Attachment O

Landfall Site Engineering Feasibility Report

Stantec

Memo

To:	Commonwealth Wind LLC	From:	Stantec Consulting Services Inc.
Project/File:	198804104	Date:	May 19, 2023

Reference: **New England Wind 2 Connector / Commonwealth Wind Project**
Alternate Landfall HDD Feasibility Study

The New England Wind 2 Connector / Commonwealth Wind Project base design includes landing three 275kV Subsea Cables in the Dowses Beach Parking Lot in Osterville, Massachusetts. Avangrid Renewables (Avangrid) has requested Stantec Consulting Services Inc. (Stantec) perform a high-level evaluation to determine the feasibility of landing the subsea cables at the following 10 alternate sites:

- Wianno Avenue / Sea View Avenue Parking Lot
- Loop Beach
- Cotuit Bay
- Prince Cove
- East Bay Boat Ramp
- Dan McCarthy Landing
- Covell's Beach Parking Lot
- Craigville Beach Parking Lot
- Parker Road and West Street

This evaluation was based on the following criteria:

1. As informed by Avangrid: A minimum 68-feet [nominal 20-meter] subsea cable centerline separation is required to maintain the cables at an acceptable thermal range based on project ampacity requirements. This separation is one of the design basis parameters utilized by Prysmian's preliminary ampacity calculations for the project landfall location. When using the 68-foot separation between circuits, the maximum operating temperature of the cable reaches 89.1°C, which is very close to the 90°C cable maximum allowable operating temperature. Any reduction in the 68-foot separation could potentially increase cable operating temperature and, thereby, reduce ampacity.

2. The HDD "*punch-out*" in the seafloor is located 2,000-feet from the coastline or at a minimum 10-foot to 15-foot water depth based on existing National Oceanic and Atmospheric Administration (NOAA) Chart and bathymetry data (Continuously Updated Digital Elevation Model [CUDEM]), whichever point is further from the shore. The 10-foot to 15-foot water depth is needed to safely accommodate the cable laying vessel.

3. The anticipated maximum feasible length of each HDD installation is 3,000-feet in order to maintain manageable drilling fluid pressures and tensile stresses on the casing pipe along the alignment, while maintaining an appropriate depth to achieve cable ampacity requirements.

4. HDD alignments shall not be routed under/near existing structures as this presents risk of property damage.

HDD CONSTRUCTION LAYOUT

Stantec has concluded that horizontal directional drilling (HDD) is the preferred installation method over other trenchless technologies (Direct Pipe™, microtunneling) in terms of practicality, as well as minimization of risk and environmental impacts. When a site cannot accommodate use of HDD, open trenching would need to be used resulting in direct impacts to sensitive near-shore coastal resources. With all HDD workspaces, the drill rig is the pivotal point that all other equipment and staging revolves around. Many of the construction components and equipment, such as pumps, tanks, generators, control house, and drill rod baskets, need to be located adjacent to the drill rig since they are connected either by power cables or hoses, and losses due to the length of cables or hoses need to be minimized to maintain a functional HDD process. Additionally, to support the HDD process, access by a vacuum truck to the entry pit is required.

The drill rig needs to be a minimum of 25-foot to 35-foot offset from the edge of the working area towards the shore to construct a fluid containment pit and insert a conductor casing. After this location has been established, the control unit (also known as a 'doghouse') needs to be situated immediately adjacent to the drill rig near the bore face to monitor the rig and the returns in the pit. The drill pipe needs to be stored on the opposite side of the drill rig to facilitate the adding and removal of drill rods during the pilot bore and reaming processes.

Pump skids need to be situated near the drill rig to circulate the drilling fluid and resulting slurry down the hole and back to an adjacent slurry separation tank. The slurry separation tank uses screens as well as multiple adjacent centrifuges to separate the cuttings from the slurry, allowing the fluid that is now mostly free of solids to be recirculated down the hole while the cuttings can be hauled offsite for disposal. A water tank is required to be adjacent to the slurry equipment for make-up water.

All equipment described above needs to be connected to a power unit, which must also be nearby to all the equipment to limit the distance needed for the power cables. The construction set-up will also include material staging, equipment storage, mobile equipment, car wash area, contractor trailer, and parking that are best located near the construction work for efficiency.

Construction access requires a minimum 10-foot-wide lane with additional clearance to account for turning and steering corrections that needs to be maintained through the site to allow trucks to travel safely for material delivery and removal. There also needs to be a route available to the fluid containment pit for a vacuum truck to remove slurry from site or transport to the slurry separation tank. At minimum, a 58-foot flat bed trailer will need to access the site in order to deliver the HDD rig, which requires a minimum approximately 80-foot turning radius. There also needs to be sufficient space for the trailer to turnaround and leave the site if a path through the site to exit on the other side is unavailable. Noise barriers, needed when working in proximity to residential buildings, require an approximately 8-foot corridor for installation and maintenance.

Reference: Alternate Landfall HDD Feasibility Evaluation

ALTERNATE LANDING SITE EVALUATION

WIANNO AREA ALTERNATIVES:

Wianno Avenue / Sea View Avenue Parking Lot Alternate Landfall

In response to an inquiry from the Town of Barnstable, Avangrid requested Stantec provide a comprehensive analysis of subsea cable landing options in the vicinity of the Wianno Avenue / Sea View Avenue public parking lot, particularly as related to construction staging and laydown. As requested, the analysis for this alternative landfall location is more thorough than the other locations assessed in this memo.

Stantec first evaluated the viability of performing construction at this location. Sketch CWW-HDD-STC-SK-0814, Sheet 1 provides a conceptual construction footprint of a land-based HDD launch in the Wianno Avenue / Sea View Avenue area. The sketch demonstrates that the entire length of Wianno Avenue and Sea View Avenue to the next nearest intersection would need to be closed during construction for the entire construction duration of the HDD landing. Private property will need to be used to support construction, including the placement of slurry separation equipment, pumps, tanks, and to accommodate construction vehicle traffic. Approximately 0.3 acres of tree and greenspace clearing would be required adjacent to the parking area to stage equipment and material, and the overhead utility power cables along the side and crossing the site would need to be relocated during construction. The sketch also depicts the centerline of the second and third HDD alignments placed at the required minimum 68-foot separation distance north and south, respectively, from the base HDD alignment in the parking area. The second and third alignments, as well as the associated construction work, would be located in private property, including the drill rig and associated construction equipment described above. The southern HDD alignment construction would require demolition of an existing stately residence.

With impacts to private property including significant tree removal, the Wianno Avenue / Sea View Avenue landing site appears to be capable of accommodating only one land-based HDD alignment. This is not recommended as two other cable landings would be required at another location. This single alignment also has the added detriment of removing the privacy treeline and fencing from the resident to the north during construction, as well as cutting off access to several other residences during the entire construction duration. Another challenge is effectively mitigating the noise level associated with the HDD construction process within close proximity to residential dwellings, considering the limited available workspace. Vibrations associated with the installation of a surface casing and the HDD reaming operation to the house immediately south of the alignment is another concern, especially if the structure is supported on a pile foundation.

