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February 29, 2016

Secretary, Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston MA 02114

Subject: Mid-Cape Main Replacement Project
Single Environmental Impact Report (EEA #15445)

Dear Secretary Beaton:

On behalf of Colonial Gas Company d/b/a National Grid (the "Company"), I am pleased to submit the Single Environmental Impact Report ("EIR") for the Mid-Cape Main Replacement Project in Yarmouth, Dennis, Harwich, and Brewster, MA.

The Company is proposing to replace approximately 18.1 miles of its existing 200-psig natural gas distribution main system in the Towns of Yarmouth, Dennis, Harwich and Brewster (the "Project"). The Company's existing 200-psig system includes 10-inch, 8-inch and 6-inch-diameter coated steel pipe. In early 2014, the Company discovered a substandard condition on a service connected to the 200-psig distribution main. The Company took immediate action to address the safety-related condition. The finding prompted the Company to initiate an investigation and inspection program to review construction of the 200-psig system in Yarmouth, Dennis, Brewster, and Harwich.

In mid-2014, while continuing its investigation, the Company made the precautionary decision to reduce the pressure in the 200-psig system from its 200-psig maximum allowable operating pressure to less than 125 psig. This decision was made to ensure public safety. The reduced operating pressure, however, reduces the volume of gas the Company can supply under high-demand conditions. In turn, the Company decided to institute a moratorium on new and expanded gas services (including conversions) on portions of the mid-Cape and all of the lower Cape Cod regions. As a result of the inspections, the Company determined that approximately 18.1 miles of the 200-psig system needed to be replaced. As

described in the Single EIR, the replacement main will be 12-inch-diameter coated steel except for the first approximately 1,050 linear feet, which will be 20-inch-diameter to eliminate an existing bottleneck in the system. The replacement main will be designed, installed, and tested in accordance with applicable Federal and Massachusetts standards as well as the Company's rigorous internal policies, including the capability for in-line inspections.

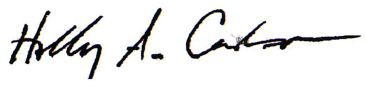
The Project will provide several important public benefits, including:

- Improving 200-psig system reliability by replacing 18.1 miles of older main;
- Lifting of the moratorium to again provide service to new customers, upgraded service to existing customers, and gas conversions;
- Reducing reliance on winter time portable liquefied natural gas ("LNG") operations in Chatham and Eastham, thus reducing LNG truck deliveries;
- Providing an approximately $78 million investment in infrastructure;
- Creating construction-related jobs over a two year period; and
- Increasing tax payments to the affected municipalities by the Company.

Please notice the Single EIR in the Environmental Monitor to be published March 9, 2016. The Public Comment period will extend through April 8, 2016, and the Secretary's Certificate will issue April 15, 2016.

Please feel free to contact me with any inquiries at (978)461-6268.

Sincerely,
EPSILON ASSOCIATES, INC.



Holly Carlson
Senior Scientist and Project Manager

cc: Circulation List (Attachment B)
Danielle Phillips and Deborah Blanch, National Grid

Epsilon
ASSOCIATES INC.

February 29, 2016

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Subject: Single Environmental Impact Report
Mid-Cape Main Replacement Project

Dear Interested Party:

On behalf of Colonial Gas Company d/b/a National Grid, we are pleased to provide the enclosed Single Environmental Impact Report (EIR) for the proposed Mid-Cape Main Replacement Project in Yarmouth, Dennis, Harwich, and Brewster, Massachusetts (the Project).

The Single EIR will be noticed in the *Environmental Monitor* to be published March 9, 2016. The Public Comment period will extend through April 8, 2016, and the Secretary's Certificate will issue April 15, 2016.

If you wish to submit comments on the Single EIR, they should be sent to:

Secretary, Matthew A. Beaton
Attn: MEPA Office, Purvi Patel
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston MA 02114

If you have questions about the Project, please call me at (978) 897-7100. Copies of the Single EIR may be obtained from Ms. Corinne Snowdon at (978) 897-7100, e-mail csnowdon@epsilonassociates.com.

Sincerely,

EPSILON ASSOCIATES, INC.

Holly A. Carlson

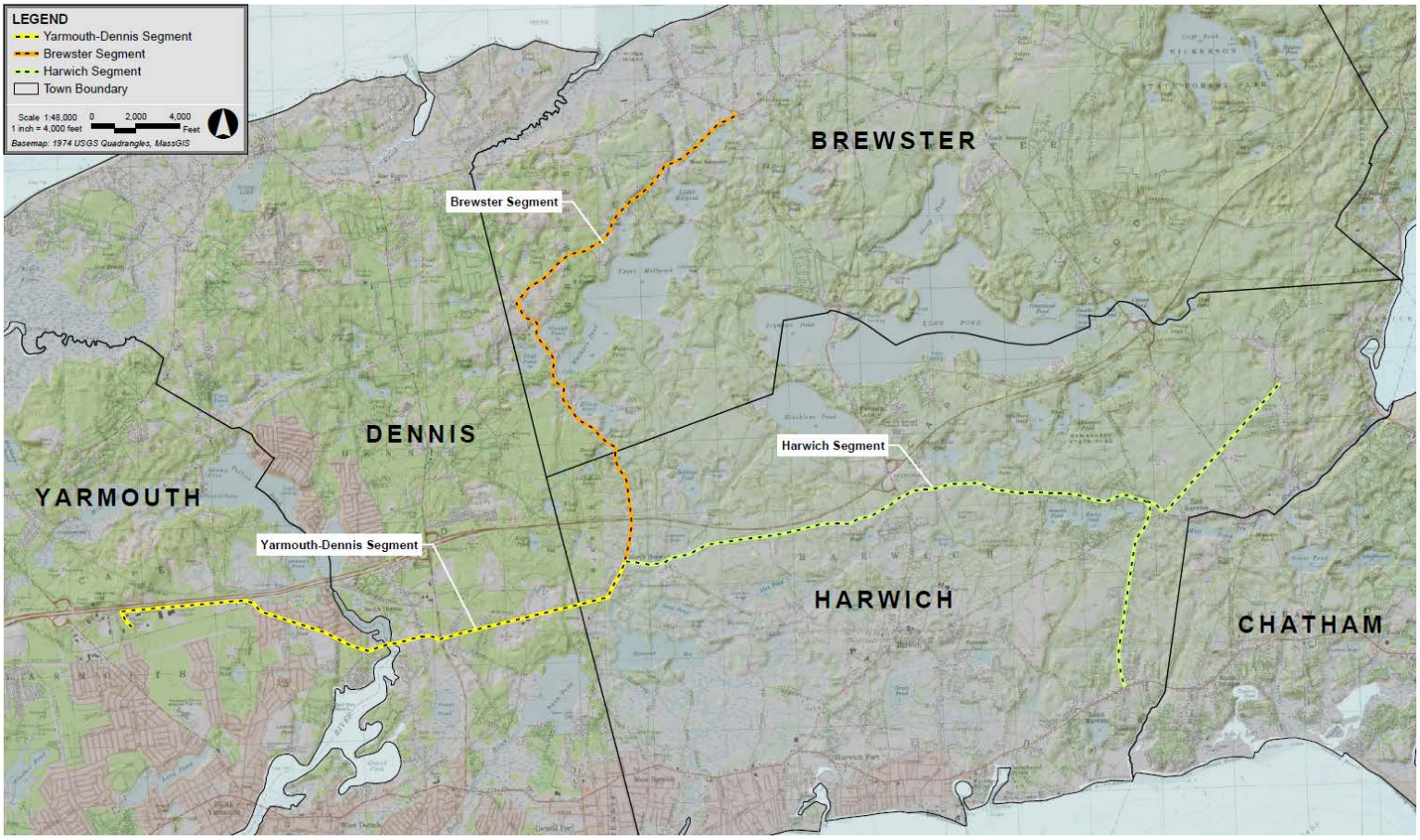
Holly Carlson
Senior Scientist and Project Manager

Enclosure

SINGLE ENVIRONMENTAL IMPACT REPORT

Mid-Cape Main Replacement Project

EEA #15445



Submitted to:

Executive Office of Energy and Environmental Affairs
MEPA Office
100 Cambridge Street, Suite 900
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Submitted by:

Colonial Gas Company d/b/a National Grid
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In Association with:

CHA Companies
Coastal Engineering Company
Gray & Pape, Inc.
Keegan Werlin LLP

February 29, 2016

Epsilon ASSOCIATES INC.

SINGLE ENVIRONMENTAL IMPACT REPORT

Mid-Cape Main Replacement Project

EEA #15445

Submitted to:

EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
MEPA Office
100 Cambridge Street, Suite 900
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February 29, 2016

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List of Acronyms

ANSI	American National Standards Institute
BREPC	Barnstable County Regional Emergency Planning Committee
CCC	Cape Cod Commission
CMR	Code of Massachusetts Regulations
CS	Coated Steel
DOER	Massachusetts Department of Energy Resources
DPU	Massachusetts Department of Public Utilities
DPW	Department of Public Works
DRI	Development of Regional Impact
ECP	Environmental Construction Plan
EEA	Executive Office of Energy and Environmental Affairs
EENF	Expanded Environmental Notification Form
EFSB	Massachusetts Energy Facilities Siting Board
EIR	Environmental Impact Report
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
GHG	Greenhouse Gas
GPTC	Gas Piping Technology Committee
GSEP	Gas Safety Enhancement Plan
HDD	Horizontal Directional Drilling
LNG	Liquefied Natural Gas
LSCSF	Land Subject to Coastal Storm Flowage
MAOP	Maximum Allowable Operating Pressure
MassDEP	Massachusetts Department of Environmental Protection
MassDOT	Massachusetts Department of Transportation
MEPA	Massachusetts Environmental Policy Act
NDE	Non-Destructive Examination
NPDES	National Pollutant Discharge Elimination System
PBD	Public Benefit Determination
PE	Polyethylene
PHMSA	Pipeline Hazardous Materials Safety Administration
RDA	Request for Determination of Applicability
SCF	Standard Cubic Feet
SLRP	Sagamore Line Reinforcement Project
SWPPP	Stormwater Pollution Prevention Plan
TMP	Traffic Management Plan
ULSD	Ultra-Low Sulfur Diesel
USGS	U.S. Geological Survey
WPA	Massachusetts Wetlands Protection Act

Section 1.0

Project Summary

1.0 PROJECT SUMMARY

Colonial Gas Company d/b/a National Grid ("Colonial Gas" or the "Company") is proposing to undertake the "Mid-Cape Main Replacement Project" to replace approximately 18.1 miles of its existing 200-psig natural gas distribution main system in the Towns of Yarmouth, Dennis, Harwich and Brewster (the "Project"). The Company's existing 200-psig system includes 10-inch, 8-inch and 6-inch-diameter coated steel ("CS") pipe. The oldest portions of the 200-psig system date to the mid-1960s and 1970s (on the Yarmouth-Dennis Segment as well as the southeastern-most portion of the Harwich Segment of this Project), with other portions having been installed in the mid-1990s (most of the Harwich Segment as well as the Brewster Segment).

In early 2014, while responding to a gas odor complaint, the Company discovered a substandard condition on a service connected to the 200-psig distribution main. The Company took immediate action to address the safety-related condition. The finding prompted Colonial Gas to initiate an investigation and inspection program to review construction of the 200-psig system in Yarmouth, Dennis, Brewster, and Harwich.

In mid-2014, while continuing its investigation, the Company made the precautionary decision to reduce the pressure in the 200-psig system to an operating pressure of less than 125 psig. This decision was made to ensure public safety. The lower operating pressure reduces the volume of gas the Company can supply under high-demand conditions. As a result, the Company decided to institute a moratorium on new and expanded gas services (including conversions) on portions of the mid-Cape and all of the lower Cape Cod regions.[1] As a result of the inspections, the Company also determined that approximately 18.1 miles of the 200-psig system needed to be replaced.

The content of this Single Environmental Impact Report ("EIR") responds to the scope of analysis defined in the Executive Office of Energy and Environmental Affairs ("EEA") Secretary's Certificate on the Expanded Environmental Notification Form ("EENF") issued on December 30, 2015. Copies of the Certificate and comment letters on the EENF are included in Section 4, Response to Comments.

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[1] The moratorium means that the Company cannot connect new customers to the network or increase the amount of natural gas supplied to existing customers in the following communities: Dennis, Harwich, Brewster, Chatham, Orleans, and Eastham. Barnstable and Yarmouth are also affected, but certain new customers may connect in those towns following review/approval from the Company. Certain new customers in Barnstable and Yarmouth may connect to the extent the customer requests do not trigger incremental LNG needs at portable sites in Chatham and Eastham.

1.1 Proposed Project

Figure 1-1 is a simple locational map of the Company's existing 200-psig system on an aerial photo base. Figure 1-2 provides the same simple locational mapping, but on a U.S. Geological Survey ("USGS") topographic base map. The proposed Project is shown on Figures 1-3 and 1-4. A set of larger-scale maps showing the route on an aerial base is provided as Figure 1-5.

1.1.1 Project Summary

The Mid-Cape Main Replacement Project is a multi-stage project designed to ensure the continued reliability of the natural gas distribution system and to restore/maintain minimum operating pressures. Upon completion, the Project will provide integrity of construction, supported with appropriate testing and construction records, to ensure safe and reliable operations. The Project is currently planned as three construction phases, with some possibly running concurrently. An additional phase is also possible, as the Company is considering construction of the easternmost 1.6 miles in Harwich prior to the rest of the Project, potentially in the Fall of 2016.[2] Assuming that the Project's environmental reviews, licensing, and permitting can be completed by early 2017, the entire Project is currently slated for completion in 2019. Completion of the Project can occur even earlier if permitting is completed earlier than 2017. Sections of the Project will be tested and placed into service as completed.

More specifically, the Company is proposing to replace approximately 18.1 miles of its existing 200-psig natural gas distribution system in the Towns of Yarmouth, Dennis, Harwich, and Brewster. Approximately 17.9 miles of the replacement main will be new 12-inch-diameter CS pipe. The westernmost 0.2 miles (approximately 1,000 feet) of the Project (from the current Regulator Station (#3920) in South Yarmouth to the existing 12-inch "Middle Segment" main in Whites Path) is proposed as 20-inch-diameter CS pipe that will replace the existing single 12-inch-diameter pipe to eliminate a bottleneck in the system. Use of this short segment of larger-diameter main will allow increased flow into the existing 12-inch "Middle Segment" main in Whites Path and the parallel 12-inch replacement main (to be constructed). This increased flow will improve reliability of the system during peak periods of demand (i.e., coldest winter days) by maintaining appropriate pressures at the eastern extremities of the system.

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[2] Construction of 1.6 miles of 12-inch-diameter CS main on the easternmost portion of the Harwich Segment was previously reviewed by MEPA and the EFSB as part of the SLRP, Eastern Segment in 2005. Subject to review by MEPA, the Cape Cod Commission, and receipt of the necessary Town of Harwich approvals, the Company is considering constructing this segment early in the Mid Cape Main Replacement Project construction sequence because it does not require a new Section 69J approval by the EFSB (see Attachment E for letter from the EFSB to the Company, dated February 12, 2016, determining that no further inquiry is required with respect to the Eastern Segment).

The 18.1-mile replacement main will be designed and tested for 270 psig, with normal operation at 200 psig. Pre-operational testing of the replacement main for 270 psig will facilitate future capacity increases of the main, should an increase become necessary, without having to take the main out of service for testing at that time. While the Company has no plans to operate this main above 200 psig for the foreseeable future, testing for an operating pressure of 270 psig at the time of original installation is also much more cost effective. Prior to any future increase in the main's operating pressure from 200 psig to 270 psig, the Company would be required to develop a formal up-rating plan for review by the Massachusetts Department of Public Utilities ("DPU") in accordance with Federal Code Part 192 and Code of Massachusetts Regulations ("CMR") 220. Massachusetts Energy Facilities Siting Board ("EFSB") review would also be required prior to placing the main into service at 270 psig (see Attachment E).

Aside from the short stretch of 20-inch main on Company property at the westernmost end of the Project, using uniform 12-inch steel pipe will enable more efficient future in-line inspections, thus helping to maintain system integrity. The Company's policies and standards require the replacement main to be "piggable," or designed to allow for in-line inspections. This allows in-line inspection tools to travel through the pipe and measure and record any irregularities to the pipe wall that could be the result of corrosion or damages caused by external forces. Constructing an in-line, inspection-enabled main allows for improved safety and reliability of the asset. Furthermore, present-day pipeline construction standards call for consistent diameters along new mains.

Once the replacement main is complete, the vast majority of the existing main will be decommissioned and abandoned in place. However, a few short sections of the existing main are proposed for continued use at a reduced pressure of 60 psig to allow the Company to eliminate existing high pressure services, or "farm taps" (see Section 1.1.1.2).

The proposed replacement main will be installed along the same route as the existing main, with the only exception being the easternmost 800 feet on Queen Anne Road, where there is no existing main; this minor deviation from the existing route will reduce sharp bends and minimize impacts to the Route 39 rotary.[3] The majority of the replacement main will be installed under pavement, and no portion of the Project will be more than 10 feet off the paved surface. The majority of the replacement main will be installed within three feet of the existing main, although there are some locations where replacement pipe will need to be installed across the street but parallel to the existing line. The Company's design engineers have been working with Town DPW Directors, Town Engineers, and other officials throughout the design process to ensure that the proposed replacement main alignment does not impact existing underground infrastructure or any proposed projects.

---

[3] Under existing conditions, at the eastern end of the Harwich Segment the main travels east on Queen Anne Road before turning south onto Depot Road and turning northeast on Orleans Road, ending at the intersection with Church Street (see Figures 1-1 and 1-2).

The replacement main will supply the existing 60-psig distribution system via six existing regulator stations, which were identified in the EENF.

1.1.1.1 Project Segments

The Project consists of several segments, each of which is described below. Overview graphics showing the Project route are provided on Figures 1-3 and 1-4, while a larger-scale set of graphics is provided as Figure 1-5.

- Yarmouth-Dennis Segment (4.9 miles): This segment involves the replacement of approximately 4.9 miles of 10-inch CS (200 psig) with a combination of 20-inch and 12-inch main. Approximately 1,000 feet of 20-inch main will be installed from the Company's property in South Yarmouth at 127 Whites Path to the existing 12-inch Sagamore Line Reinforcement Project ("SLRP") Middle Segment main in Whites Path, from which point the diameter of the replacement main will then be 12 inches as it travels through portions of the Towns of Yarmouth and Dennis to the intersection of Main Street and Depot Street in North Harwich. The existing 4.7 miles of parallel 12-inch CS main along this length was installed between 2007 and 2010 as the Sagamore Line Reinforcement Project's Middle Segment. This existing pipe would not be affected and would continue to operate at 200 psig.

- Harwich Segment (~8.0-8.1 miles):

  - Replace approximately 4.8 miles of 8-inch CS main with 12-inch CS main from the end of the Yarmouth-Dennis Segment in North Harwich to the intersection of Orleans Road and Depot Road, where the route splits and extends into East Harwich and South Harwich;

  - Replace approximately 1.6 miles of 6-inch CS main with 12-inch CS main from the intersection of Orleans Road and Queen Anne Road in East Harwich north along Orleans Road to the end of the 200-psig main at Route 39 and Church Street;[4] and

  - Replace approximately 1.6 miles of 6-inch and 8-inch CS main with 12-inch CS main from the intersection of Queen Anne Road and Depot Road in East Harwich south to the end of the 200-psig main at the intersection of Main Street (Route 28) and Depot Road in South Harwich.

[4] This 1.6 miles of 12-inch-diameter CS main on the easternmost portion of the Harwich Segment was previously reviewed by MEPA and the EFSB as part of the Sagamore Line Reinforcement Project, Eastern Segment in 2005.

- Brewster Segment (5.2 miles): This segment involves the replacement of approximately 5.2 miles of 10-inch CS main with 12-inch CS main from the end of the Yarmouth-Dennis Segment at the intersection of Main Street and Depot Street in North Harwich to the intersection of Main Street and Stoney Brook Road in Brewster.

1.1.1.2 High Pressure Service Transfers/Farm Taps

Service lines to individual homes and businesses are typically supplied from smaller-diameter, lower-pressure (60-psig) distribution lines. However, service along certain portions of the Project route is currently accomplished via connections directly to the 200-psig main rather than from a separate 60-psig distribution line. This is primarily due to the absence of a 60-psig distribution main in these areas. These direct connections are referred to a "farm taps," where a pressure regulator provides a first-stage pressure reduction at the property line to the standard operating pressure of the service to the premise where a service regulator further reduces the pressure to the appropriate level for standard natural gas equipment inputs suitable for household use. To eliminate 38 farm tap services and provide more typical service through a 60-psig line, the Company is proposing continued use of four sections of the existing 200-psig line, totaling approximately 11,445 linear feet, at a reduced operating pressure of 60 psig.

The Company is conducting further testing of the existing line, expected to be completed by late Fall 2016, to validate the condition of the pipe, including material properties and welds. This is to ensure that the segments are suitable for continued use at a reduced pressure of 60 psig. Although it is anticipated that the existing line will be suitable for use at 60 psig, if for any reason it is deemed unsuitable, then 4-inch and 2-inch polyethylene ("PE") mains will be installed instead to eliminate the high-pressure services and provide the necessary connections to the 60-psig system. The four sections proposed for continued use at 60 psig are described below and are shown on Figure 1-6:

- On the Yarmouth-Dennis Segment:
  - A minimum 60-psig main extension of approximately 5,965 feet on Whites Path in south Yarmouth is required to eliminate farm taps. Continued use of a total of approximately 6,120 linear feet of the existing main from 127 Whites Path to 454 North Main Street in South Yarmouth is proposed to eliminate 22 farm taps and connect the ends of the 60-psig system (if continued use is not possible, this would be accomplished with 4-inch PE);
  - A minimum 60-psig main extension of approximately 1,785 feet on Great Western Road in south Dennis and north Harwich is required to eliminate farm taps. Continued use of a total of approximately 2,225 linear feet of the existing main from 259 Great Western Road in south Dennis to 50 Great Western Road

in north Harwich is proposed to eliminate 9 active farm taps and connect the ends of the 60-psig system (if continued use is not possible, this would be accomplished with 4-inch PE).

- On the Harwich Segment (eastern end):
  - A minimum 60-psig main extension of approximately 945 feet on Orleans Road in east Harwich is required to eliminate farm taps. Continued use of a total of approximately 2,600 linear feet of the existing main from 1380 Orleans Road (Route 39) to 1470 Orleans Road is proposed to eliminate 6 active farm taps providing service to a total of 15 customers and connect the ends of the 60-psig system (if continued use is not possible, this would be accomplished with 4-inch PE); and
  - A minimum 60-psig main extension of approximately 100 feet on Orleans Road in east Harwich is required to eliminate farm taps. Continued use of a total of approximately 500 linear feet of the existing main from 1595 Orleans Road (Route 39) to 286 Church Street is proposed to eliminate one active farm tap providing service to one customer and connect the ends of the 60-psig system (if continued use is not possible, this would be accomplished with 2-inch PE to connect to existing 2-inch on either end).

If continued use of the existing main is not possible, the small diameter PE mains would be installed using a one-foot-wide, four-foot-deep trench. If necessary, the approximately 6,120 linear feet of PE main along Whites Path would be installed below pavement. The remaining PE portions, if needed, would likely be installed in the shoulder of the road within a few feet of existing pavement, and would be located to avoid impacts to trees. These areas would be restored to their existing condition. These activities, which would have the same construction-period controls for the remainder of the Project, would have no additional environmental impacts. Since this work would occur beneath pavement or within a few feet of that pavement, and thus would be within the disturbed roadbed, archaeological impacts are not anticipated. The construction period would perhaps be slightly longer unless a dedicated crew was used for PE main installation.

Although there would be no significant impacts from installation of the 2-inch and 4-inch PE mains, there are advantages to utilizing the 200-psig segments at a reduced pressure of 60 psig. These are as follows:

- Potential reduction of overall construction timeline;
- Increased efficiency by repurposing infrastructure; and
- Cost savings.

1.1.1.3 Proposed Project Route

As previously stated, the proposed route for the replacement main follows the routing of the existing 10-inch, 8-inch, and 6-inch 200-psig system. This facilitates the necessary connections to the distribution regulator stations and is consistent with the replacement objective of the Project. The proposed route begins in Yarmouth and passes through Dennis and into Harwich before splitting and extending north into Brewster and further east across Harwich, where the end of the route also has a southern spur. Table 1-1 identifies the proposed replacement main route along roadways, and includes lengths along those roadways. Figure 1-4 shows an overview of the replacement main route, while a larger-scale map of the route is provided as Figure 1-5.

Table 1-1 Replacement Main Route, by roadway/street.

Roadway	*Lengths per Current Design Plans*	
	Feet	*Miles*
Yarmouth-Dennis Segment		
Driveway	1,127	0.21
Whites Path	5,932	1.12
North Main Street	479	0.09
Great Western Road	5,272	1.0
Highbank Road (passing into Dennis)	2,925	0.55
Upper County Road	281	0.05
Great Western Way	459	0.09
Great Western Road (passing into Harwich)	7,180	1.36
Depot Street	1,792	0.34
Harwich Segment		
Main Street	1,711	0.32
Queen Anne Road	23,786	4.4
Orleans Road	7,850	1.49
Depot Road (southern spur)	8,645	1.64
Brewster Segment		
Depot Street	5,146	0.97
Slough Road	8,801	1.67
Satucket Road	9,743	1.84
Stony Brook Road	3,905	0.74
Brier Lane	155	0.3

The proposed route will have a number of "special crossings" of features such as waterbodies, culverts, and state roads. These crossings are listed in Table 1-2, along with the proposed method of accomplishing each crossing.

Crossings of waterbodies and drainage features (e.g., culverts) will all be accomplished on existing bridges or within the existing road bed. As shown in Table 1-2:

- There is one river crossing (the Bass River), which will be accomplished by installing the proposed replacement main in an existing utility bay beneath the bridge, from which the existing 1960s-vintage 200-psig main would be removed;

- There are two stream crossings (Herring River and Stony Brook), which will be accomplished by open-cut trenching in the pavement above the existing concrete/granite culverts; and

- There are a number of crossings of drainage pipes that connect wetland areas, where the route will cross by open-cut trenching in pavement above culverts.

The Project will not be attached to any culvert, and no in-water work is proposed for any aspect of the Project.

A trenchless crossing technique such as jack-and-bore or horizontal directional drilling ("HDD") is being considered at the intersection of Route 28 (Main Street) and Depot Road in Harwich. However, due to space constraints in this area, the Company is working with MassDOT to determine whether open cut trenching may actually have fewer impacts, hence negating the need for a trenchless crossing.

All general open-cut trenching and crossings will be completed according to the typical trench detail shown in Figure 1-7. Where it will not be possible to achieve the normal three-foot (36-inch) cover from top of pavement and a 6-inch clearance above any existing culvert structure below the proposed replacement main, steel plating will be used as shown in the cross-section in Figure 1-8.

1.1.2 Project Purpose and Need

As a local natural gas distribution company, the Company's core obligation is to provide safe, reliable, and least-cost gas service to its customers. The primary driver for the Project is the condition of the existing system and its effect on the Company's ability to provide safe and reliable service to existing and future customers on the Cape Cod gas distribution network during periods of peak demand (i.e., design weather conditions). Specifically, the Company completed inspections of the system and confirmed a total of 30 substandard gas services connected to the Mid-Cape 200-psig system. In each case, these services were immediately replaced. In addition, the Company systematically sampled (i.e., excavated and examined) 28 welds on the 200-psig system. Nondestructive testing of the welds confirmed that 9 welds did not meet present day welding codes. Further, the Company found three discrepancies where field conditions (i.e., actual diameter of pipe installed) differed from Company records. The identified discrepancies in records confirmed the necessity to operate the system at less than 125 psig Maximum Allowable Operating

Table 1-2 Bridge and Special Feature Crossings (west to east).

Feature	*Description*	*Crossing Technique*
WATERBODY CROSSINGS		
Yarmouth-Dennis Segment		
Bass River, Highbank Road	Crossing of Bass River via Highbank Road bridge	12-inch pipe will be installed in existing utility bay of bridge
Harwich Segment		
Herring River, Main Street	Stream crossing: (3) 30″ corrugated metal pipes & granite culvert	Open cut trench (in pavement)
Pipe culvert, Queen Anne Road	24″ reinforced concrete pipe connecting wetlands	
Pipe culvert, Queen Anne Road	12″ reinforced concrete pipe connecting wetlands	
Brewster Segment		
Possible pipe culvert, Slough Road	Drainage pipe connecting to wetlands at Round Pond	Open cut trench (in pavement)
Possible pipe culvert, Slough Road	Drainage pipe connecting wetlands to Elbow Pond	
Pipe culvert at Elbow Pond	18″ drainage pipe connecting wetlands	
Pipe culvert at Slough Pond	12″ corrugated metal pipe connecting wetlands	
Stony Brook, Stony Brook Road	Stream crossing: 24″ concrete culvert	
SPECIAL ROAD CROSSINGS		
Harwich Segment		
Route 28 (Main Street) & Depot Road	Massachusetts Department of Transportation ("MassDOT") road crossing (120 feet)	Trenchless crossing under consideration (possibly open cut trench in pavement)
Brewster Segment		
Route 6 and Depot Street	MassDOT road crossing – Project alignment crosses under Route 6 on Depot Street (no work on Route 6 is required)	Open cut trench (in pavement)

Pressure ("MAOP") to ensure that the components of the system are safely operating within the design parameters. As discussed above, the reduction of system pressure on the Mid-Cape 200-psig main has resulted in a moratorium on new and expanded gas services (including conversions) on portions of the mid-Cape and all of the lower Cape Cod regions. It has also resulted in increased reliance on portable Liquefied Natural Gas ("LNG") units to meet peak demand for existing customers.

Construction of the proposed 18.1-mile replacement main will allow the Company to restore system pressures to 200 psig, thus strengthening downstream pressure and providing for adequate supply to reestablish new customer connections on the eastern Cape and to lift restrictions on new services, expanded services, and conversions. It will also once again reduce the Company's reliance on portable LNG, thus reducing the need for trucking operations to and from Chatham and Eastham and improving reliability. Prior to the new customer demand restrictions, the most recent forecast (from 2014) of customer growth predicted that demand for natural gas on the Cape would increase by 15% over the next five years, with an average annual growth rate of 3%. This demand for natural gas service comes both from new development and the continuing demand from oil-to-gas conversions, primarily for heating. Because of the moratorium and deferral of new customer connections, pent-up demand is anticipated to be high when capacity becomes available again.

1.2 Changes in Project since EENF

There have been three minor changes to the proposed Project since the EENF. These are described below:

- While a trenchless crossing technique is still under consideration at the intersection of Depot Road and Route 28 (Main Street) at the southern end of the Harwich Segment, the Company is consulting with MassDOT to determine whether open cut trenching would actually have fewer impacts, hence negating the need for a trenchless crossing;

- After consulting with the Town of Dennis Department of Public Works ("DPW"), the Company is no longer considering a trenchless crossing at the intersection of Upper County Road and Great Western Way; and

- The Company now proposes the installation of up to four remotely-controlled isolation valves, which, consistent with the rest of the Project, will be installed within the roadway layout within 10 feet of pavement. The Project has always included 12-inch-diameter isolation valves at these locations, but as an added safety mechanism, the electric and communications services along with the actuators (i.e., electrically-powered motors that open and close valves when signaled) and other appurtenances to make these valves remotely-operated from National Grid's Gas Control Center are now proposed. These utility services will be connected to

proposed above-grade street box enclosures similar to those used to house equipment to manage traffic control signals and traffic lights. The street box enclosures will be strategically located in the shoulder in close proximity to the valves with circuitry connected to the valve actuators located in below-ground prefabricated concrete vaults. The dimensions of the vaults are approximately six feet by six feet by five feet deep. The vaults will be located in the shoulder and accessible for inspection and maintenance through a vault access door. This change will not have any environmental impacts. A typical plan of the above-ground equipment associated with these valves is provided as Figure 1-9.

1.3 Permitting and Regulatory Approvals and Consistency with State and Local Environmental Policies

The Company will obtain all environmental approvals and permits required by federal, state, and local agencies and will be constructed and operated to fully comply with federal, state, and local environmental policies. Thus, the Project will contribute to a reliable, low cost, diverse energy supply for the Commonwealth with minimal environmental impact. The Company will secure state permits and necessary authorizations from the Massachusetts Department of Environmental Protection ("MassDEP") and the MassDOT. The Company has filed a Petition with the Massachusetts EFSB. In addition to Massachusetts Environmental Policy Act ("MEPA") review, the Project will be reviewed on the regional level as a Development of Regional Impact ("DRI") by the Cape Cod Commission ("CCC"). On the local level, the Company will work with the Conservation Commissions in each municipality to confirm the exemption under local wetland bylaws for replacement of existing and lawfully located utility facilities and structures, as well as with other local authorities for road opening permits/grants of location pursuant to Chapter 164, Section 70 of the Massachusetts General Laws ("Gas Statute").

