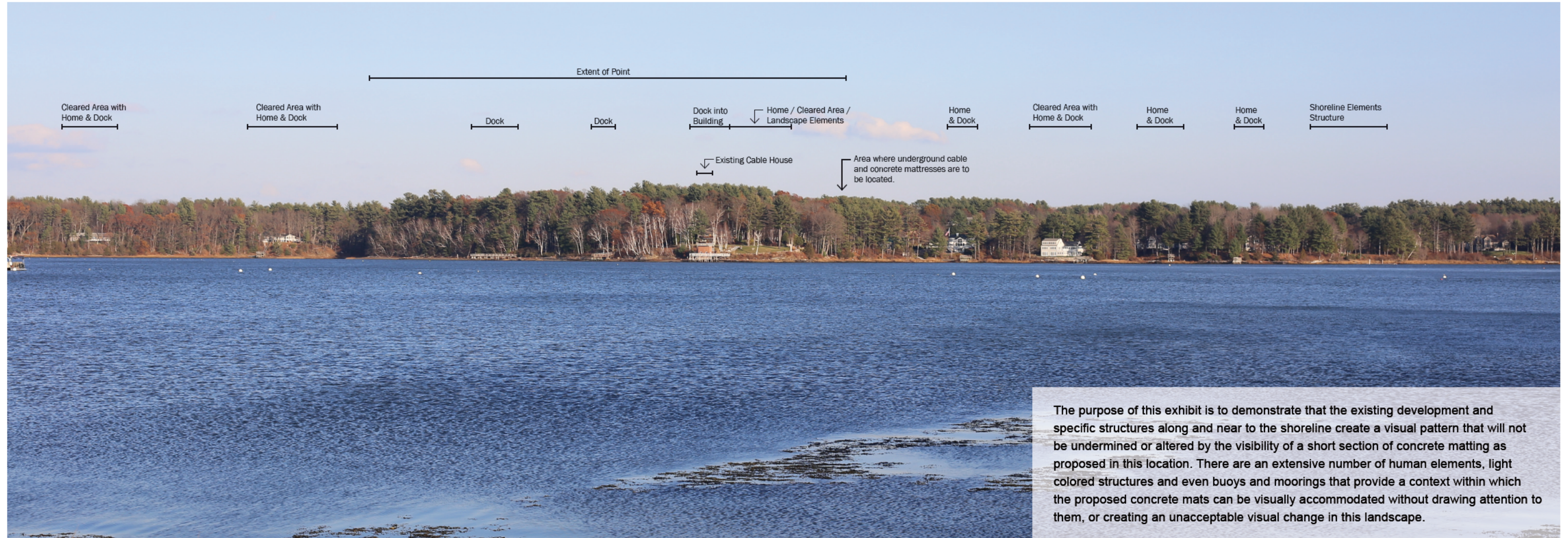
View duration is limited due to the fact that most boating activity in this portion of Little Bay tends to be moving north or south between the larger water body of Great Bay to the south and the variety of water destinations to the north, including Little Bay proper, the Piscataqua and Oyster Rivers and Royall's Cove. Given the north-south orientation of the channel there will be limited direct views of the installation. When heading south through the channel from Little Bay proper the Newington installation will not be visible due to the shoreline configuration – a point of land just to the north, where the old Cable House is located, obscures the new location for the land to water transition of the transmission lines. It will not be visible until boaters are to the south of it. The configuration on the Durham side may also limit visibility for those boating or paddling from the north and the south, until one is more directly opposite the installation.

4) Mitigation

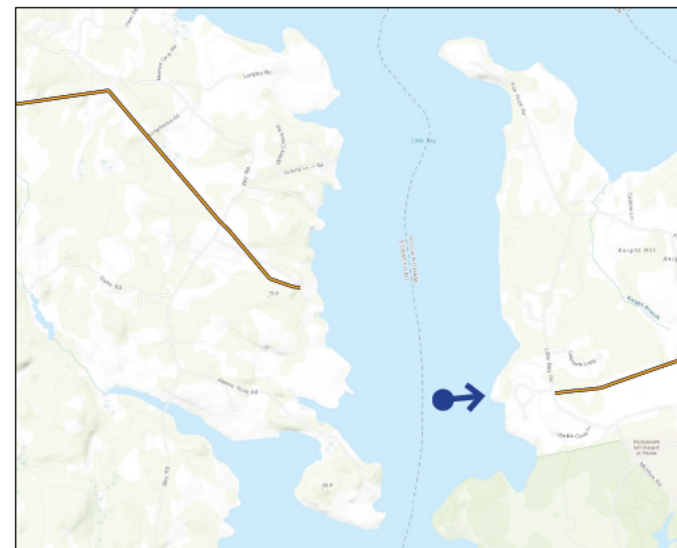
The concrete mattresses will also include some inherent mitigating factors. It is likely the mats will sink into the muck of the tidal flats which is an elastic material that has a "quicksand-like" effect if walked upon, or when objects are placed on it when the mud is exposed. Additionally, the color of the concrete surfacing is expected to fade and become grey over time due to the natural weathering process, the deposition of sediments and the action of the salt water tides. Limiting the size and scale of the mattress installation represents another mitigating factor.