For a single HDD alignment, Stantec also evaluated construction laydown and staging in the vicinity of Wianno Avenue / Sea View Avenue using a sea-to-land (marine based) drilling strategy, as presented in Sketch CWW-HDD-STC-SK-0814, Sheet 2, where the HDD rig and supporting equipment are situated on barges located on the sea, and the conduit is laid out and pulled from the land side of the crossing. Since there is only approximately 930 feet available from the edge of the Wianno Avenue parking area and the intersection with East Bay Road, an HDD installation would need to be completed in multiple drag sections, which significantly increases the risk of bore collapse during pipe pullback since multiple intermediate welds, taking approximately 6 hours each, would need to take place during pullback, which not only increases the time the bore needs to remain open, but also increases the force on the pipe, as adhesion forces tend to build up pipe's surface during each stoppage period. This is a high-risk item since the

existing soils along the borepath are mostly coarse grained and relatively unstable.

Next, Stantec evaluated the offshore water depths to determine the required HDD length. Based on available bathymetry data, a minimum 10-foot to 15-foot water depth would be achieved at less than 3,000 feet from the shoreline provided a horizontal curve is incorporated into the alignment.

A 275kV single-circuit duct bank routed from this landing site would be routed Northeast on Wianno Avenue (0.2 miles) and then follow the current duct bank preferred route (6.2 miles), for a total length of 6.4 miles. Additional duct bank routings would be required from the second and third subsea cable landing sites to complete the project.

Conclusion: The Wianno Avenue/Sea View Avenue Alternate Landing Site is considered feasible for a single cable landing.

OTHER AREA ALTERNATIVES:

Stantec conducted a higher-level review for the other alternate landing sites. The following sections identify the number of subsea cables that could potentially be landed at each site and present the associated challenges and concerns. The attached sketches, CWW-HDD-STC-SK-0814, Sheets 3 through 7, depict the construction staging area and drill rig location for each potential landing.

Loop Beach Alternate Landfall

1. Current property constraints only allow potential for maximum two subsea cable landings. Refer to Sketch CWW-HDD-STC-SK-0814, Sheet 3.
2. The area offshore of Loop Beach is very shallow and does not meet the required minimum water depth of 10-feet to 15-feet for approximately 6,000 feet from the shoreline based on available bathymetry data. This is well in excess of the maximum feasible HDD length of 3,000 feet, resulting in a fatal flaw for this landing location.
3. Even absent the clear constraint associated with HDD length, this landing site also presents the following concerns:
    a. Existing step down from the edge of parking lot to beach area creates a challenge to design and construction – additional data and investigation are required.
    b. Oceanview Avenue in the vicinity of the construction area will be closed during construction.
    c. Approximately 0.5 acres of tree and greenspace clearing will be required around the work area.
    d. The existing structure within the parking area will need to be demolished.
    e. Temporary working space will need to use some adjacent private property.
    f. The beach will be completely closed during the entire construction duration since construction staging will require the entire parking lot and adjacent sections of Oceanview Avenue. There will be no beach access.
    g. The working area is immediately adjacent to private residences, increasing the potential for

significant construction noise impacts to property owners. Substantial noise attenuation barrier/wall will need to be constructed along the property line to help mitigate these impacts.

h. The 275kV two-circuit duct bank would originate at the landing site and would need to traverse the streets listed below to intersect and then follow the current duct bank route, for a total length of 8.3 miles to the US Route 6 trenchless crossing adjacent to the new substation. An additional duct bank routing would be required from a third subsea cable landing site to complete the project.

   i. Oceanview Avenue - 0.1 miles

   ii. Main Street - 1.1 miles

   iii. Putnam Ave - 2.0 miles (alternative routing for this segment via Main Street and Falmouth Rd would be 2.9 miles)

   iv. Falmouth Road (MA Route 28) - 1.7 miles

   v. Osterville-West Barnstable Road (current duct bank route) to the US Route 6 trenchless crossing location and substation – 3.4 miles

Conclusion: The Loop Beach Alternate Landing Site is not feasible due to excessive HDD Length. This option should be eliminated from further consideration.

Cotuit Bay Alternate Landfall

1. Current property constraints only allow potential for one subsea cable landing. Refer to Sketch CWW-HDD-STC-SK-0814, Sheet 4.
2. It is not feasible to thread a subsea cable through the channel between Dead Neck Island and Oceanview Avenue due to the difficulty of bending the cable and steering limitations of HDD. Therefore, any HDD alignment would need to extend from the boat dock area under Cotuit Bay and then under the Sampsons Island Wildlife Sanctuary on Dead Neck Island. This would add approximately 4,700 feet to the HDD length to reach the shoreline along Sampsons Island, resulting in a total HDD length of greater than 5,000 feet based on available bathymetry data, which is well over the maximum feasible length of 3,000 feet resulting in a fatal flaw for landing at this location using HDD.
3. Even absent the clear constraint associated with HDD length, this landing site also presents the following concerns:

   a. Approximately 0.7 acres of tree and greenspace clearing is required adjacent to the parking area.

   b. Access to the boat dock and adjacent beach area will be completely closed during construction which would occur over one construction (winter) season.

   c. HDD will occur under the dock, potentially impacting the dock foundation.

   d. A utility easement would be required through Sampsons Island Wildlife Sanctuary.

   e. The site affords insufficient area for vehicle turnaround, requiring vehicles to back out of/back into site along Oyster Place. This will significantly reduce productivity and increase construction risk.

f. Oyster Place Road will need to be closed during construction.

g. Significant disruption to the intersection between Oyster Place, Main Street, and School Street during construction to route construction vehicle traffic.

h. Working area is immediately adjacent to private residences, increasing the potential for significant construction noise impacts to property owners. Substantial noise attenuation barrier/wall will need to be constructed along the property line to help mitigate these impacts.

i. The 275kV two-circuit duct bank would originate at the landing site and would need to traverse the streets listed below to intersect and then follow the current duct bank route, for a total length of 7.5 – 8.4 miles to the US Route 6 trenchless crossing adjacent to the new substation. Additional duct bank routings would be required from the second and third subsea cable landing sites to complete the project.

    i. Oyster Place – 0.1 miles

    ii. Main Street – 0.3 miles

    iii. Putnam Ave - 2.0 miles (alternative routing for this segment via Main Street and Falmouth Rd would be 2.9 miles)

    iv. Falmouth Road (MA Route 28) - 1.7 miles

    v. Osterville-West Barnstable Road (current duct bank route) to the US Route 6 trenchless crossing location and substation – 3.4 miles

Conclusion: The Cotuit Bay Alternate Landing Site is not feasible due to excessive HDD Length. This option should be eliminated from further consideration.

