

Responses to Comments on the Draft 2019 Comprehensive Wastewater Management Plan / Targeted Watershed Management Plan Falmouth Notice of Project Change

This memo is written to address comments received from the public and environmental review process for the Draft 2019 CWMP/TWMP Falmouth Notice of Project Change.

This response to comments document is organized by comment letter. First, the comment letter author and date are listed, then excerpts from the letter covering each issue raised are printed in standard type, and then the response to each issue is provided ***bold italics***.

All “Section” references in this response to comments document are to Sections of the Final Great Pond Targeted Watershed Management Plan unless otherwise specified. Reviewers and Commenters can refer to these sections for further information about how we have addressed the comments. All written comment letters are attached at the end of this document.

Comments were received from the following entities and individuals:

- 2/7/2020 Secretary of Energy and Environmental Affairs (Certificate)
- 1/3/2020 David Dow
- 1/10/2020 David Dow
- 1/13/2020 Natural Heritage and Endangered Species Program (NHESP) Division of Fisheries and Wildlife
- 1/15/2020 Falmouth Water Stewards
- 1/27/2020 Buzzards Bay Coalition
- 1/28/2020 Cape Cod Commission
- 1/28/2020 Massachusetts Office of Coastal Zone Management (CZM)
- 1/28/2020 Massachusetts Department of Environmental Protection (MassDEP) – Southeast Regional Office

1. EOEAA Certificate of the Secretary of Energy and Environmental Affairs on the 3rd Notice of Project Change / Comprehensive Wastewater Management Plan Update, Dated February 7, 2020

1.1 General

The NPC for the draft TWMP for Great Pond (hereafter referred to as the draft TWMP) should be filed early in 2022 to accommodate the Town's schedule for the final TWMP to be reviewed by the end of 2022. It should follow the outline for the TWMP included in the third NPC, as supplemented by this Scope. The draft TWMP should clearly identify a Preferred Alternative and demonstrate that it includes all feasible measures to avoid Damage to the Environment, or, to the extent it cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable.

Response: The Great Pond Preferred Compliance Approach is outlined in Section 5.1 of the Final Great Pond TWMP / EIR. MEPA Draft Section 61 Findings and Mitigation Measures are outlined in Section 7.

The third NPC did not include a schedule for implementing the TWMPs or completing the planning needed for adoption of TWMPs in other watersheds beyond Great Pond. To better evaluate the impacts of implementation of the CWMP and potential alternatives and mitigation measures to avoid and minimize impacts, the draft TWMP should include a schedule for other watersheds included in the CWMP. I refer the Town to comments from MassDEP requesting additional information about the implementation of the CWMP.

Response: The Final Great Pond TWMP / EIR outlines the future TWMP completion schedule in Section 9.3.

1.2 Project Description and Permitting

The draft TWMP should provide background information on the development of the CWMP and the TWMP. It should provide a detailed description of the Preferred Alternative for the Great Pond TWMP, identify environmental impacts, including rare species habitat, wetlands, water quality, historic and cultural resources, land protected under Article 97 and ACECs.

Response: The Great Pond Preferred Compliance Approach is outlined in Section 5.1 of the Final Great Pond TWMP / EIR. Environmental Impacts are evaluated in Section 10.

The draft TWMP should identify measures to mitigate impacts, including construction-period measures.

Response: MEPA Draft Section 61 Findings and Mitigation Measures are outlined in Section 7.

It should review the growth projections used to plan for the nitrogen removal requirements of the sewerage and non-traditional measures identified in the draft TWMP and the potential secondary impacts associated with development and growth that may be facilitated by implementation of the CWMP.

Response: The Final TWMP / EIR includes a 20% wastewater allocation for undesignated redevelopment within the TASA collection system (as outlined in Table ES.1). Anticipated growth in the Great Pond watershed will be evaluated through the Town's adaptive management program and the Great Pond TMDL Compliance Approach will be modified, if needed, based on the findings of the adaptive management program.

The draft TWMP should clarify the proposed design and treatment capacity of the WWTF to accommodate the TASSA project wastewater flows and describe, at a conceptual level, how flows from future sewerage projects could be accommodated at the facility. I note that MassDEP is evaluating the implications of per- and polyfluoralkyl substances (PFAS) in wastewater, including potential effects of elevated PFAS concentrations in effluent on downstream water supplies and in wastewater residuals.