Table 1-3, below, identifies the anticipated permits, reviews, and approvals required for the Project. By meeting the requirements for acquiring each of these approvals and permits, the Project will be in compliance with applicable state and local environmental policies. In addition, the Project is also consistent with the Commonwealth's Environmental Justice ("EJ") Policy, because the Company is pursuing an inclusive community outreach plan to facilitate the meaningful opportunity to participate by all and because the Project does not exceed any environmental impacts thresholds that would necessitate enhanced analysis under MEPA. As such, the Project is consistent with the Commonwealth's environmental policies.

Table 1-3 Permits, Reviews, and Approvals Required for the Project

Agency/Regulatory Authority	Permit and/or Purpose of Approval
Federal	
U.S. Environmental Protection Agency ("EPA")	National Pollutant Discharge Elimination System ("NPDES") General Permit for Stormwater
State	
Executive Office of Energy and Environmental Affairs	Massachusetts Environmental Policy Act review
Energy Facilities Siting Board	G.L. c. 164, § 69J Approval
MassDEP	Possible Chapter 91 Licenses or Minor Project Modifications for culvert crossings of Herring River and Stony Brook, and a Minor Project Modification for the crossing of Bass River via existing road bridge
MassDOT	Access Permit
Regional	
Cape Cod Commission	DRI Review
Local [5]	
Yarmouth Conservation Commission	Negative Determination or Order of Conditions
Yarmouth DPW and/or Board of Selectmen	Approval pursuant to Gas Statute (MGL c. 164, s. 70)
Dennis Conservation Commission	Negative Determination or Order of Conditions
Dennis DPW and/or Board of Selectmen	Approval pursuant to Gas Statute (MGL c. 164, s. 70)
Harwich Conservation Commission	Negative Determination or Order of Conditions
Harwich DPW and/or Board of Selectmen	Approval pursuant to Gas Statute (MGL c. 164, s. 70)
Harwich Historic District Commission	Certificate of Appropriateness or Hardship (for Street/Traffic Boxes)
Brewster Conservation Commission	Negative Determination or Order of Conditions
Brewster DPW and/or Board of Selectmen	Approval pursuant to Gas Statute (MGL c. 164, s. 70)

1.4 Public Benefit Determination

In November 2007, the Massachusetts House and Senate passed An Act Relative to the Licensing Requirements for Certain Tidelands (HB 4324), which was signed by Governor Patrick on November 15, 2007 (Chapter 168 of the Acts of 2007) and is known as the "Landlocked Tidelands Legislation." The legislation, among other things, names the Secretary of EEA as the "administrator of tidelands," and requires the Secretary to conduct a "public benefit review" for projects located on tidelands and to issue a written determination (the Public Benefit Determination, or "PBD"). Pursuant to 301 CMR 13.02(1), the Secretary is required to conduct a public benefit review for any project that (a) files an ENF after November 15, 2007, (b) is required to file an EIR, and (c) is completely or partially located in tidelands or landlocked tidelands.

[5] The specific steps required to confirm the exemption under local wetland bylaws for replacement of existing and lawfully located utility facilities and structures will be reviewed with each local commission.

The proposed replacement project crosses over jurisdictional flowed and filled tidelands associated with the Bass River. The proposed replacement main will be located in an existing utility bay of the Highbank Road Bridge above the Bass River and will be trenched into the existing roadway layout. For the Bass River crossing, the Company is finalizing the engineering plans that are necessary to submit a notice of Minor Project Modification to MassDEP. The Company expects to submit the notice for the Bass River crossing to MassDEP as soon as the materials are ready.

In addition, MassDEP's comment letter on the EENF suggested that the Herring River and Stony Brook may also be jurisdictional under Chapter 91. In both cases, the Project will be installed in the roadbed above existing culverts, and will not affect either waterbody or their associated culverts. The Company has consulted with MassDEP concerning whether the Herring River and Stony Brook are jurisdictional waterways where the Project crosses over them. For the Herring River and Stony Brook crossings, the Company has provided information to MassDEP concerning whether these water bodies are tidal or navigable at the crossings. Once MassDEP has reviewed this information, the Company will further consult with MassDEP on what, if any, Chapter 91 authorizations will be required for these two crossings.

The changes to the Chapter 91 legislation outlined above require analysis of a project's impacts on the public's rights to access, use, and enjoy tidelands that are protected by Chapter 91 as well as the identification of measures to avoid, minimize, and mitigate any adverse impacts on such rights.

The standards that guide the Secretary in making the PBD are related to the water dependency of the project under review. Water-dependent projects are presumed to meet the criteria in 301 CMR 13.04 (see below) and provide adequate public benefit. For nonwater-dependent projects, the Secretary is required to consider the following criteria:

(a) The purpose and effect of the project;

(b) The impact on abutters and the surrounding community;

(c) Enhancement to the property;

(d) Benefits to the public trust rights in tidelands or other associated rights, including but not limited to benefits provided through previously obtained municipal permits;

(e) Community activities on the site;

(f) Environmental protection and preservation; and

(g) Public health and safety, and the general welfare.

In terms of water-dependency, the Project is an "Infrastructure Crossing Facility," defined in the Waterways Regulations at 310 CMR 9.02 as *"any infrastructure facility which is a bridge, tunnel, pipeline, aqueduct, conduit, cable, or wire, including associated piers,*

bulkheads, culverts, or other vertical support structures, which is located over or under the water and which connects existing or new infrastructure facilities located on the opposite banks of the waterway…" As an Infrastructure Crossing Facility that will cross the flowed and filled tidelands of the Bass River and that cannot be located away from those tidelands while achieving the proposed Project purpose, the Project is classified as a "Water-Dependent Use" by the Waterways Regulations (310 CMR 9.12(2)(d)). Hence, it is presumed to meet the criteria related to public benefit review.

Nonetheless, a brief description of how the Project is consistent with the criteria is provided below.

(a) *The purpose and effect of the project:* The Project is proposed to restore system pressures to 200 psig, thus strengthening downstream pressure and providing for adequate supply to reestablish new customer connections on the eastern Cape and to lift restrictions on new services, expanded services, and conversions.

(b) *The impact on abutters and the surrounding community:* The Project will have a positive effect on abutters and the surrounding community by allowing the Company to lift restrictions on new services, expanded services, and conversions. The Project will not have any adverse effect on the ability of abutters and surrounding community to access tidelands.

(c) *Enhancement to the property:* Although the Project will not enhance conditions along the proposed route, the route selection and mitigation measures associated with construction will avoid adverse impacts to tidelands.

(d) *Benefits to the public trust rights in tidelands or other associated rights including but not limited to, benefits provided through previously obtained municipal permits:* The proposed Project will provide a direct public benefit by allowing the Company to lift the moratorium on new or expanded gas services. In addition, proposed mitigation measures will avoid any adverse impacts to the public trust rights in tidelands.

(e) *Community activities on the site:* Aside from temporary construction activities, the Project will not restrict or constrain activities along the proposed route.

(f) *Environmental protection and preservation*: The Project will have no significant environmental impacts, and will be installed entirely within existing roadway layout beneath pavement or within 10 feet of that pavement.

(g) *Public health and safety, and the general welfare:* The Project will have no adverse impacts on public health, safety, or welfare.

1.5 Outreach

1.5.1 Agency Meetings and Consultations

The Company has been actively consulting with state agencies, the CCC, and affected municipalities. A list of meetings conducted to date with municipalities and the CCC is provided in Table 1-4. The Company plans to maintain an active level of consultation and outreach as the design effort continues and the Project enters the licensing and permitting phase.

Table 1-4 Consultations with agencies and municipalities

Date	*Group and Topic*
November 26, 2014	Cape Cod Delegation (conference call)
December 2, 2014	Town Administrators and Representatives from Yarmouth, Harwich, and Brewster (sales moratorium, main replacement)
December 8, 2014	Brewster Fire Chief Robert Moran
December 16-17, 2014	Eastham and Chatham (LNG contingency plan, fire department training)
December 19, 2014	Harwich Fire Chief Norman Clarke (Project need)
December 30, 2014	Plumbing and Gas Inspectors from Yarmouth, Dennis, Harwich, Brewster (moratorium, Project need)
January 12, 2015	Cape Cod Commission (initial meeting for Project background)
January 16, 2015	Dennis Fire Chief Mark Dellner and Deputy Chief Bob Brown (Project need)
February 6, 2015	Town of Brewster, Charles Sumner (Project need)
February 23, 2015	Barnstable County Regional Emergency Planning Committee ("BREPC") and the Towns of Chatham and Eastham (LNG contingency)
March 4, 2015	Plumbing and Gas inspectors from the Towns affected by sales moratorium (moratorium)
March 6, 2015	CCC; delegation representing residents and businesses (Cape Cod Task Force); DPU
March 10, 2015	Highway Superintendent Chris Nickerson and DPW Director Lincoln Hooper (Project design)
March 26, 2015	Barnstable Regional Fire Chiefs Association (Project need, moratorium, LNG contingency)
April 15, 2015	Town of Harwich, CHA Engineering (design)
April 16, 2015	Town of Yarmouth (Project update)
April 17, 2015	CCC (Project update)
May 14, 2015	Town of Harwich (moratorium and excavation plans)
June 2, 2015	Dennis DPW Director (moratorium)
June 9, 2015	Town of Brewster (Project update and excavation plans)
June 15, 2015	CCC (Project update and schedule)
July 15, 2015	MEPA and EEA (Project update and environmental review requirements)
July 22, 2015	Town of Dennis (design)
July 22, 2015	Town of Yarmouth (design)
July 27, 2015	Town of Brewster (design)
July 28, 2015	Cape Cod Delegation (conference call)

Table 1-4 Consultations with agencies and municipalities (Continued)

Date	*Group and Topic*
August 3, 2015	MEPA (Project update and environmental review requirements)
August 13, 2015	Harwich Department of Public Works (design)
August 19, 2015	CCC (Project update)
August 21, 2015	Harwich Board of Selectmen
September 21, 2015	Harwich Town Council public meeting (Project need)
October 1, 2015	MassDEP (Project permitting)
October 6, 2015	MEPA pre-filing meeting
November 4, 2015	CCC (Project permitting)
December 10, 2015	MEPA Site Visit
December 14, 2015	Dennis DPW
February 10, 2016	CCC (Project update)

1.5.1.1 Energy Facilities Siting Board

On January 26, 2016, the Company submitted a Petition to the EFSB to begin Project review.

1.5.1.2 Cape Cod Commission

As indicated in Table 1-4, above, the Company has had several discussions with the CCC staff and will make the submissions required in accordance with the Regional Policy Plan. On December 23, 2015, the CCC submitted a comment letter to the MEPA Office on the Project's EENF which expressed support for the Project and requested an expedited review.

1.5.1.3 Municipalities

As listed in Table 1-4 above, the Company and its design engineering firm, CHA Companies, has held a considerable number of meetings with officials in Yarmouth, Dennis, Harwich, and Brewster to review the need for the Project and to solicit Town input on alignment location and construction sequencing. The four Towns have been very cooperative in this regard.

The Company has also kept up ongoing communications with the towns of Barnstable, Chatham, Eastham, and Orleans about the Project and the moratorium on added load. Each of these communities is affected by the Project to varying degrees.

1.5.2 Stakeholder Meetings

The Company has been consulting with a variety of stakeholders to keep them informed of the Project design and schedule. The CCC has hosted stakeholder meetings on the dates listed in Table 1-5. Advertisements were placed in the Cape Cod Times on July 21, 23, and 26, 2015 to explain the need for the Project and the nuances of the moratorium to the public, and in October 2015 the Company established a project website

(ngrid.com/midcape) to educate the general public about the Project and keep key stakeholders informed throughout its duration. In late January 2016, the Company held two Open Houses, one in Harwich and one in Dennis, to provide additional opportunities for communication with stakeholders and the public.

A list of stakeholder meetings is provided in Table 1-5.

Table 1-5 Consultations with stakeholders.

Date	*Group/Topic*
December 9, 2014	Homebuilders and Remodelers Association of Cape Cod
December 18, 2014	Cape Cod Times Editorial Board
January 12, 2015	Cape Cod Plumbers Association (project concept and moratorium)
March 6, 2015	Cape Cod Task Force (delegation representing residents and businesses)
April 17, 2015	Stakeholder group (Project update)
May 12, 2015	Homebuilders and Remodelers Association of Cape Cod (moratorium)
June 11, 2015	Homebuilders and Remodelers Association of Cape Cod (Project update)
June 15, 2015	Stakeholder meeting (with CCC) (Project schedule)
August 19, 2015	Stakeholder meeting (with CCC) (Project update)
August 21, 2015	Stakeholders from general public (with Harwich Board of Selectmen)
August 30, 2015	Cape Cod Times Editorial Board
November 4, 2015	Stakeholder meeting (with CCC) (Project update)
November 16, 2015	Association to Preserve Cape Cod briefing
January 12, 2016	Homebuilders and Remodelers Association of Cape Cod (Project update)
January 20, 2016	Harwich Open House
January 28, 2016	Dennis Open House
February 10, 2016	Stakeholder meeting (with CCC) (Project update)

As Colonial Gas continues the MEPA review process and begins the EFSB and CCC DRI review processes, there will be a number of public consultation sessions and public hearings. The Company also plans to host additional informational briefings and open houses later in 2016.

1.5.3 Customer Outreach

The Company has performed outreach to customers and the general public on Cape Cod, and will continue to communicate as the Project develops. Direct communications to customers included a letter about the Project and ongoing moratorium to all 30,000+ customers in the affected towns. This letter was also shared with the towns (some of whom posted it to town websites and/or Facebook pages) and other stakeholders such as the Homebuilders and Remodelers Association of Cape Cod. Customers in the affected towns also received on-bill messages about the Project during the month of August.

All customers who applied for added load in the affected towns during October 2014 (before the decision to implement the moratorium) were contacted directly by early December 2014 to explain the moratorium and confirm that the Company would not be able to fulfill the request.

In addition, the Company has completed a door-to-door effort to inform residents along the Project route and to answer their questions.

Section 2.0

Greenhouse Gas

2.0 GREENHOUSE GAS

As described in the EENF submitted on November 16, 2015, the Mid-Cape Main Replacement Project is consistent with the MEPA Greenhouse Gas Emissions Policy and Protocol ("GHG Policy") of May 2010. The MEPA GHG Policy requires proponents to quantify the impact of a project and of proposed mitigation in terms of energy savings and GHG emissions. The GHG Policy is primarily intended to apply to development or transportation projects that will consume energy and/or emit significant quantities of GHG. However, for the proposed Project, there are no proposed buildings or associated operational traffic for which to quantify GHG emissions. The GHG Policy contains a *de minimis* exemption, stated as follows:

> *"The MEPA Office acknowledges that some projects that require an EIR will have little or no GHG emissions, and this Policy shall not be applied to such projects. For any project that exceeds mandatory EIR thresholds at 301 CMR 11.03, the project proponent should specify in the ENF whether it believes that the project should be exempt pursuant to this de minimis exception. The Secretary will identify in the scoping Certificate whether a project requires a GHG analysis or whether it falls within this de minimis exception."*

Independent of the MEPA GHG Policy, National Grid has a corporate Environmental Policy, which states:

> *"We will reduce the impact of our business on global climate change targeting a decrease in our emissions of greenhouse gases by 45% by 2020 and 80% by 2050...[1] [and] [w]e will look at ways to reduce the impact of climate change on our business by implementing mitigation and adaptation measures."*

The Project will be implemented consistent with National Grid's stated policy. In addition, as described in the EENF, the Company believes this Project falls within the *de minimis* exemption because it will itself not consume energy and will have little or no GHG emissions during operations; nevertheless, a GHG emissions analysis is provided.

2.1 Changes from EENF

The EENF contained an assessment of GHG impacts from Project construction, and operation, including a discussion of measures to be taken during Project construction and operation to avoid, minimize, and mitigate damage to the environment. Based on comments received and instructions in the Certificate, this Single EIR provides revised calculations and additional description and analysis of the GHG impacts during operation. The EENF analysis for the Project's construction-phase GHG impacts is unchanged.

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[1] With respect to the Company's corporate policy, the targeted reductions are from 1990 baseline emissions levels.

2.2 Operational GHG Emissions - Updated Baseline & Proposed

As discussed in Section 6.1 of the EENF, methane ("CH_4") is a GHG and is the primary component of natural gas. Therefore, minimizing natural gas leaks minimizes project-related GHG emissions. Consistent with EPA GHG reporting requirements in 40 CFR 98, other GHGs are presented as CO_2-equivalents ("CO_{2e}").

2.2.1 Project Goal

As stated in Section 1.1.2 of this Single EIR, the primary driver for the Project is the condition of the existing system and its effect on the Company's ability to provide safe and reliable service to existing and future customers on the Cape Cod gas distribution network during periods of peak demand (i.e., design weather conditions). Construction of the proposed 18.1-mile replacement main will allow the Company to restore system pressures to 200 psig, thus strengthening downstream pressure and providing for adequate supply to reestablish new customer connections on the eastern Cape and to lift restrictions on new services, expanded services, and conversions. Section 6.1.2 of the EENF explains that using the estimated demand for 4,000 new services over the five years (absent the moratorium), heating these homes with natural gas rather than home heating oil would prevent the emission of approximately 16,000 tons of CO_2 per year.

The Project is not driven by a need to reduce fugitive emissions from the existing system, as the existing system is not among the types of infrastructure commonly referred to as leak-prone pipe (see Section 2.2.2 below). High-pressure distribution mains present very low potential for leaks when properly operated and maintained. Nevertheless, the design for the Project (including the 18.1 miles of new 200-psig main and alterations to the existing main and service connections) reflects industry best practices and incorporates features that will have the effect of minimizing the potential for leaks.

2.2.2 Existing System GHG Emissions

Reduction of leaks is not a primary driver of the need for this Project. The purpose of the replacement main in this Project is not analogous to the rationale for gas main replacements under the recent Massachusetts Gas Safety Enhancement Plan ("GSEP") legislation codified at Chapter 164, Sections 144-45 of the Massachusetts General Laws, and the Mid-Cape System has not been identified as a candidate for replacement under the GSEP program. The GSEP Legislation identified eligible infrastructure as follows:

"Any plan filed with the department shall include, but not be limited to: (i) eligible infrastructure replacement of mains, services, meter sets and other ancillary facilities composed of non cathodically protected steel, cast iron and wrought iron, prioritized to implement the federal gas distribution pipeline integrity management plan annually submitted to the department and consistent with subpart P of 49 C.F.R. part 192" (emphasis added)

The existing Mid-Cape System is a 100% cathodically protected steel system. Cathodic protection is an electrochemical means to protect the lifespan of steel pipe by impeding the chemical reactions that corrode the metal. The existing system's cathodic protection system has performed as designed. The Company has met the regulatory requirements for cathodic protection of the existing 200-psig Mid-Cape distribution main, and performance of the Company's Mid-Cape 200-psig cathodic protection system has met or exceeded all requirements. The system is tested annually at test stations[2] to meet Federal and State Codes, and Company Work Methods and Procedures.

In fact, there have only been three leaks on the existing 200-psig Mid-Cape System in the past 16 years.[3] The Company has reviewed records for the existing 200-psig Mid-Cape System from 1998 through 2014 for indications of any leaks on the system being replaced. These are summarized in Table 2-1, below.

Table 2-1 Leak history on 200-psig main.

Date Reported	*Leak Type*	*Material*	*Location*	*Diameter*	*Comments*
5/22/2007	Fitting	Coated steel	Whites Path	10″	Leak at outlet of service tee. Cause of leak was field-applied coating failure.
7/11/2011	Valve	Steel	Highbank Rd.	10″	10″ main valve leak at stem, cause of leak unknown.
2/2/2004	Pipe	Steel	Queen Anne Road	10″	Type of leak unknown, cause of leak unknown.

National Grid's leak classification procedure is consistent with industry standards developed by the Gas Piping Technology Committee ("GPTC"), an independent technical

[2] A "test station" in this context is a buried access point accessible through a small roadway access box along a main to test the cathodic system.

[3] This excludes leaks caused by third party damage. The proposed system is no more or less likely to experience such damage than the existing system.

committee accredited by the American National Standards Institute ("ANSI") and endorsed by the Pipeline Hazardous Materials Safety Administration ("PHMSA"). Further, the Company's procedure aligns with the state requirements for the establishment of a classification system of Grade 1, Grade 2, and Grade 3 leaks. Each of the leaks in Table 2-1 was identified as Grade 2, which is recognized as being non-hazardous at time of detection, but justifies scheduled repairs.

2.2.3 Method of Estimating Fugitive Emissions

The EPA emission factors are the most appropriate method of estimating fugitive emissions from the Project, and the calculated emissions for the 200-psig Mid-Cape System are the same for the existing and proposed systems, because the design will remain the same in all relevant respects. As stated in Section 6.2.5.2 of the EENF, a minimal amount of natural gas can leak from distribution mains and associated fittings. EPA default factors (40 CFR 98 Subpart W Table W-7, dated 8/7/2014) provide standard emission rate estimates based on the pipeline material and the type of fittings in use. In determining default emission factors for natural gas distribution mains, the EPA considered all the various attachments, appendages, joint types, and pipe materials. Thus, the associated valves and fittings on a distribution main (and their potential for fugitive emissions) are included in the emission factor.

The EPA emission factor for coated steel pipe and associated fittings is 0.35 standard cubic feet ("scf") per hour per mile. This emission factor is no different for the existing system than for the proposed system, as the fundamental design is the same.

- The projected natural gas leak emissions rate for the 18.1 miles of main to be replaced by the Project is 55.5 mcf/year. This rate was obtained by multiplying the applicable emissions rate of 0.35 scf/hour/mile by the Project length. This yields an emissions rate of 55.5 mcf/year, which is equivalent to 29.1 tons of CO_{2e} per year. This emission rate calculation is the same for the existing system and the proposed 200-psig system.

- In addition, as stated in Section 6.2.5.2 of the EENF, the additional length of the existing distribution main that will be continued in use at 60 psig after the Project will have an estimated emission rate of 6.65 mcf/year, which is equivalent to 3.5 tons of CO_{2e} per year.

2.2.4 System Design Changes

As described below, with the exception of the diameter of the replacement main, there are only minor design changes between the existing system and the proposed Project. As such, there will be no significant difference in the fugitive emission rates for the existing and proposed pipeline. This understanding is based on fact that:

- Both the existing system and proposed Project will consist of 18.1 miles of coated steel pipe; and

- There have been no technological improvements for steel pipe, valve, or fitting design or manufacture or procedures for welding that have influenced the leak rates and associated emissions for the operation of these systems. The Mid-Cape 200-psig System will be an all-welded system before and after the Project. The relevant technological parameters for design, construction, and manufacture, including valves and fittings, are set forth in more detail in Section 2.2.5 below.

However, the following Project design changes may make the system less likely to leak (although the likelihood and associated GHG emissions cannot be quantified):

1. Reduced number of high-pressure service taps (or "farm taps") on the 200-psig system. As discussed in Section 1.1.1.2, while the overall number of service connections will remain approximately the same, the number of high-pressure services will be reduced. The elimination of farm tap services simplifies the design, construction, and operation of this system.

2. New remotely-operated isolation valves. As described in Section 1.2, the Company now proposes the installation of up to four remotely-controlled isolation valves. The Project has always included 12-inch-diameter isolation valves at these locations, but as an added safety mechanism, the electric and communications services along with the actuators and other appurtenances to make these valves remotely-operated from National Grid's Gas Control Center are now proposed. Depending on the nature of an event, these valves could reduce the duration of a natural gas release.

2.2.5 GHG Mitigation Measures

The Project is designed to avoid, minimize, and mitigate damage to the environment. The Project design incorporates current industry standards for materials and equipment along with construction, testing, and inspection techniques for avoiding leaks, and systems are in place to identify and minimize leaks if they occur. The relevant regulatory standards and requirements governing design, manufacture, and construction are provided below. As discussed above, the system will provide an option for customers to choose natural gas for their heating and cooking needs in place of oil, resulting in a reduction of GHG emissions.

Federal and state codes and requirements, along with the Company's procedures for design, construction, commissioning, operations and inspections include significant steps to ensure system integrity, the avoidance of the potential for natural gas leaks and the safe operation of the assets. These include the use of steel pipe with factory-applied coatings and coating systems to ensure longevity of the asset, welded pipe and fittings, installation of cathodic protection systems at the time of construction, requirements for inspection and testing of the

assets, and testing of the new main and associated appurtenances to establish the maximum allowable operating pressure. Further, the Company follows Federal and state Code requirements for the inspection, testing, and operation of the assets to ensure safe and reliable operations.

The applicable codes and standards for pipes, cathodic protection, shutoff valves, regulators, and other appurtenances are included in Attachment C. Applicable codes and procedures for initial pipe inspection, initial fitting inspection, initial system pressure test, pipeline internal inspection, and other regular inspections are also included in Attachment C.

The relevant design and operational criteria are as follows:

- The design of the steel pipe will be in accordance with 49 CFR 192 Subpart C – Pipe Design[4] and 220 CMR 109 - Design, Construction, Operation & Maintenance of Intrastate Pipelines Operating in Excess of 200 psig. Further, design is controlled by Company Standard: ENG03001 Design of Transmission Lines and Pipelines with MAOPs of 125 psig or Greater. The design of the pipe and fittings is based on MAOP derived from the yield strength of the pipe. All pipe manufactured for the project will be certified by the mill and inspected by a third party to ensure quality control. The pipe will be tracked by purchase order number and unique heat number through the manufacture, transportation, coating process and storage[5].

- Welding will be performed by a qualified welder in accordance with the welding procedures which have been qualified according to API 1104 and/or ASME B31.8. This Project requires non-destructive examination ("NDE") of all welds. The cathodic protection system design incorporates a galvanic anode system to protect the pipe and fittings from external corrosion in the case where a coating defect may be present or the coating system is damaged. The cathodic protection system will be monitored once each calendar year, but with intervals not exceeding 15 months to ensure effectiveness.[6]

- The system is continuously monitored at National Grid's Gas Control Center. The purpose of this monitoring is to ensure safe and reliable system operations by monitoring system variables including pressure and flow, and to prevent low-

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[4] Specific minimum requirements: 192.101; 192.103; 192.105; 192.107; 192.109; 192.111; 192.112; 192.113; 192.115; 220 CMR 109.

[5] Per Company Standard GEN01015 Requirement for Establishing and Retaining Project Files for All Piping 125 psig and Greater, Section 5.4 and associated Appendices #'s 6, 7 & 8.

[6] 49 CFR 192 Subpart I – Requirements for Corrosion Control: 192.453 – General; 192.455 – External Corrosion Control After 1971; 192.465 – External Corrosion Control Monitoring, and Company work procedures.

probability, high-impact events that could result in natural gas emissions and also impact system safety. Monitoring points exist at Gate Stations where gas enters the Mid-Cape 200-psig System from pipelines, at regulator stations, and at endpoints on the system.

- The design for the Project will include isolation valves strategically located (not more than 1 mile apart), which exceeds the federal and state requirements at 49 CFR 192.181 and 220 CMR 109.12. In addition, as described in Section 2.2.4 above, up to four of the valves will be remotely-controlled isolation valves. The benefit of these remotely-operated valves will be to improve the response time to isolate the system following a significant event resulting in the uncontrolled release of natural gas.

- The valves specified for installation on this system are ball valves that do not have stem packing (which can leak in other applications such as steam service); stem packing is not intended to be used in gas main valves. The ball valves have stem O-rings that keep the gas from escaping to the atmosphere (zero-emission). Example technical details are provided in Attachment C.

- In-situ gas detection systems ("sniffers") are not appropriate for the Project. This type of gas detection equipment is used at facilities (e.g., regulator stations, gate stations, meter stations and LNG sites) to ensure safe operations and the protection of employees and other personnel at those sites. Often, this equipment is utilized inside buildings or other structures to monitor and alert occupants to any hazardous conditions should a leak be present within enclosed areas where the gas can accumulate and cause an unsafe or hazardous condition. The installation of sniffers is not practical or beneficial for natural gas systems located in public rights of way. Instead, as described in detail above, the Company conducts periodic leakage surveys of this system. The surveys are required by Code and are consistent with industry best practices.

The codes and standards used are standard for the industry and reflect the most up-to-date requirements for safe pipeline design, construction, and operation. The Project's compliance with these codes and standards avoids and minimizes GHG emissions to the extent feasible, and there is no difference between a "base" compliant system and a proposed system that would show a quantifiable reduction in GHG emissions. There are no options for reducing GHG emissions beyond what is proposed for the Project.

2.2.6 Conclusion

As discussed above, the operational GHG emission rates from the proposed Project are expected to be small: 29.1 tons/year from the entire 18.1-mile Project per EPA factors. The Project design incorporates current industry standards for materials and equipment along with construction, testing, and inspection techniques, which are reflected in current codes

and Company procedures, to avoid and minimize GHG emissions. No further steps are available to reduce the potential for, or severity of, leaks. Moreover, the Project provides GHG mitigation in that it allows the use of natural gas rather than fuel oil to meet existing and new energy needs in the service area, with regional reductions that far outweigh direct GHG emissions from the Project. The emissions reduction from the oil-to-gas conversions is estimated to be 16,000 tons/year CO_2 equivalent.

2.3 GHG Emissions Summary and Mitigation Commitments

As stated in the EENF, the Company will employ the following measures to avoid and minimize GHG emissions from the Project:

- Tie-in venting natural gas releases will be minimized through design and planning with strategic placement of valves to minimize the length of pipe required to vent to facilitate a connection;
- Decommissioning natural gas releases will be minimized by utilizing a drawdown compressor to bleed down and evacuate natural gas from the 200-psig main (currently operating below 125 psig) after it is sectioned off or isolated from the rest of the system, injecting gas from the existing main into the adjacent 60-psig distribution system at strategic location(s), and flaring to further draw down pressure in the main to atmospheric pressure;
- The Company will comply with MassDEP's Diesel Retrofit Program and with the requirements for the use of ultra-low sulfur diesel ("ULSD") in off-road engines;
- Engine idling time during construction will be limited to five minutes except when engine power is necessary for the delivery of materials or to operate accessories to the vehicle such as power lifts;
- Replacement main valve pressure will be reduced when possible prior to performing maintenance activities to minimize venting of gas to the atmosphere;
- Consistent with current practices utilized for the existing main, to minimize the extent of ongoing fugitive emissions once the replacement main is placed into service, the Company will maintain pipe integrity via:
    - Cathodic protection to minimize corrosion;
    - Periodic inspections;
    - Use of a gas odorant to allow for rapid recognition of a leak; and
    - Maintenance of readily available leak repair equipment to minimize releases of gas.

Section 3.0

Proposed Section 61 Findings and Mitigation

3.0 PROPOSED SECTION 61 FINDINGS AND MITIGATION

In accordance with M.G.L. c. 30, Section 61 and 301 CMR 11.12(5), any State Agency that takes Action on a project for which the Secretary required an EIR shall determine whether the project is likely, directly or indirectly, to cause Damage to the Environment and shall make a finding describing the Damage to the Environment and confirming that all feasible measures have been taken to avoid or minimize the Damage to the Environment.

Contents of Section 61 Findings (301 CMR 11.12(5)(a)): In all cases, the Agency shall base its Section 61 Findings on the EIR and shall specify in detail all feasible measures to be taken by the Company or any other Agency or Person to avoid Damage to the Environment or, to the extent that Damage to the Environment cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable; an Agency or Person responsible for funding and implementing mitigation measures, if not the Company; and the anticipated implementation schedule that will ensure that mitigation measures shall be implemented prior to or when appropriate in relation to environmental impacts.

Section 61 Findings and Agency Action (301 CMR 11.12(5)(b)): Provided that mitigation measures are specified as conditions to or restrictions on the Agency Action, the Agency shall:

1. make its Section 61 Findings part of the Permit, contract, or other document allowing or approving the Agency Action, which may include additional conditions to or restrictions on the Project in accordance with other applicable statutes and regulations; or

2. refer in its Section 61 Findings to applicable sections of the relevant Permit, contract, or other document approving or allowing the Agency Action.

Subject Matter Jurisdiction Limitations (301 CMR 11.12(5)(c)): In the case of a Project undertaken by a person that requires state permits or land transfers, but no funding, the Scope of any EIR is limited to those aspects of the project that are within the subject matter of the permit(s) or within the area subject to a land transfer that are likely, directly or indirectly, to cause damage to the environment. Any Participating Agency shall limit its Section 61 Findings, or any mitigation measures specified as conditions to or restrictions on the Agency Action, to those aspects of the Project that are within the subject matter of any required Permit or within the area subject to a Land Transfer. Under the provisions of the MEPA statute (M.G.L. c. 30, sec. 62A), "[a]ny finding required by section sixty-one shall be limited to those matters which are within the scope of the environmental impact report, if any, required by this section."