Prince Cove Alternate Landfall

1. Current property constraints only allow potential for a maximum of two subsea cable landings. Refer to Sketch CWW-HDD-STC-SK-0814, Sheet 5.
2. It is not feasible to thread a subsea cable through the channel between Dead Neck Island and Oceanview Avenue, then under Cotuit Bay and North Bay through the narrow channel leading to Prince Cove due to the difficulty of bending the cable and steering limitations of HDD. Therefore, any HDD alignment would need to extend from the marina area under Prince Cove, North Bay, and West Bay to the sea. This would add approximately 15,000 feet to the HDD length to reach the shoreline, resulting in a total HDD length of greater than 17,000 feet (offshore depth not evaluated) which is well over the maximum feasible length of 3,000 feet resulting in a fatal flaw for landing at this location using HDD.
3. Even absent the clear constraint associated with HDD length, use of HDD at this site also presents the following concerns:

    a. Approximately 0.6 acres of tree and greenspace clearing will be required adjacent to the parking area, including the entire area of trees between the marina parking area and Cedar Tree Neck Road.

    b. Access to and use of the Prince Cove Marina will be completely closed during construction.

    c. Cedar Tree Neck Road and Price Avenue in the vicinity of the marina will be significantly

disrupted by construction vehicle routing.

d. Each HDD alignment will include one horizontal curve, which is not preferred as it adds steering challenges and creates additional stress to the drill pipes, casing pipe, and the electrical cable.

e. Utility easements will be required in several (>20) private properties between the landfall location and the shoreline.

f. Potentially unable to find an alignment with sufficient clearance from all building foundations. Further evaluation is required.

g. Working area is immediately adjacent to private residences, increasing the potential for significant construction noise impacts to property owners. Substantial noise attenuation barrier/wall will need to be constructed along the property line to help mitigate these impacts.

h. The 275kV two-circuit duct bank would originate at the landing site and would need to traverse the streets listed below to intersect and then follow the current duct bank route, for a total length of 5.1 miles to the US Route 6 trenchless crossing adjacent to the new substation. Additional duct bank routing would be required from a third subsea cable landing site to complete the project.

    i. Prince Avenue – 0.5 miles (Confirmation required – Prince Avenue is very narrow)

    ii. Falmouth Road (MA Route 28) - 1.2 miles

    iii. Osterville-West Barnstable Road (current preferred duct bank route) to the US Route 6 trenchless crossing location and substation – 3.4 miles

Conclusion: The Prince Cove Alternate Landing Site is not feasible due to excessive HDD Length. This option should be eliminated from further consideration.

East Bay Boat Ramp Alternate Landfall

1. The existing boat ramp is too steep to support an HDD working area. Significant grading would be required to establish an appropriate working area.
2. Area between East Bay Road and the shoreline would need to be built up to construct a flattened working area, including the installation of a retaining wall along the shore which is an additional major construction activity and is considered impractical.
3. Adjacent property would need to be acquired to support the construction area.
4. If the area is graded to support the HDD working area, the current property constraints would only allow potential for one subsea cable landing. Refer to Sketch CWW-HDD-STC-SK-0814, Sheet 6.
5. The HDD would extend from the Boat Ramp and cross under East Bay and Dowses Beach. This would add approximately 2,400-feet to the HDD length, resulting in a total HDD length of approximately 4,400-feet, which exceeds the maximum feasible length of 3,000 feet resulting in a fatal flaw for landing at this location using HDD.
6. Even absent the clear constraint associated with HDD length, use of HDD at this site also presents the following concerns:

a. East Bay Road would need to be completely closed during construction.

b. Approximately 0.5 acres of tree and greenspace clearing is required between East Bay Road and the shoreline.

c. Construction equipment would likely be setup in an environmentally sensitive area.

d. Boat ramp would be shutdown during entire construction duration, which would occur over one construction season for the single cable landing.

e. Equipment would need to back out of or back into work area from East Bay Road for access adding construction risk.

f. Working area is immediately adjacent to private residences, increasing the potential for significant construction noise impacts to property owners. Substantial noise attenuation barrier/wall will need to be constructed along the property line to help mitigate these impacts.

g. Proximity of drilling activity to water's edge will limit space available for spill containment.

h. The 275kV single-circuit duct bank would originate at the landing site and would be routed south on East Bay Road to Wianno Avenue (0.2 miles), and then follow the current duct bank preferred route (6.2 miles), for a total length of 6.4 miles. Additional duct bank routings would be required from the second and third subsea cable landing sites to complete the project.

Conclusion: The East Bay Road Alternate Landing Site is not feasible due to excessive HDD Length. This option should be eliminated from further consideration.

Dan McCarthy Landing Alternate Landfall

1. Current property constraints only allow potential for maximum two subsea cable landing. Refer to Sketch CWW-HDD-STC-SK-0814, Sheet 7.
2. It is not feasible to thread a subsea cable through the East Bay Channel and then through the narrow channel between Long Beach and Main Street/South Main Street to the Dan McCarthy Landing due to the difficulty of bending the subsea through the channel and the steering limitations of HDD. Therefore, any HDD would need to extend from the Dan McCarthy Landing area under the Long Beach Road barrier beach to the shoreline. This would add approximately 1,000 feet to the HDD length to reach the shoreline, resulting in a total HDD length of approximately 2,000 feet based on available bathymetry data. This HDD alignment would require use of compound curves (overlapping horizontal and vertical curves) to be able to pass between existing structures, significantly increasing construction complexity, risk, and cost. Furthermore, this alignment would be routed under or near residential structures as it crosses the barrier beach, resulting in a risk of foundation damage to privately owned houses from settlement and drilling fluid propagation. This is a fatal flaw for this alternative.
3. Even absent the clear constraint associated with the HDD alignment, use of HDD at this site also presents the following concerns:
    a. Utility easements would be required at approximately four private properties.
    b. Dan McCarthy Landing would be completely closed during construction.

Reference: Alternate Landfall HDD Feasibility Evaluation

c. Approximately 0.7 acres of tree and greenspace clearing required around parking area.

d. Significant disruption would occur along Hayward Avenue, Coddington Road and South Main Street.

e. Potential for settlement related damage to existing dock foundation.

f. Insufficient area for vehicle turnaround, requiring vehicles to back out of/back into site along Hayward Road, significantly reducing productivity and increasing construction duration and cost.

g. Working area is immediately adjacent to private residences, increasing the potential for significant construction noise impacts to property owners. Substantial noise attenuation barrier/wall will need to be constructed along the property line to help mitigate these impacts.

h. The 275kV two-circuit duct bank would originate at the landing site on Hayward Road to reach South Main Street after 0.1 miles. Note that routing the duct bank north on South Main Street for eventual routing under Craigville Beach Road to the new substation is not possible since the Commonwealth Wind duct bank cannot be co-located in a single road with the 800MW+ Park City Wind duct bank. Therefore, the duct bank would continue on southwest on South Main Street, with a significant crossing at Bumps River, before reaching the intersection with Starboard Lane after 0.5 miles. After this location, there are two route options:

   Route Option 1 (total 7.2 miles from landfall to US Route 6 trenchless crossing):

   i. On Main Street to the intersection with Wianno Ave – 1.4 miles

   ii. Main Street and current preferred duct bank route to the US Route 6 trenchless crossing location and substation – 5.2 miles

   Route Option 2 (total 5.9 miles from landfall to US Route 6 trenchless crossing):

   i. Starboard Lane – 0.9 miles

   ii. Old Mill Road – 0.1 miles

   iii. Bumps River Road – 0.1 miles

   iv. 5 Corners Road – 0.3 miles

   v. Lumbert Mill Road – 1.5 miles

   vi. Old Falmouth Road (current preferred duct bank route) to the US Route 6 trenchless crossing location and substation – 2.4 miles

i. Additional duct bank routing would be required from a third subsea cable landing site to complete the project.