The draft TWMP should review any guidance or regulatory requirements produced by MassDEP or EPA related to PFAS and other contaminants of emerging concern (CEC) that could affect the design of the WWTF or other components of the CWMP. The draft TWMP should provide the results of any sampling or monitoring of these contaminants.

Response: Proposed wastewater treatment facility upgrades are outlined in Section 4.3. Potential future regulatory requirements, including contaminants of emerging concern are discussed in Section 4.3.3.1.

The draft TWMP should identify all required state, local and federal permits or other approvals, provide a brief description and analysis of applicable statutory and regulatory standards and requirements, and describe how the project will meet those standards.

Response: Anticipated permit requirements are outlined in Section 7.2.

It should provide updated information on the effectiveness of nitrogen removal measures identified in TMDL compliance plans.

Response: An update on non-traditional nitrogen and wastewater management technologies is outlined in Section 3.

In 2018, MassDEP issued the Pleasant Bay Watershed Permit to the towns of Brewster, Chatham, Harwich and Orleans. This was the first Watershed Permit issued pursuant to Chapter 259 of the Acts of 2014. Based on consultation with MassDEP, the draft TWMP should review the scope and general requirements of a watershed permit and how it may be applicable to the CWMP as a whole or specific watersheds within the CWMP, including Great Pond. According to NHESP, the WWTF, potential effluent discharge sites identified in the third NPC and the JBCC are located within Priority Habitat of rare species. The Town should consult with

NHESP prior to filing the draft TWMP regarding potential project components to be constructed in rare species habitat.

Response: *A summary of the NHESP consultations that occurred during this project is included in Section 4.4. Watershed permitting requirements will be incorporated as required by promulgated regulations.*

1.3 Alternatives Analysis

The draft TWMP should include an analysis of alternatives for all major components of the Preferred Alternative. Implementation of the TASSA project will require modifications to the WWTF. The draft TWMP should include a summary of the alternatives reviewed for the collection system and modifications to the WWTF provided in Appendix 5 of the third NPC, including any more recent alternatives the Town has considered.

The draft TWMP should provide comprehensive and detailed analysis of alternative discharge technologies and locations from the WWTF that builds upon the evaluation included in the third NPC. At a minimum, it should describe and evaluate open sand beds, subsurface effluent disposal and ocean outfall alternatives for effluent discharge. For effluent recharge alternatives, the analysis should review potential impacts to downgradient receptors, including Herring Brook, and any nitrogen offsets that may be necessary. At a minimum, the draft TWMP should further evaluate the Nobska Point and Buzzards Bay ocean discharge options identified in the third NPC.

Response: *The Alternatives Analysis is outlined in Section 4.*

The Town should consult with MassDEP and CZM regarding what information should be provided for the outfall alternatives with respect to the Ocean Sanctuaries Act. I refer the Town to comments from MassDEP, CZM, Buzzards Bay Coalition and Falmouth Water Stewards, which may inform the Town's analysis.

Response: *The Town has consulted with MassDEP and CZM during the development of the Final Great Pond TWMP / EIR. Meetings were held with CZM on June 15, 2022 and with CZM, DEP and DMF on July 11, 2022.*

1.4 Water Quality Monitoring and Adaptive Management

The draft TWMP should review water quality data collected in connection with the aquaculture and other pilot projects and WWTF discharge to provide an updated estimate of the expected nitrogen removal effectiveness of proposed measures as a means of achieving the Great Pond TMDL and water quality goals in other watersheds.

Response: *A summary of monitoring for non-traditional nitrogen management strategies is summarized in Section 3 of the Final Great Pond TWMP/EIR.*

If necessary, the draft TWMP should identify any changes to the TMDL compliance plan identified in the third NPC based on data collected on the effectiveness of proposed measures. This analysis should specifically respond to the concerns expressed by MassDEP and CZM that the nitrogen removal effectiveness of shellfish aquaculture may be lower than anticipated in the third NPC and should support the proposed nitrogen removal credits for measures identified in the draft TWMP.