State Agencies that will be required to make Section 61 Findings for the Project prior to issuing permits for, funding, or otherwise implementing the Project include or may include the Agencies identified in Table 1-3.

Depending on agency procedures, as described above, the various Section 61 Findings may be part of permits or agency actions, or may be stand-alone documents. Moreover, agencies will generally limit Section 61 Findings to impacts and mitigation within the scope of the subject matter of their permits (e.g., MassDEP Section 61 Findings will address water).

The Proposed Section 61 Findings below and the subsequent sections contain commitments the Company has made as a basis for respective agency Section 61 Findings. See also the Summary of Impacts and Mitigation Measures, Table 3-1.

3.1 Massachusetts Department of Environmental Protection Findings

Project Name:	Mid-Cape Main Replacement Project
Project Location:	Yarmouth, Dennis, Harwich, and Brewster
Project Proponent:	Colonial Gas Company d/b/a National Grid
EOEA Number:	15445
Date Noticed in Monitor:	March 9, 2016

These Findings for the Mid-Cape Main Replacement Project (EEA #15445) have been prepared in accordance with the provisions of M.G.L. c. 30, Section 61 and 301 CMR 11.00. On April 15, 2016, the Secretary of Energy and Environmental Affairs issued a Certificate stating that the Project's Single Environmental Impact Report ("SEIR"), dated February 29, 2016 adequately and properly complied with the MEPA statute and regulations.

The Mid-Cape Main Replacement Project is a multi-stage project designed to ensure the reliability of the distribution system and to maintain minimum operating pressures. Project limits are within the Towns of Yarmouth, Dennis, Harwich, and Brewster. Upon its completion, the Company will possess records to validate proper construction pursuant to all applicable federal and state codes and ensure safe and reliable operations.

The Project is planned as three construction phases, possibly running concurrently. All phases are replacements of existing 10-, 8-, and 6-inch main with 12-inch CS designed for a MAOP of 270 psig, with normal operation at 200 psig. The one exception to the use of 12-inch main is that the westernmost approximately 1,000 feet of the Project, from the current Regulator Station (#3920) in South Yarmouth to the existing 12-inch "Middle Segment" main in Whites Path, will be installed as a 20-inch main to eliminate a bottleneck in the system. Aside from a limited stretch of 20-inch main, using uniform 12-inch steel pipe throughout the rest of the Project will allow for in-line inspection, ensuring the ability to test system integrity in the future. All of the new main will have an MAOP of 270 psig and a normal operating pressure of 200 psig.

The proposed replacement main will be installed along the same route as the existing main, with the only exception being the easternmost 800 feet on Queen Anne Road. The majority of the replacement main will be installed under pavement, and no portion of the Project will be more than 10 feet off the paved surface. The majority of the replacement main will be installed within three feet of the existing main, although there are several locations where replacement pipe will need to be installed across the street but parallel to the existing line.

As this Project is currently described, the following agency action may be required from the Department:

- Chapter 91 Notices of Minor Project Modification; and/or
- Chapter 91 Licenses.

Based upon its review of the MEPA documents, the request for authorization submitted to date, and the Department's regulations, the Department finds that the terms and conditions to be incorporated into the authorization required for this Project will constitute all feasible measures to avoid damage to the environment, including consideration of the potential effects of climate change, and will minimize and mitigate such damage to the maximum extent practicable for those impacts subject to the Department's authority (see the appended Mitigation Table). Implementation of the mitigation measures will occur in accordance with the terms and conditions set forth in the authorization.

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Department of Environmental Protection

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By

_____

[Date]

3.2 Massachusetts Department of Transportation Findings

Project Name:	Mid-Cape Main Replacement Project
Project Location:	Yarmouth, Dennis, Harwich, and Brewster
Project Proponent:	Colonial Gas Company d/b/a National Grid
EOEA Number:	15445
Date Noticed in Monitor:	March 9, 2016

These Findings for the Mid-Cape Main Replacement Project (EEA #15445) have been prepared in accordance with the provisions of M.G.L. c. 30, Section 61 and 301 CMR 11.00. On April 15, 2016, the Secretary of Energy and Environmental Affairs issued a Certificate stating that the Project's Single Environmental Impact Report ("SEIR"), dated February 29, 2016 adequately and properly complied with the MEPA statute and regulations.

The Mid-Cape Main Replacement Project is a multi-stage project designed to ensure the reliability of the distribution system and to maintain minimum operating pressures. Project limits are within the Towns of Yarmouth, Dennis, Harwich, and Brewster. Upon its completion, the Company will possess records to validate proper construction pursuant to all applicable federal and state codes and ensure safe and reliable operations.

The Project is planned as three construction phases, possibly running concurrently. All phases are replacements of existing 10-, 8-, and 6-inch main with 12-inch CS designed for a MAOP of 270 psig, with normal operation at 200 psig. The one exception to the use of 12-inch main is that the westernmost approximately 1,000 feet of the Project, from the current Regulator Station (#3920) in South Yarmouth to the existing 12-inch "Middle Segment" main in Whites Path, will be installed as a 20-inch main to eliminate a bottleneck in the system. Aside from a limited stretch of 20-inch main, using uniform 12-inch steel pipe throughout the rest of the Project will allow for in-line inspection, ensuring the ability to test system integrity in the future. All of the new main will have an MAOP of 270 psig and a normal operating pressure of 200 psig.

The proposed replacement main will be installed along the same route as the existing main, with the only exception being the easternmost 800 feet on Queen Anne Road. The majority of the replacement main will be installed under pavement, and no portion of the Project will be more than 10 feet off the paved surface. The majority of the replacement main will be installed within three feet of the existing main, although there are several locations where replacement pipe will need to be installed across the street but parallel to the existing line.

As this Project is currently described, the following permit will be required from the Department:

- Access Permit.

Based upon its review of the MEPA documents, the permit applications submitted to date, and the Department's regulations, the Department finds that the terms and conditions to be incorporated into the permit required for this Project will constitute all feasible measures to avoid damage to the environment, including consideration of the potential effects of climate change, and will minimize and mitigate such damage to the maximum extent practicable for those impacts subject to the Department's authority (see the appended Mitigation Table). Implementation of the mitigation measures will occur in accordance with the terms and conditions set forth in the permit.

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Department of Transportation

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By

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[Date]

3.3 Mitigation Measures for Wetlands

The Massachusetts Wetlands Protection Act ("WPA") Regulations include a long list of specific "minor activities" that, when performed outside of wetland resource areas but within the 100-foot buffer zone, are not subject to regulation under the Act (310 CMR 10.02(b)(2)(a through q). Included among the list of "minor activities" that are exempt from these regulations is the following provision for installation of utilities beneath existing paved roadways (310 CMR 10.02(b)2(i)):

> *i. Installation of underground utilities (e.g., electric, gas, water) within existing paved or unpaved roadways and private roadways/driveways, provided that all work is conducted within the roadway or driveway and that all trenches are closed at the completion of each workday;*

The proposed Project will be confined to existing roadway layout beneath pavement or within 10 feet of that pavement, and where work is within 100 feet of wetland resource areas, appropriate controls will be installed at the edge of pavement to confine construction to the paved roadway. All exposed trenches will be closed at the end of each workday. The Project is therefore a minor activity as specified in the Massachusetts WPA Regulations and is specifically exempted from regulatory review.

The Project will have no direct impacts to adjacent wetlands, but will involve construction in and along roadways that pass through the buffer zones of several wetland areas. Construction in close proximity to wetlands raises the concern for indirect impacts related to erosion and sedimentation. The Company is committed to ensuring that indirect impacts are avoided and minimized, and as such, a Stormwater Pollution Prevention Plan ("SWPPP") will be prepared for the Project that will specify implementation of erosion control measures, including:

- Environmental monitoring of the Project to ensure compliance with the SWPPP, NPDES General Permit, and all other environmental permits;

- Placement of erosion and sedimentation controls at appropriate locations along road shoulders whenever the work zone is located within 100 feet of a wetland or within 200 feet of a perennial waterway;

- In roads where stormwater is directed to a local storm drain, filter fabric barriers will be installed and maintained to prevent sedimentation to the storm drain system, and trench spoils will be stockpiled in a manner that will prevent them from being washed with stormwater into nearby storm drains; and

- Trenches will be closed at the end of each work day.

During construction, certain heavy construction equipment may be fueled and lubricated as necessary. Procedures for refueling and lubricating construction equipment will be defined during consultations with the CCC to ensure safety and spill prevention. In all cases, secondary containment, spill containment gear, and absorption materials will be maintained for immediate use in the event of any inadvertent spills or leaks.

The Project will comply with the NPDES General Permit and SWPPP requirements, requirements of the WPA and the federal Clean Water Act and implementing regulations, and other restrictions as may be applied by the local conservation commissions in accordance with local wetlands protection bylaws. Appropriate erosion control and spill prevention technology will be provided where needed, and these controls will be closely monitored and managed as described in Section 4.3 of the EENF.

3.4 Mitigation Measures for Historic and Archaeological Resources

The Project is below grade and along previously disturbed roadways. The only above-grade features associated with the Project are street box enclosures associated with the four remotely-controlled isolation valves (see Section 1.2). These street box enclosures are similar to those used to house equipment to manage traffic control signals and traffic lights, and will not cause a significant visual impact. The street box enclosures will be strategically located in the shoulder in close proximity to the valves with circuitry connected to the valve actuators located in below-ground prefabricated concrete vaults. The Project will not affect properties listed on the State or National Register of Historic Places, nor will it affect historic districts or properties and areas listed in the Inventory of Historic and Archaeological Assets of the Commonwealth.

3.5 Mitigation Measures for Greenhouse Gas Emissions

The Company will employ the following measures to avoid and minimize GHG emissions from the Project:

- Tie-in venting natural gas releases will be minimized through design and planning with strategic placement of valves to minimize the length of pipe required to vent to facilitate a connection;

- Decommissioning natural gas releases will be minimized by utilizing a drawdown compressor to bleed down and evacuate natural gas from the 200-psig main (currently operating below 125 psig) after it is sectioned off or isolated from the rest of the system, injecting gas from the existing main into the adjacent 60-psig distribution system at strategic location(s), and flaring to further draw down pressure in the main to atmospheric pressure;

- The Company will comply with MassDEP's Diesel Retrofit Program and with the requirements for the use of ULSD in off-road engines;

- Engine idling time during construction will be limited to five minutes except when engine power is necessary for the delivery of materials or to operate accessories to the vehicle such as power lifts;

- Replacement main valve pressure will be reduced when possible prior to performing maintenance activities to minimize venting of gas to the atmosphere;

- Consistent with current practices utilized for the existing main, to minimize the extent of ongoing fugitive emissions once the replacement main is placed into service, the Company will maintain pipe integrity via:

  - Cathodic protection to minimize corrosion;

  - Periodic inspections;

  - Use of a gas odorant to allow for rapid recognition of a leak; and

  - Maintenance of readily available leak repair equipment to minimize releases of gas.

3.6 Mitigation Measures to be Implemented during Construction

The Company will engage the services of a qualified Environmental Inspector to manage the environmental inspection program. This program will ensure that construction activities will be in compliance with requirements of applicable federal, state and local environmental permits and approvals. The Environmental Inspector will have immediate access to the Company's Chief Inspector and will have "stop work" authority relative to environmental non-compliance.

Prior to construction, the Company will work closely with the municipalities to develop a Traffic Management Plan ("TMP") for construction. Issues to be addressed in the TMP include:

- Width and lane locations of the work zone to minimize impacts to vehicular traffic;
- Work schedule and duration of lane closures, road closures, or detours (where applicable);[1]
- Traffic-control devices such as barricades, reflective barriers, advance warning signs, traffic regulation signs, traffic-control drums, flashers, detour signs, and other protective devices will be placed as shown on plans and as approved by the applicable municipalities;
- Locations where temporary provisions may be made to maintain access to homes and businesses;
- Routing and protection of pedestrian and bicycle traffic;
- Maintenance of school bus service;
- Communication with adjacent businesses so critical product deliveries are not interrupted by construction;
- Determination of the impact to roadway level of service due to short-term lane closure(s), if necessary;
- Notification to municipal officials, local businesses, and the public of the timing and duration of closed curbside parking spaces and travel way restrictions;
- Coordination with police and fire departments; and
- Management of impact to egress by emergency vehicles.

The scope of the TMP will include an analysis of the roads affected by Project construction. The TMP will be submitted for review and approval by appropriate municipal authorities prior to construction.

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[1] It is the Company's expectation that most Project construction work will be scheduled during weekdays and daylight hours. Some work, however, may need to be scheduled at night or on the weekends. When needed, nighttime work/extended construction hours will be coordinated with each municipality. Following replacement main installation, the work to perform pressure testing and gassing-in of the new main will require work throughout the night, which will be coordinated with the towns.

Specific air quality mitigation measures expected to be incorporated into the Environmental Construction Plan ("ECP") include:

- Use of appropriately designed wheel wash facilities as necessary to prevent off-site migration of soils;
- Mechanical street sweeping of construction areas and surrounding streets and sidewalks as necessary;
- Removal of construction waste in covered or enclosed trailers;
- Wetting of exposed soils and stockpiles to prevent dust generation;
- Minimizing stockpiling of materials on site;
- Turning off construction equipment when not in use and minimizing idling times;
- Minimizing the storage of construction waste on site; and
- Minimizing the duration that soils are left exposed.

Many of these measures are intended to minimize potential impacts associated with construction activities that may generate fugitive dust, which will result in localized increases in airborne particulate levels. The Company requires contractors to use ULSD in off-road diesel vehicles, and the Company will comply with the requirements of MassDEP's Diesel Retrofit Program. The Company and its contractors will comply with state law (M.G.L. Chapter 90, Section 16A) and MassDEP regulations (310 CMR 7.11(1)(b)), which limit vehicle idling to no more than five minutes in most cases.

Noise mitigation measures expected to be incorporated into the ECP include:

- Minimizing the amount of work conducted outside of typical construction hours;
- Ensuring that appropriate mufflers are installed and maintained on construction equipment;
- Ensuring appropriate maintenance and lubrication of construction equipment to provide the quietest performance;
- Requiring muffling enclosures on continuously-operating equipment such as air compressors and welding generators;
- Turning off construction equipment when not in use and minimizing idling times; and

- Mitigating the impact of noisy equipment on sensitive locations by using shielding or buffering distance to the extent practical.

The Project will have no impacts on water supplies. Measures designed to minimize erosion and sedimentation include:

- Minimizing the quantity and duration of soil exposure;
- Protecting areas of critical concern during construction by redirecting and reducing the velocity of runoff;
- Installing and maintaining erosion and sediment control measures during construction;
- Establishing vegetation where required as soon as possible following final grading; and
- Inspecting the construction route and maintaining erosion and sediment controls as necessary until final stabilization is achieved and final inspections completed.

It will be the responsibility of the contractor to implement and maintain erosion and sediment control measures during construction.

3.7 Mitigation Table

Table 3-1 summarizes potential Project impacts and related mitigation measures. Costs included therein are based on a conceptual mitigation design.

Table 3-1 Summary of Impacts and Mitigation Measures

Subject Matter	*Impact*	*Mitigation Measures*	*Schedule and Cost*
Wetlands	The Project will have no direct impacts to adjacent wetlands, but will involve construction in and along roadways that pass through the buffer zones of several wetland areas. In total, approximately 5,510 square feet of road surface within previously developed and degraded RFA will be temporarily altered to complete the Project.	The Company is committed to ensuring that indirect impacts from erosion and sedimentation are avoided and minimized, and as such a SWPPP will be prepared for the Project that will specify implementation of erosion control measures, including: ♦ Environmental monitoring of the Project to ensure compliance with the SWPPP, NPDES General Permit, and all other environmental permits; ♦ Placement of erosion and sedimentation controls at appropriate locations along road shoulders whenever the work zone is located within 100 feet of a wetland or within 200 feet of a perennial waterbody; ♦ In roads where stormwater is directed to a local storm drain, filter fabric barriers will be installed and maintained to prevent sedimentation to the storm drain system, and trench spoils will be stockpiled in a manner that will prevent them from being washed with stormwater into nearby storm drains; and ♦ Trenches will be closed at the end of each work day. During construction, certain heavy construction equipment may be fueled and lubricated as necessary. Procedures for refueling and lubricating construction equipment will be defined during consultations with the Cape Cod Commission to ensure safety and spill prevention. In all cases, secondary containment, spill containment gear, and absorption materials will be maintained for immediate use in the event of any inadvertent spills or leaks. The Project is a minor activity as specified in the Massachusetts WPA Regulations and is specifically exempted from regulatory review. However, the Project will comply with the NPDES General Permit and SWPPP requirements, requirements of the WPA and the Federal Clean Water Act and implementing regulations, and other restrictions as may be applied by the local conservation commissions in accordance with local wetlands protection bylaws. Appropriate erosion control and spill prevention technology will be provided where needed, and these controls will be closely monitored and managed as described in Section 4.3 of the EENF.	During construction. Cost included in overall Project costs.

Table 3-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	*Impact*	*Mitigation Measures*	*Schedule and Cost*
Historic and Archaeological Resources	The Project is proposed beneath existing paved roads and within 10 feet of that pavement, and as such is located within previously-disturbed roadbeds.	No previously undisturbed areas will be affected by the Project route. The only above-grade features associated with the Project are street box enclosures associated with the four remotely-controlled isolation valves. These street box enclosures are similar to those used to house equipment to manage traffic control signals and traffic lights, and will not cause a significant visual impact. The street box enclosures will be strategically located in the shoulder in close proximity to the valves with circuitry connected to the valve actuators located in below-ground prefabricated concrete vaults. The Project will not affect properties listed on the State or National Register of Historic Places, nor will it affect historic districts or properties and areas listed in the Inventory of Historic and Archaeological Assets of the Commonwealth.	During construction. Cost included in overall Project costs.
Greenhouse Gas Emissions	The Company is taking all feasible measures to minimize and mitigate greenhouse gas emissions. By enabling heating oil-to-gas conversions and new natural gas services on the Cape, the Project can be expected to prevent the emission of approximately 16,000 tons of CO_2 per year (using the estimated demand for 4,000 new services over the next five years, absent the moratorium). The projected natural gas leak rate for the entire pipeline is 55.5 mcf/year (18.1 miles times 0.35 scf/hour/mile). The projected leak rate is equivalent to 29.1 tons of CO_2 equivalent per year. This is the same for the existing system and the proposed replacement main. Thus, there is no significant design difference between the existing system and the proposed system vis-à-vis GHG emissions.	The Company will submit a self-certification to the MEPA Office at the completion of the Project.	During construction and operation. Cost included in overall Project costs.

Table 3-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	*Impact*	*Mitigation Measures*	*Schedule and Cost*
Construction	Temporary impacts on traffic, air quality, noise.	The Company will engage the services of a qualified Environmental Inspector to manage the environmental inspection program. This program will ensure that construction activities will be in compliance with requirements of applicable federal, state and local environmental permits and approvals. The Environmental Inspector will have immediate access to the Company's Chief Inspector and will have "stop work" authority relative to environmental non-compliance. Prior to construction, the Company will work closely with the municipalities to develop a TMP for construction. Issues to be addressed in the TMP include: ♦ Width and lane locations of the work zone to minimize impacts to vehicular traffic; ♦ Work schedule and duration of lane closures, road closures, or detours (where applicable); ♦ Traffic-control devices such as barricades, reflective barriers, advance warning signs, traffic regulation signs, traffic-control drums, flashers, detour signs, and other protective devices will be placed as shown on plans and as approved by the applicable municipalities; ♦ Locations where temporary provisions may be made to maintain access to homes and businesses; ♦ Routing and protection of pedestrian and bicycle traffic; ♦ Maintenance of school bus service; ♦ Communication with adjacent businesses so critical product deliveries are not interrupted by construction; ♦ Determination of the impact to roadway level of service due to short-term lane closure(s), if necessary; ♦ Notification to municipal officials, local businesses, and the public of the timing and duration of closed curbside parking spaces and travel way restrictions; ♦ Coordination with police and fire departments; and ♦ Management of impact to egress by emergency vehicles.	During construction. Cost included in overall Project costs.

Table 3-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	*Impact*	*Mitigation Measures*	*Schedule and Cost*
Construction (cont'd)	Temporary impacts on traffic, air quality, noise.	The scope of the TMP will include an analysis of the roads affected by Project construction. The TMP will be submitted for review and approval by appropriate municipal authorities prior to construction. Specific air quality mitigation measures expected to be incorporated into the ECP include: ♦ Use of appropriately designed wheel wash facilities as necessary to prevent off-site migration of soils; ♦ Mechanical street sweeping of construction areas and surrounding streets and sidewalks as necessary; ♦ Removal of construction waste in covered or enclosed trailers; ♦ Wetting of exposed soils and stockpiles to prevent dust generation; ♦ Minimizing stockpiling of materials on site; ♦ Turning off construction equipment when not in use and minimizing idling times; ♦ Minimizing the storage of construction waste on site; and ♦ Minimizing the duration that soils are left exposed. Many of these measures are intended to minimize potential impacts associated with construction activities that may generate fugitive dust, which will result in localized increases in airborne particulate levels. The Company requires contractors to use ULSD in off-road diesel vehicles and will comply with the requirements of MassDEP's Diesel Retrofit Program. The Company and its contractors will comply with state law (M.G.L. Chapter 90, Section 16A) and MassDEP regulations (310 CMR 7.11(1)(b)), which limit vehicle idling to no more than five minutes in most cases.	During construction. Cost included in overall Project costs

Table 3-1 Summary of Impacts and Mitigation Measures (Continued)

Subject Matter	*Impact*	*Mitigation Measures*	*Schedule and Cost*
Construction (cont'd)	Temporary impacts on traffic, air quality, noise.	Noise mitigation measures expected to be incorporated into the ECP include: ♦ Minimizing the amount of work conducted outside of typical construction hours; ♦ Ensuring that appropriate mufflers are installed and maintained on construction equipment; ♦ Ensuring appropriate maintenance and lubrication of construction equipment to provide the quietest performance; ♦ Requiring muffling enclosures on continuously-operating equipment such as air compressors and welding generators; ♦ Turning off construction equipment when not in use and minimizing idling times; and ♦ Mitigating the impact of noisy equipment on sensitive locations by using shielding or buffering distance to the extent practical. The Project will have no impacts on water supplies. Measures designed to minimize erosion and sedimentation include: ♦ Minimizing the quantity and duration of soil exposure; ♦ Protecting areas of critical concern during construction by redirecting and reducing the velocity of runoff; ♦ Installing and maintaining erosion and sediment control measures during construction; ♦ Establishing vegetation where required as soon as possible following final grading; and ♦ Inspecting the construction route and maintaining erosion and sediment controls as necessary until final stabilization is achieved and final inspections completed. It will be the responsibility of the contractor to implement and maintain erosion and sediment control measures during construction.	During construction. Cost included in overall Project costs.

Section 4.0

Response to Comments

4.0 RESPONSE TO COMMENTS

The Single EIR is structured in response to the Secretary's Certificate on the Expanded ENF. A copy of the Certificate is included in this section.

This section responds to comment letters from government agencies and private organizations received on the Expanded ENF submitted on November 16, 2015. Each letter has been assigned an abbreviation, listed below in Table 4-1. The comment letters are reprinted in this section, and specific comments within each letter are noted in the margin with this abbreviation and a sequential numbering. Following the letter is a listing of the comments accompanied by a response to each.

Table 4-1 Secretary's Certificate and Comment Letters

Commenter	*Abbreviation*
EEA Secretary's Certificate on the ENF	MEPA
Massachusetts Department of Environmental Protection	DEP
Massachusetts Division of Marine Fisheries	DMF
Massachusetts Department of Energy Resources	DOER
Cape Cod Commission	CCC
Cape Cod Chamber of Commerce	CHC
Cape Cod & Islands Association of Realtors, Inc.	CCAR

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December 30, 2015

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
EXPANDED ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME	: Mid-Cape Main Replacement Project
PROJECT MUNICIPALITY	: Yarmouth, Dennis, Harwich, and Brewster
PROJECT WATERSHED	: Cape Cod
EEA NUMBER	: 15445
PROJECT PROPONENT	: Colonial Gas Company d/b/a National Grid
DATE NOTICED IN MONITOR	: November 23, 2015

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G.L. c. 30, ss. 61-62I) and Section 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that this project ***requires*** an Environmental Impact Report (EIR). The Proponent submitted an Expanded Environmental Notification Form (EENF) with a request that I allow a Single EIR to be prepared in lieu of the usual two-stage Draft and Final EIR process pursuant to 301 CMR 11.06(8).

This project is proposed to address safety, reliability and resiliency of critical energy infrastructure. National Grid has identified this project as a priority to meet its obligation to provide safe, reliable, and least-cost gas service to its customers. Cape Cod communities and businesses support the project and the lifting of the temporary service moratorium on new natural gas connections and expanded service. The Cape Cod Commission (CCC) has indicated its support for expediting the permitting and construction of this critical infrastructure.

Project Description

National Grid provides natural gas to approximately 112,000 customers in 13 communities on Cape Cod. The Cape Cod natural gas distribution system consists of a total of 2,565 miles of gas main. The majority of the system is operated at low operating pressures (i.e.

60 pounds per square inch gauge (psi)). A relatively small portion of the system is operated at higher pressures (i.e. 35 miles at 270 psig and 53 miles at 200 psig). The communities of Yarmouth, Dennis, Harwich, Brewster, Chatham, Orleans and Eastham are served by the 200-psig system. The EENF indicates that demand for natural gas will grow by approximately 15 percent over the next five years at an average annual rate of three percent.

As described in the EENF, the project consists of the replacement of approximately 18.1 miles of the 200-psig system in Yarmouth, Dennis, Harwich, and Brewster. Approximately 17.9 miles of replacement pipe will consist of 12-inch diameter coated steel (CS) pipe. At the western limits of the project, which is the beginning of the 200-psig system in this region of Cape Cod, the project will replace the existing 12-inch diameter pipe, between Regulator Station #3920 at the South Yarmouth Liquid Natural Gas (LNG) facility and two parallel mains on Whites Path, with approximately 1,000 feet of 20-inch diameter CS pipe. This larger diameter main will allow increased flow into the existing 12-inch Middle Segment[1] main in Whites Path and the proposed parallel 12-inch replacement main.

The project will be designed and tested for 270 psig, with normal operation at 200 psig. The EENF indicates that testing the replacement main for this higher pressure will facilitate future capacity increases of the main, in the event an increase should be warranted, and will be less costly if performed at the time of project construction. The EENF indicates that the Proponent does not plan to use the increased capacity that the project will provide. It will continue to operate the main at 200 psig.

The uniform 12-inch pipe along the majority of the route will allow more efficient in-line inspections to maintain system integrity. The Proponent's policies require the replacement main to be "piggable" (i.e. designed for in-line inspections) and pipeline construction standards recommend consistent diameters along new mains. Upon project completion, the majority of the existing main will be decommissioned and abandoned in place; however, four short sections of the existing main (11,445 linear feet (lf)) will continue operation at a reduced pressure of 60 psig in order to eliminate existing high pressure services or "farm taps".[2]

The project will be installed along the same route as the existing main, with the majority under pavement and no portion greater than ten feet off the paved surface. The majority of the project will also be installed within three feet of the existing main; some sections will be installed across the street and parallel to the existing main. The proposed route will begin in Yarmouth and pass through Dennis and into Harwich before splitting and extending north into Brewster and further east across Harwich where the end of the route has a southern spur. The project includes the following segments:

1. Yarmouth-Dennis Segment (4.9 miles): replace 4.9 miles of ten-inch main with a combination of 20-inch and 12-inch main;

[1] The Middle Segment was previously reviewed by the MEPA Office as part of the KeySpan Sagamore Line Reinforcement Project (SLRP, EEA #13543).
[2] Farm taps are pipeline facilities which supply service lines to individual homes and businesses via high-pressure services on the 200-psig main rather than from a separate 60-psig distribution line (typical).

2. Harwich Segment (8.0-8.1 miles): replace 4.8 miles of eight-inch main, 1.6 miles of six-inch main, and 1.6 miles of six-inch and eight-inch main, with 12-inch main; and
3. Brewster Segment (5.2 miles): replace 5.2 miles of ten-inch main with 12-inch main.

The proposed route will include crossings of water bodies, culverts, and State roads. The project will cross water bodies and drainage features such as culverts on existing bridges or within the existing roadbed, and State roads using trenchless crossing techniques such as jack-and-bore or horizontal directional drilling (HDD) to avoid construction impacts on those roads. The project will require withdrawal of approximately 572,960 gallons of water from an undetermined municipal source for a hydrostatic test of the assembled pipeline. The project will be planned as three construction phases, which may run concurrently.

Land uses within and adjacent to the project right-of-way (ROW) include forested areas, wetlands, open space, roadways, electric transmission corridors, and a mix of residential and commercial/industrial areas. The route will pass over State roadways and several local roadways. The route crosses the Bass River, Herring Brook, and several other perennial and intermittent streams. The project corridor extends through areas identified by the Division of Fisheries and Wildlife Natural Heritage and Endangered Species Program (NHESP) as *Priority* and *Estimated Habitat* for rare species. Historical and archaeological resources have been documented within or adjacent to the project ROW. The project corridor includes sites which are regulated under the Massachusetts Contingency Plan (MCP).

Project Background

The EENF indicates that the project is proposed to provide safe, reliable, and cost-efficient natural gas service to its customers. The Proponent discovered a substandard condition on a service connected to the existing 200-psig distribution main in early 2014. The Proponent initiated an investigation and inspection program to review construction of the 200-psig system in Yarmouth, Dennis, Brewster, and Harwich. The Proponent was required to reduce the pressure in the 200-psig system to an operating pressure of less than 125-psig in mid-2014 to ensure public safety. This lower operating pressure reduces the volume of natural gas that the Proponent can supply under high-demand conditions. Consequently, the Proponent instituted a moratorium on new and expanded gas services (including conversions) on portions of the mid-Cape and all of the lower Cape Cod regions. As a result of the inspections, the Proponent also determined that approximately 18.1 miles of the 200-psig system required replacement.

Jurisdiction and Permitting

The project is undergoing MEPA review and is subject to a mandatory EIR pursuant to 301 CMR 11.03(7)(a)(3) of the MEPA regulations because it requires State Agency Actions and involves construction of a new fuel pipeline ten or more miles in length. The project will require a Chapter 91 (c. 91) Minor Project Modification from the Massachusetts Department of Environmental Protection (MassDEP), an Access Permit from the Massachusetts Department of Transportation (MassDOT), and an Approval of Petition to Construct (M.G.L c. 164, s. 69J) from the Energy Facilities Siting Board (EFSB). The project is subject to review under the May 2010 MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol (GHG Policy).

The project also requires Negative Determinations of Applicability or Orders of Conditions from the Yarmouth, Dennis, Harwich, and Brewster Conservation Commissions (under local wetlands regulations only), a National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) from the United States Environmental Protection Agency (EPA), review by the Massachusetts Historical Commission (MHC) pursuant to M.G.L. c.9, ss.26-27C (950 CMR 70-71) and Development of Regional Impact (DRI) review from the Cape Cod Commission (CCC).

The project is not receiving Financial Assistance from the Commonwealth. Therefore, MEPA jurisdiction is limited to those aspects of the project that are within the subject matter of required or potentially required State Agency Actions and that may cause Damage to the Environment, as defined in the MEPA regulations. Because the project requires review and approval by the EFSB, subject matter jurisdiction is functionally equivalent to broad scope jurisdiction, in accordance with 301 CMR 11.01(2)(a)(3). Therefore, MEPA jurisdiction for this project extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in the MEPA regulations.

Environmental Impacts and Mitigation

Potential impacts are primarily associated with the construction period and include temporary impacts to 5,510 square feet (sf) of Riverfront Area, a one-time withdrawal of 572,960 gallons of water for hydrostatic testing of the pipeline, and traffic impacts. Measures to avoid, minimize, and mitigate project impacts include confining the project to the existing roadway layout to avoid alteration of new land and creation of new impervious area; avoidance of adjacent wetland resource areas; installation of erosion and stormwater best management practices (BMPs); GHG mitigation measures; and development of a Traffic Management Plan (TMP).

Single EIR Request

The Proponent requested that it be allowed to file a Single EIR in lieu of a Draft and Final EIR. The MEPA regulations indicate a Single EIR may be allowed, provided I find that the EENF: a) describes and analyzes all aspects of the project and all feasible alternatives, regardless of any jurisdictional or other limitation that may apply to the Scope; b) provides a detailed baseline in relation to which potential environmental impacts and mitigation measures can be assessed; and, c) demonstrates that the planning and design of the Project use all feasible means to avoid potential environmental impacts.