Conclusion: The Dan McCarthy Alternate Landing Site is not feasible since it would require HDD routing under/near residential structures. This option should be eliminated from further consideration.

Covell's Beach Parking Lot Alternate Landfall

1. The Covell's Beach parking lot is the current subsea cable landing site for the 800MW Vineyard Wind 1 Project.
2. The parking lot can likely accommodate two of the Commonwealth Wind subsea cable landings.
3. The two-circuit duct bank routing from this landfall site is considered a fatal flaw based on the following:
    a. The duct bank cannot be routed east on Craigville Beach Road as it cannot be co-located with the 800MW Vineyard Wind 1 duct bank.
    b. The duct bank cannot be routed west on Craigville Beach Road as it cannot be co-located with the 800MW+ Park City Wind duct bank. Additionally, there is insufficient space for a second microtunnel for the Commonwealth Wind Project circuits to cross the Centerville River within the existing land control situation.

Conclusion: The Covell's Beach Alternate Landing Site is not feasible due to the absence of a viable onshore transmission corridor.

Craigville Beach Parking Lot Alternate Landfall

1. The Craigville Beach parking lot is the current subsea cable landing site for the 800MW+ Park City Wind 1 Project.
2. The parking lot can likely accommodate all three Commonwealth Wind subsea cable landings.
3. The three-circuit duct bank routing from this landfall site is considered a fatal flaw based on the following:
    a. The duct bank cannot be routed east on Craigville Beach Road as it cannot be co-located with the 800MW Vineyard Wind 1 duct bank.
    b. The duct bank cannot be routed west on Craigville Beach Road as it cannot be co-located with the 800MW+ Park City Wind duct bank. Additionally, there is insufficient space for a second microtunnel for the Commonwealth Wind Project circuits to cross the Centerville River.

Conclusion: The Craigville Beach Alternate Landing Site is not feasible due to the absence of a viable onshore transmission corridor.

Parker Road and West Street Alternate Landfall

The Parker Road and West Street Alternate Landfall sites have the following fatal flaws:

1. The orientation of both Parker Road and West Street where they meet Sea View Avenue are both misaligned with the existing offshore cable alignments. An HDD alignment from this location would need to incorporate a long compound curve (resulting in steering difficulties and higher pipe stresses) to avoid the existing structures and to meet the offshore cable alignments. This would result in an overall HDD alignment less than 3,000 feet, which is feasible for HDD but very

challenging due to the resulting compound curve.

2. An HDD alignment from West Street would require crossing under or near the existing house at 299 Sea View Avenue. An HDD alignment from Parker Avenue would require crossing under or near structures at 537, 541, and 567 Sea View Avenue.
3. Without acquiring private property, there is insufficient space for staging equipment and truck access for HDD installation.

Conclusion: The Parker Road and West Street Alternate Landing Sites are not feasible due to alignment under/near existing structures.

CLOSING

The above findings have been tabulated on the attached summary matrix.

This study has concluded that Dowses Beach is the preferred option for the Commonwealth Wind Project subsea cable landfall for the following reasons:

1. All three subsea cable landings can be accommodated,
2. partial beach access can be maintained during construction,
3. provides the shortest duct bank route of all options considered,
4. does not require multiple duct bank routes,
5. HDD construction is setback from residents, alleviating the risk of noise impact,
6. does not require tree clearing, use of private property, or utility easements.

Should you have any questions or require any clarification on the contents of this memo, please do not hesitate to contact us.

Regards,

STANTEC CONSULTING SERVICES INC.

Attachments: CWW-HDD-STC-SK-0814, Sheets 1 through 7, Construction Staging Areas for Alternate Landing Sites

Alternate Landfall HDD Summary Matrix

0 20 50 100
SCALE: 1" = 20'

0 5,000 10,000 15,000 20,000
SCALE: 1" = 5000'

NOTES:

1. OVERHEAD POWER LOCATION HAS BEEN APPROXIMATED BASED ON GOOGLE EARTH IMAGES.

CONCEPTUAL
FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

ALL UNITS SHOWN ARE 'ENGLISH UNITS' (FEET AND INCHES)

THIS PLAN SET IS PRELIMINARY AND HAS BEEN ISSUED FOR PERMITTING PURPOSES ONLY; AND, IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

REV.	DATE	REVISION DESCRIPTION	STATUS	DRAWN	CHKD	APPRVD
C	2023-03-15	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
B	2023-02-22	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
A	2023-01-12	ISSUED FOR INFORMATION	IFI	RN	KEF	KEF

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PROJECT: NEW ENGLAND WIND 2 CONNECTOR