Response: *Updated TMDL Compliance Approaches are outlined in Sections 5.1 and 9.1.*

As noted by MassDEP, while the adaptive management approach adopted by the Town facilitates informed decision-making for future actions, it relies to a large extent on water quality monitoring that may take several years to collect and analyze. Furthermore, the TWMP and other TMDL compliance plans identify nitrogen removal measures that may not achieve future target concentrations and do not provide a backup plan for that event. By the time the draft TWMP is filed, the Town will have collected additional data on aquaculture and potentially other pilot projects. This data should be used to support the nitrogen removal estimates included in the draft TWMP for Great Pond and other TWMPs and TMDL compliance plans. The TWMP should identify

proven technologies as contingency measures in the event that monitoring demonstrates that the proposed non-traditional nitrogen removal methods do not perform as expected.

Response: A summary of monitoring for non-traditional nitrogen management strategies is summarized in Section 3 of the Final Great Pond TWMP/EIR. The Contingency Compliance Alternative is outlined in Section 5.2.

1.5 Regional Planning

The draft TWMP should provide updates on opportunities for wastewater planning on a regional scale identified in the third NPC, including its coordination with Sandwich and Mashpee to establish nutrient loadings and responsibilities for the Waquoit Bay watershed and discussions related to the potential use of the JBCC wastewater facility. I encourage Falmouth, Sandwich and Mashpee to enter into an Inter-Municipal Agreement (IMA) to formalize their working relationship. The draft TWMP should identify any potential contingency measures for nitrogen removal that may developed through these regional planning efforts.

Response: An update on regional planning is outlined in Section 1.2.1.

1.6 Climate Change

Governor Baker's Executive Order 569: Establishing an Integrated Climate Change Strategy for the Commonwealth (EO 569; the Order) was issued on September 16, 2016. The Order recognizes the serious threat presented by climate change and directs agencies within the administration to develop and implement an integrated strategy that leverages state resources to combat climate change and prepare for its impacts. The Order seeks to ensure that Massachusetts will meet greenhouse gas (GHG) emissions reduction limits established under the Global Warming Solution Act of 2008 (GWSA) and will work to prepare state government and cities and towns for the impacts of climate change. Review of these issues through the GHG Policy and requirements to analyze the effects of climate change through EIR review is an important part of this statewide strategy. These analyses inform State Agencies and proponents' understanding of a project's GHG emissions and a project's vulnerability to the effects of climate change.

Response: A greenhouse gas evaluation was conducted and is summarized in Section 6.

Adaptation and Resiliency

The Town is a participant in the Commonwealth's Municipal Vulnerability Preparedness (MVP) program. The MVP program is a community-driven process to define natural and climate-related hazards, identify existing and future vulnerabilities and strengths of infrastructure, environmental resources and vulnerable populations, and develop, prioritize and implement specific actions the Town can take to reduce risk and build resilience.

I encourage the Town to consult the data available on the resilientMA.org website to develop climate change scenarios for the project and identify potential adaptation measures. EEA's *Climate Change Adaptation Report*² (September 2011) and the Town's *Climate Change Vulnerability Assessment*³ (dated December, 2019) provide additional resources to assist in this analysis. The draft TWMP should review the capacity of the wastewater collection and treatment systems under projected levels of precipitation and sea level conditions and the resiliency of the system to the effects of climate change. It should identify any components, such as pump stations, located within coastal or inland flood zones and consider alternative locations for the infrastructure or identify design measures to improve the resiliency of the project.

² Available online at <http://www.mass.gov/eea/docs/eea/energy/cca/eea-climate-adaptation-report.pdf>

³ Available online at [http://www.falmouthmass.us/DocumentCenterNiew/7018/FalmouthVA Final Report Draft](http://www.falmouthmass.us/DocumentCenterNiew/7018/FalmouthVA%20Final%20Report%20Draft)

Response: The Climate Resilience Design Standards Tool Project Report is summarized in Section 6.1.

Greenhouse Gas Emissions

The FEIR Certificate required the Town to consult with MassDEP during final design of proposed improvements and upgrades for the WWTF and consider implementation of additional GHG reduction measures. This project

is subject to review under the May 5, 2010 MEPA GHG Policy. The Policy requires Proponents to quantify carbon dioxide (CO₂) emissions and identify measures to avoid, minimize or mitigate such emissions. The analysis should quantify the direct and indirect CO₂ emissions of the project's energy use. Direct emissions include on-site stationary sources, which typically emit GHGs by burning fossil fuel for heat, hot water, steam and other processes. Indirect emissions result from the consumption of energy, such as electricity, that is generated off-site by burning of fossil fuels, and from emissions from vehicles used by employees, vendors, customers and others. The Policy directs proponents to use applicable building codes to establish a project emissions baseline that is "code-compliant." However, there is no building energy code equivalent that applies specifically to WWTFs or energy use models (such as eQUEST) designed to estimate the projected energy use of the WWTF processing energy loads.