The Proponent submitted the EENF to support this request. The EENF was subject to an extended comment period pursuant to Section 11.06(1) of the MEPA regulations. Comments from MassDEP are limited to addressing jurisdictional issues and information necessary to support permitting. The Cape Cod Commission and the Cape Cod & Islands Association of Realtors, Inc identify the importance of the project to address critical infrastructure and support the Proponent's request for a Single EIR to streamline MEPA review. None of the comments

requested analysis of additional alternatives or identified issues that would warrant additional analysis through a Draft and a Final EIR.

Review of the EENF

The EENF provides a detailed description of the project, existing and proposed conditions plans, and a discussion of project alternatives, and identifies measures to avoid, minimize and mitigate the project's impacts. The EENF includes a GHG analysis and draft Section 61 Findings.

Alternatives Analysis

The project will restore system pressures to 200 psig to strengthen downstream pressure and provide adequate supply of natural gas. It will enable National Grid to reestablish new customer connections on the eastern portion of Cape Cod; lift restrictions on new services, expanded services, and conversions; and, reduce reliance on portable LNG. The EENF includes an analysis of alternatives within the context of this project purpose including the No-Build, energy conservation (demand-side management programs), alternative energy sources, and system alternatives. The No-Build alternative was dismissed because it would not meet the project need. According to the EENF, the Proponent has energy efficiency programs in place to encourage conservation; however, these programs alone would not address the operational needs on the distribution system. The DPU convened the Cape Assistance Group (CAP) in March 2015 to develop a strategy to meet demand during the moratorium. CAP reviewed heating and cooling alternatives to natural gas including renewable and other energy sources and the Proponent shared these results with customers. The EENF indicates that this has not significantly reduced demand for natural gas or reduced the need for reliable natural gas service.

The Proponent considered a number of system alternatives including installation of a new LNG facility, in-kind replacement of the existing mains, and replacement of the existing Sagamore Line Reinforcement Project (SLRP, EEA#13543) Middle Segment parallel mains with a 20-inch main. The alternative consisting of a new LNG facility in the Harwich area would be designed to increase the maximum peak hourly flow capability, meet gas-supply requirements, and alleviate low-pressure problems. This option was rejected because it would take longer to permit and construct, and would have a much greater cost. The Proponent considered an in-kind replacement of pipelines, rather than a consistent 12-inch diameter pipeline, that would not support an increase in natural gas supply. In-kind replacement was rejected because it would not support effective and cost-efficient inspection and maintenance of the system. The ability to conduct remote in-ground internal inspections is a significant safety advantage of the Proponent's Preferred Alternative. The Middle Segment replacement alternative would replace the existing 12-inch reduced pressure 200-psig main installed as part of the SLRP[3] and the existing ten-inch reduced pressure 200-psig main with a single 20-inch 200-psig main. This alternative was dismissed because it would reduce reliability and redundancy that would exist with two parallel 200-psig mains in this area, as well as cost more.

[3] The Middle Segment of the SLRP was designed and installed for a maximum operating pressure of 270 psig with normal operations at 200 psig. This line segment has been reduced in pressure to less than 125 psig solely because it is connected to the older 200-psig system, which has been reduced in pressure to less than 125 psig.

The EENF also identifies and provides a tabular comparison of alternative routes for the project: Route 6, Old Colony Rail Trail and the Eversource Line 118-119 ROW. All of the alternative routes would have potentially greater impacts than the Preferred Alternative with respect to impacts to wetland resource areas, rare species, trees/vegetation, Article 97 land, archaeological resources, and conservation land.

Wetlands, Waterways, and Stormwater

The Yarmouth, Dennis, Harwich, and Brewster Conservation Commissions will review the project to determine its consistency with local wetlands bylaws, regulations, and codes. The EENF indicates that the proposed replacement project is exempt from WPA review as a minor activity pursuant to 310 CMR 10.02(2)(b)2(i). MassDEP will also review the project for consistency with the c. 91 Waterways Regulations (310 CMR 9.00).

Project construction will be limited to existing public roadway layouts, and will not permanently impact wetlands or waterways. Because the route extends adjacent to or over wetlands and waterways, the project will be sited within the 100-foot buffer zone to wetland resource areas, mapped floodplains, and the 200-foot Riverfront Area. The project will temporarily impact 5,510 sf of previously developed Riverfront Area and 21,653 sf of buffer zone. It will extend through approximately 250 lf of Land Subject to Coastal Storm Flowage (LSCSF), but will not alter this resource area. Six vernal pools are located within 300 feet of the project route. The project will include five water crossings, which would occur over culverts, with the exception of Bass River, where the replacement main will be installed within an existing utility bay beneath the Highbank Road Bridge. The stream crossings will be constructed through open-cut trench in the road bed above existing culverts.

The EENF claims that the minor activities exemption (310 CMR 10.02(2)(b)2(i)) also applies to certain construction within Riverfront Area pursuant to 310 CMR 10.58(6)(b). Therefore, under 310 CMR 10.02(2)(b)2(i) the work within Riverfront Area would not be subject to the performance standards in 310 CMR 10.58(5) because it involves installation of a natural gas main beneath existing paved roadways where trenches for construction will be closed at the end of each work day and it will be performed in accordance with the criteria in 310 CMR 10.02(2)(b)2(i).

The project will cross flowed tidelands of the Bass River which is subject to c. 91 jurisdiction. The project will also cross several other non-tidal rivers and streams. MassDEP comments note that two of these, Herring River and Stony Brook are jurisdictional waterways. MassDEP comments also indicate that these crossings could be authorized as Minor Project Modifications of existing c. 91 Licenses.

The project will not create new impervious area. Following construction, the project will not have any stormwater-related impacts and will not alter the existing stormwater drainage or management along the route. The project will install and maintain erosion and sedimentation BMPs to protect wetland resource areas and other sensitive areas. The project will prepare a

Stormwater Pollution Prevention Plan (SWPPP) in compliance with the NPDES CGP. The project will provide spill protection technology where needed.

Rare Species

The pipeline route includes areas mapped as *Priority* and *Estimated Habitat* for rare species under the Massachusetts Endangered Species Act (MESA). The EENF indicates that within these areas, work will be limited to paved roadway or shoulder within ten feet of pavement. Therefore, the project will be exempt from MESA review for projects in *Priority Habitat* pursuant to 321 CMR 10.14(10) for "installation, repair, replacement, and maintenance of utility lines (gas, water, sewer, phone, electrical) for which all associated work is within ten feet from the edge of existing paved roads." NHESP has concurred with this determination and did not submit comments on the project.

Transportation

The project will require an Access Permit from MassDOT for proposed work within the State highway layout. The project will cross Route 28 (Main Street) and Depot Road along the Harwich segment and Route 6 and Depot Street along the Brewster segment. The pipeline will cross underneath Route 6 on Depot Street and, therefore, no work on Route 6 will be required.

The Proponent will work closely with MassDOT and municipalities to develop a Traffic Management Plan (TMP) to maintain safe and efficient access for all modes of travel along the project route. It will include: width and lane locations within the work zone; work schedule and duration of lane/road closures, or detours; traffic-control devices; locations where temporary provisions may be made to maintain access to homes/businesses; routing and protection of pedestrian/bicycle traffic; maintenance of school bus service; determination of the impact to roadway level of service (LOS) due to lane closures; communication with the public, municipal officials, and businesses; and coordination with police and fire departments. Review and approval of the TMP will occur during MassDOT permitting.

Greenhouse Gas Emissions

This project is subject to review under the May 5, 2010 MEPA GHG Policy. The GHG Policy is one element of a comprehensive effort to meet the Commonwealth's obligations under the Global Warming Solutions Act (GWSA) which include reducing carbon emissions by between 10 percent and 25 percent below 1990 emissions levels by the year 2020, and by 80 percent below 1990 emissions levels by the year 2050. Consistent with MEPA's overall purpose to evaluate alternatives that avoid, minimize and mitigate environmental impacts to the maximum extent practicable (301 CMR 11.01), the Policy requires that GHG impacts of projects have been carefully considered and that all feasible means and measures to reduce those impacts are adopted. The Policy requires that all projects that are subject to preparation of an EIR quantify GHG emissions, evaluate measures that could reduce GHG emissions and quantify potential reductions of mitigation measures. This is a case-by-case inquiry that allows project proponents to select mitigation measures that are determined to be feasible for the particular

project being proposed, thereby providing project proponents with maximum flexibility to design their projects.

The Proponent has provided a GHG analysis to address emissions associated with construction, decommissioning and operations of the pipeline. The Proponent has thoroughly addressed emission sources and measures to minimize GHG emissions and identified mitigation measures. I appreciate the Proponent's commitment to this effort. Specifically, the Single EIR includes an analysis of GHG emissions associated with the following:

1. Commissioning: emissions due to the one-time release of gas when the new pipeline is purged, after hydrostatic pressure testing, to provide 100 percent natural gas in the main (six regulator stations will be purged as well)
2. Tie-in: emissions due to the one-time release of gas when the new pipeline is connected to the existing 200-psig system
3. Decommissioning: emissions due to the one-time release of gas from the existing pipeline before it is deactivated and abandoned (six regulator stations will be decommissioned as well)
4. Construction: short-term emissions from diesel and gasoline construction equipment and vehicles and private vehicles driven by construction workers to the site
5. Normal operations: fugitive emissions from the pipeline
6. Non-routine operations: emissions that may occur during long-term maintenance procedures, such as inspections.

The EENF includes a baseline analysis of GHG emissions related to categories 1 through 4 and documents the GHG emissions from each source based on typical practices. Mitigation measures were compared to the baseline, and associated reductions were identified. The analysis did not quantify emissions associated with non-routine repairs. The analysis considered emissions of carbon dioxide (CO_2) and other GHGs presented as carbon dioxide equivalent (CO_2e) which accounts for the higher global warming potential (GWP) of methane. The following table summarizes GHG emissions associated with construction and compares baseline and proposed cases:

Activity	Baseline (tons CO_2)	Proposed (tons CO_{2e})	Difference (percent reduction)
Commissioning of Replacement Main	3.0	3.0	None
Commissioning of Regulator Stations	0.2	0.2	None
Tie-In Venting	0.16	0.16	None
Decommissioning of Existing Main	282	45	81
Decommissioning of Existing Regulator Stations	0.14	0.07	50
Total	285.5	48.43	

The baseline emissions from the commissioning process were estimated at 3.2 tons of CO_2e. Alternatives for minimizing emissions from purging small amounts of gas during commissioning include recompressing or flaring the gas. Flaring gas converts the CH_4 to CO_2, which has a GWP 25 times less than CH_4. These alternatives are identified as infeasible because

of the small amount of gas and short duration of its release, therefore, emissions from this source are based on the baseline estimate.

The baseline emissions for the tie-ins was estimated at 0.16 tons of CO_2e. Two alternatives were evaluated to minimize emissions from the tie-in procedure: drawing down the pressure in the pipeline before making the connection, and using the hot-tap method to make the connection without venting gas. The Proponent will evaluate the hot-tap method to make the tie-in based on the final connection logistics.

The baseline emissions from the decommissioning process were estimated at 282.14 tons of CO_2e. Alternatives for minimizing emissions during decommissioning include drawing down the pressure in the pipeline before venting the pipeline, use of an injection point, or flaring the gas. The Proponent will reduce pressure in the pipeline, inject gas into the 60-psig system, and perform flaring which will significantly reduce emissions from decommissioning by 237 tons of CO_2e, from 282 to 45 tons of CO_2e.

Emissions from normal operations of the pipeline include releases during routine and non-routine inspections and maintenance and leaks. The EENF identifies measures to minimize GHG emissions associated with operations of the pipeline, including:

- Cathodic protection to minimize pipeline corrosion;
- Periodic inspections;
- Use of a gas odorant to allow for rapid recognition of a leak; and
- Highly trained personnel and readily available leak repair equipment to minimize releases of gas.

The project will generate one-time emissions of CO_2e of approximately 48.43 tons associated with commissioning, tie-in venting, and decommissioning (of existing pipelines) procedures. The GHG analysis indicates that the net new replacement main will include approximately 11,445 lf and categorizes the remainder of the pipeline is a replacement project. The EENF includes calculations of the baseline for normal operations using emissions factors for fugitive emissions from pipelines and valves based on EPA default factors. Based on these assumptions, fugitive emissions from routine maintenance are expected to be 3.5 tpy of CO_2e based on the net new length of main. The EENF indicates that EPA has established default emission standards for pipelines and associated fittings; however, it does not identify these rates or compare fugitive emission rates of the new pipeline to the existing pipeline.

Emissions from non-routine operations include releases from periodic in-line inspections and maintenance. In-line inspections are expected to occur once every several years. The EENF indicates that most, if not all, scheduled maintenance and inspection activities do not require a venting or purging operation because the system will be designed as a closed system with no relief valves. The project is estimated to generate approximately one ton of CO_2e based on emissions associated with in-line inspections using three launchers/receivers. Because these inspections are not planned operations, this estimate was not included in the project's overall GHG emissions estimates.

Historic and Archaeological Resources

The project will require review by MHC pursuant to M.G.L. c.9, ss.26-27C (950 CMR 70-71). The project route contains numerous historic and archaeological resources which are either listed in the State and/or National Register of Historic Places, Inventory of Historic and Archaeological Assets of the Commonwealth (Inventory), or within local historic districts. Specifically:

- Yarmouth-Dennis Segment
  - Historic resources: one listed in local historic district and State Register; eight listed in State Register; one listed as an Inventory Area; and four listed in the Inventory;
  - Archaeological resources: six previously recorded sites; and approximately eight percent of the segment is rated as having high archaeological sensitivity;

- Harwich Segment
  - Historic resources: one listed as an Inventory district; and seven listed in the Inventory;
  - Archaeological resources: one previously recorded sites; and has low archaeological sensitivity;

- Brewster Segment
  - Historic resources: one listed in local historic district and State Register; two listed in the State and National Register; 23 listed in State Register; two listed as an Inventory Area; and eight listed in the Inventory;
  - Archaeological resources: seven previously recorded sites.

The project is proposed within existing roadway layout beneath pavement and within ten feet of that pavement that is located within previously-disturbed roadbeds. The project is not expected to impact identified historic and archaeological resources. The project will not impact previously-undisturbed areas.

Construction

The Proponent will consult with local agencies and its contractor to develop an Environmental Construction Plan (ECP) that will address in detail the implementation of environmental protection measures during construction staging, materials delivery, and installation of the replacement main. The ECP will be adaptive and subject to revision to allow for changes in construction sequencing. The Proponent will engage the services of a qualified Environmental Inspector to manage the environmental inspection program, ensure that the contractor complies with the ECP, and ensure that construction activities will comply with conditions of all permits and approvals.

The EENF includes a discussion of construction period impacts, including erosion and sedimentation, air quality, solid waste disposal, water quality and water supply protection, and construction management and traffic. The project will implement measures to eliminate or

minimize these impacts. The Proponent will develop a SWPPP as part of its NPDES CGP which will include provisions for erosion and sedimentation control. The Proponent requires contractors to use Ultra Low Sulfur Diesel (ULSD) fuel in all off-road construction equipment. The project will include recycling of existing asphalt, concrete, and packing crates. The EENF indicates that the ECP will require all construction to comply with the MassDEP Air Pollution Control Regulations at 310 CMR 7.02 (Plan Approval and Emission Limitations) and 310 CMR 7.09 (Dust, Odor, Construction, and Demolition), and with the Massachusetts Idling regulation at 310 CMR 7.11. The project will include a detailed TMP as described elsewhere in this Certificate.

The EENF includes a noise analysis and proposes noise mitigation such as minimizing work outside of typical construction hours, equipment mufflers, maintenance of construction equipment, and shielding or buffering distance to mitigate impact of noisy equipment in sensitive locations.

Conclusion

Based on a review of the EENF, consultation with State Agencies, and a review of comment letters, I have determined that the Proponent may file a Single EIR, rather than a Draft and Final EIR. National Grid has provided a comprehensive EENF that provides an alternatives analysis, identifies baseline environmental conditions, and identifies potential environmental impacts and associated mitigation. The replacement of this critical energy infrastructure is a high priority for National Grid and the affected communities. The EENF demonstrates that potential environmental impacts associated with the project are limited and the Proponent has adopted appropriate measures to avoid, minimize and mitigate impacts. This limited Scope requires additional information regarding traffic, GHG emissions, and a Response to Comments.

The EENF does not address potential environmental impacts associated with the potential increase in capacity that would be supported by the project. The EENF indicates National Grid will operate the system at 200 psig and does not have plans to increase supply. As noted previously, prior to any increase in the project's operating pressure to increase supply of natural gas, the Proponent would be required to develop a formal up-rating plan for review by DPU. The Scope does not address potential impacts associated with increasing supply. If the Proponent proposes to increase supply, it should consult with the MEPA Office to determine if further MEPA review would be warranted in the form of a Notice of Project Change (NPC).

SCOPE

General

The Single EIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Scope. It should respond to comments received on the EENF and, as appropriate, identify and commit to specific environmental mitigation measures, and provide revised draft Section 61 Findings.

The Single EIR should identify any changes to the project since filing the EENF. The Single EIR should include existing conditions and site plans at a legible scale to provide context for the limited Scope and Response to Comments. The Single EIR should provide a brief description and analysis of applicable statutory and regulatory standards and requirements, and a description of how the project will meet those standards. The Single EIR should include a list of required State Agency Permits, Financial Assistance, or other State approvals, as well as any local or federal permitting. MEPA 01 MEPA 02 MEPA 03

Wetlands and Waterways

The Proponent should consult with MassDEP regarding applicability of exemptions to the WPA. To facilitate subsequent licensing, I encourage the Proponent to file a Request for Determination of Applicability (RDA) pursuant to 310 CMR 9.06 with MassDEP to determine whether Herring River and Stony Brook are jurisdictional waterways. The Single EIR should provide an update on the RDA and MassDEP's determination. MassDEP comments indicate that the work at each of the river crossings could be authorized pursuant to a Minor Project Modification (310 CMR 9.22(3)). I encourage the Proponent to submit a formal request for a Minor Project Modification with accompanying construction plans so that MassDEP can confirm this determination. This application could be submitted in conjunction with the Single EIR. MEPA 04 MEPA 05

Public Benefits Determination

Consistent with the provisions of *An Act Relative to Licensing Requirements for Certain Tidelands* (2007 Mass. Acts c. 168, sec.8) (the Act), which was enacted on November 15, 2007, I *must* conduct a Public Benefit Review for projects in tidelands that are required to file an EIR. The project exceeds EIR thresholds at 301 CMR 11.03 and the project site contains waterways or tidelands subject to c. 91. Therefore, the Single EIR should clearly identify elements of the project located within tidelands, whether the uses are water-dependent, and provide information, as necessary, to support a Public Benefits Determination (PBD) including standards for a water-dependent or non-water-dependent use project (301 CMR 13.04). If I determine that it does require a PBD, I will issue one in accordance with the regulations at 301 CMR 13.00. The PBD must be issued within 30 days of the issuance of the Certificate on the Single EIR. MEPA 06

SCOPE

General

The Single EIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Scope. It should respond to comments received on the EENF and, as appropriate, identify and commit to specific environmental mitigation measures, and provide revised draft Section 61 Findings.

The Single EIR should identify any changes to the project since filing the EENF. The Single EIR should include existing conditions and site plans at a legible scale to provide context for the limited Scope and Response to Comments. The Single EIR should provide a brief description and analysis of applicable statutory and regulatory standards and requirements, and a description of how the project will meet those standards. The Single EIR should include a list of required State Agency Permits, Financial Assistance, or other State approvals, as well as any local or federal permitting. MEPA 01 MEPA 02 MEPA 03

Wetlands and Waterways

The Proponent should consult with MassDEP regarding applicability of exemptions to the WPA. To facilitate subsequent licensing, I encourage the Proponent to file a Request for Determination of Applicability (RDA) pursuant to 310 CMR 9.06 with MassDEP to determine whether Herring River and Stony Brook are jurisdictional waterways. The Single EIR should provide an update on the RDA and MassDEP's determination. MassDEP comments indicate that the work at each of the river crossings could be authorized pursuant to a Minor Project Modification (310 CMR 9.22(3)). I encourage the Proponent to submit a formal request for a Minor Project Modification with accompanying construction plans so that MassDEP can confirm this determination. This application could be submitted in conjunction with the Single EIR. MEPA 04 MEPA 05

Public Benefits Determination

Consistent with the provisions of *An Act Relative to Licensing Requirements for Certain Tidelands* (2007 Mass. Acts c. 168, sec.8) (the Act), which was enacted on November 15, 2007, I *must* conduct a Public Benefit Review for projects in tidelands that are required to file an EIR. The project exceeds EIR thresholds at 301 CMR 11.03 and the project site contains waterways or tidelands subject to c. 91. Therefore, the Single EIR should clearly identify elements of the project located within tidelands, whether the uses are water-dependent, and provide information, as necessary, to support a Public Benefits Determination (PBD) including standards for a water-dependent or non-water-dependent use project (301 CMR 13.04). If I determine that it does require a PBD, I will issue one in accordance with the regulations at 301 CMR 13.00. The PBD must be issued within 30 days of the issuance of the Certificate on the Single EIR. MEPA 06

Traffic and Transportation

The Single EIR should include a locus map that clearly identifies existing or proposed State highway intersections that will be impacted by the project. It should fully describe the impacts to State-controlled highways and confirm the construction methodology at each intersection under MassDOT jurisdiction. The Single EIR should provide an update on consultation with MassDOT. MEPA 07

Greenhouse Gas Emissions

The Proponent should present a revised GHG analysis that provides a baseline and proposed condition for the entire length of the proposed pipeline, including the section of existing pipeline that will remain in service. The Single EIR should address how the pipeline is designed to avoid and minimize natural gas leakage of the distribution system. The Single EIR should compare fugitive emission rates for the existing and proposed pipeline. It may identify rates based on EPA standards or other industry standards but should include an analysis that clearly demonstrates the GHG benefits of a new pipeline constructed to modern standards. The Single EIR should discuss natural gas leak classification standards and requirements and address proposed leak detection, measurement and repair programs. In addition, the Single EIR should indicate whether National Grid participates or will participate in the EPA Natural Gas STAR program and evaluate applicable technologies and practices that were not evaluated in the EENF. The Proponent should consult with the MEPA Office and DOER regarding the GHG analysis prior to filing the Single EIR. MEPA 08 MEPA 09 MEPA 10 MEPA 11 MEPA 12 MEPA 13

Construction Period Impacts

The Single EIR should provide information on the emission controls that will be used for all on-site construction vehicles. It should evaluate use of construction equipment with engines manufactured to Tier 4 federal emission standards or best available control technology (BACT) and indicate whether it will incorporate additional measures to minimize construction-period emissions, including limits on idling. MEPA 14

The Single EIR should provide more information regarding the project's generation, handling, recycling, and disposal of construction and demolition debris. The Single EIR should quantify and characterize the material to be generated and define waste management and diversion goals for contractors. I encourage the Proponent to identify specific and aggressive construction recycling goals. MEPA 15

Mitigation and Draft Section 61 Findings

The Single EIR should include an updated section that summarizes proposed mitigation measures and provide draft Section 61 Findings for each State Agency Action. The Single EIR should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. MEPA 16

In order to ensure that all GHG emissions reduction measures adopted by the Proponent as the Preferred Alternative are actually constructed or performed by the Proponent, the Secretary requires proponents to provide a self-certification to the MEPA Office indicating that all of the required mitigation measures, or their equivalent, have been completed. The commitment to provide this self-certification in the manner outlined above should be incorporated into the draft Section 61 Findings included in the Single EIR. MEPA 17

Responses to Comments

The Single EIR should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the Single EIR should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended, and shall not be construed, to enlarge the scope of the Single EIR beyond what has been expressly identified in this certificate. MEPA 18

Circulation

The Proponent should circulate the Single EIR to those parties who commented on the EENF, to any State Agencies from which the Proponent will seek permits or approvals, and to any parties specified in section 11.16 of the MEPA regulations. A copy of the Single EIR should be made available for review at the Yarmouth, Dennis, Harwich, and Brewster public libraries. MEPA 19

December 30, 2015
Date

Matthew A. Beaton

Comments received:

12/11/2015	Massachusetts Department of Environmental Protection (MassDEP) / Southeast Regional Office (SERO)
12/22/2015	Massachusetts Division of Marine Fisheries (DMF)
12/23/2015	Cape Cod Commission (CCC)
12/23/2015	Cape Cod & Islands Association of Realtors, Inc.
12/30/2015	Massachusetts Department of Energy Resources (DOER)

MAB/PPP/ppp

SECRETARY'S CERTIFICATE ON THE EXPANDED ENF

MEPA 01 The Single EIR should identify any changes to the project since filing the EENF.

Changes to the Project since filing the Expanded ENF are identified in Section 1.2.

MEPA 02 The Single EIR should include existing conditions and site plans at a legible scale to provide context for the limited Scope and Response to Comments.

Existing conditions are shown on Figures 1-1 and 1-2, and the proposed Project is shown on Figures 1-3 through 1-5.

MEPA 03 The Single EIR should provide a brief description and analysis of applicable statutory and regulatory standards and requirements, and a description of how the project will meet those standards. The Single EIR should include a list of required State Agency Permits, Financial Assistance, or other State approvals, as well as any local or federal permitting.

Section 1.3 identifies all permits, reviews, and approvals required for the Project, and describes the Project's consistency with state and local environmental policies. The Company is receiving no financial assistance for the Project.

MEPA 04 The Proponent should consult with MassDEP regarding applicability of exemptions to the WPA.

The Company consulted with MassDEP's Southeast Regional Office in January 2016 regarding the Project's exemptions to the WPA, which was asserted in the EENF. In that consultation, MassDEP agreed that the Project satisfies the criteria as a minor project (310 CMR 10.02(b)2.i), which includes utility work in roadways and is excerpted below:

> *i. Installation of underground utilities (e.g., electric, gas, water) within existing paved or unpaved roadways and private roadways/driveways, provided that all work is conducted within the roadway or driveway and that all trenches are closed at the completion of each workday;*

MassDEP also agreed that the installation of a gas pipeline inside a utility bay within the existing bridge at the Bass River crossing does not constitute an activity subject to regulations established under the WPA (reference e-mail correspondence from Dan Gilmore, DEP/SERO to Jack Vaccaro of Epsilon Associates, Jan. 28, 2016).

MEPA 05 To facilitate subsequent licensing, I encourage the Proponent to file a Request for Determination of Applicability (RDA) pursuant to 310 CMR 9.06 with MassDEP to determine whether Herring River and Stony Brook are jurisdictional waterways. The Single EIR should provide an update on the RDA and MassDEP's determination.

MassDEP comments indicate that the work at each of the river crossings could be authorized pursuant to a Minor Project Modification (310 CMR 9.22(3)). I encourage the Proponent to submit a formal request for a Minor Project Modification with accompanying construction plans so that MassDEP can confirm this determination. This application could be submitted in conjunction with the Single EIR.

The Company has consulted with MassDEP concerning whether the Herring River and Stony Brook are jurisdictional waterways where the Project crosses over them. For the Herring River and Stony Brook crossings, the Company has provided information to MassDEP concerning whether these water bodies are tidal or navigable at the crossings. Once MassDEP has reviewed this information, the Company will further consult with MassDEP on what, if any, Chapter 91 authorizations will be required for these two crossings.

MEPA 06 **The Single EIR should clearly identify elements of the project located within tidelands, whether the uses are water-dependent, and provide information, as necessary, to support a Public Benefits Determination (PBD) including standards for a water-dependent or non-water-dependent use project (301 CMR 13.04).**

Section 1.4 describes tidelands associated with the Project route, discusses water-dependency of the Project, and contains a PBD.

MEPA 07 **The Single EIR should include a locus map that clearly identifies existing or proposed State highway intersections that will be impacted by the project. It should fully describe the impacts to State-controlled highways and confirm the construction methodology at each intersection under MassDOT jurisdiction. The Single EIR should provide an update on consultation with MassDOT.**

Figure 4-1 shows the locations of at-grade crossings of State roads along the Project route. Although routes 39, 124, 134, and 137 each have State route designations, they are actually managed by the respective municipalities. Each of these intersections with the Project route will be performed with open cut trenching. The only State-managed route with an at-grade Project crossing is Route 28 (Main Street) at its intersection with Depot Road in Harwich. As described in Section 1.1.1.3, a trenchless crossing technique such as jack-and-bore or HDD is being considered at this intersection. However, due to space constraints in this area, the Company is working with MassDOT to determine whether open cut trenching may actually have fewer impacts, hence negating the need for a trenchless crossing.

MEPA 08 **The Proponent should present a revised GHG analysis that provides a baseline and proposed condition for the entire length of the proposed pipeline, including the section of existing pipeline that will remain in service.**

The revised GHG analysis is provided in Section 2.0.

MEPA 09 **The Single EIR should address how the pipeline is designed to avoid and minimize natural gas leakage of the distribution system.**

The proposed Project will have 100% welded connections, with no mechanical connections allowing the potential for leaks. All of the welds will be visually inspected and non-destructively tested as part of the Company's acceptance testing. In addition, prior to commissioning the pipe into service, the line will be hydrostatically tested to establish the MAOP of the pipe and ensure the integrity of the asset as constructed.

The steel main will have a factory-applied coating standard for buried application to ensure longevity of the asset. The Company employs independent inspection of the pipe at the coating facility to ensure quality control. Some fittings are supplied with factory coatings as well. These external coating systems provide adequate protection from corrosion so long as they are not damaged. Care will be exercised throughout storage, handling, and installation procedures to maintain coating integrity. Pipe fittings and welded connections will be protected with field-applied coatings and materials utilizing industry-standard techniques. The installation will be fully inspected, documented, and tested as work progresses, with a final review and approval of all asset records by engineering prior to commissioning the new asset into service. The Project design also includes a galvanic anode cathodic protection system to prevent corrosion, and when used in combination with the external coating systems, this ensures longevity of the asset. All application of coatings and testing will be performed by trained personnel with the appropriate Operator Qualifications for the required tasks.

Further, the Company conducts regular, recurring inspections of the system once it is placed into service (see response to MEPA 11 below). Testing and surveys will be scheduled to ensure pipelines are cathodically protected. Pipe-to-soil electrical potential tests or other acceptable electrical tests will be conducted on cathodically-protected systems in excess of 100 feet long at least once each calendar year, but with intervals not exceeding 15 months, to determine whether the required cathodic protection levels are met.

MEPA 10 **The Single EIR should compare fugitive emission rates for the existing and proposed pipeline. It may identify rates based on EPA standards or other industry standards but should include an analysis that clearly demonstrates the GHG benefits of a new pipeline constructed to modern standards.**

The Company discussed this comment with the MEPA Office and DOER on January 25, 2016. As described in Section 2.2.3 of this Single EIR, there is no significant design difference between the existing system and the proposed system vis-à-vis GHG emissions. The proposed pipe and fittings are a consistent material grade and the pipe wall thickness is consistent with the existing assets. The proposed steel pipe has the same material properties. The current manufacturing process is the same for pipe and fittings. The current pipe coating process is the same for the pipe. The construction of the system will continue to be 100% welded with no mechanical connections. The proposed cathodic protection system is consistent with the existing system. The EPA emission factors are the most appropriate method of estimating fugitive emissions from the Project, and the calculated emissions for the 200-psig Mid-Cape System are the same for the existing and proposed systems, because the design will remain the same in all relevant respects.

As discussed in Section 2.2.4, the removal of some farm tap connections and the use of remotely-operated valves may decrease the chance of a leak and allow faster mitigation, respectively, but this cannot be quantified. As discussed in Section 2.2.5, the Project design incorporates current industry standards for materials and equipment along with construction, testing, and inspection techniques, and will thereby avoid and minimize GHG emissions to the extent feasible. Further, the entire Project provides GHG mitigation by enabling the use of natural gas rather than fuel oil to meet existing and new energy needs in the service area, with regional reductions that far outweigh direct GHG emissions from the Project (see Section 2.2.6).

MEPA 11 The Single EIR should discuss natural gas leak classification standards and requirements and address proposed leak detection, measurement and repair programs.

The Code of Federal Regulations at 49 CFR 192.703 sets forth requirements relative to addressing natural gas leaks[1] and 49 CFR 192.723 addresses leakage surveys on distribution systems.[2] Further, the Code of Massachusetts Regulations 220 CMR 101.06 governs leak classification and repair.[3]

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[1] 49 CFR 192.703 provides as follows: "(a) No person may operate a segment of pipeline, unless it is maintained in accordance with this subpart. (b) Each segment of pipeline that becomes unsafe must be replaced, repaired, or removed from service. (c) Hazardous leaks must be repaired promptly."