TITLE: WIANNO AVE / SEA VIEW AVE LANDING CONSTRUCTION STAGING

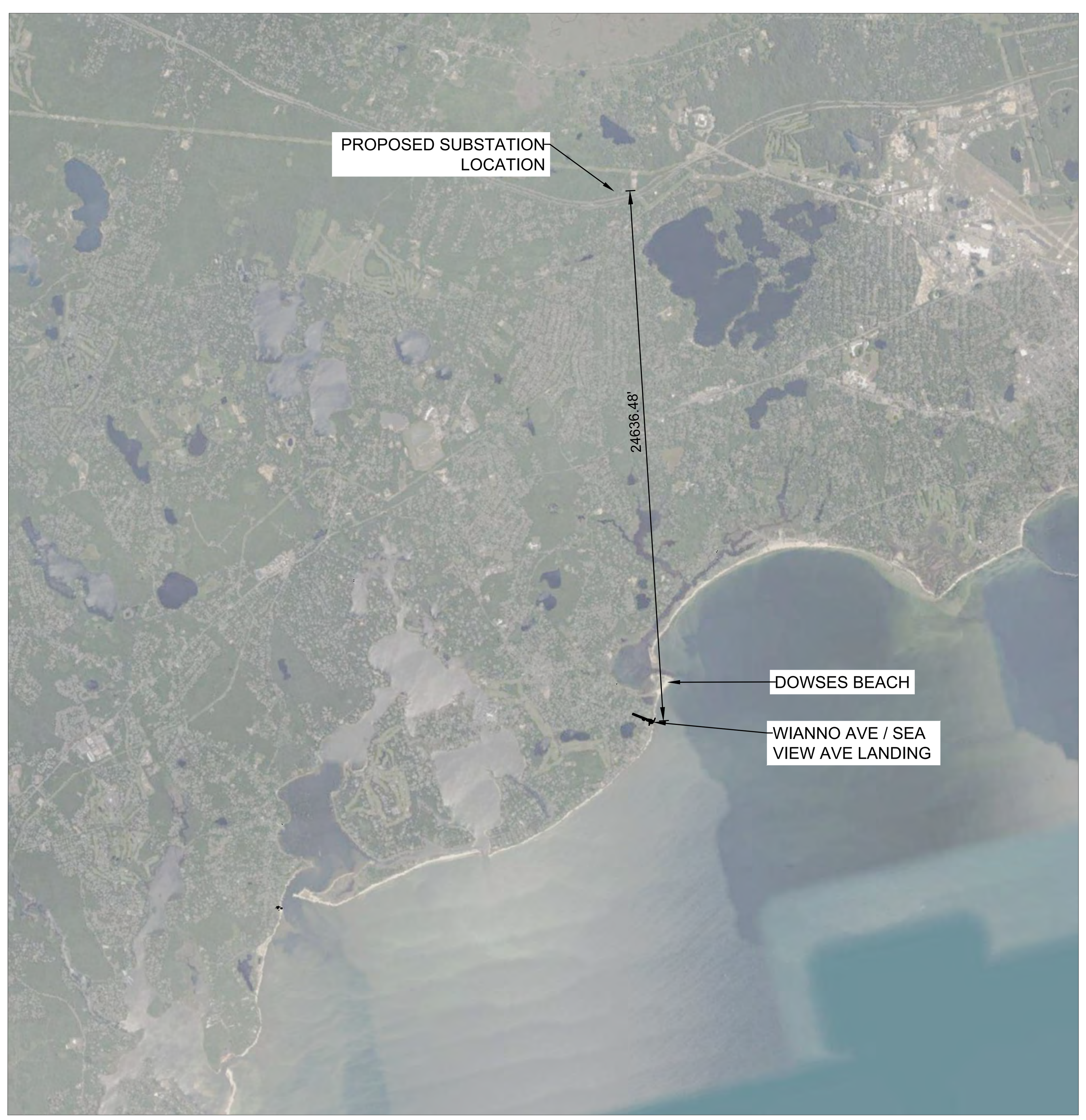
DOC ID: CWW-HDD-STC-SK-0814

SHEET 1 OF 7	DWG. NO.	SCALE AS SHOWN	FORMAT/SIZE ANSI D	REV: B

ORIGINAL SHEET - ANSI D

0 40 100 160

SCALE: 1" = 40'



0 5,000 10,000 15,000 20,000

SCALE: 1" = 5000'

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C	2023-03-15	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
B	2023-02-22	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
A	2023-01-12	ISSUED FOR INFORMATION	IFI	RN	KEF	KEF

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PROJECT

NEW ENGLAND WIND 2 CONNECTOR

TITLE:

WIANNO AVE MARINE BASED LANDING CONSTRUCTION STAGING

DOC ID:

CWW-HDD-STC-SK-0814

SHEET 2 OF 7 | DWG. NO. | SCALE AS SHOWN | FORMAT/SIZE ANSI D | REV: B

CONCEPTUAL

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ORIGINAL SHEET - ANSI D

APPROXIMATE AREA SHOWN	1.0 ACRES
REQUIRED EQUIPMENT SPACE	0.35-0.70 ACRES
TOTAL REQUIRED SPACE	1-1.25 ACRES

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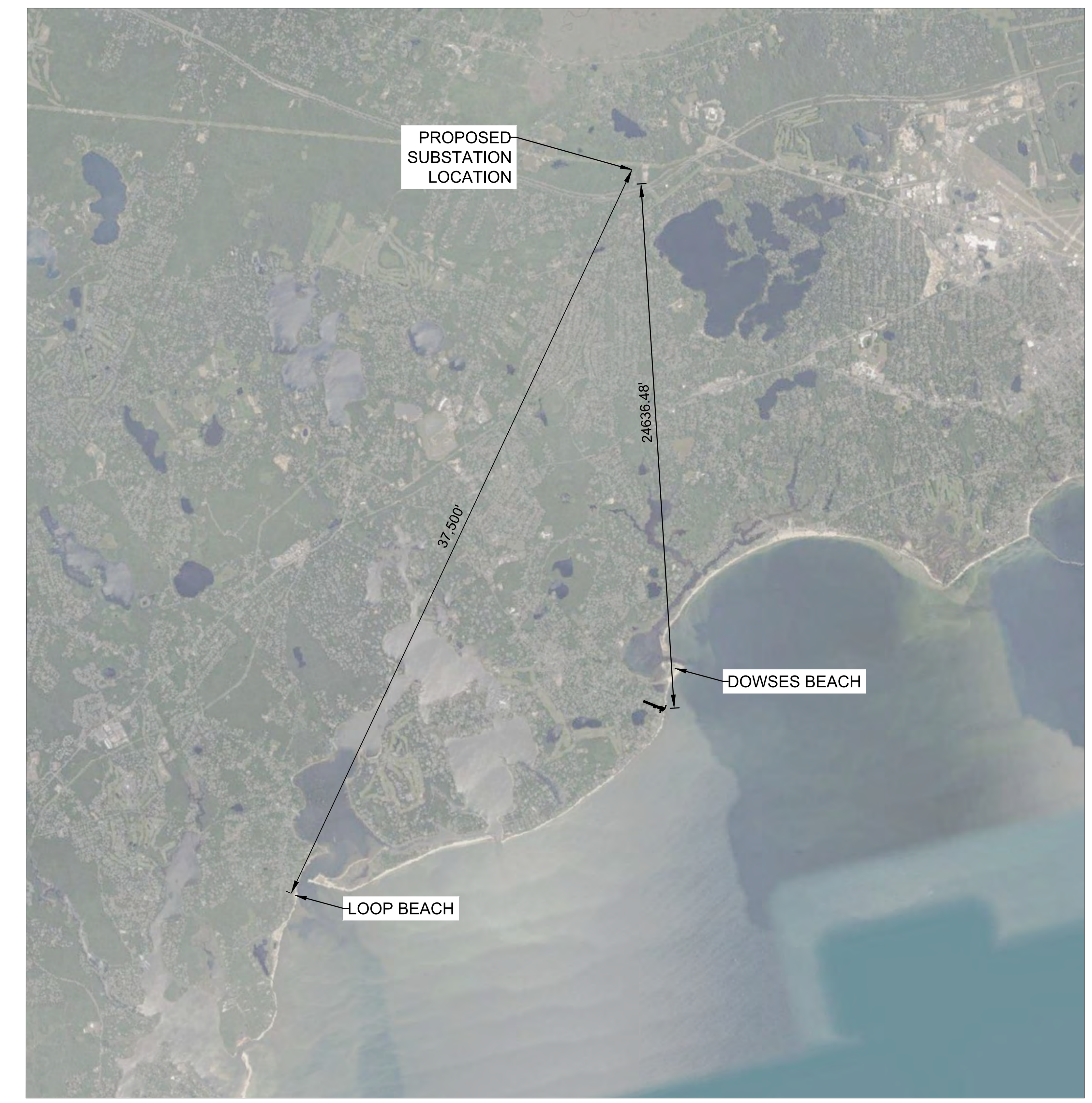
SCALE: 1" = 30'