The draft TWMP should include an evaluation of GHG emissions associated with modification to the WWTF and any other facilities, such as pump stations, that may emit GHG. It should establish a Base Case and an as-proposed Preferred Alternative Case along with providing the other information required by the Policy. Both the projected energy consumption and related GHG emission should be quantified for both cases. Design assumptions for the base case should be based on a typical WWTF and pump station design that meets the requirements of TR-16, Guides for the Design of Wastewater Treatment Works, 2016 Edition, which is commonly used as a guide for wastewater facility design in Massachusetts. The as-proposed Preferred Alternative design should include features and measures that would result in a significant reduction from the Base Case in both the consumption of grid electricity and the related GHG emissions. Measures that should be evaluated include: increasing piping sizes to reduce friction loss; use of premium efficiency pumps and motors; and use of variable frequency pump drives (VFD).

The Town should consult MassDEP's "Energy Efficiency and Renewable Energy Opportunities at Water and Wastewater Facilities" webpage⁴, the Water Environment Research Foundation's *Utilities of the Future Energy Findings*⁵ report published in 2014, the EPA's *Evaluation of Energy Conservation Measures for Wastewater Facilities*⁶ (2010), the *Water and Wastewater Energy Management Best Practices Handbook*⁷ (2010) prepared by the New York State Energy Research and Development Authority, and other resources to identify energy efficiency practices at WWTFs. For key components and systems of the WWTF, the draft TWMP should review energy-efficient alternatives identified in the reports cited above and indicate whether the Town will adopt the measure or not, and provide a rationale for the decision. The draft TWMP should review opportunities for on-site energy generation, including biogas and solar photovoltaic (PV) systems. The Town should consult with MEPA staff before completing this analysis.

⁴ <http://www.mass.gov/eea/agencies/massdep/climate-energy/energy/water-utilities/energy-efficiency-at-water-and-wastewater-facilities.html>

⁵ Available online at <https://www.werf.org/a/ka/Search/ResearchProfile.aspx?Reportid=ENER6C13>

⁶ Available online at <https://nepis.epa.gov/Exe/ZyPDF.cgi/P1008SBM.PDF?Dockey=P1008SBM.PDF>

⁷ Available online at <https://www.nyserdera.ny.gov/-/media/Files/Programs/Clean-Energy-Communities/NYSERDA-Water-Wastewater-Energy-Management-Best-Practices-Handbook.pdf>

Response: The greenhouse gas evaluation and opportunities for on-site energy generation are outlined in Section 6.

1.7 Mitigation and Draft Section 61 Findings

The draft TWMP should include a separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each permit or other approval to be issued by State Agencies. The draft TWMP should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and a schedule for implementation. It should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing.

Response: MEPA Draft Section 61 Findings and mitigation measures are outlined in Section 7.

1.8 Responses to Comments

The draft TWMP 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 draft TWMP should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended to, and shall not be construed to, enlarge the Scope of the draft TWMP beyond what has been expressly identified in this certificate.

Response: Responses to comments have been incorporated into the TWMP/EIR and are summarized in this memo.

2. David Dow, January 8, 2020

I am a retired marine scientist and grassroots environmental activist living on Cape Cod, Ma. I have been involved in the EPA/US Army Corps of Engineers WOTUS (Water of the US) dialog since 2017, when I participated in an online public hearing. I live in the Waquoit Bay Watershed on Cape Cod which has eutrophication problems in Ashumet Pond from “P” enrichment from the former wastewater treatment plant at Joint Base Cape Cod (JBCC) and “N” enrichment from septic systems which has caused loss of habitat for marine biota and water quality problems in Waquoit Bay. When I worked at the Northeast Fisheries Science Center in Woods Hole, I participated in the EPA lead Waquoit Bay Watershed Ecological Risk Assessment project which identified nutrients as the major human stressor in the watershed. This project explored the relationship between bay scallops; loss of eelgrass beds and “N” enrichment from the watershed.