[2] 49 CFR 192.723 provides in part as follows: "(a) Each operator of a distribution system shall conduct periodic leakage surveys in accordance with this section. (b) The type and scope of the leakage control program must be determined by the nature of the operations and the local conditions, but it must meet the following minimum requirements: (1) A leakage survey with leak detector equipment must be conducted in business districts, including tests of the atmosphere in gas, electric, telephone, sewer, and water system manholes, at cracks in pavement and sidewalks, and at other locations providing an

National Grid's leak classification procedure is consistent with industry standards developed by the Gas Piping Technology Committee ("GPTC"), an independent technical committee accredited by the American National Standards Institute ("ANSI") and endorsed by the Pipeline Hazardous Materials Safety Administration ("PHMSA"). National Grid's leak classification procedure is based on distance from the structure, surface strata, and amount of gas readings. One of the following three leak grades shall be assigned to all below-grade leaks that have been reported, investigated, and/or confirmed as a gas leak:

- Grade 1 – A leak that represents an existing or probable hazard to persons or property, and requires immediate repair or continuous action until conditions are no longer hazardous;
- Grade 2 or 2A – A leak that is recognized as being non-hazardous at time of detection, but justifies scheduled repair based on probable future hazard; and
- Grade 3 – A leak that is non-hazardous at the time of detection and can be reasonably expected to remain non-hazardous.

The Company has an existing procedure in place for leakage survey and patrolling distribution and transmission pipelines. The purpose of this procedure is to enhance public safety by identifying any gas escape and/or possible damage to the Company's assets as quickly as possible. This effort requires regular and recurring patrolling of pipelines, the frequency of which is based on the class location (i.e., population density) of the pipe. For purposes of the Mid-Cape 200-psig system, the Company's internal standards require the main to be patrolled four times annually, but not to exceed four-and-a-half months between each patrol. The patrol may be coordinated with annual leakage survey requirements. A mobile leak survey must be performed at least once per calendar year, but at intervals of not more than 15 months for transmission lines.

MEPA 12 **The Single EIR should indicate whether National Grid participates or will participate in the EPA Natural Gas STAR program and evaluate applicable technologies and practices that were not evaluated in the EENF.**

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opportunity for finding gas leaks, at intervals not exceeding 15 months, but at least once each calendar year. (2) A leakage survey with leak detector equipment must be conducted outside business districts as frequently as necessary, but at least once every 5 calendar years at intervals not exceeding 63 months…"

[3] 220 CMR 101.06 provides, among other requirements, that "[a]ll disclosed conditions of a nature hazardous to persons or property shall be promptly made safe and permanent repairs instituted." 220 CMR 101.06(21)(e)

The EPA Natural Gas STAR Methane Challenge Program is a new voluntary partnership that encourages oil and natural gas companies to reduce methane emissions. National Grid has been directly collaborating with EPA to develop this program through the American Gas Association, Downstream Initiative, and ONE Future. The Methane Challenge has not yet been finalized; however, National Grid will participate in the program and the Company is committed to leading industry efforts to reduce methane emissions.

MEPA 13 **The Proponent should consult with the MEPA Office and DOER regarding the GHG analysis prior to filing the Single EIR.**

On January 25, 2016, the Company consulted with the MEPA Office and DOER regarding the revised GHG analysis. The revised analysis provided in Section 2.0 is consistent with what was discussed during this consultation.

MEPA 14 **The Single EIR should provide information on the emission controls that will be used for all on-site construction vehicles. It should evaluate use of the construction equipment with engines manufactured to Tier 4 federal emission standards or best available control technology (BACT) and indicate whether it will incorporate additional measures to minimize construction-period emissions, including limits on idling.**

The Company requires contractors to use ULSD in off-road diesel vehicles, and the Company will comply with the requirements of MassDEP's Diesel Retrofit Program. The Diesel Retrofit Program, formerly called the Clear Air Construction Initiative of the Clean Construction Equipment Initiative, originated as an air quality mitigation measure for the Central Artery/Tunnel Project. The program encourages users of diesel construction equipment to install exhaust emission controls such as oxidation catalysts or particulate filters on their diesel engines. While MassDEP requires participation in the Diesel Retrofit Program by municipalities applying for funding under the State Revolving Fund for water and wastewater projects, there is no MassDEP requirement for participation by other project proponents.

All diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of Project construction will either be EPA Tier 4–compliant or will have EPA-verified (or equivalent) emission control devices such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine.

In addition, vehicle idling will be minimized in accordance with Massachusetts' anti-idling law, G.L. c. 90, § 16A, c. 111, §§ 142A–142M, and 310 C.M.R 7.11. The Company will require the use of ULSD in its diesel-powered construction equipment for this Project and will limit idling time to five minutes except when

engine power is necessary for the delivery of materials or to operate accessories to the vehicle such as power lifts. The Company will require its contractors to follow these procedures.

MEPA 15 **The Single EIR should provide more information regarding the project's generation, handling, recycling, and disposal of construction and demolition debris. The Single EIR should quantify and characterize the material to be generated and define waste management and diversion goals for contractors. I encourage the Proponent to identify specific and aggressive construction recycling goals.**

National Grid's Environmental Policy commits the Company to taking steps to reduce and recycle wastes. Included among the many commitments contained within the Environmental Policy is the following statement regarding recycling of waste: *"National Grid has committed to looking for ways to use resources more efficiently through good design, use of sustainable materials, responsibly refurbishing existing assets, and reducing and recycling wastes."* The Company's recycling and reuse activities, with which contractors must comply, by material are described in Table 4-2.

Table 4-2 Recycling and Reuse by Material.

Material	*Management Strategy*
Used steel pipe and associated components	Used gas pipe is cleaned and sent to Prolerized New England Co., LLC for recycling into new metal products.
Mixed Metals	Sent to Prolerized New England for recycling into new metal products.
Asphalt and Excavated Spoils	Recycled at Boston Gas Company d/b/a National Grid's Solid Waste Management Facility in Everett, Massachusetts. This material is sorted and crushed to a size that makes it useful as backfill for other National Grid construction projects.
Wood waste	Wood waste will be recycled at a Company-approved facility.
Cardboard	Cardboard will be recycled at a Company-approved facility.

Table 4-2 Recycling and Reuse by Material (Continued)

Material	*Management Strategy*
Office Recycling	Company and Contractor personnel working on this Project must adhere to National Grid's office recycling program. Program components include recycling all office paper, including but not limited to construction maps, photographs, and microfiche. Water/soda bottles and all other recyclable plastic containers must also be recycled.
Batteries	All batteries will be sorted by type and recycled by an approved vendor.

The Project will generate very limited waste. Excavated soils will be maintained on-site, where possible, with planned reuse, and existing assets will be abandoned in place. The Contractor shall, at all times, keep the construction area free from accumulations of waste materials or rubbish caused by its employees or work, and shall remove from the Company's property, and from all public and private property at its own expense, all rubbish and waste materials resulting from construction operations. No burning of rubbish and/or waste materials shall be permitted on the Project site or upon any adjoining premises. Construction sites will be maintained daily (e.g., with sweeping), with minor debris and plastic bags disposed of accordingly and items such as cardboard boxes recycled. Any useful materials/equipment not used will be returned to inventory or returned to the supplier.

MEPA 16 **The Single EIR should include an updated section that summarizes proposed mitigation measures and provide draft Section 61 Findings for each State Agency Action. The Single EIR should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation and contain a schedule for implementation.**

Section 3.0 contains proposed Section 61 Findings as well as summaries of mitigation measures proposed by the Company.

MEPA 17 **In order to ensure that all GHG emissions reduction measures adopted by the Proponent as the Preferred Alternative are actually constructed or performed by the Proponent, the Secretary requires proponents to provide a self-certification to the MEPA Office indicating that all of the required mitigation measures, or their**

equivalent, have been completed. The commitment to provide this self-certification in the manner outlined above should be incorporated into the draft Section 61 Findings included in the Single EIR.

Section 3.0 contains proposed Section 61 Findings, which do specify that the Company will submit a self-certification to the MEPA Office at the completion of the Project.

MEPA 18 The Single EIR should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the Single EIR should include direct responses to comments to the extent that they are within MEPA jurisdiction.

This section contains a copy of the Certificate and each comment letter received on the Expanded ENF as well as direct responses to each of the comments.

MEPA 19 The Proponent should circulate the Single EIR to those parties who commented on the EENF, to any State Agencies from which the Proponent will seek permits or approvals and to any parties specified in section 11.16 of the MEPA regulations. A copy of the Single EIR should be made available for review at the Yarmouth, Dennis, Harwich, and Brewster public libraries.

Attachment B contains a Circulation List that adheres to these circulation requirements.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

December 11, 2015

Mathew A. Beaton,
Secretary of Environment and Energy
Executive Office of Environmental Affairs
ATTN: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: YARMOUTH, DENNIS, HARWICH, BREWSER – ENF Review
EOEEA #15445 ENF Mid-Cape Main Replacement Project, in 18.1 miles
Yarmouth, Dennis, Harwich, Brewster

Dear Secretary Beaton,

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Environmental Notification Form (ENF) for the proposed Mid-Cape Main Replacement Project, 18.1 miles in Yarmouth, Dennis, Harwich, Brewster, Massachusetts (EOEEA # 15445 ENF). The project proponent provides the following information for the project:

The company proposes to replace approximately 18.1 miles of its existing 200-psig natural gas distribution system in the Towns of Yarmouth, Dennis, Harwich, and Brewster. Approximately 17.9 miles of the replacement main will be nes 12-inch-diameter CS pipe.

At the westernmost end, beginning location of the Project, which is the very beginning of the 200-psig system on this part of the Cape. Approximately 1,000 feet of 20-inch-diameter CS pipe will be used to replace the existing single 12-inch-diameter pipe between the Company's Regulator Station #3920 at the South Yarmouth LNG facility and two parallel mains on White's Path. Use of this short segment of larger-diameter main will allow increased flow into the existing 12-inch "Middle Segment" main in White's Path and the parallel 12-ich replacement main (to be constructed).

The project consists of the following segments: (1) Yarmouth-Dennis Segment (4.9 miles) of 10-inch CS (200 psig) with a combination of 20 and 12-inch mains; (2) Harwich Segment (~8.0-8.1 miles) and (3) Brewster Segment (5.2 miles). The proposed route will have a number of "special crossings" of features such as water bodies, culverts, and state roads. Crossings of water bodies and drainage features (e.g. culverts) will be accomplished on existing bridges or within the existing roadbed. Crossings of state roads will be accomplished using trenchless crossing techniques such as jack-and-bore or horizontal directional drilling ("HDD") to avoid construction impacts on those roads.

Wetlands & Waterways Program Comments

The project proponent states that the proposed Replacement Project is exempt from regulation under MGL c. 131, § 40 and 310 CMR 10.00 as a "minor exempt activity" pursuant to 310 CMR 10.02(2)(b)2. However, in Section 4.4.1.2 of the Project Narrative on page 4-7, the proponent states that approximately 250 linear feet of the proposed main replacement project is located within Land Subject to Coastal Storm Flowage. In order for the activity to be considered a "minor exempt activity", the activity must be located outside any area specified in 310 CMR 10.02(1)(a) through (e). Land Subject to Coastal Storm Flowage is listed in 310 CMR 10.02(1)(e). Therefore, the activity in that location does not appear to qualify as a "minor exempt activity." DEP 01

The Public Waterfront Act, M.G.L. c.91 and its regulations at 310 CMR 9.00 regulates activities within waterways, including certain non-tidal rivers and streams. The project will cross flowed tidelands of the Bass River which is clearly a jurisdictional waterway. The proposed replacement gas main will also cross several other non-tidal rivers and streams. Based on a review of USGS maps, aerial photographs and plans accompanying the ENF, it appears that proposed crossings at Herring River and Stony Brook are Chapter 91 jurisdictional waterways pursuant to the Waterways Regulations at 310 CMR 9.04. The Proponent may proceed with permitting under the assumption that crossings at Bass River, Herring River and Stony Brook are within Chapter 91 jurisdiction. In order to make a conclusive determination as to whether these waterways are jurisdictional, the Proponent should file a Request for Determination of Applicability pursuant to the Waterways Regulations at 9.06.

Based on a review of the information contained in the ENF, it appears that the work at each of the river crossings could be authorized under a "Minor Project Modification" pursuant to the Waterways Regulation at 9.22(3) and will not require the submittal of a Chapter 91 License Application. The Waterways Program recommends that the Proponent submit, as soon as possible, a formal request for a Minor Project Modification with accompanying construction plans so that this initial determination can be made. DEP 02

Construction Stormwater Permit

The project construction activities are scheduled to disturb 3.97 acres of land and therefore, may require a NPDES Stormwater Permit for Construction Activities. The proponent can access information regarding the NPDES Stormwater requirements and an application for the Construction General Permit at the EPA website:
http://cfpub.epa.gov/npdes/stormwater/cgp.cfm

Air Quality Comments

Air Quality Construction Impacts

Construction and operation activities shall not cause or contribute to a condition of air pollution due to dust, odor or noise. To determine the appropriate requirements please refer to:

- 310 CMR 7.09 Dust, Odor, Construction, and Demolition
- 310 CMR 7.10 Noise

Bureau of Waste Site Cleanup

Based upon the information provided, the Bureau of Waste Site Cleanup (BWSC) searched its databases for disposal sites and release notifications that have occurred at or might impact the proposed project area. A disposal site is a location where there has been a release to the environment of oil and/or hazardous material that is regulated under M.G.L. c. 21E, and the Massachusetts Contingency Plan [MCP – 310 CMR 40.0000].

The proposed project involves replacement of approximately eighteen miles of gas pipeline. Please be advised that there are many listed BWSC disposal sites located within the proposed project area. Many of the sites have closed under the MCP, but many other disposal sites are open and require continued response actions under the MCP. A listing and discussion of each MCP site will not be presented here.

Interested parties are encouraged to view a map showing the location of BWSC disposal sites using the MassGIS data viewer (Oliver) at: http://maps.massgis.state.ma.us/map_ol/oliver.php Under "Available Data Layers" select "Regulated Areas", and then "DEP Tier Classified 21E Sites". The compliance status and report submittals for specific MCP disposal sites may be viewed using the BWSC Waste Sites/Reportable Release Lookup at: http://public.dep.state.ma.us/SearchableSites2/Search.aspx

The Project Proponent is advised that if oil and/or hazardous materials are identified during the implementation of this project, notification pursuant to the Massachusetts Contingency Plan (310 CMR 40.0000) may be necessary. A Licensed Site Professional (LSP) should be retained to determine if notification is required, and render appropriate opinions as necessary. The LSP may evaluate whether risk reduction measures are necessary if contamination is present. Please contact BWSC for guidance if questions arise regarding assessment and cleanup under the MCP. DEP 03

Proposed s.61 Findings

The "Certificate of the Secretary of Energy and Environmental Affairs on the Environmental Notification Form" may indicate that this project requires further MEPA review and the preparation of an Environmental Impact Report. Pursuant to MEPA Regulations 301 CMR 11.12(5)(d), the Proponent will prepare Proposed Section 61 Findings to be included in the EIR in a separate chapter updating and summarizing proposed mitigation measures. In accordance with 301 CMR 11.07(6)(k), this chapter should also include separate updated draft Section 61 Findings for each State agency that will issue permits for the project. The draft Section 61 Findings should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. DEP 04

Very truly yours,

Jonathan E. Hobill,
Regional Engineer,
Bureau of Water Resources

JH/GZ

Cc: DEP/SERO

ATTN: Millie Garcia-Serrano, Regional Director
David Johnston, Deputy Regional Director, BRP
Maria Pinaud, Deputy Regional Director, BWP
Gerard Martin, Acting Deputy Regional Director, BWSC
Jennifer Viveiros, Deputy Regional Director, ADMIN
Jim Mahala, Acting Chief, Wetlands and Waterways
Dan Gilmore, Wetlands and Waterways
David Hill, Wetlands and Waterways
Allen Hemberger, Site Management

MASSACHUSETTS DEPARTMENT OF ENVIRONMENTAL PROTECTION (DEP)

DEP 01 **The project proponent states that the proposed Replacement Project is exempt from regulation under MGL c.131, § 40 and 310 CMR 10.00 as a "minor exempt activity" pursuant to 310 CMR 10.02(2)(b)2. However, in Section 4.4.1.2 of the Project Narrative on page 4-7, the proponent states that approximately 250 linear feet of the proposed main replacement project is located within Land Subject to Coastal Storm Flowage. In order for the activity to be considered a "minor exempt activity", the activity must be located outside any area specified in 310 CMR 10.02(1)(a) through (e). Land Subject to Costal Storm Flowage is listed in 310 CMR 10.02(1)(e). Therefore, the activity in that location does not appear to qualify as a "minor exempt activity."**

At the Bass River crossing, the proposed replacement main will be installed within an existing utility bay that is located within the Highbank Road bridge structure. Thus, as stated in Section 4.4.1.2 of the EENF, within this existing utility bay the replacement main will cross *over* (i.e., above, and not within) approximately 250 linear feet of Land Subject to Coastal Storm Flowage (LSCSF) in the towns of Yarmouth and Dennis. The Wetland Protection Act Regulations (310 CMR 10.04) define LSCSF as "land subject to any inundation caused by coastal storms up to and including that caused by the 100-year storm, surge of record or storm of record, whichever is greater."

The exemption under 310 CMR 10.02(2)(b)(2) is related to "work" in the buffer zone and outside areas specified in 310 CMR 10.02(1)(a) through (e). The term "work" is defined in the regulations as "activity," and "activity" is defined in the regulations as the following:

> *"any form of draining, dumping, dredging, damming, discharging, excavating, filling or grading; the erection, reconstruction or expansion of any buildings or structures; the driving of pilings; the construction or improvement of roads and other ways; the changing of run-off characteristics; the intercepting or diverging of ground or surface water; the installation of drainage, sewage and water systems; the discharging of pollutants; the destruction of plant life; and any other changing of the physical characteristics of land."*

Under section 10.02(2)(a), activities subject to regulation must be within an area specified in 310 CMR 10.02(1)(a) through (e) and must "remove, fill or alter" the resource area. Here, the relevant consideration is that locating the proposed replacement main within the existing utility bay on the bridge is not "work" or "activity" that will fill or alter the LSCSF (i.e., the replacement of a main within the utility bay on the bridge structure will not "alter" the LSCSF because it will not affect the inundation occurring during coastal storm flowage of the land surface mapped

as LSCSF). Therefore, our main replacement is not subject to regulation in the first instance under section 10.02(2)(a), and therefore it does not need to be made "exempt" from regulation as a "minor activity" under section 10.02(2)(b).

DEP 02 Based on a review of USGS maps, aerial photographs and plans accompanying the ENF, it appears that proposed crossings at Herring River and Stony Brook are Chapter 91 jurisdictional waterways pursuant to the Waterways Regulations at 310 CMR 9.04... In order to make a conclusive determination as to whether these waterways are jurisdictional, the Proponent should file a Request for Determination of Applicability pursuant to the Waterways Regulations at 9.06. Based on a review of the information contained in the ENF, it appears that the work at each of the river crossings could be authorized under a "Minor Project Modification" pursuant to the Waterways Regulation at 9.22(3) and will not require the submittal of a Chapter 91 License Application. The Waterways Program recommends that the Proponent submit, as soon as possible, a formal request for a Minor Project Modification with accompanying construction plans so that this initial determination can be made.

Please see the response to MEPA 05.

DEP 03 The Project Proponent is advised that if oil and/or hazardous materials are identified during the implementation of this project, notification pursuant to the Massachusetts Contingency Plan (310 CMR 40.0000) may be necessary. A Licensed Site Professional (LSP) should be retained to determine if notification is required, and render appropriate opinions as necessary.

The Company acknowledges this guidance and will follow all applicable laws and regulations pertaining to oil and/or hazardous materials.

DEP 04 Pursuant to MEPA regulations 301 CMR 11.12(5)(d), the Proponent will prepare Proposed Section 61 Findings to be included in the EIR in a separate chapter updating and summarizing proposed mitigation measures. In accordance with 301 CMR 11.07(6)(k), this chapter should also include separate updated draft Section 61 Findings for each State agency that will issue permits for the project. The draft Section 61 Findings should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation.

Please see the response to MEPA 16.

Patel, Purvi (EEA)

From: Petitpas, Christian (FWE)
Sent: Tuesday, December 22, 2015 4:11 PM
To: Patel, Purvi (EEA)
Cc: 'hcarlson@epsilonassiciates.com'; 'Dennis Conservation Commission'; 'Harwich Conservation Commission'; 'Harwich Conservation Commission'; 'Brewster Conservation Commission'; 'Muldoon, Kerry'; Ford, Kathryn (FWE); Lehan, Richard (FWE)
Subject: EEA No. 15445, Colonial Gas Company

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Purvi Patel, EEA No. 15445
100 Cambridge Street, Suite 900
Boston, MA 02114

Dear Secretary Beaton:

The Division of Marine Fisheries (*MarineFisheries*) has reviewed the Expanded Environmental Notification Form by Colonial Gas Company for the proposed multi-stage Mid-Cape Main Replacement Project involving the replacement of 18.1 miles of existing 200-psig natural gas distribution main system in the Towns of Yarmouth, Dennis, Harwich, and Brewster. The project was reviewed with respect to potential impacts to marine fisheries resources and habitat.

Based on the information provided, *MarineFisheries* has no recommendations for sequencing, timing, or methods that would avoid or minimize impact at this time. DMF 01

Questions regarding this review may be directed to John Logan in our New Bedford office at 508-990-2860 ext. 141.

Sent on behalf of John Logan

MASSACHUSETTS DIVISION OF MARINE FISHERIES (DMF)

DMF 01 **Based on the information provided, *Marine Fisheries* has no recommendations for sequencing, timing, or methods that would avoid or minimize impact at this time.**

The Company appreciates DMF's review of the Expanded ENF.

COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF
ENERGY AND ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENERGY RESOURCES
100 CAMBRIDGE ST., SUITE 1020
BOSTON, MA 02114
Telephone: 617-626-7300
Facsimile: 617-727-0030

Charles D. Baker
Governor

Karyn E. Polito
Lt. Governor

Matthew A. Beaton
Secretary

Judith F. Judson
Commissioner

December 29, 2015
Purvi Patel, MEPA Analyst

Subject: Mid Cape Gas Main Replacement – Stationary GHG Sources DOER Comments

The DOER commends the project for the quality and detail of the information submitted in the GHG section and Appendix.

It is the intent of this review to both ensure that the analysis submitted conforms to the application of the MEPA GHG Policy and Protocol (the Policy) as have been agreed upon for this project, and to point out areas and aspects of the design and proposed mitigation as described in the content related to the GHG emissions from stationary sources that may present opportunities for further reductions in both the consumption of fuels and GHG emissions. Where these opportunities appear to exist, these comments also suggest measures and/or approaches that the DOER offers for consideration for adoption.

Project Description:

The DOER commends the proponent on the generally high level of detail provided.

While the DOER recognizes the significant projected reduction in overall net projected emissions resulting in the operation of the as-proposed pipeline, under the Policy this information is extraneous to both the quantification of the base case GHG emissions and for the mitigated as-proposed GHG emissions which are <u>directly attributable</u> to the pipeline project.

Establishment of the Base Case and As-proposed Case:

It appears that because all but 11,445 LF will be a replacement on a LF per LF basis, due to this, the Base Case would only apply to this additional length. The DOER questions this approach and suggests that in order to fully understand and compare the base case and as-mitigated case DOER 01

emissions, the GHG emissions of the entire 18.9 miles of the as-proposed project should be included for both cases.

As is stated in the GHG section, the base case should be what is required by the projected flow and pressure and by compliance with all of the applicable laws, ordnances and regulations (LORS), whereas the as-proposed project should include any measures beyond what is included in the base case which would have the effect of further reducing the GHG emissions.

This table should be included any subsequent submittal: DOER 02

Description	Base	As Proposed	% reduction in GHG emissions

Quantification of GHG Emissions from Stationary Sources

***Operations*:**
As stated in the comments above both the base and as-mitigated cases should be based on the entire length and design of the as-proposed project.

Mitigation:

The DOER assumes that the leakage rates included in Table W-7 to Subpart W of Part 98 are based on the standards of construction and operation consistent with all applicable LORS. The DOER suggests that any measures that would exceed these standards and regulations which could be demonstrated to reduce the quantity of fugitive emissions should be evaluated by the proponent and included in the subsequent submittal as either adopted, under further study or eliminated. A description of each measure and reasons for further study or elimination should be included with sufficient detail to permit a thorough review. DOER 03

Some possible measures for consideration:

a. Incorporation of valves and fittings with lower leakage rates that the minimum required by LORS
b. Adoption of enhanced testing and inspection procedures and protocols
c. Incorporation of an in-situ leak detection system.

Self Certification (Section 61):

Include at a minimum the following information: DOER 04

1. The projected scf/yr of fugitive emissions and the associated tons/yr of GHG emissions.
2. The reductions in both fugitive scf and GHG emissions to be achieved by the as-proposed project.
3. A list of all significant related mitigation measures included in the as-proposed project.
4. Provide the MEPA office with the project milestone at which, prior to issuance of the For Bid design, the MEPA office will be informed of decisions made regarding any measures designated for further evaluation.

John Ballam
John Ballam
Engineering Manager
CHP Program Manager
MA Dept. of Energy Resources

cc: Arah Schuur
Ian Finlayson

MASSACHUSETTS DEPARTMENT OF ENERGY RESOURCES (DOER)

DOER 01 **It appears that because all but 11,445 LF will be a replacement on a LF per LF basis, due to this, the Base Case would only apply to this additional length. The DOER questions this approach and suggests that in order to fully understand and compare the base case and as-mitigated case emissions, the GHG emissions of the entire 18.1 miles of the as-proposed project should be included for both cases. As stated in the GHG section, the base case should be what is required by the projected flow and pressure and by compliance with all of the applicable laws, ordinances and regulations (LORS), whereas the as-proposed project should include any measures beyond what is included in the base case which would have the effect of further reducing the GHG emissions.**

The projected natural gas leak rates for the entire pipeline is 55.5 mcf/year (18.1 miles times 0.35 scf/hour/mile) (see Section 2.2.3). This is the same for the existing system and the proposed system. The projected leak rate is equivalent to 29.1 tons of CO_2 equivalent per year.

DOER 02 **This table should be included any subsequent submittal:**

Description	Base	As Proposed	% Reduction in GHG emissions

As discussed in the response to comment MEPA 10, the Company met with the MEPA office and DOER on January 25, 2016 to discuss Project-related GHG emissions and compliance with the MEPA Policy and Protocol. Section 2.2.5 documents that the Project's compliance with laws, ordinances, regulations, and standards avoids and minimizes GHG emissions to the extent feasible, and there is no difference between a "base" compliant system and a proposed system that would show a quantifiable reduction in GHG emissions.

DOER 03 **The DOER assumes that the leakage rates included in Table W-7 to Subpart W of Part 98 are based on the standards of construction and operation consistent with all applicable LORS. The DOER suggests that any measures that would exceed these standards and regulations which could be demonstrated to reduce the quantity of fugitive emissions should be evaluated by the proponent and included in the**

subsequent submittal as either adopted, under further study, or eliminated. A description of each measure and reasons for further study or elimination should be included with sufficient detail to permit a thorough review.

Some possible measures for consideration:

a. Incorporation of valves and fittings with lower leakage rates that the minimum required by LORS

b. Adoption of enhanced testing and inspection procedures and protocols

c. Incorporation of an in-situ leak detection system

As discussed in Section 2.2.5, valves used for the Project have double O-ring seals designed to be leak-free, and fittings have welded connections; these are state-of-the-art standards for this application, and there is no higher-emitting option to use as a base case. Similarly, Section 2.2.5 of this SEIR documents that testing and inspection procedures are state-of-the-art, and an in-situ leak detection system would not be practical.

DOER 04 Include at a minimum the following information:

1. The projected scf/yr of fugitive emissions and the associated tons/yr of GHG emissions.

2. The reductions in both fugitive scf and GHG emissions to be achieved by the as-proposed project.

3. A list of all significant related mitigation measures included in the as-proposed project.

4. Provide the MEPA office with the project milestone at which, prior to issuance of the For Bid design, the MEPA office will be informed of decisions made regarding any measures designated for further evaluation.

Per comment DOER 01, and as stated in Section 2.2.3, the projected natural gas leak rate for the entire pipeline is 55.5 mcf/year (18.1 miles times 0.35 scf/hour/mile). This is the same for the existing system and the proposed system. The projected leak rate is equivalent to 29.1 tons of CO_2 equivalent per year. Per comments DOER 02 and DOER 03, no quantification of GHG reductions base-to-proposed case can be made, because industry laws, ordinances, regulations, and standards prescribe state-of-the-art construction and operation methods that avoid and minimize GHG emissions to the extent feasible. Proposed Project mitigation measures are summarized in Section 2.3, and there are no options to further reduce GHG emissions.

3225 MAIN STREET • P.O. BOX 226
BARNSTABLE, MASSACHUSETTS 02630

(508) 362-3828 • Fax (508) 362-3136 • www.capecodcommission.org

CAPE COD
COMMISSION

By Electronic Mail

December 23, 2015

Matthew A. Beaton, Secretary
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office, Purvi Patel, Analyst
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: Expanded Environmental Notification Form - EEA No. 15445
NGRID- Mid Cape Main Replacement Project
Towns of Harwich, Brewster, Dennis, Yarmouth
(CCC Project No. 15022)

Dear Secretary Beaton:

The Cape Cod Commission supports the natural gas main replacement project outlined in National Grid's Expanded Environmental Notification Form, and further, supports expediting the permitting and construction of the project as it constitutes critical infrastructure to the Cape Cod region.

For the reasons that follow, the Commission suggests that any long term, regional land use impacts and concerns under its jurisdiction occasioned by the project have been sufficiently addressed in the EENF, and, accordingly, would support a determination under MEPA that the EENF is adequate and no EIR need be prepared. Alternatively, the Commission would support a determination that a Single EIR be prepared, which would be sufficient to address any issues raised in the EENF that you deem outstanding.

The EENF responds in large measure to the service moratorium on the mid and lower Cape announced by National Grid in 2014. Since that time, the Commission has participated in and hosted regular meetings between the company and municipal and business stakeholders to collaboratively develop an infrastructure plan that meets the needs of the region and minimizes harm to the environment. Lifting the service moratorium as soon as practicable was a clearly articulated priority in these meetings. The replacement project will provide safe and more reliable gas service to the region.

National Grid intends to replace 18.1 miles of existing gas main primarily with new, 12-in. diameter main within the towns of Yarmouth, Dennis, Brewster and Harwich, to operate at 200 psig. As proposed, impacts to natural resource areas have been minimized or avoided. The work will occur in previously disturbed or existing paved areas. The proposed project route is

confined to existing roadway layouts, with main placement directly beneath or within several feet of existing road pavement, and does not involve tree clearing or removal. The existing main would largely be abandoned in place. Where work is proposed adjacent to wetlands, the work will occur within existing bridges or culverts. Work proposed in mapped rare species habitat is again located within existing paved roadways or within 10 ft of the roadway, and as such is an exempt activity under the MESA regulations. The project area does not pass through coastal resource areas.

Though the proposed pipeline route traverses several marine water recharge areas, many of which drain to nitrogen impaired embayments, and through several Freshwater Recharge Areas, including recharge areas to impaired ponds (e.g. Lower Mill Pond and Walkers Pond), the proposed pipeline will not withdraw water, generate wastewater, entail subsurface disposal, or contribute additional nitrogen loading. As such, the Commission suggests that the project will have negligible long-term nutrient impacts on water resources.

Stormwater runoff during construction will be contained with best management practices including the use of hay bales, silt fences, and the placement of silt sacks for existing catch basins. Additionally, stormwater impacts will be minimized by compliance with the project's NPDES General Permit. Once the pipeline is complete, disturbed vegetated areas will be loamed and seeded to match pre-existing vegetation. As such, the Commission suggests that the project will not have long-term impacts to stormwater quality or permanently and detrimentally alter existing drainage.