0 5,000 10,000 15,000 20,000

SCALE: 1" = 5000'

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C	2023-03-15	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
B	2023-02-22	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
A	2023-01-12	ISSUED FOR INFORMATION	IFI	RN	KEF	KEF

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PROJECT: NEW ENGLAND WIND 2 CONNECTOR

TITLE: LOOP BEACH LANDING CONSTRUCTION STAGING

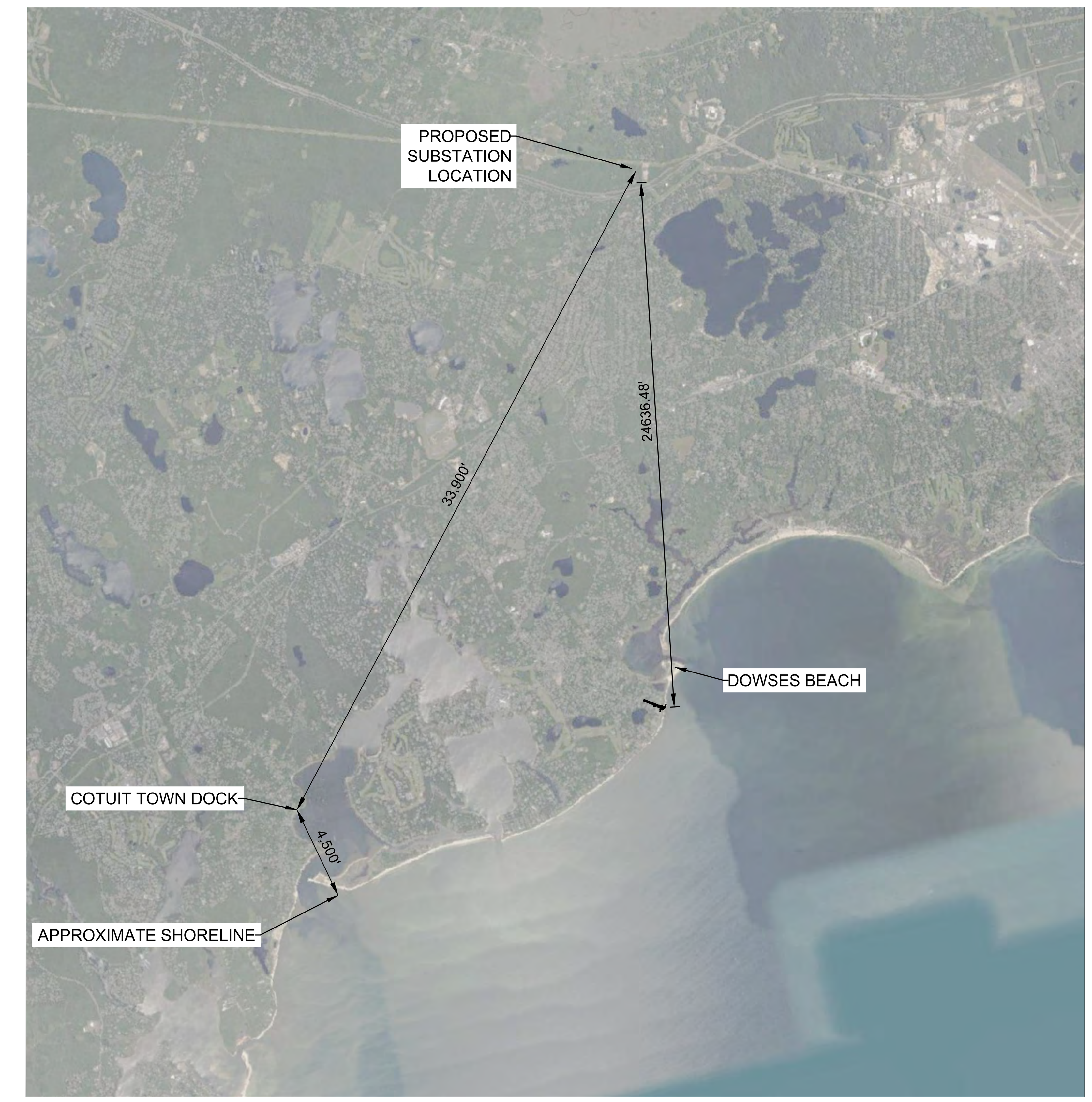
DOC ID: CWW-HDD-STC-SK-0814

SHEET 3 OF 7	DWG. NO.	SCALE	FORMAT/SIZE	REV:
		AS SHOWN	ANSI D	B

0 30 60 100

SCALE: 1" = 30'

APPROXIMATE AREA SHOWN	1.0 ACRES
REQUIRED EQUIPMENT SPACE	0.35-0.70 ACRES
TOTAL REQUIRED SPACE	1-1.25 ACRES



0 5,000 10,000 15,000 20,000

SCALE: 1" = 5000'

CONCEPTUAL

FOR INFORMATION ONLY
NOT FOR CONSTRUCTION

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THIS PLAN SET IS PRELIMINARY AND HAS BEEN ISSUED FOR PERMITTING PURPOSES ONLY; AND, IS NOT INTENDED FOR CONSTRUCTION PURPOSES.

REV.	DATE	REVISION DESCRIPTION	STATUS	DRAWN	CHKD	APPRVD
C	2023-03-15	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
B	2023-02-22	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
A	2023-01-12	ISSUED FOR INFORMATION	IFI	RN	KEF	KEF

CONTRACTOR:

Stantec

Stantec Consulting Services Inc.
400 Crown Colony Drive Suite 200
Quincy, MA U.S.A. 02169-0982

CLIENT:

AVANGRID Offshore Wind

125 High Street
Boston, MA 02110

PROJECT: NEW ENGLAND WIND 2 CONNECTOR

TITLE: COTUIT BAY LANDING CONSTRUCTION STAGING

DOC ID: CWW-HDD-STC-SK-0814

SHEET 4 OF 7	DWG. NO.	SCALE AS SHOWN	FORMAT/SIZE ANSI D	REV: B

ORIGINAL SHEET - ANSI D

APPROXIMATE AREA SHOWN	1.0 ACRES
REQUIRED EQUIPMENT SPACE	0.35-0.70 ACRES
TOTAL REQUIRED SPACE	1-1.25 ACRES

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B	2023-02-22	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
A	2023-01-12	ISSUED FOR INFORMATION	IFI	RN	KEF	KEF

CONTRACTOR:
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Stantec Consulting Services Inc.
400 Crown Colony Drive Suite 200
Quincy, MA U.S.A. 02169-0982