The Cape Cod Commission; Massa. Department of Environmental Protection and EPA Region 1 have been overseeing the Comprehensive Wastewater Management Plans/Targeted Watershed Management Plans (CWMP/TWMP) program to reduce “N” loading from septic systems to our >50 coastal embayments suffering from eutrophication. The Conservation Law Foundation consent decree was folded into the CWMP/TWMP process.

There are 14 “N” sensitive embayments in the Town of Falmouth (which includes Waquoit Bay which is occupied by the towns of Falmouth; Mashpee and Sandwich). I recently submitted comments to Ma. DEP on the Falmouth Notice of Project Change for the South Coast Embayments and West Falmouth Harbor for Phase 1 of the CWP/TWMP. (see Letter to Editor in CapeCodToday).

In more recent times, PFOS and PFOA from the Ashumet Valley Plume (AVP) at Joint Base Cape Cod has contaminated public and private drinking water wells in Falmouth and Mashpee. This required GAC (granular activated carbon treatment) to remove PFOS and PFOA from the drinking water wells. The source areas for the AVP include: former fire training area and wastewater treatment plant at JBCC plus the water/sediments of Ashumet and Johns Ponds. Thus the plume has expanded to a big blob effecting both public and private drinking water in Falmouth and Mashpee. I represent the Sierra Club on the University of Rhode Island STEEP (Sources, Transport, Exposure, Effects of PFAS) grant Cape Cod Advisory Committee. The STEEP grant project includes monitoring of 150 private drinking water wells on Cape Cod for 25-30 PFAS chemicals and research on the uptake of PFAS chemicals by fish in Ashumet Pond (US Geological Survey endeavor). I have spent over 20 years engaged in the CERCLA/SDWA cleanup at JBCC.

My specific concerns about the proposed EPA changes to WOTUS include:

- Dropping groundwater based watersheds (like those here on Cape Cod) from the jurisdictional of the Clean Water Act) is a bad idea
- Need to address wastewater (“N” enrichment of coastal embayments and “P” pollution of freshwater ponds) and drinking water challenges (toxic chemicals and contaminants of emerging concern) simultaneously in an integrated and cost effective fashion
- Since the treatment systems and waste site cleanup standards will require a lot of resources (\$ and people), Environmental Justice and polluter pays concerns need to be addressed
- Since the NOAA Fisheries Essential Fish Habitat regulations extend into state jurisdictional water(0—3 miles), the effects of nutrients; increased water temperature and ocean acidity; periodic hypoxia;

microplastics; etc. need to be considered in addition to water quality improvements. I used to serve on the New England Fishery Management Council's Habitat Plan Development Team which helped develop Omnibus Habitat Amendments 2 which was published in 2018

- There is a need to use the best available science in developing targeted “N” cleanup standards for coastal embayments and “P” for freshwater ponds and maximum contaminant levels for PFAS chemicals in drinking water. When I participated in the online WOTUS public hearing, no mention was made of science and environmental protection as the basis for the proposed changes. President Trump's Executive Order and the Trump Administration's new definition of federalism were given as the justification. Since the wastewater and drinking water problems on Cape Cod will take many years to resolve and be quite costly, we can't afford to have the infrastructure costs funded entirely by state/local entities.

Thanks for your consideration of these comments.

Dr. David D. Dow

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Letter – Implementation of Comprehensive and Targeted Wastewater Management on Cape

from Dr. David Dow, East Falmouth

ARTICLE | **LETTERS TO THE EDITOR** | JANUARY 4,

2020 04:45 AM | BY **CAPECODTODAY STAFF**

Letters to the editor reflect the opinion of the letter writer. They do not necessarily represent the opinions of the editors, staff and advertisers of CCToday.