The Commission does note that there may be some short term land use impacts caused by construction-related operations, which the Commission suggests could adequately be addressed in the applicant's construction plans. The Commission would be happy to continue to work with the company and municipalities as construction plans are developed:

- The Commission encourages continued dialogue between NGRID and municipalities in the development of the Traffic Management Plan and coordination with local transportation projects; CCC 01
- Mitigation efforts to control spills, trench de-watering, stormwater, and erosion and sedimentation are imperative to ensuring compliance with water resources goals during construction;
    - Groundwater will likely be encountered in some areas during construction-period trenching. De-watering plans submitted by the applicant include many best practices to ensure minimal impact to water resources: hoses will be elevated to prevent sediment intake, pumps will have secondary containment, and trench water will be discharged through filter bags when the discharge occurs within 100 feet from a wetland or water body. Once the pipeline is complete, 572,960 gallons of water (likely municipal water) will be used for leak testing the pipeline. After testing, the water will be directed to tanks and transported to an approved wastewater treatment facility;
    - The proposed pipeline passes through several Wellhead Protection Areas (WPAs) and runs adjacent to Potential Public Water Supply Areas. Though the project does not anticipate using, handling, or generating any hazardous materials, re-fueling and equipment servicing operations within WPAs may pose a threat to drinking water quality. Protocols for refueling construction equipment should be CCC 02

established by the applicant, consistent with the project's location in the above-referenced water resource areas;

- Though no water quality impacts on groundwater are anticipated during project construction, the applicant should provide the location of parcels containing and potentially containing private wells within 400 feet of construction-related activities to ensure compliance with General Aquifer Protection goals and Drinking Water Quality goals; CCC 03
- Erosion and sedimentation control measures and other environmental protection issues associated with construction will be outlined in an Environmental Construction Plan (ECP) to be prepared by the applicant.

Thank you for the opportunity to provide comments on the above-referenced Expanded Environmental Notification Form (EENF). Cape Cod Commission staff is available and happy to answer any questions about these comments.

Sincerely,

Kristy Senatori

Kristy Senatori
Deputy Director

Cc: Project File
Applicant's agent Epsilon Associates Inc. via email
Yarmouth, Dennis, Harwich and Brewster CCC Representatives via email
Yarmouth, Dennis, Harwich and Brewster Town Administrators/ Managers via USPS

CAPE COD COMMISSION (CCC)

CCC 01 **The Commission encourages continued dialogue between NGRID and municipalities in the development of the Traffic Management Plan and coordination with local transportation projects.**

The Company has engaged CHA Companies to assemble TMPs for the Project. CHA will work with the municipalities to ensure the TMPs adequately address all traffic-related concerns related to Project construction.

CCC 02 **The proposed pipeline passes through several Wellhead Protection Areas (WPAs) and runs adjacent to Potential Public Water Supply Areas. Though the project does not anticipate using, handling, or generating any hazardous materials, refueling and equipment servicing operations within WPAs may pose a threat to drinking water quality. Protocols for refueling construction equipment should be established by the applicant, consistent with the project's location in the above-referenced water resources areas.**

The Company agrees with the importance of protecting groundwater quality. Procedures for refueling construction equipment will be defined during consultations with the CCC to ensure proper safety and spill prevention.

CCC 03 **Though no water quality impacts on groundwater are anticipated during project construction, the applicant should provide the location of parcels containing and potentially containing private wells within 400 feet of construction-related activities to ensure compliance with General Aquifer Protection goals and Drinking Water Quality goals.**

Attachment D contains a list of parcels within 400 feet of the Project that potentially contain private wells. Health Departments for Yarmouth, Dennis, and Harwich confirmed they do not keep records of private well locations. Upon suggestion from the Towns, the Company contacted Town Water Departments to acquire lists of property addresses with *public* drinking water. Next, the Company cross-referenced those lists against a list of parcels within 400 feet of the Project, identifying parcels that do not have public water and hence likely have private wells (or are vacant lots).

capecod
CHAMBER OF COMMERCE
CONVENTION & VISITORS BUREAU

December 14, 2015

Secretary, Matthew A. Beaton
Attn: MEPA Office
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston MA 02114

RE: Mid-Cape Main Replacement Project

Dear Secretary Beaton:

On behalf of our 1,350 members and Board of Directors, I am writing to express our support of National Grid's, Mid-Cape Gas Main Replacement Project. CHC 01

National Grid provides natural gas service to over 100,000 homes and businesses on Cape Cod. Because features of the system no longer meet current safety standards, National Grid has reduced pressure on a large section of the system. As a result, the company is no longer connecting new customers in several communities on Cape Cod. This in turn has become a significant economic issue for local residents and businesses.

We have met with National Grid representatives to urge them to make improvements to the system as soon as possible. We have outlined to them the additional financial burden this has placed on consumers and businesses. We have also reviewed National Grid's construction plans to replace 18 miles of gas mains, find them to be reasonable, and have worked with County officials in efforts to expedite the project and minimize adverse effects from the moratoriums. It is important to note that these plans are being coordinated with local towns, police and public works officials.

Our organization is supportive of this project and lifting the current moratorium on new gas service as soon as possible. We urge your support and approval.

Thank you.

Wendy Northcross

Wendy K. Northcross
CEO

Cape Cod Chamber of Commerce, 5 Patti Page Way, Centerville, Cape Cod, Massachusetts 02632
1-888-33CapeCod (888-332-2732) or 508-362-3225

CAPE COD CHAMBER OF COMMERCE (CHC)

CHC 01 **On behalf of our 1,350 members and Board of Directors, I am writing to express our support of National Grid's, Mid-Cape Gas Main Replacement Project... Our organization is supportive of this project and lifting the current moratorium on new gas service as soon as possible.**

The Company appreciates this support and is looking forward to completion of the proposed Project and an end to the moratorium.

CAPE COD & ISLANDS
ASSOCIATION of REALTORS®, INC.

December 21, 2016

Mr. Matthew Beaton, Secretary
Executive Office of Energy and Environmental Affairs
ATTN – MEPA unit
100 Cambridge Street, Suite 900
Boston MA 02114
Re: The Mid-Cape Gas Main Replacement Project

Dear Secretary Beaton,

The Cape Cod & Islands Association of REALTORS® lifting the natural gas moratorium on Cape Cod for the National Grid is important.

As you know, National Grid is a major provider of natural gas service to thousands of homes and businesses all throughout Cape Cod. Earlier this year, representatives from Grid announced that the company is no longer going to connect new customers in many communities on the Cape until it replaces a significant section of its system.

Realtors throughout Cape Cod are certainly supportive of Grid's plans to upgrade the system and improve public safety - but we are very concerned about the impact that the current moratorium on gas connections is having on our economy. The purchase, sale and redevelopment of real estate is a major source of employment on the Cape. While we can't quantify the impact, the supply of natural gas is certainly a factor in many sales decisions. CCAR 01

We meet with National Grid representatives on a regular basis and are kept updated as to their plans and work through any questions we have on the project. We are glad that the project will have a minimal impact to the environment, be done primarily in existing right of way limiting its impact on property owners, and most trees will be spared along our most scenic roads.

We support lifting the moratorium as soon as possible and hope you will do all you can to make this project a reality.

Thank you.

Sincerely,

Ryan Castle
Chief Executive Officer

CAPE COD & ISLANDS ASSOCIATION OF REALTORS, INC. (CCAR)

CCAR 01 **Realtors throughout Cape Cod are certainly supportive of Grid's plans to upgrade the system and improve public safety... We support lifting the moratorium as soon as possible and hope you will do all you can to make this project a reality.**

The Company appreciates this support and is looking forward to completion of the proposed Project and an end to the moratorium.

Appendix A

Figures

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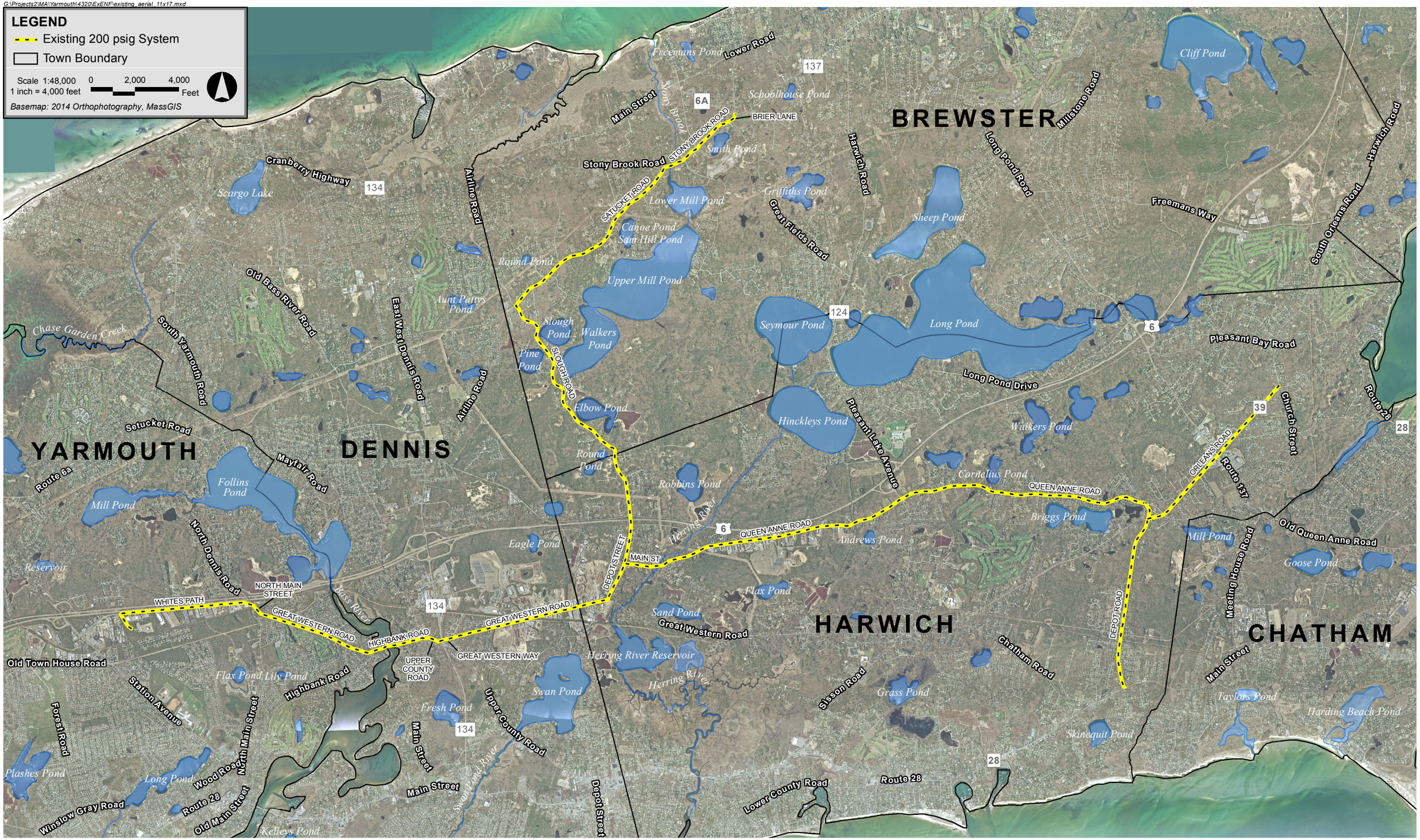

Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

nationalgrid Epsilon ASSOCIATES INC.

Figure 1-1

Existing 200 psig System - Aerial Locus Map

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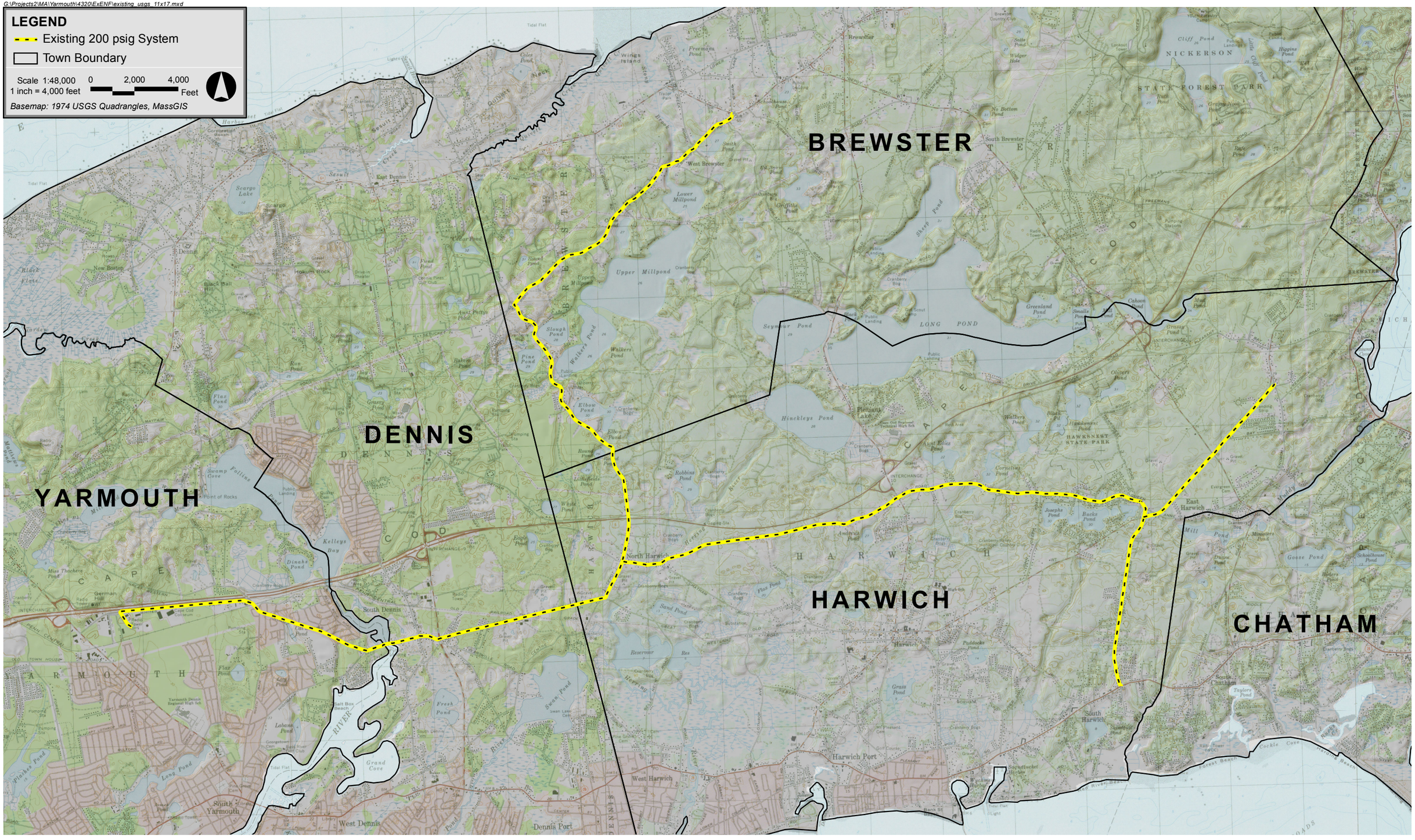

Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

nationalgrid Epsilon ASSOCIATES INC.

Figure 1-2

Existing 200 psig System - USGS Locus Map

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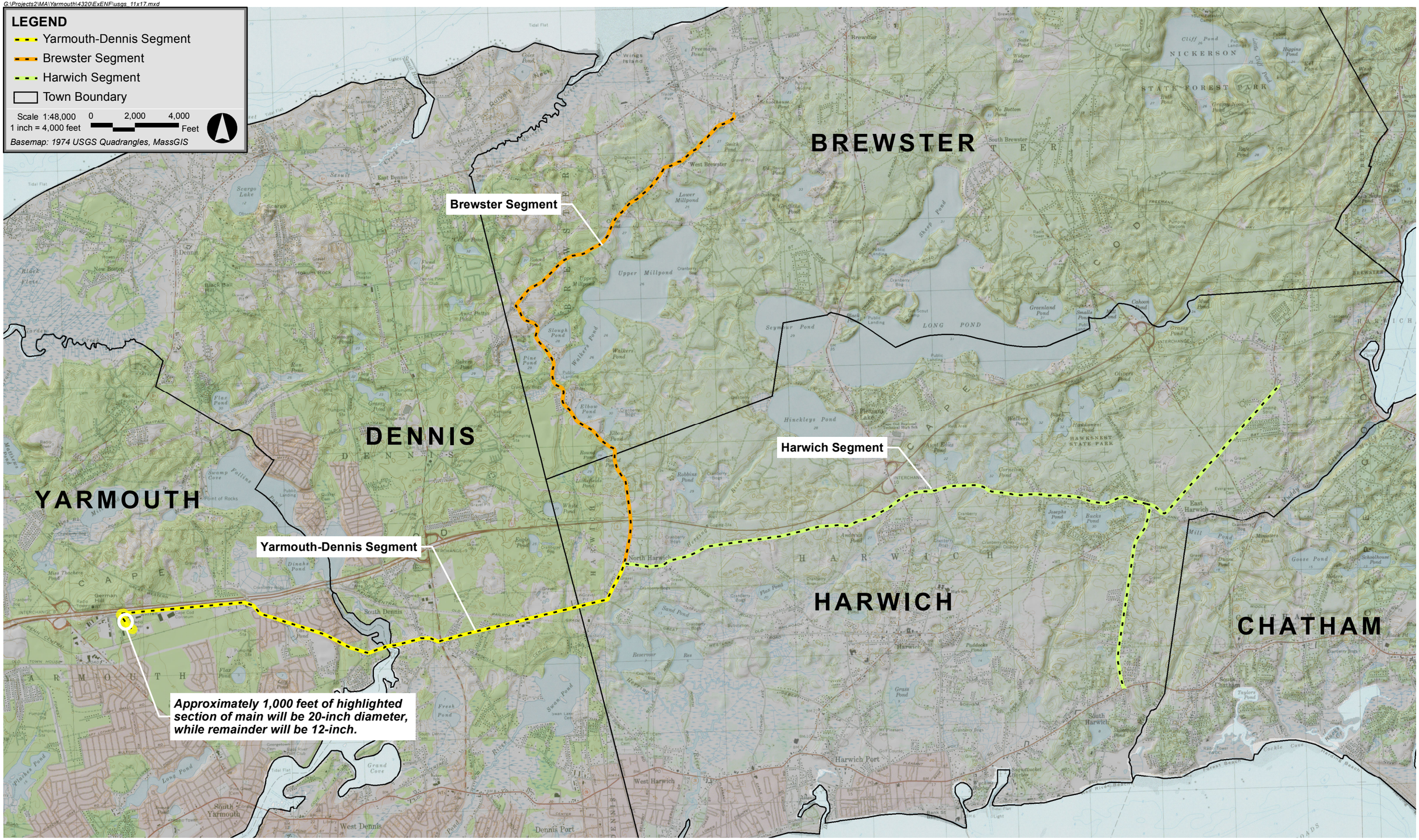

Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

nationalgrid Epsilon ASSOCIATES INC.

Figure 1-3

Proposed Project Route - USGS Locus Map

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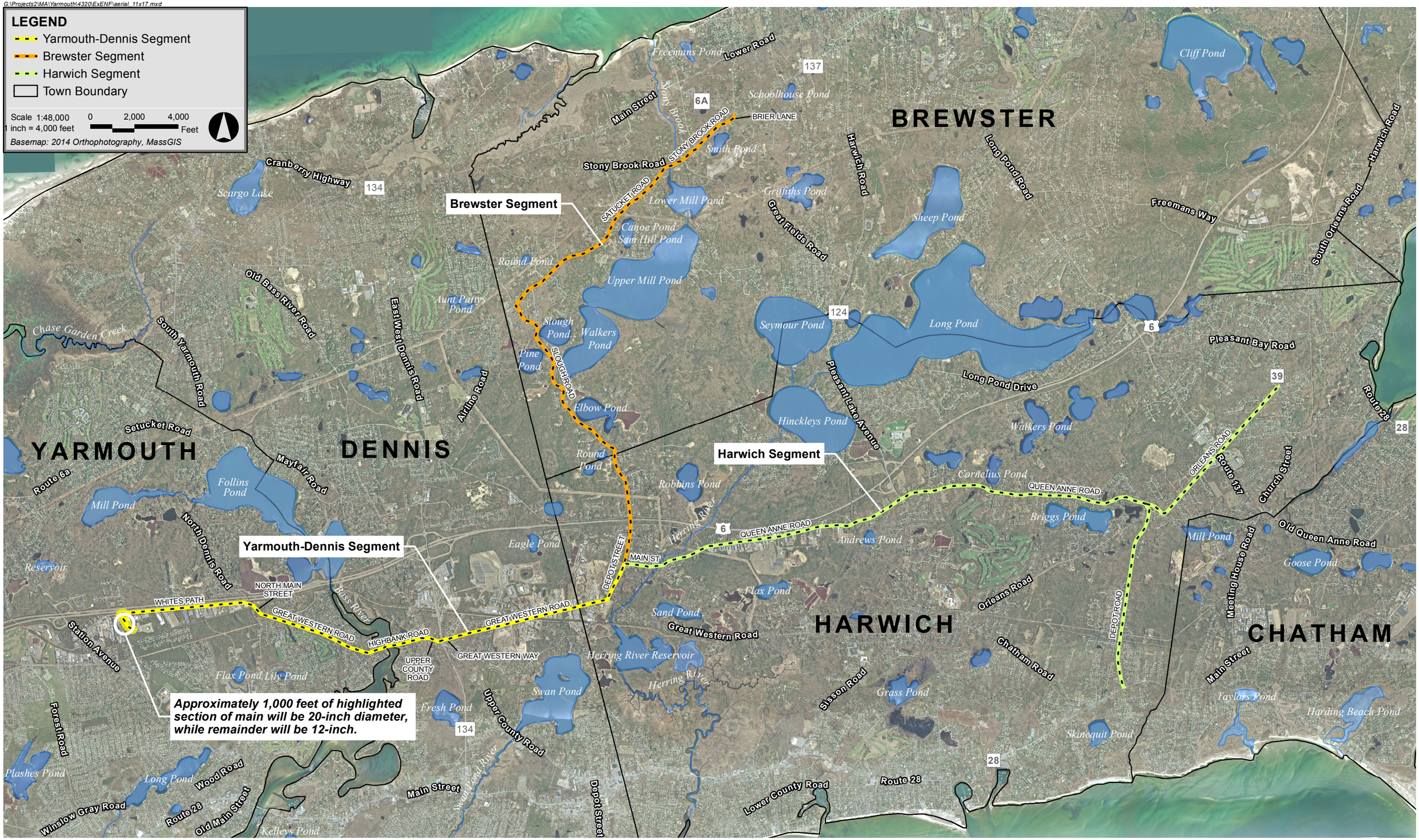

Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

nationalgrid Epsilon ASSOCIATES INC.

Figure 1-4

Proposed Project Route – Aerial Locus Map

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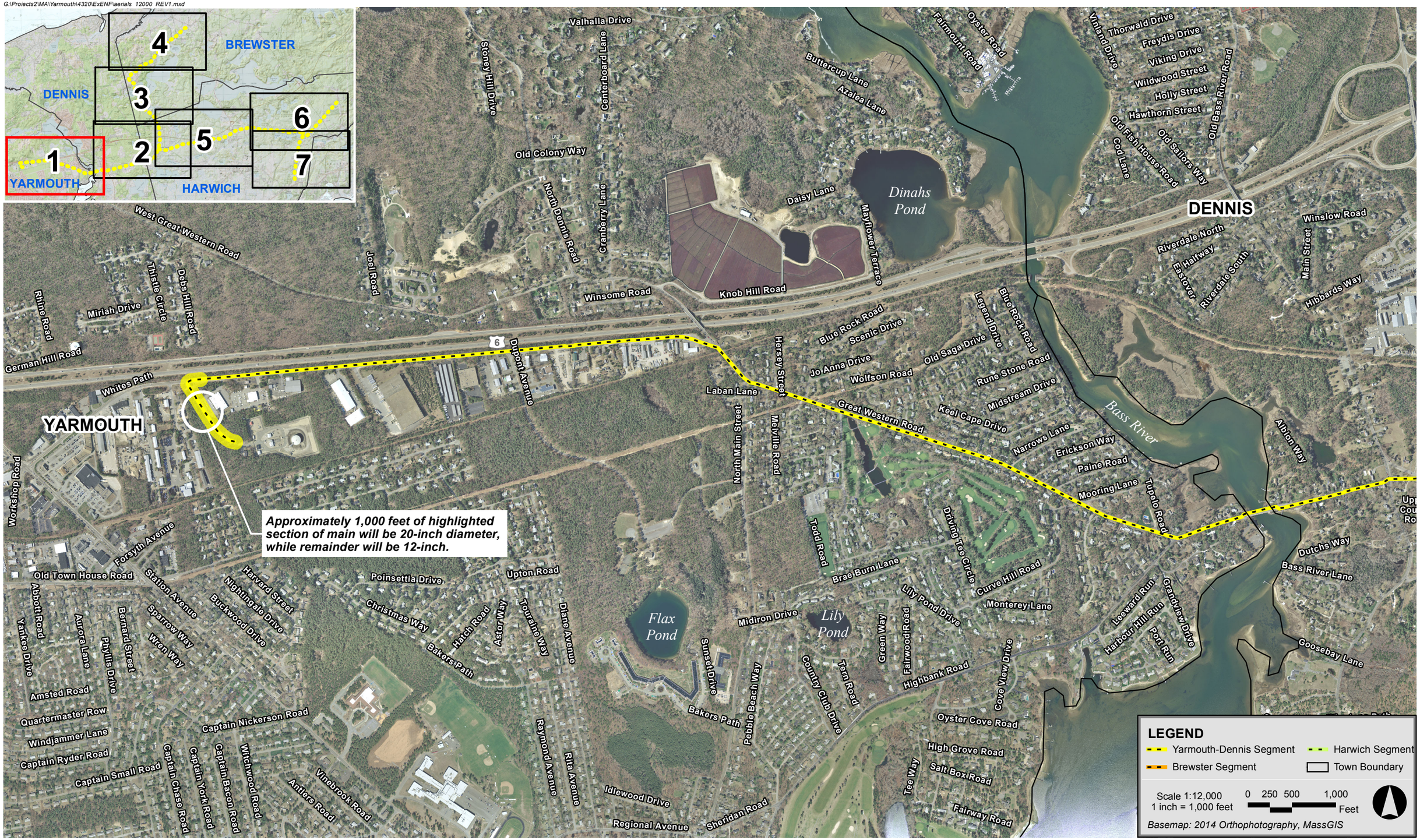

Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

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Figure 1-5

Proposed Project Route - Aerial Locus Map, Page 1 of 7

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Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

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Figure 1-5

Proposed Project Route - Aerial Locus Map, Page 2 of 7

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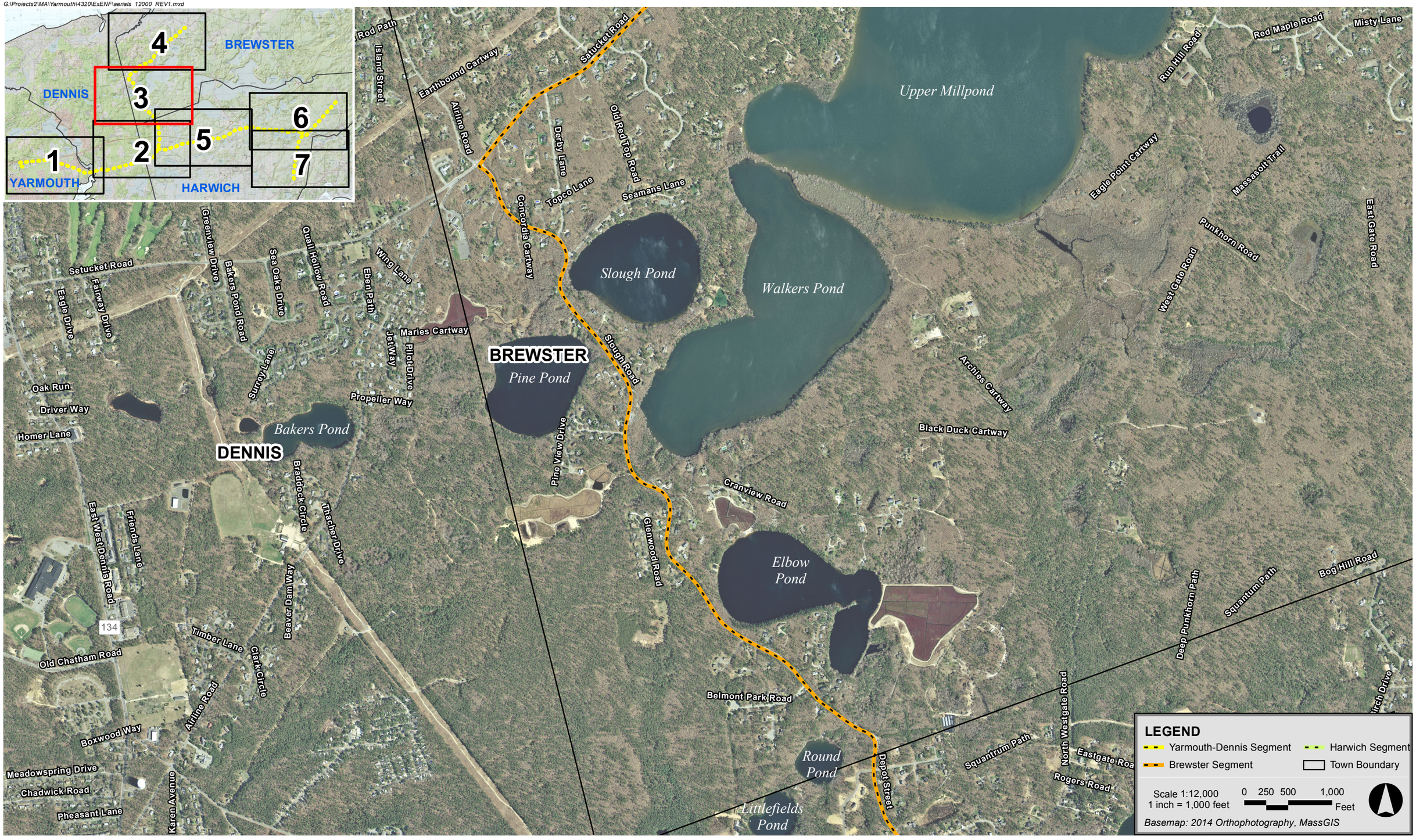

Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

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Figure 1-5

Proposed Project Route - Aerial Locus Map, Page 3 of 7

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Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

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Figure 1-5

Proposed Project Route - Aerial Locus Map, Page 4 of 7

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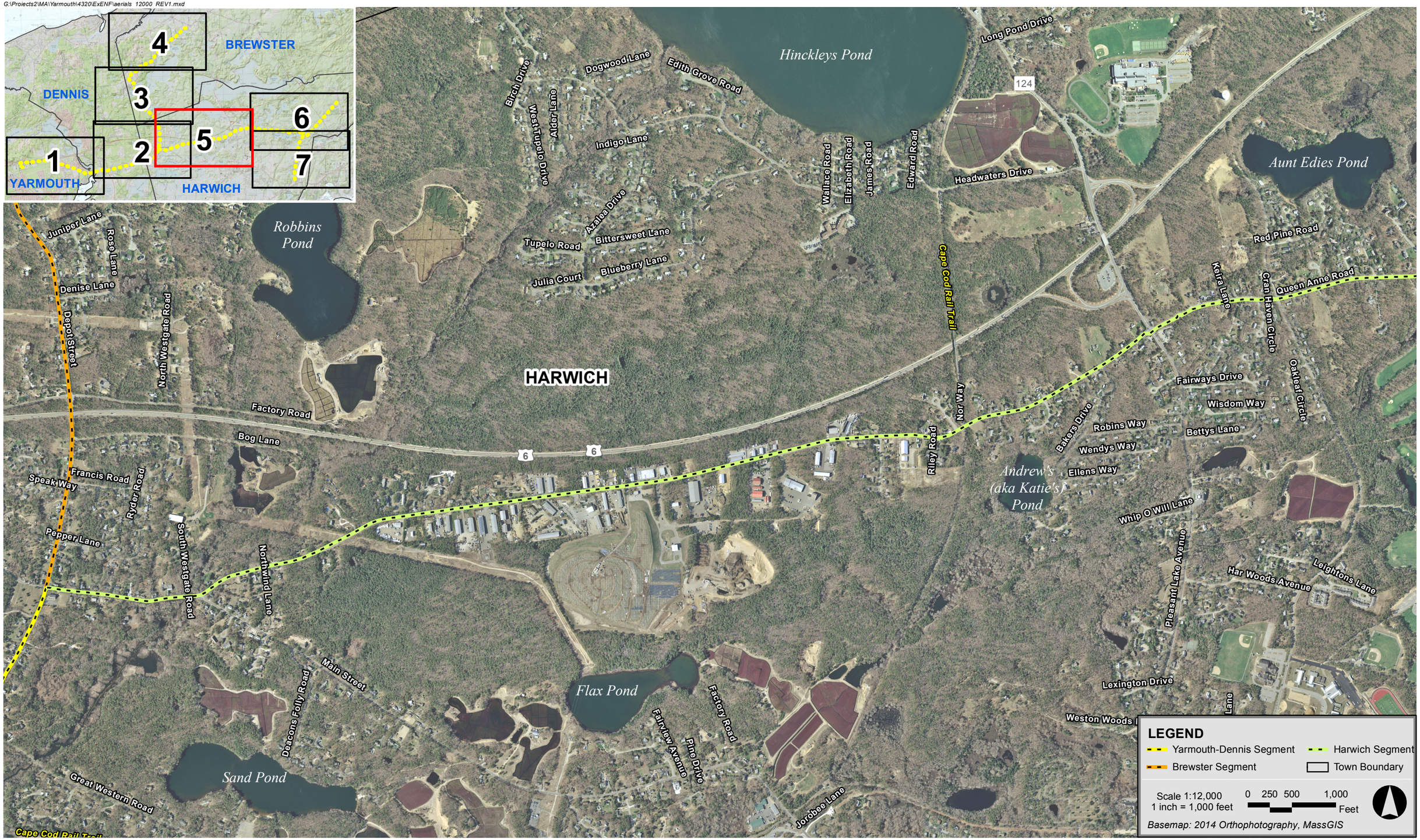

Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

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Figure 1-5

Proposed Project Route - Aerial Locus Map, Page 5 of 7

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Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

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Figure 1-5

Proposed Project Route - Aerial Locus Map, Page 6 of 7

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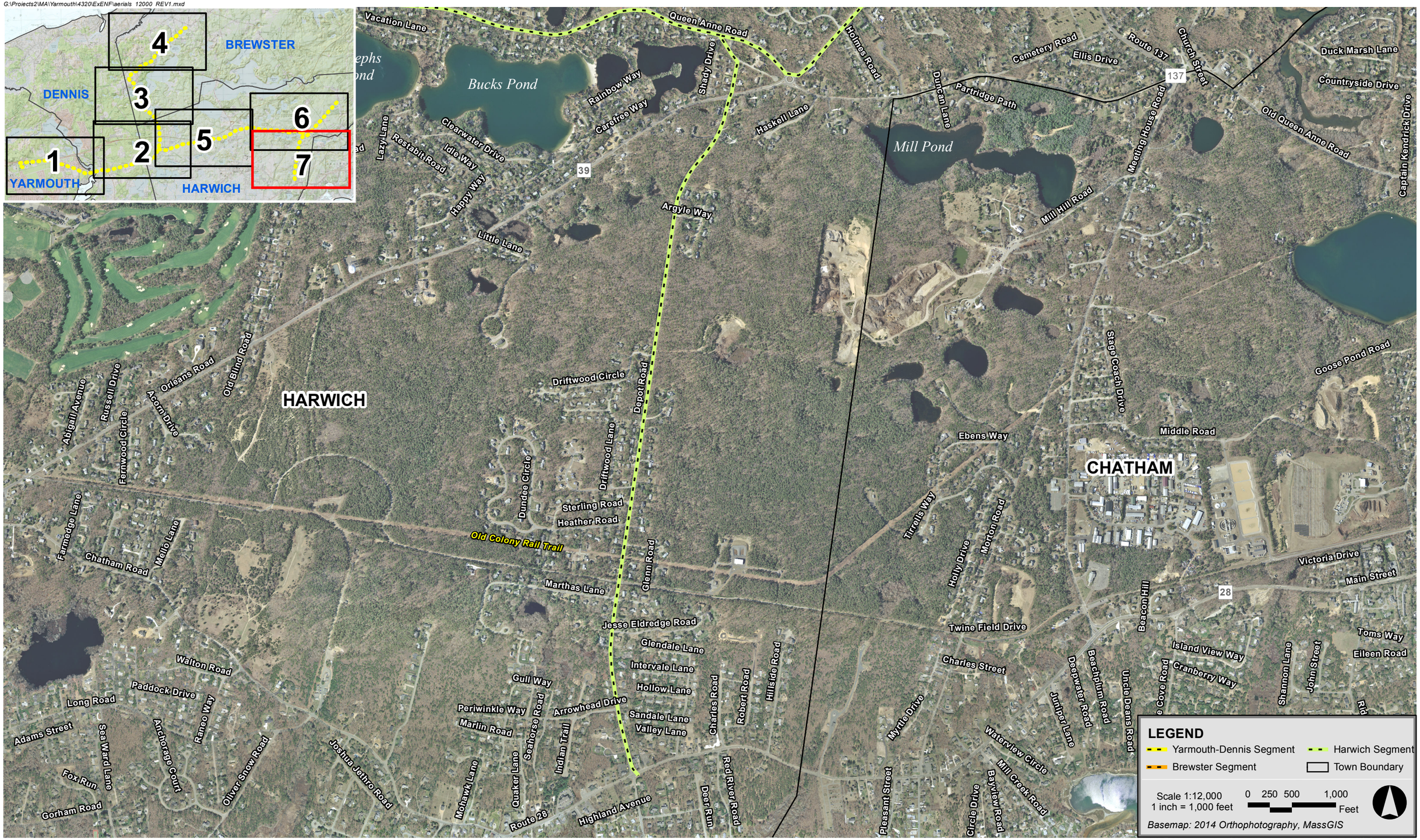

Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

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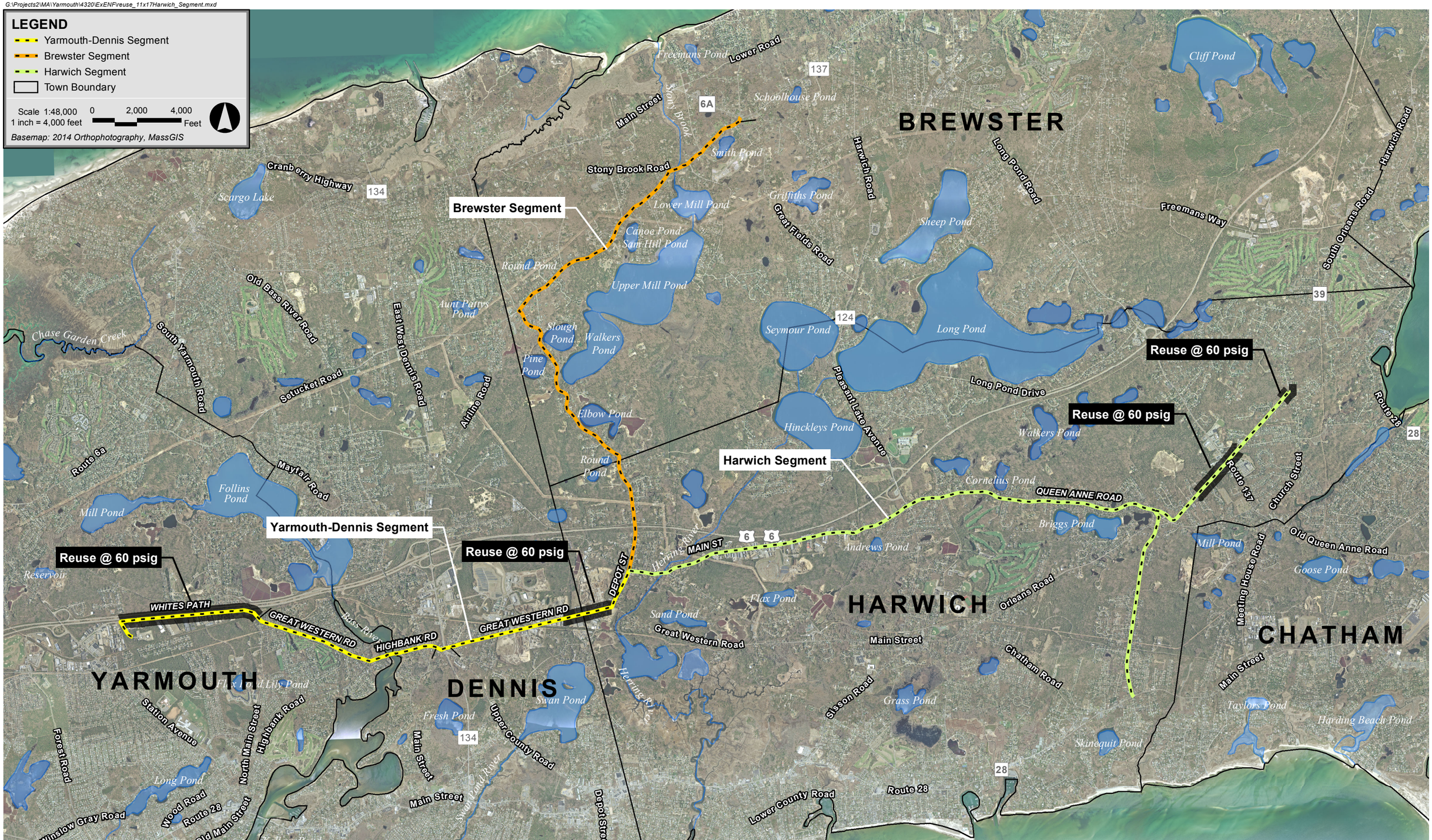
Figure 1-5

Proposed Project Route - Aerial Locus Map, Page 7 of 7

G:\Projects2\MA\Yarmouth\4320\ExENF\reuse_11x17Harwich_Segment.mxd



Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

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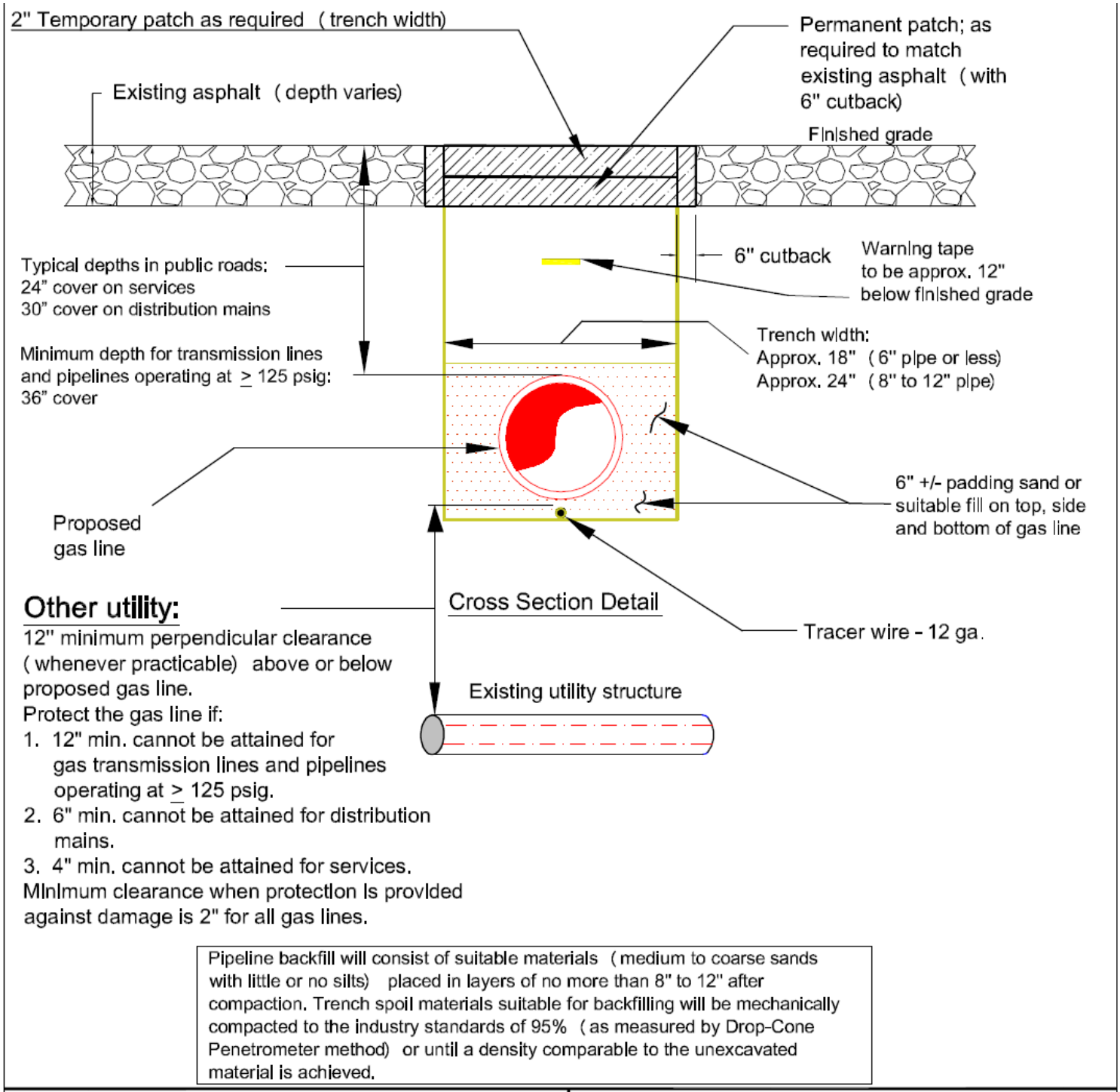
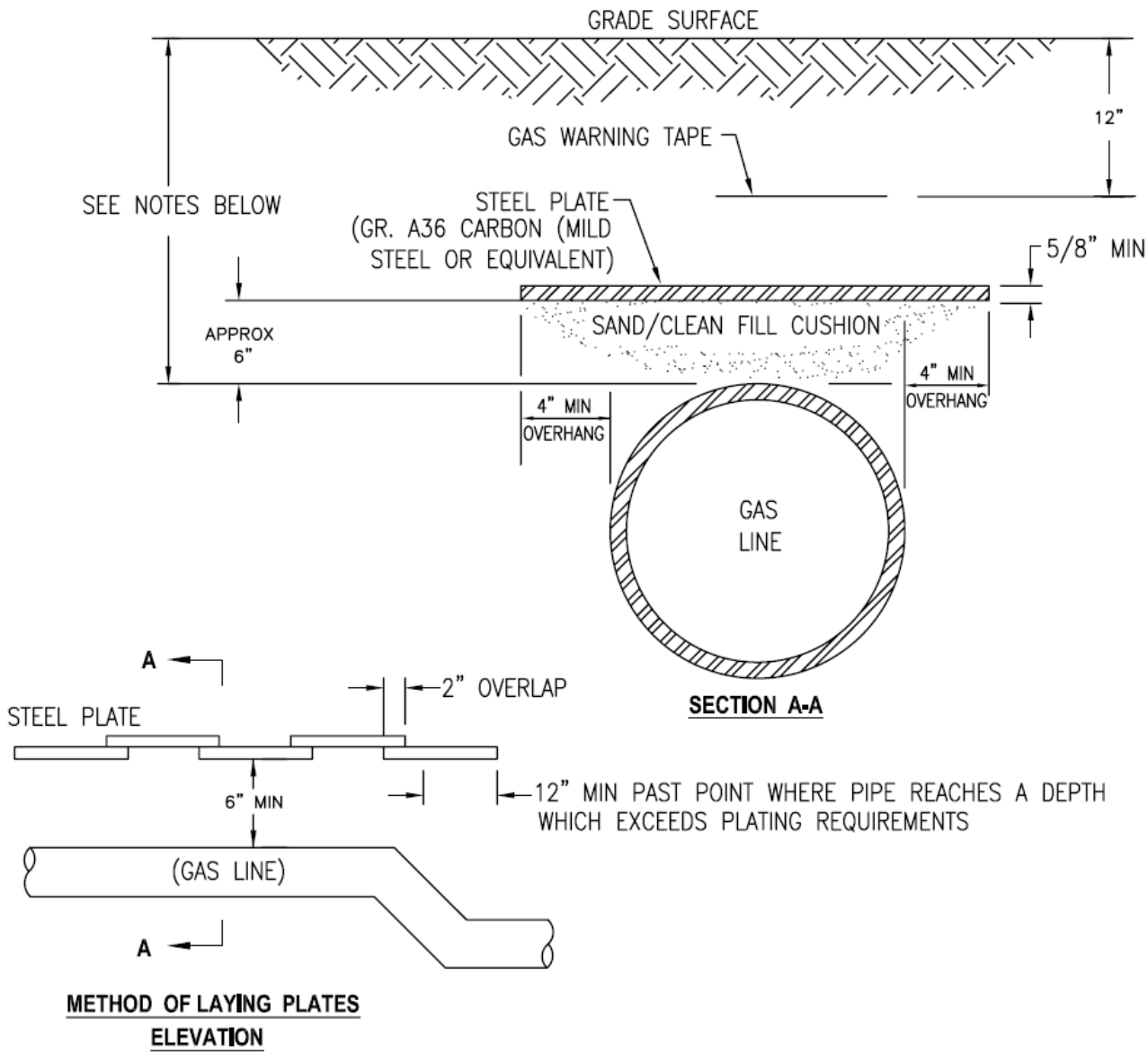
Figure 1-6

Sections of Existing 200-psig Main Proposed for Reuse at 60 psig



nationalgrid RI	TYPICAL UTILITY CROSSING AND TRENCH GUIDELINES	
Key Changes:	DATE: 09/15/2014	EFFECTIVE DATE: 09/15/2014
	DESIGN: N. COSTANZO	STD. DWG. NO. CS-CNST002
	DRAWN: N. COSTANZO	

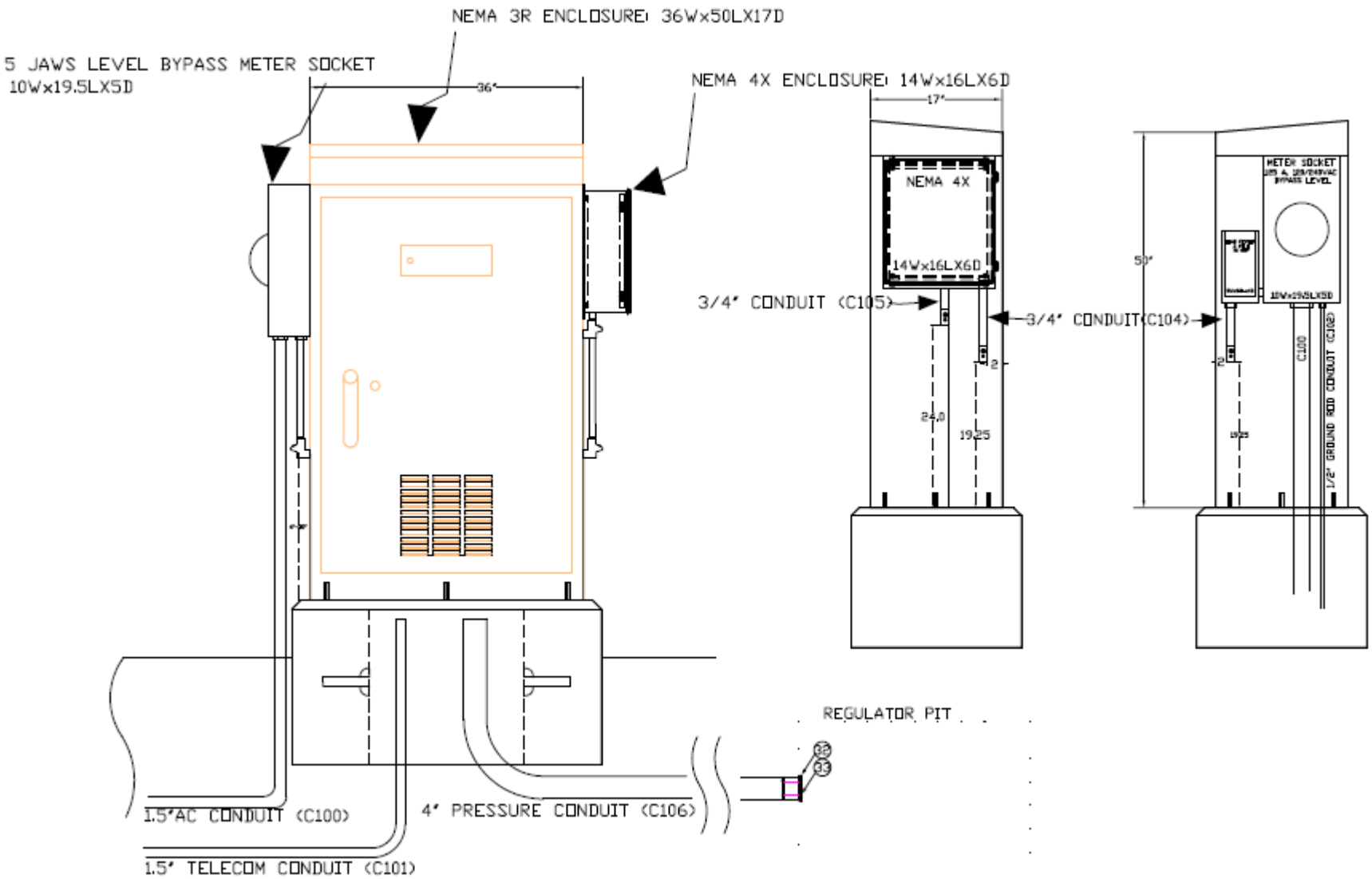


PROTECTIVE PLATES ARE REQUIRED:

1. FOR ANY GAS MAIN OR TRANSMISSION LINE OPERATING IN EXCESS OF 200 PSIG AND HAVING LESS THAN THREE FEET (3') OF COVER.
2. FOR ANY GAS MAINS OPERATING AT LESS THAN 200 PSIG HAVING LESS THAN TWO FEET (2') OF COVER.
3. FOR ANY SERVICE LOCATED IN THE PUBLIC RIGHT-OF-WAY HAVING LESS THAN EIGHTEEN INCHES (18") OF COVER.
4. FOR ANY SERVICE LOCATED IN PRIVATE PROPERTY HAVING LESS THAN TWELVE INCHES (12") OF COVER.

NOTES:

1. MAINS OR TRANSMISSION LINES INSTALLED WITH LESS THAN TWO FEET (2') OF COVER REQUIRE APPROVAL OF THE MASSACHUSETTS DPU.
2. MAINS OR TRANSMISSION LINES INSTALLED WITH LESS THAN THREE FEET (3') OF COVER IN MASSACHUSETTS STATE ROADWAYS/HIGHWAYS REQUIRE APPROVAL OF THE STATE AGENCY (E.G. MHD).
3. REFER TO NATIONAL GRID DOCUMENT CNST-5010 FOR REGULATORY COMPLIANCE REQUIREMENTS FOR SHALLOW MAIN AND SERVICE INSTALLATION (E.G. DTE WAIVER).
4. REFER TO STD. DWG. No. CNST-6025 FOR TYPICAL DETAILS FOR GAS MAIN AND SERVICE INSTALLATIONS.
5. FIELD SUPERVISOR TO PROVIDE SKETCH (WHICH INCLUDES ALL DIMENSIONS AND TIES) OF THE NEWLY INSTALLED STEEL PLATE OVER GAS MAINS, TRANSMISSION LINES AND SERVICES.



Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, Massachusetts**

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Figure 1-9

Street/Traffic Box Plan

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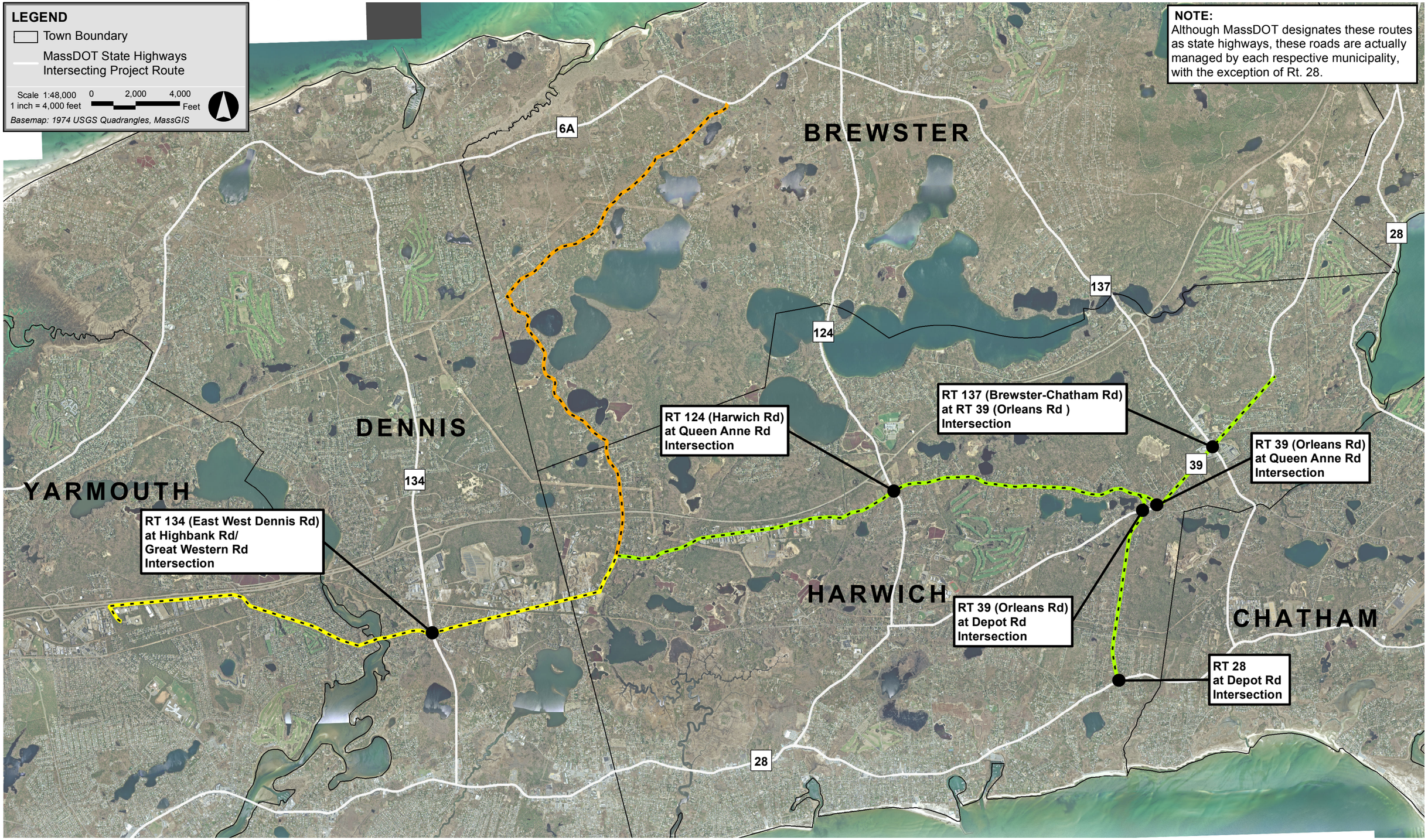

Mid-Cape Main Replacement Project **Yarmouth, Dennis, Harwich, Brewster, MA**

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Figure 4-1

At-Grade Crossings of State Roads along Project Route

Attachment B

Circulation List

ATTACHMENT B CIRCULATION LIST

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office
100 Cambridge Street, Suite 900
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(2 copies)

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One Winter Street
Boston, MA 02108

Massachusetts Department of Environmental Protection – Southeast Regional Office
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20 Riverside Drive
Lakeville, MA 02347

Massachusetts Department of Environmental Protection – Waterways Division
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Boston, MA 02108

Massachusetts Department of Transportation
Public/Private Development Unit
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Boston, MA 02116

Massachusetts Department of Transportation
Highway Department – District 5
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Cape Cod Commission
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Barnstable, MA 02630

Division of Marine Fisheries (South Shore)
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New Bedford, MA 02740-6694

Department of Energy Resources
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Boston, MA 02114

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One South Station
Fifth Floor
Boston, MA 02110

Yarmouth Board of Selectmen
c/o Town Administrator's Office
1146 Route 28
South Yarmouth, MA 02664

Yarmouth Conservation Commission
Yarmouth Town Hall
1146 Route 28
South Yarmouth, MA 02664

Yarmouth Board of Health
Yarmouth Town Hall
1146 Route 28
South Yarmouth, MA 02664

Dennis Board of Selectmen
P.O. Box 2060
485 Main Street
South Dennis, MA 02660

Dennis Conservation Commission
685 Route 134
South Dennis, MA 02660

Harwich Board of Selectmen
732 Main Street
Harwich, MA 02645

Harwich Conservation Commission
732 Main Street
Harwich, MA 02645

Harwich Historic District Commission
732 Main Street
Harwich, MA 02645

Brewster Board of Selectmen
Attn: Charles Sumner, Town Administrator
2198 Main Street
Brewster, MA 02631

Brewster Conservation Commission
Attn: Jim Gallagher, Conservation Administrator
2198 Main Street
Brewster, MA 02631

Cape Cod Chamber of Commerce
Attn: Wendy K. Northcross
5 Patti Page Way
Centerville, MA 02632

Cape Cod & Islands Association of Realtors, Inc.
Attn: Ryan Castle
22 Mid Tech Drive
West Yarmouth, MA 02673

South Yarmouth Public Library
312 Old Main Street
South Yarmouth, MA 02664

Dennis Public Library
5 Hall Street
Dennis Port, MA 02639

Harwich Brooks Free Library
739 Main Street
Harwich, MA 02645

Brewster Ladies' Library
1822 Main Street
Brewster, MA 0

Attachment C

GHG Technical Appendices

Mid-Cape Main Replacement Project
Single Environmental Impact Report
Greenhouse Gas Analysis - Calculation Assumptions

Operation

11445 linear feet of net new gas main
0.35 scf/hour/mile of distribution gas main, per 40 CFR 98 Table W-7
6.65 mcf/year

18.1 miles of total project gas main
0.35 scf/hour/mile of distribution gas main, per 40 CFR 98 Table W-7
55.5 mcf/year

CO2e calculations

0.524 short tons CO2e per mcf natural gas
based on natural gas including 96.89% methane and 0.24% CO2, and a methane global warming potential of 25

3.5 tons CO2e/year net new CO2e from operations
29.1 tons CO2e/year net new CO2e from operations

ATTACHMENT C
GHG TECHNICAL APPENDICES

Table C-1 Codes and standards applicable to the Project.

Topic	*Code/Standard*
Pipe Design	49 CFR 192 Subpart C (specific minimum requirements: 192.101, 192.103, 192.105, 192.107, 192.109, 192.111, 192.112, 192.113, 192.115, 192.55)
	Company Standard ENG03001 (Design of Transmission lines and Pipelines with MAOPs of 125 psig or Greater)
	API 5L Grade B
	APL 5L X-42
	220 CMR 101.06 (10)
	220 CMR 109.05, 109.08
Welds	Company Standard CNST05002 (Welding Policy Requirements for Qualification of Welding Procedures are based on the following: 49 CFR 192, API 1104, ASMEB31.8, 220 CMR 109.10)
Valves	Company Standard ENG03001 (Valve Placement): company procedure for all territories is each point on a pipeline be within ½-mile of a valve (valves not more than 1 mile apart), taken from 16 NYCRR Part 255.179(a), which is more stringent than the Federal or Massachusetts State Code.
	49 CFR 192.181 (Distribution Line Valves)
	220 CMR 109.12 (refers to Federal transmission line spacing outlined in 49 CFR Part 192.179(a)(1))
	49 CFR Part 192.179(a)(1): specifies each point on a pipeline be within 2.5 miles of a valve (valves not more than 5 miles apart)
	API6D
	220 CMR 109.05
Regulator Stations	49 CFR 192.195
	Company Standard ENG01001 (Design of Gas Regulator Stations Part 1)
	Company Standard ENG01002 (Design of Gas Regulator Stations Part 2)
Cathodic Protection	Company Standard ENG03001 (Design of Transmission Lines and Pipelines with MAOPs of 125 psig or Greater)
	COR0110 Corrosion Design Criteria
	ENG03010 Installation of Casings
	MS-017 (External Coating of Steel Pipe with Pritec)
	MS-018 (Coating and Inspection of Steel Pipe with Fusion Bonded Epoxy and Powercrete Abrasion Resistant Epoxy Overlay)
	49 CFR 192 Subpart I, 49 CFR 192.451-192.491
	220 CMR 109.13
Other Pipeline Components	49 CFR 192 Subpart D
	220 CMR 109.05
	220 CMR 109.08
Monitoring	49 CFR 192 Subpart I (Requirements for Corrosion Control), specifically 192.453 (General), 192.455 (External Corrosion Control after 1971), and 192.465 (External Corrosion Control Monitoring)

Table C-1 Codes and standards applicable to the Project (Continued)

Topic	*Code/Standard*
Initial System Pressure Test	49 CFR Subpart J
	220 CMR 109.11
	CNST-04004
Pipe Internal Inspection	COR02023 (In-Line Inspection of Gas Transmission Pipelines)
	49 CFR 192.475, 192.476, 192.477
	220 CMR 109.05
Other Regular Inspections	COR02020 (Inspection of Exposed Steel Pipe for Corrosion)
	SSUR5040 (MA Inside Service Leak Survey and Atmospheric Corrosion Inspection)
	COR02100 (Corrosion Inspection and Repair)
	49 CFR 192.451-192.473, 192.479-192.491
	220 CMR 109.05, 109.13
Certification and Inspection	Company Standard GEN01015 (Requirement for Establishing and Retaining Project Files for All Piping 125 psig and Greater)
	MATL3060 (Inspection of Steel Pipe)
	12002 (MS Steel Pipe API5L Grade B, X42 and Greater & ASTM A106 Grade B)
	GEN01015 (Requirements for Establishing and Retaining Project Files for All Piping 125 psig and Greater)
	MS-016 (Inspection of Steel Pipe and Pritec Wrapping at Plant)
	API 5L
	49 CFR 192 (192.303, 192.305, 192.307, 192.313, 192.315)
	220 CMR 109.08
Fittings Inspection	GEN01015 (Requirements for Establishing and Retaining Project Files for All Piping 125 psig and Greater)
	120037 (MS Forged Carbon Steel Flanges)
	MS-034 (Forged Steel Weldolet, Sockolet, and Threadolet Fittings)
	MATL-3110 (High Test Wrought Steel Butt Welding Fittings Equivalent to API 5L Grade X42 PSL-2 Pipe)
	49 CFR 192.303, 192.305, 192.307, 192.313, 192.315
	220 CMR 109.08

ATTACHMENT C
VALVES AND O-RINGS

Typically, actuated ball valves are used with stems. It is the stem o-rings (generally two) that keep gas from escaping into the atmosphere. Stem o-rings rarely ever leak gas; however, when they do, the Company is notified and fixes them right away. Typically two to three stem leaks are fixed per year on control valves that are moving continuously, never on gear operated valves. Delta Ball Valves, which are used for this project, have zero emissions. Stem and o-rings are not only associated with actuated valves, but every ball valve in the system, whether they are buried, on meter sets, regulator stations, risers, etc. A cutaway diagram of the stem is shown on Figure C-1.