CLIENT:
AVANGRID | Offshore Wind
125 High Street
Boston, MA 02110

PROJECT: NEW ENGLAND WIND 2 CONNECTOR

TITLE: PRINCE COVE LANDING CONSTRUCTION STAGING

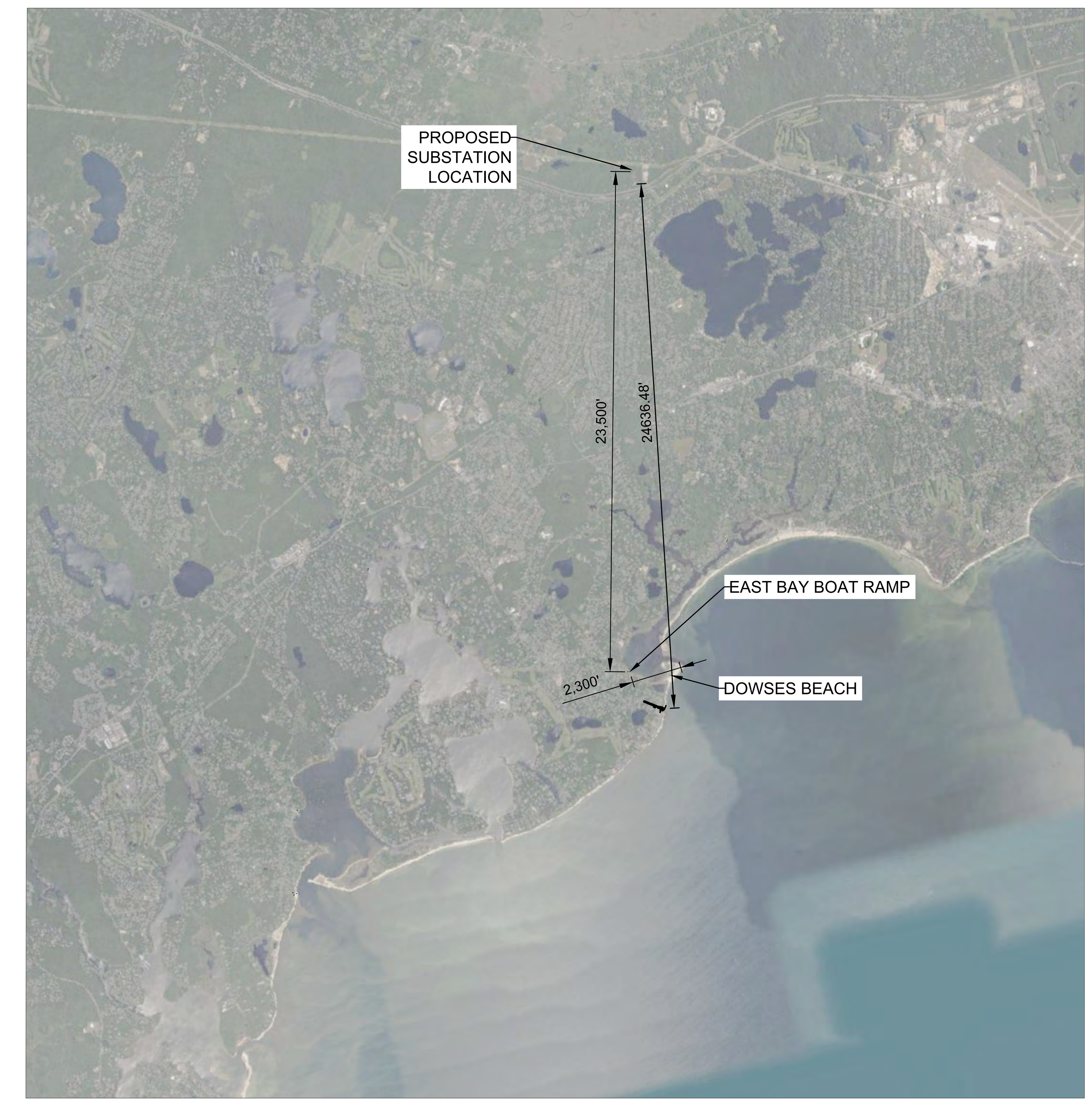
DOC ID: CWW-HDD-STC-SK-0814

SHEET 5 OF 7	DWG. NO.	SCALE	FORMAT/SIZE	REV:
		AS SHOWN	ANSI D	B

0 30 60 100

SCALE: 1" = 30'

APPROXIMATE AREA SHOWN	1.0 ACRES
REQUIRED EQUIPMENT SPACE	0.35-0.70 ACRES
TOTAL REQUIRED SPACE	1-1.25 ACRES



0 5,000 10,000 15,000 20,000

SCALE: 1" = 5000'

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B	2023-02-22	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
A	2023-01-12	ISSUED FOR INFORMATION	IFI	RN	KEF	KEF

CONTRACTOR:
Stantec
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Quincy, MA U.S.A. 02169-0982

CLIENT:
AVANGRID Offshore Wind
125 High Street
Boston, MA 02110

PROJECT: NEW ENGLAND WIND 2 CONNECTOR

TITLE: EAST BAY BOAT RAMP LANDING CONSTRUCTION STAGING

DOC ID: CWW-HDD-STC-SK-0814

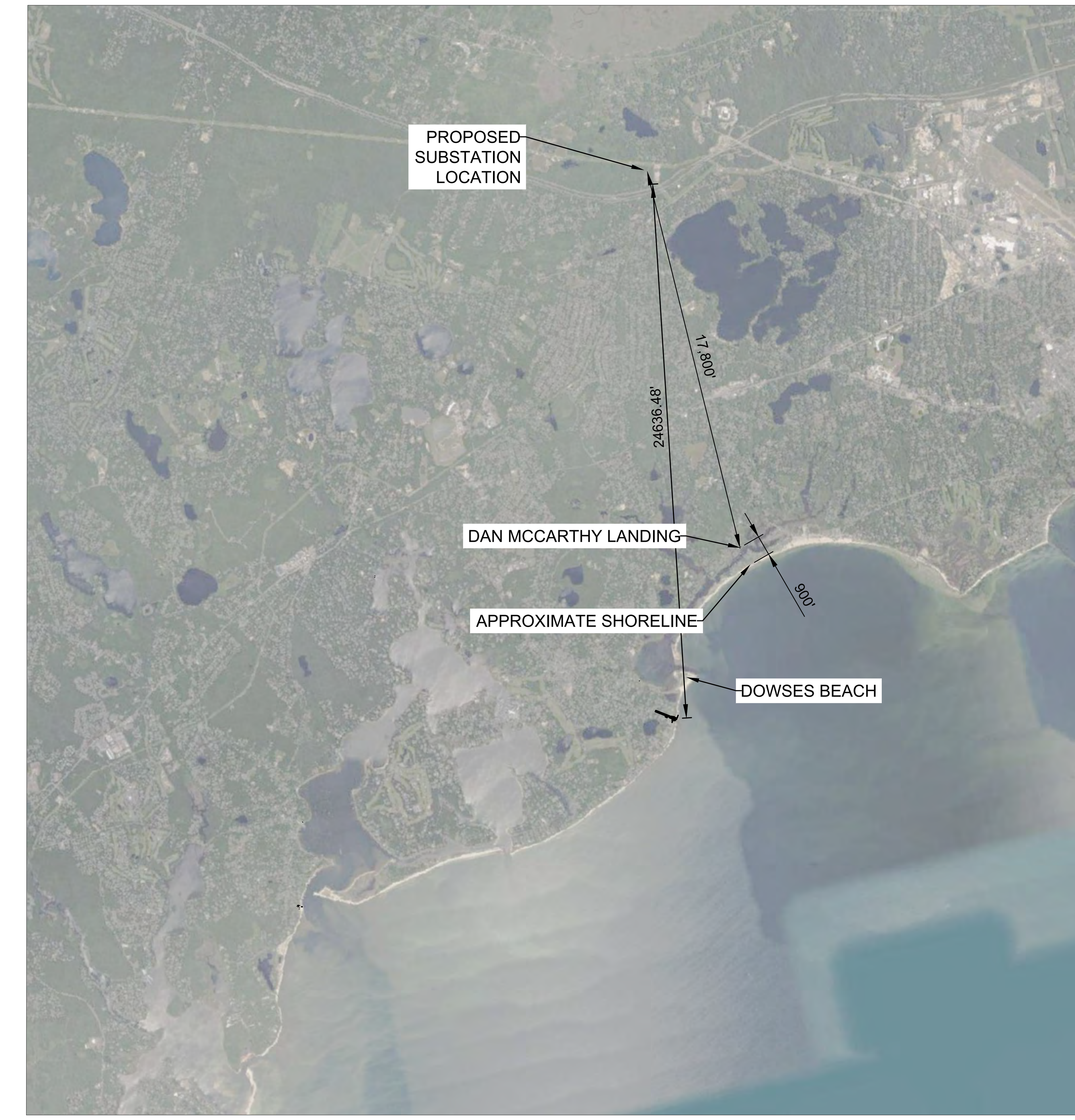
SHEET 6 OF 7	DWG. NO.	SCALE: AS SHOWN	FORMAT/SIZE: ANSI D	REV: B