I recently submitted comments to the Massachusetts Department of Environmental Protection on the Town of Falmouth's Notice of Project Change for the South Coast Embayments and West Falmouth Harbor Comprehensive Wastewater Management Plan (CWMP)/Targeted Wastewater Management Plan (TWMP). This is the first phase for restoring habitats (eelgrass beds; oyster reefs; salt marshes) for marine biota and improving water quality (reducing Nitrogen loading from septic systems and improving water transparency) for 13 watersheds within the town boundaries and the Waquoit Bay Watershed which includes Falmouth; Mashpee and Sandwich. Since I live in the Waquoit Bay Watershed and have been engaged as a grassroots environmental activist in the Superfund/Safe Drinking Water Act cleanup at Joint Base Cape Cod for over 20 years, I am concerned about the drinking water and wastewater challenges where I live. In addition, perfluorinated chemical contamination of private and public drinking water wells from the Ashumet Valley Plume has created concerns about toxic chemicals in our drinking water. Thus I accepted an invitation to join the Cape Cod Advisory Committee for the University of Rhode Island's STEEP (Sources, Transport, Exposure, Effects of PFAS) grant which has been measuring the levels of PFAS chemicals in private drinking water wells on Cape Cod. Ma. DEP is developing a maximum contaminant levels for 6 PFAS chemicals of 20 parts per trillion (down from the current hazard warning level of 70 ppt).

During my time working as a marine scientist at the Fisheries Lab in Woods Hole, I served as the recreational fisheries coordinator in the Northeast; participated in the New England Fishery Management Council's Habitat Plan Development Team (which helped develop Omnibus Habitat Amendment 2 which was published in 2018); served on the Environmental Protection Agencies Waquoit Bay Watershed Ecological Risk Assessment project; and participated in the EMaX (Energy Modeling and Analysis Exercise) research project which developed a food chain carbon flow model from the Northeast Continental Shelf Ecosystem. Thus I have a concern on the effects of the CWMPs/TWMPs on Cape Cod on both habitat restoration critical to marine biota and water quality (both excess nutrients and toxic chemicals). I support the US Water Alliance's One Water concept of addressing both drinking water and wastewater from a watershed perspective. The Cape Cod Commission; Ma. DEP and EPA Region 1 have adopted a watershed perspective for the CWMP/TWMP for the > 50 “N” impacted embayments here on Cape Cod.

Some of my concerns on the Falmouth Notice of Project Change (EEA # 14164) include:

* Essential Fish Habitat in coastal embayments are effected by warming waters and ocean acidity; shifting ranges of managed fish species from the Mid-Atlantic region or migrating further offshore/into the rapidly warming Gulf of Maine (i.e. Summer Flounder moving in and American lobsters migrating out of Nantucket Sound); microplastics contamination from stormwater and wastewater treatment plants (wwtpts); contaminants of emerging concern (cecs) bioaccumulating in the marine food chain; seasonal hypoxia (low

dissolved oxygen levels in bottom waters of Cape Cod Bay) in addition to eutrophication (“N” loading from septic systems). * The primary solution to be employed by the Town of Falmouth is upgraded or new wwtps with ocean outfalls for treated sewage effluent (which likely will contain cecs) and disposal of sewage sludge which likely contains PFAS chemicals. This is likely to be a costly approach to implement without government grants covering 50% of the infrastructure costs and close down costs for residents to connect to sewers/close down their septic systems. There has been discussion of the Town of Barnstable taking over the former wwtp at JBCC and expanding it to serve the Upper Cape towns. Thus the cost of this component of the project is poorly understood.

Response: The Town of Falmouth is participating in discussions and evaluations related to the potential use of the wastewater infrastructure at Joint Base Cape Cod (JBCC). This is a regional multi-year effort that includes JBCC, and the Towns of Falmouth, Barnstable, Bourne, Mashpee, and Sandwich.

* The NPC doesn't discuss environmental justice concerns that would include seniors on fixed incomes and service industry employees living paycheck to paycheck and how they would pay for these expensive infrastructure improvements. Some type of socioeconomic analysis is required which would be accompanied a community outreach program.

Response: The goal of the Final Great Pond TWMP / EIR is to identify the most environmentally sound, reasonable and cost effective approach to meet TMDL goals, thereby minimizing cost to all affected. The Town will also take advantage of available grants and zero interest loans to reduce to the cost of the project to all taxpayers. In addition, during implementation, the Town will identify assistance available for those who qualify.

* Finally an ecosystem based approach for management of marine biota and their habitats is required to address the reality that we live in rapidly changing marine environment which is not at a steady state equilibrium condition (underlying concept for CWMP/TWMP watershed plans). The Waquoit Bay ERA project examined the interaction between bay scallop fishery collapse and loss of eelgrass beds/excess nitrogen loading.