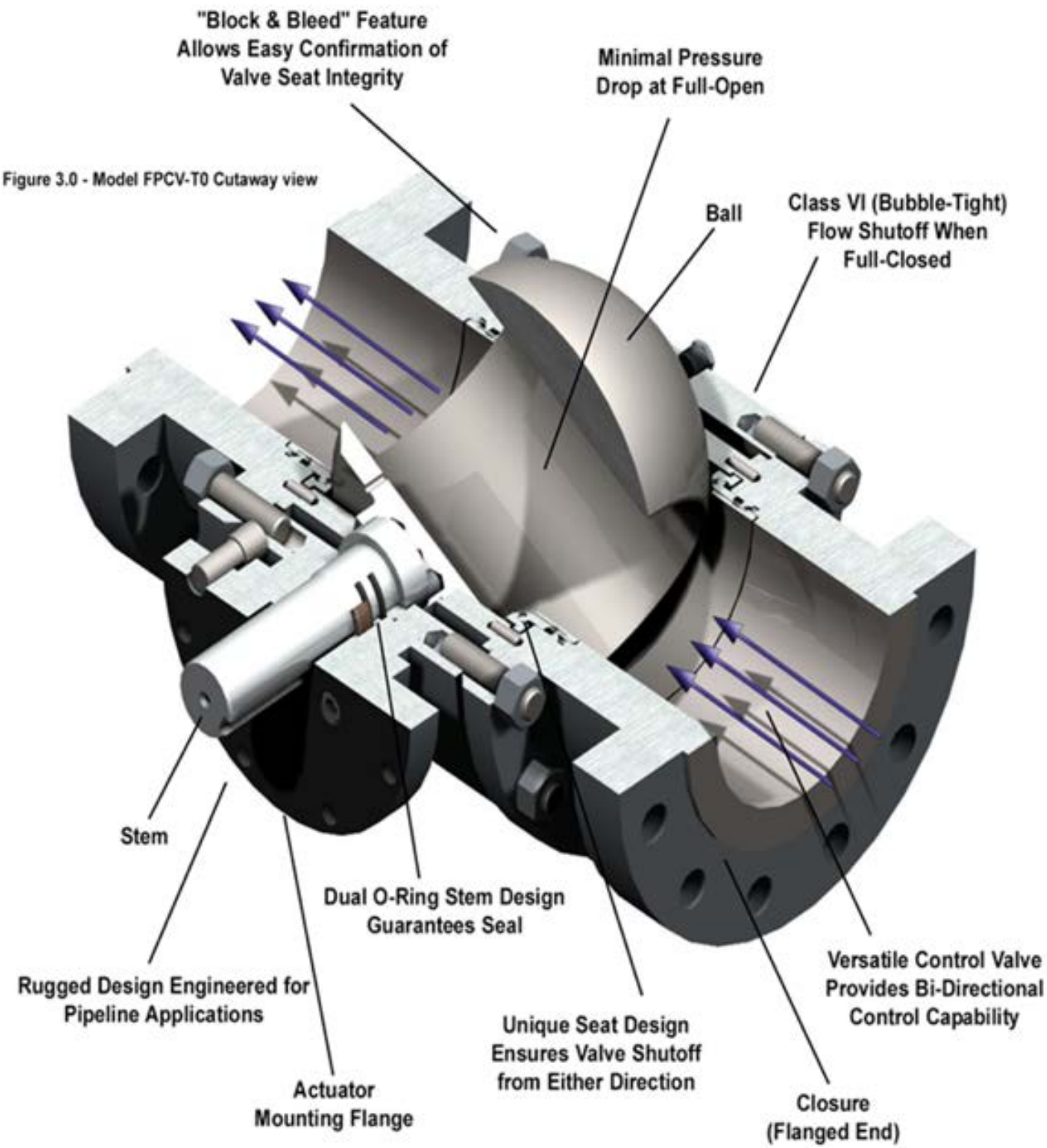

Figure C-1 – Valve and O-ring Diagram

Attachment D

Parcels within 400 Feet of Project that Potentially Contain Private Wells

ATTACHMENT D - PARCELS WITHIN 400 FEET OF PROJECT THAT POTENTIALLY CONTAIN PRIVATE WELLS		
PARCEL ID	FULL ADDRESS	CITY
100056000	0 SLOUGH ROAD	BREWSTER
100054000	489 SLOUGH ROAD	BREWSTER
100004000	552 SLOUGH ROAD	BREWSTER
190002000	848 SLOUGH ROAD	BREWSTER
90009000	712 SLOUGH ROAD	BREWSTER
110050000	361 SLOUGH ROAD	BREWSTER
130109000	0 SATUCKET ROAD	BREWSTER
190036000	825 SLOUGH ROAD	BREWSTER
190003000	826 SLOUGH ROAD	BREWSTER
190040000	0 SLOUGH ROAD	BREWSTER
190041000	833 SLOUGH ROAD	BREWSTER
190017000	744 SLOUGH ROAD	BREWSTER
90010000	730 SLOUGH ROAD	BREWSTER
190042000	893 SLOUGH ROAD	BREWSTER
190019000	757 SLOUGH ROAD	BREWSTER
190020000	0 SLOUGH ROAD	BREWSTER
90025000	0 SLOUGH ROAD	BREWSTER
90024000	0 SLOUGH ROAD	BREWSTER
90022000	0 SLOUGH ROAD	BREWSTER
90011000	0 SLOUGH ROAD	BREWSTER
190047000	0 SLOUGH ROAD	BREWSTER
100001000	0 SLOUGH ROAD	BREWSTER
90023000	0 SLOUGH ROAD	BREWSTER
100020000	528 SLOUGH ROAD	BREWSTER
100071000	0 SLOUGH ROAD	BREWSTER
100021000	0 SLOUGH ROAD	BREWSTER
100069000	18 CRANVIEW ROAD	BREWSTER
100070000	14 CRANVIEW ROAD	BREWSTER
100022000	0 SLOUGH ROAD	BREWSTER
100023000	0 SLOUGH ROAD	BREWSTER
100053000	0 SLOUGH ROAD	BREWSTER
100025000	0 SLOUGH ROAD	BREWSTER
100052000	0 SLOUGH ROAD	BREWSTER
100051000	0 SLOUGH ROAD	BREWSTER
100050000	362 SLOUGH ROAD	BREWSTER
110051000	0 SLOUGH ROAD	BREWSTER
110054000	0 SLOUGH ROAD	BREWSTER
110001000	382 SLOUGH ROAD	BREWSTER
110053000	345 SLOUGH ROAD	BREWSTER
110039000	309 SLOUGH ROAD	BREWSTER
110013000	0 SLOUGH ROAD	BREWSTER
110015000	0 SLOUGH ROAD	BREWSTER
110020000	0 SLOUGH ROAD	BREWSTER

110025000	148 SLOUGH ROAD	BREWSTER
110021000	0 SLOUGH ROAD	BREWSTER
110024000	0 SLOUGH ROAD	BREWSTER
30001000	30 SLOUGH ROAD	BREWSTER
30002000	20 SLOUGH ROAD	BREWSTER
120004000	0 SLOUGH ROAD	BREWSTER
120011000	50 DERBY LANE	BREWSTER
30023000	0 SATUCKET ROAD	BREWSTER
120005000	75 SLOUGH ROAD	BREWSTER
120015000	116 SATUCKET ROAD	BREWSTER
30024000	89 SATUCKET ROAD	BREWSTER
100067000	0 CRANVIEW ROAD	BREWSTER
110036000	0 SLOUGH ROAD	BREWSTER
120012000	26 DERBY LANE	BREWSTER
120087000	33 DERBY LANE	BREWSTER
120086000	11 DERBY LANE	BREWSTER
120085000	0 SATUCKET ROAD	BREWSTER
120018000	131 SATUCKET ROAD	BREWSTER
120019000	151 SATUCKET ROAD	BREWSTER
120017000	121 SATUCKET ROAD	BREWSTER
120084000	236 SATUCKET ROAD	BREWSTER
120023000	225 SATUCKET ROAD	BREWSTER
120022000	201 SATUCKET ROAD	BREWSTER
130103000	320 SATUCKET ROAD	BREWSTER
130102000	0 SATUCKET ROAD	BREWSTER
130019000	321 SATUCKET ROAD	BREWSTER
110035000	0 SLOUGH ROAD	BREWSTER
130101000	0 SATUCKET ROAD	BREWSTER
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230013000	0 SATUCKET ROAD	BREWSTER
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100058000	37 CRANVIEW ROAD	BREWSTER
100057000	29 CRANVIEW ROAD	BREWSTER
130100000	382 SATUCKET ROAD	BREWSTER
130099000	394 SATUCKET ROAD	BREWSTER
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230001000	515 SATUCKET ROAD	BREWSTER
130090000	0 SATUCKET ROAD	BREWSTER
130104000	0 SATUCKET ROAD	BREWSTER
240042000	0 SATUCKET ROAD	BREWSTER
240027000	870 SATUCKET ROAD	BREWSTER
340007000	874 SATUCKET ROAD	BREWSTER

340008000	876 - 878 SATUCKET ROAD	BREWSTER
230060000	0 CARSONS WAY	BREWSTER
350051000	0 SATUCKET ROAD	BREWSTER
130091000	0 SATUCKET ROAD	BREWSTER
240025000	0 SATUCKET ROAD	BREWSTER
130092000	0 SATUCKET ROAD	BREWSTER
120002000	60 SLOUGH ROAD	BREWSTER
120001000	98 SLOUGH ROAD	BREWSTER
120008000	122 DERBY LANE	BREWSTER
110032000	139 DERBY LANE	BREWSTER
120009000	116 DERBY LANE	BREWSTER
120006000	95 SLOUGH ROAD	BREWSTER
120003000	50 SLOUGH ROAD	BREWSTER
108/ 49.1/ / /	ROUTE 6	YARMOUTH
108/ 36/ / /	WEST GREAT WESTERN RD	YARMOUTH
108/ 33/ / /	ROUTE 6	YARMOUTH
108/ 56/ / /	29 MIRIAH DR	YARMOUTH
109/ 77.3/ / /	27 WEST GREAT WESTERN RD	YARMOUTH
109/ 81/ / /	82 WEST GREAT WESTERN RD	YARMOUTH
109/ 84/ / /	103 WEST GREAT WESTERN RD	YARMOUTH
108/ 30/ / /	GREAT WESTERN RD	YARMOUTH
99/ 27/ / /	17 REARDON CIR	YARMOUTH
101/ 181/ / /	16 TUPELO RD	YARMOUTH
98/ 84/ / /	WHITES PATH	YARMOUTH
98/ 86/ / /	24 COMMONWEALTH AVE	YARMOUTH
98/ 90/ / /	41 COMMONWEALTH AVE	YARMOUTH
99/ 31/ / /	7 DUPONT AVE	YARMOUTH
109/ 91/ / /	WHITES PATH	YARMOUTH
109/ 93.2/ / /	WHITES PATH	YARMOUTH
109/ 95/ / /	WHITES PATH	YARMOUTH
109/ 94/ / /	WHITES PATH	YARMOUTH
109/ 97/ / /	301 WHITES PATH	YARMOUTH
109/ 89/ / /	345 WHITES PATH	YARMOUTH
110/ 4/ / /	WHITES PATH	YARMOUTH
110/ 3/ / /	NORTH MAIN ST	YARMOUTH
100/ 17/ / /	441 NORTH MAIN ST	YARMOUTH
100/ 11/ / /	LABAN LN	YARMOUTH
100/ 10/ / /	OLD TOWNHOUSE RD	YARMOUTH
100/ 9/ / /	LABAN LN	YARMOUTH
110/ 73/ / /	NORTH MAIN ST	YARMOUTH
100/ 54/ / /	GREAT WESTERN RD	YARMOUTH
100/ 36.2/ / /	GREAT WESTERN RD	YARMOUTH
100/ 36.1/ / /	GREAT WESTERN RD	YARMOUTH
100/ 40/ / /	62 GREAT WESTERN RD	YARMOUTH
100/ 108/ / /	GREAT WESTERN RD	YARMOUTH
100/ 109/ / /	GREAT WESTERN RD	YARMOUTH

100/ 5.2/ / /	NORTH MAIN ST	YARMOUTH
101/ 196/ / /	CURVE HILL RD	YARMOUTH
100/ 111/ / /	MELVILLE RD	YARMOUTH
91/ 60/ / /	26 FOUR SEASONS DR	YARMOUTH
100/ 132/ / /	MELVILLE RD	YARMOUTH
127-25	18 DUTCHS WAY SD	DENNIS
127-21	47 HIGHBANK ROAD SD	DENNIS
129-28	17 MILLERS ROAD SD	DENNIS
128-24	27 UPPER COUNTY ROAD SD	DENNIS
130-6	40 THAYER STREET SD	DENNIS
127-8	14 ALBION WAY SD	DENNIS
129-60	26 GREAT WESTERN ROAD SD	DENNIS
130-39	52 HIGHLAND STREET SD	DENNIS
127-1	25 ALBION WAY SD	DENNIS
127-7	20 ALBION WAY SD	DENNIS
127-18	441 MAIN STREET SD	DENNIS
130-52	45 THAYER STREET SD	DENNIS
130-93	72 GREAT WESTERN ROAD SD	DENNIS
128-37	415 ROUTE 134 SD	DENNIS
131-6	141 GREAT WESTERN ROAD SD	DENNIS
144-2	207 GREAT WESTERN ROAD SD	DENNIS
140-21	20 ASHLEY AVENUE SD	DENNIS
143-4	140 GREAT WESTERN ROAD SD	DENNIS
144-7	208 GREAT WESTERN ROAD SD	DENNIS
146-29	271 GREAT WESTERN ROAD SD	DENNIS
143-18	5 NEW VENTURE DRIVE SD	DENNIS
141-35	0 RAIL TRAIL SD	DENNIS
144-15	19 DIAMONDS PATH SD	DENNIS
146-3	296 GREAT WESTERN ROAD SD	DENNIS
146-11	308 GREAT WESTERN ROAD SD	DENNIS
144-8	212 GREAT WESTERN ROAD SD	DENNIS
145-22	260 GREAT WESTERN ROAD SD	DENNIS
145-24	266 GREAT WESTERN ROAD SD	DENNIS
146-10	292 GREAT WESTERN ROAD SD	DENNIS
146-35	0 GREAT WESTERN ROAD	DENNIS
157-2	0 WOOD & SWAMPLAND SD SD	DENNIS
129-71	340 ROUTE 134 SD	DENNIS
128-39	43 DUCK POND ROAD SD	DENNIS
144-25	228 GREAT WESTERN ROAD SD	DENNIS
34_Z1-1A_0	971 ROUTE 28	HARWICH
35_C1-36_0	11 HOLLOW LN	HARWICH
35_C1-37_0	10 HOLLOW LN	HARWICH
34_K3-2_0	46 INDIAN TRL	HARWICH
44_N83_0	5 MARINER LN	HARWICH
34_K1-3A_0	0 ARROWHEAD DR	HARWICH
34_K1-4_0	26 DEPOT RD	HARWICH

44_R1-5_0	55 DEPOT RD	HARWICH
44_P4-A_0	70 DEPOT RD	HARWICH
44_P3_0	72 DEPOT RD	HARWICH
44_B6-17_0	0 WINDSWEPT WAY	HARWICH
35_P1-2_0	32 DEER RUN	HARWICH
34_W2_0	968 ROUTE 28	HARWICH
34_Z5_0	975 ROUTE 28	HARWICH
35_C2_0	986 ROUTE 28	HARWICH
98_A5-5_0	25 UNCLE JACKS PTH	HARWICH
98_B1-1_0	2 DORSET DR	HARWICH
97_A6-1_0	1550 ORLEANS RD	HARWICH
98_B3-2_0	1553 ORLEANS RD	HARWICH
98_A5-4_0	30 UNCLE JACKS PTH	HARWICH
98_B1-2_0	6 DORSET DR	HARWICH
98_A5-3_0	20 UNCLE JACKS PTH	HARWICH
53_F47_0	47 DRIFTWOOD LN	HARWICH
53_F15_0	138 DEPOT RD	HARWICH
53_H2_0	175 DEPOT RD	HARWICH
74_R5-3_0	297 DEPOT RD	HARWICH
53_H4-1_0	170 DEPOT RD	HARWICH
44_E6_0	6 GLEN RD	HARWICH
74_R3-4_0	1289 ORLEANS RD	HARWICH
73_F1-68_0	13 LAKEWAY LN	HARWICH
73_F1-14_0	828 QUEEN ANNE RD	HARWICH
73_F1-77_0	11 WALES RD	HARWICH
73_F1-78_0	15 WALES RD	HARWICH
73_F1-80_0	6 TURNING WAY	HARWICH
73_X180_0	4 SHADY DR	HARWICH
73_BA-F_0	0 RIPPLE WAY	HARWICH
73_BA-J_0	0 HUMMINGBIRD LN	HARWICH
73_B240_0	7 HUMMINGBIRD LN	HARWICH
73_B241_0	795 QUEEN ANNE RD	HARWICH
73_BA-I_0	0 MOCKINGBIRD LN	HARWICH
73_BA-H_0	0 BLUEBIRD LN	HARWICH
73_H225_0	0 QUEEN ANNE RD	HARWICH
73_BA-G_0	0 BOBOLINK LN	HARWICH
72_L261_0	0 QUEEN ANNE RD	HARWICH
72_L282_0	7 LAKESIDE TER	HARWICH
72_L262_0	759 QUEEN ANNE RD	HARWICH
72_L275_0	22 VACATION LN	HARWICH
72_L273_0	16 VACATION LN	HARWICH
72_L296_0	19 VACATION LN	HARWICH
72_BA-A_0	0 VACATION LN	HARWICH
72_H298_0	8 VACATION LN	HARWICH
72_D2-1_0	0 JAY Z DR	HARWICH
72_K2-3_0	0 ALADOE FARM LN	HARWICH
72_G3_0	0 QUEEN ANNE RD	HARWICH

74_A2_0	4 SOMERSET RD	HARWICH
74_B2-2_0	19 CYPRESS PNT	HARWICH
74_B2-3_0	31 CYPRESS PNT	HARWICH
86_M6-3_0	0 ORLEANS RD	HARWICH
71_B2-2_0	4 DUARTE DR	HARWICH
71_B2-1_0	2 DUARTE DR	HARWICH
82_Z1-2_0	6 LINDSAY LEIGH LN	HARWICH
71_B2-4_0	0 DUARTE DR	HARWICH
71_E1-1_0	583 QUEEN ANNE RD	HARWICH
87_P1-5_0	0 ROUTE 137	HARWICH
86_N4-6_0	0 ALEXANDERS CHASE	HARWICH
74_K1-1_0	3 LIBERTY TRL	HARWICH
86_M14-5_0	0 SPENCES TRACE	HARWICH
86_M16-2_0	0 ORLEANS RD	HARWICH
74_N1-3_0	1312 ORLEANS RD	HARWICH
74_N1-4_0	0 QUEEN ANNE RD	HARWICH
74_B2-6_0	0 CYPRESS PNT	HARWICH
74_S3-1_0	0 ORLEANS RD	HARWICH
74_S3_0	0 QUEEN ANNE RD	HARWICH
86_A11_0	0 SOMERSET RD	HARWICH
74_W4_0	1369 ORLEANS RD	HARWICH
74_K2-3_0	1361 ORLEANS RD	HARWICH
74_S11-3_0	5 OLKLAND WAY	HARWICH
70_E2_0	0 PLEASANT LAKE AV	HARWICH
71_C11_0	0 ELDRIDGE POND RD	HARWICH
70_E3_0	456 QUEEN ANNE RD	HARWICH
83_S1_0	588 QUEEN ANNE RD	HARWICH
74_B1_0	0 ORLEANS RD	HARWICH
86_M1_0	1420 ORLEANS RD	HARWICH
71_B2-3_0	6 DUARTE DR	HARWICH
72_A3_0	0 QUEEN ANNE RD	HARWICH
82_T2_0	0 OAK ST	HARWICH
71_C12_0	0 ELDRIDGE POND RD	HARWICH
84_A7_0	0 OYSTER POND RD	HARWICH
72_K3-1_0	2 OYSTER POND RD	HARWICH
73_BA-D_0	0 BUCKS POND RD	HARWICH
73_F1-92_0	8 SETH WHITEFIELD RD	HARWICH
73_F1-66_0	35 SANDY LN	HARWICH
74_N1-1_0	1320 ORLEANS RD	HARWICH
69_X6-1_0	0 FIONNS WAY	HARWICH
69_G1_0	0 QUEEN ANNE RD	HARWICH
57_G4-3_0	146 FACTORY RD	HARWICH
78_H15-16_19	7 BELMONT AV	HARWICH
78_H11-16_19	19 BELMONT AV	HARWICH
78_H11-12_15	15 BELMONT AV	HARWICH
77_C17_0	6 LITTLEFIELD POND RD	HARWICH
77_C15_0	2 FISH & GAME DR	HARWICH

77_C10_0	16 LITTLEFIELD POND RD	HARWICH
77_C12_0	1 FISH & GAME DR	HARWICH
77_C13_0	3 FISH & GAME DR	HARWICH
45_S4-6_0	0 GREAT WESTERN RD	HARWICH
45_S4-2_0	7 GREAT WESTERN RD	HARWICH
45_S4-1_0	3 GREAT WESTERN RD	HARWICH
45_T1-16_0	7 DEERFIELD RD	HARWICH
45_T1-15_0	9 DEERFIELD RD	HARWICH
45_T1-14_0	11 DEERFIELD RD	HARWICH
45_T1-7_0	4 DEERFIELD RD	HARWICH
45_T1-11_0	12 DEERFIELD RD	HARWICH
45_T1-12_0	14 DEERFIELD RD	HARWICH
45_T1-13_0	16 DEERFIELD RD	HARWICH
45_T1-8_0	6 DEERFIELD RD	HARWICH
45_T1-9_0	8 DEERFIELD RD	HARWICH
45_T1-10_0	10 DEERFIELD RD	HARWICH
56_Y2_0	227 MAIN ST	HARWICH
46_E2-1_0	2 CARES WAY	HARWICH
56_P12_0	0 DEPOT ST	HARWICH
56_W5_0	244 MAIN ST	HARWICH
56_X2-2_0	30 NORTHWIND LN	HARWICH
56_X2-4_0	1 NORTHWIND LN	HARWICH
56_X2-3_0	3 NORTHWIND LN	HARWICH
56_A1-B_0	0 JULIA GRACE LN	HARWICH
45_H7-2_0	13 WILLARD WATKINS WAY	HARWICH
57_G2-19_0	105 QUEEN ANNE RD	HARWICH
57_A4-2_0	0 QUEEN ANNE RD	HARWICH
57_A5_0	86 QUEEN ANNE RD	HARWICH
57_A6_0	88 QUEEN ANNE RD	HARWICH
58_N2_0	213 QUEEN ANNE RD	HARWICH
58_N7-2_0	251 QUEEN ANNE RD	HARWICH
58_N4-2_0	237 QUEEN ANNE RD	HARWICH
70_N1-6_0	0 PLEASANT LAKE AV	HARWICH
70_N1-8_0	0 PLEASANT LAKE AV	HARWICH
66_S4_0	721 DEPOT ST	HARWICH
66_B2-2_0	2 BARKLEY WAY	HARWICH
78_A1-45_51	0 BELMONT GARDENS	HARWICH
78_H12-16_19	0 RUTH ST	HARWICH
78_H15-9_13	3 ENGLE ST	HARWICH
78_D1-2_0	801 DEPOT ST	HARWICH
78_F_0	0 DEPOT ST	HARWICH
78_E2-4_0	8 SQUANTUM PTH	HARWICH
78_H11-21_25	0 RUTH ST	HARWICH
78_H11-7_11	16 ENGLE ST	HARWICH
78_A16-19_20	0 DEPOT ST	HARWICH
69_M2-1_0	300 QUEEN ANNE RD	HARWICH
69_M1_0	276 QUEEN ANNE RD	HARWICH

58_K7_0	254 QUEEN ANNE RD	HARWICH
58_K4-1C_0	234 QUEEN ANNE RD	HARWICH
58_K4-1B_0	226 QUEEN ANNE RD	HARWICH
58_K3-9_0	198 QUEEN ANNE RD	HARWICH
58_K3-8_0	196 QUEEN ANNE RD	HARWICH
58_K3-7_0	190 QUEEN ANNE RD	HARWICH
58_K3-6_0	186 QUEEN ANNE RD	HARWICH
58_K1-4_0	178 QUEEN ANNE RD	HARWICH
58_K1-3_0	172 QUEEN ANNE RD	HARWICH
57_K2_0	156 QUEEN ANNE RD	HARWICH
70_T4_0	0 QUEEN ANNE RD	HARWICH
56_T4-D_0	0 MAIN ST	HARWICH
56_B1-3_0	28 QUEEN ANNE RD	HARWICH
57_C6_0	0 QUEEN ANNE RD	HARWICH
57_C2_0	55 QUEEN ANNE RD	HARWICH
57_G2-18_0	101 QUEEN ANNE RD	HARWICH
57_J1_0	97 QUEEN ANNE RD	HARWICH
56_P6-3_0	0 MAIN ST	HARWICH
56_T4-B_0	208 SOUTH WESTGATE RD	HARWICH
56_M3_0	0 BOG LN	HARWICH
56_A1_0	0 JULIA GRACE LN	HARWICH
46_E2-12_0	0 CARES WAY	HARWICH
45_T1_0	0 GREAT WESTERN RD	HARWICH
45_H6_0	0 DEPOT ST	HARWICH
45_T2_0	0 GREAT WESTERN RD	HARWICH
45_S3-5_0	550 DEPOT ST	HARWICH
<Null>	0 OAK ST	HARWICH
<Null>	0 QUEEN ANNE RD	HARWICH
<Null>	246 QUEEN ANNE RD	HARWICH
<Null>	0 DEPOT ST	HARWICH

Attachment E

Letter from Energy Facilities Siting Board Determining that no Further Inquiry is Required for the Eastern Segment

THE COMMONWEALTH OF MASSACHUSETTS
ENERGY FACILITIES SITING BOARD
ONE SOUTH STATION
BOSTON, MA 02110
(617) 305-3525

CHARLES D. BAKER
GOVERNOR

KARYN E. POLITO
LIEUTENANT GOVERNOR

February 12, 2016

David Rosenzweig, Esq.
Keegan Werlin LLP
265 Franklin Street
Boston, MA 02110-3113

RE: Colonial Gas Company d/b/a National Grid, EFSB 05-2

Dear Mr. Rosenzweig:

By final decision dated May 17, 2006, the Energy Facilities Siting Board ("Siting Board" or "Board") approved the request of Colonial Gas Company d/b/a KeySpan Energy Delivery New England, now doing business as National Grid ("Company" or "Colonial Gas"), to construct three new non-contiguous segments of natural gas distribution pipeline in the Towns of Sandwich, Barnstable, Dennis, and Harwich, Massachusetts. Colonial Gas Company, 15 DOMSB 269 (2006) ("Final Decision"). The three segments identified by the Company were the Western Segment (to be located in the Towns of Sandwich and Barnstable); the Middle Segment (to be located in the Towns of Yarmouth, Dennis, and Harwich); and the Eastern Segment (to be located in the Town of Harwich). The Final Decision requires the Company to notify the Board of "any changes other than minor variations to the proposal so that the Siting Board may decide whether to inquire further into a particular issue." Final Decision at 121.

By letter dated December 15, 2015 ("December 15 Letter"), with accompanying attachments A and B, Keegan Werlin LLP, acting on behalf of the Company, has informed the Board staff of some modifications to plans for the construction of the Eastern Segment. The first change is to the testing of the Eastern Segment pipeline. In the Final Decision, the Board approved the Company's initial plan to pneumatically test said pipeline for a maximum allowable operating pressure ("MAOP") of 200 psig. Final Decision at 3, 59. Now, the Company proposes to hydrostatically test the new pipeline along the Eastern Segment before it goes into service to qualify the pipe to operate in the future at an MAOP of 270 psig. However, the Company also states that it will remain consistent with the originally approved plan to operate the line only at 200 psig. December 15 Letter, at 2, 4. The Company asserts that testing the pipeline for a higher MAOP before it becomes operational is more convenient than testing the pipeline at a later time, when it would need to be taken out of service for the duration of the test. Id. at 4.

The Company asserts that the environmental impacts associated with the change from pneumatic testing to hydrostatic testing would be minimal. Id. at 5. Once the pipe has been tested, the water would be released into holding tanks. Id. The filled water tanks would then be transported off-site by Clean Harbors to an approved wastewater treatment facility. Id.

The second change relates to the tie-in location of the western terminus of the Eastern Segment. Id. at 3. As originally permitted, the western terminus of the Eastern Segment would tie into the existing 8-inch, 200-psig distribution main located at the intersection of Route 39 and Depot Road in Sandwich. Id. at 3; Final Decision at 45-46, 54. Due to recent events, however, the Company now plans to replace 18.1 miles of 200-psig main located in Yarmouth, Dennis, Harwich, and Brewster (the "Replacement Project"). The Replacement Project would eliminate the need to construct a short section along Route 39 between Depot Road and the Route 39/Queen Anne Road rotary. December 15 Letter, at 3. Consequently, the Company would now like for the western terminus of the Eastern Segment to tie into the existing 6-inch main at the northeast portion of the Route 39/Queen Anne rotary in Harwich. Id. The revised tie-in of the western terminus would shorten the Eastern Segment by approximately 800 feet, and would not affect any new abutters. Id. The Company will seek approval of this connection to the Eastern Segment as part of the Replacement Project Petition. Id.

After reviewing your December 15, 2015 letter and attachments, the Siting Board staff has concluded that no further inquiry is necessary. We note that the Company has not proposed any change in the plan to operate the Eastern Segment at 200 psig referenced in the Final Decision, although it would now be hydrostatically tested for a MAOP of 270 psig. We remind the Company that neither the Final Decision nor this Project Change Letter authorizes the Company to operate the Eastern Segment above 200 psig. Should the Company seek to increase the actual operating pressure above 200 psig at some future time, such a change would require the Company to notify the Siting Board of "any changes other than minor variations to the proposal so that the Siting Board may decide whether to inquire further into a particular issue." Final Decision at 121. See also Colonial Gas Company, EFSB 05-2A (August 14, 2014) ("Western Segment Project Change Decision").[1]

Sincerely,

Robert J. Shea

Robert J. Shea
Presiding Officer

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[1] In the Western Segment Project Change Decision, the Siting Board authorized the Company to switch from pneumatic to hydrostatic testing of the Western Segment pipeline. Similarly, the Company did not intend to operate the Western Segment above the 270 psig authorized in the Final Decision, but the hydrostatic testing allowed the Company to test the pipeline to an MAOP of 575 psig. The Board directed the Company to submit a compliance filing if the Company wanted to operate the Western Segment above 270 psig. Western Segment Project Change Decision, at 38-39.

cc: Andrew Greene
James A. Buckley, Esq.
John Young