ORIGINAL SHEET - ANSI D

0 30 60 100

SCALE: 1" = 30'

APPROXIMATE AREA SHOWN	1.0 ACRES
REQUIRED EQUIPMENT SPACE	0.35-0.70 ACRES
TOTAL REQUIRED SPACE	1-1.25 ACRES



0 5,000 10,000 15,000 20,000

SCALE: 1" = 5000'

CONCEPTUAL

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REV.	DATE	REVISION DESCRIPTION	STATUS	DRAWN	CHKD	APPRVD
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B	2023-02-22	ISSUED FOR INFORMATION	IFI	RN	MD	KEF
A	2023-01-12	ISSUED FOR INFORMATION	IFI	RN	KEF	KEF

CONTRACTOR:

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Quincy, MA U.S.A. 02169-0982

CLIENT:

AVANGRID | Offshore Wind
125 High Street
Boston, MA 02110

PROJECT: NEW ENGLAND WIND 2 CONNECTOR

TITLE: DAN McCARTHY LANDING CONSTRUCTION STAGING

DOC ID: CWW-HDD-STC-SK-0814

SHEET 7 OF 7	DWG. NO.	SCALE: AS SHOWN	FORMAT/SIZE: ANSI D	REV: B

ORIGINAL SHEET - ANSI D

Commonwealth Wind Project / Alternate Landfall HDD Summary Matrix

Landing Site	Town	Number of TJB that can be accommodated	Adequate egress for onshore export cable ductbank	Length or Feasibility of HDD	Acres of paved or graded construction staging area	Private Property Acquisition Required for construction staging	Acres of Clearing Required to meet construction staging requirements	Setback from residential uses	Onshore Ductbank Route Distance to Clay Hill Substation	Potential for Significant Impact to Onshore Coastal Resource Areas	Utility easements through private property	Partial Access Maintained during construction	SUMMARY
Dowses Beach Parking Lot	Barnstable	3	Yes	2,200 lf	3.2	No	0 (unless micro tunnel needed)	Yes	6.7 miles	no (unless micro tunnel utilized)	No	Yes	***Preferred Option***
Wianno Ave	Barnstable	1	Yes	<3,000 lf	0.7 (drill rig on land), 0.7 (marine)	Yes	0.3 (drill rig on land), 0.4 (marine)	No	6.4 miles PLUS OTHER 2-CIRCUIT DUCT BANK	No	No	No	***The Wianno Avenue/Sea View Avenue Alternate Landing Site is considered feasible for a single cable landing.***
Loop Beach	Barnstable	2	Yes	6,000 lf / Excessive Length / FATAL FLAW	0.5	No	0.5	No	8.3 miles PLUS OTHER 1-CIRCUIT DUCT BANK	Yes	No	No	***Not Feasible - Excessive HDD Length***
Cotuit Landing	Barnstable	1	Yes	>5,000 lf / Excessive Length / FATAL FLAW	0.3	No	0.7	No	7.5 - 8.4 miles PLUS OTHER 2-CIRCUIT DUCT BANK	Yes	Yes	No	***Not Feasible - Excessive HDD Length / Also Requires Utility Easement***
Prince Cove	Barnstable	2	Yes	>17,000 lf / Excessive Length / FATAL FLAW	0.5	Yes	0.6	No	5.1 miles PLUS OTHER 1-CIRCUIT DUCT BANK	Yes	Yes	No	***Not Feasible - Excessive HDD Length / Also Requires Utility Easement***
East Bay Boat Ramp	Barnstable	1	Yes	4,400 lf / Excessive Length / FATAL FLAW	0.5 (assumes both lanes of E Bay Rd occupied)	Yes	0.5	No	6.4 miles PLUS OTHER 2-CIRCUIT DUCT BANK	Yes	No	No	***Not Feasible - Excessive HDD Length / Also Requires Property Acquisition***
McCarthy's Landing	Barnstable	2	Yes	2,000 lf / Routing Under Structures / FATAL FLAW	0.3	Yes	0.7	No	5.9 - 7.2 miles PLUS OTHER 1-CIRCUIT DUCT BANK	Yes	Yes	No	***Not Feasible - HDD Routing Under/Near Residential Structures / Also Requires Utility Easement***
Covell's Beach	Barnstable	2	No / FATAL FLAW	2,200 lf	1	Yes	0	No	N/A	No	No	Yes	***Not Feasible - No Onshore Transmission Corridor***
Craigville Beach	Barnstable	3	No / FATAL FLAW	2,200 lf	1	Yes	0	No	N/A	No	No	Yes	***Not Feasible - No Onshore Transmission Corridor***
Parker Road	Barnstable	0	Yes	<3,000 lf / Routing Under Structures / FATAL FLAW	0.5	Yes	0.5	No	N/A	No	Yes	No	***Not Feasible - Excess HDD Length & Routing Under Residential Structure / Also Requires Property Acquisition & Utility Easement***
West Street	Barnstable	0	Yes	<3,000 lf / Routing Under Structures / FATAL FLAW	0.5	Yes	0.5	No	N/A	No	Yes	No	***Not Feasible - Excess HDD Length & Routing Under Residential Structure / Also Requires Property Acquisition & Utility Easement***