Overall Conclusion

The concrete mattresses will not draw the eye to any great extent, and they will not be a substantive intrusion into the visual landscape. Due to their limited size, their minimal visual presence and the fact that they will readily fade into and become part of the surrounding shoreline and waterscape, the concrete mattresses will be a very minor feature of the landscape and will only minimally affect the viewer's experience of the water, the bay, and the views to the shoreline. The conclusions reached initially in the VA, which determined that Little Bay has moderate sensitivity as a scenic resource, remain unchanged. The addition of this element along the shoreline in Durham and Newington will not result in a substantive visual effect or negative impact on the viewer's experience and enjoyment, or ongoing and future use of this resource. **Thus the proposed placement of the concrete mattresses will not result in an unreasonable adverse effect on aesthetics of the Project area.**

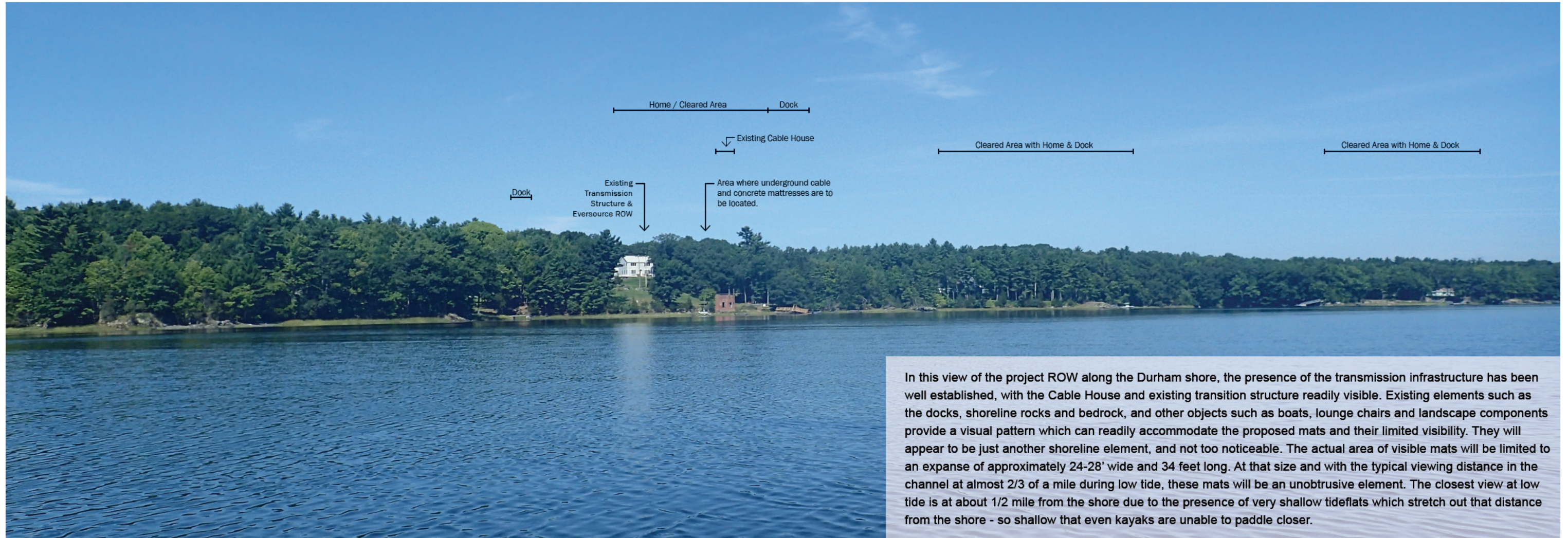


Aerial Context Map with approximate ROW location



View Location Map





Aerial Context Map with approximate ROW location

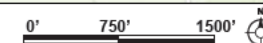


View Location Map





View Location Map



Simulation Information

Base Photograph

Date: 6/29/17
 Time: 1:27 pm
 Weather conditions: Overcast
 Image Size: 5472 x 3648 pixels

Camera Properties

Camera Make/Model: Canon EOS 6D
 Sensor Dimensions: 35.8mm x 23.9mm
 Lens Make/Model: Canon EF 50mm
 Lens Focal Length: 50mm
 Focal Length (35mm Equivalent): 52mm
 Approx. Angle of View: 40° horizontal, 27° vertical
 Camera Height: 3 ft (0.914 meters)

View Location Information

View Location Name: Exhibit 22A
 Location: Little Bay, Durham, NH
 Classification: Resource
 Orientation: West/Northwest
 Latitude/Longitude: 43.105557°, -70.866763°
 Camera elevation above sea level: 3.00' (0.91 m)
 Simulation viewing distance: 21.3 in (54.102 cm)
 Distance to nearest visible structure: 0.25 miles (0.40 km)
 Distance to furthest visible structure: 0.28 miles (0.45 km)

Proposed Structure Information

Visible structure type: Weathering steel monopole, 3-pole
 Visible structure numbers: F107-100, F107-101
 Height range of proposed transmission structures (visible): 70' (21.3 m)
 Height range of existing transmission structures (visible): N/A
 Visible area of concrete mattresses at Low Tide: Approx. 28'x34'
 Right of way width: 100'

Visual Simulation Notes:

1. Visual simulation is based on GIS data available at the time from USGS National Elevation Data Set, Eversource and NH GRANIT. Data is only as accurate as the original source and is not guaranteed by LandWorks.
2. This simulation depicts structures, conductors, and technical equipment as well as visibility of any associated clearing.

Technical Information

Software: Nemetschek VectorWorks 2015; SketchUp Pro 8; Adobe Photoshop CS5
 Digital elevation data source: USGS National Elevation Dataset (NED) 1/3 arc-second



Aerial Context Map

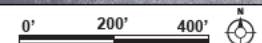




EXHIBIT 22A: EXISTING CONDITIONS AT LITTLE BAY, DURHAM (SHEET 2 OF 3)



EXHIBIT 22A: VISUAL SIMULATION OF PROPOSED CONDITIONS AT LITTLE BAY, DURHAM (SHEET 3 OF 3)