Response: The Town of Falmouth's CWMP includes the implementation of an adaptive management process to incorporate cost effective non-traditional methods into the plan once they demonstrate feasibility. The adaptive management process will involve ongoing water quality monitoring to monitor and respond to the results of the implementation of the preferred compliance plan

This adaptive management approach will enable the CWMP to be adjusted based on the monitoring results of the environmental and economic impacts associated with the construction of sewers and implementation of non-traditional projects in Falmouth.

Others may want to offer additional comments on the strengths and weaknesses of the CWMP/TWMP watershed approach here on Cape Cod to address both our drinking water and wastewater challenges. The comment period on EEA # 14164 extends until January 13, 2020.

Dr. David Dow
East Falmouth, Ma.

3. David Dow, January 3, 2020

I am submitting comments on the Falmouth South Coast Embayments and West Falmouth Harbor CWMP/TWMP Notice of Project Change (EEA #14164). I am a resident of the Waquoit Bay Watershed in East Falmouth and retiree from the Northeast Fisheries Science Center in Woods Hole, Ma. My duties included being Recreational Fisheries Coordinator in the Northeast, being a member of the New England Fishery Management Council's Habitat Plan Development Team which helped Develop Omnibus Habitat Amendment 2 (which was published in 2018) and being a member of the EPA-lead Waquoit Bay Watershed Ecological Risk Assessment project. I was involved in the EPA / US Army Corps of Engineers dialog on Water of the US (WOTUS) as a grassroots environmental activist. WOTUS redefined the federal jurisdiction for the Clean Water Act under which the Falmouth Comprehensive Wastewater Management Plan (CWMP)/Targeted

Watershed Management Plan (TWMP) is being developed (along with oversight by the Cape Cod Commission and Ma. DEP).

Since I view the CWMP/TWMP from the perspective of both restoring water quality (i.e. lowering “N” loading from septic systems) and restoration of Essential Fish Habitat (eelgrass beds; oyster reefs; saltmarshes; etc.), I have serious doubts that the Falmouth CWMP/TWMP will meet these goals for the 13 “N” impacted watersheds within its boundaries and the Waquoit Bay watershed which is shared with Mashpee and Sandwich. The South Coast Embayments and West Falmouth Harbor represent the first phase of this endeavor and is the focus of the Notice of Project Change published in the Environmental Monitor on December 23, 2019. Given the limited 20 day comment period, I will focus on a few items in the action plan for the next 5 years.

Since Falmouth needs to upgrade its wastewater treatment plant and develop an additional ocean outfall or join the proposed effort by the Town of Barnstable to take over the wwtp at Joint Base Cape Cod which discharges treated effluent into the Cape Canal, there is a lot of uncertainty on the costs of this endeavor and who will pay for it. The Little Pond Watershed pilot sewerage project was funded by a \$ 50 million grant with homeowners paying \$ 3-5 thousand to hook up to the sewer/close down their septic systems. Since EPA’s WOTUS revision eliminates groundwater based watersheds from the CWA jurisdiction, it seems unlikely to me that they will fund this expensive endeavor which leaves the financial burden (hundreds of million of dollars) up to the residents of Falmouth/Commonwealth of Massachusetts. In addition, the excess sludge from the wwtp will be contaminated by toxic chemicals (PFAS and other contaminants of emerging concern) which will have to be disposed of as hazardous wastes.

Response: The anticipated capital costs presented in the Final Great Pond TWMP / EIR (Section 5.1.2.5) are representative of the overall anticipated costs of the project. Potential grant funding sources will be incorporated into the financial plan as the project proceeds to implementation, based on available funding sources at that time.

Perchlorate and PFAS chemicals have contaminated public and private drinking water wells in Falmouth (the Environmental Working Group lists 10 toxic chemicals above their levels of concern in Falmouth Drinking Water- includes TCE a contaminant of concern at Joint Base Cape Cod). Thus the wastewater and drinking water challenges are interconnected in Falmouth and have to be addressed in a joint fashion which is totally ignored in the CWMP/TWMP. Contaminants of emerging concern (cecs) are already found in Nantucket Sound and the South Coast Embayments (see Provincetown Center for Coastal Studies Monitoring Program reports). Ma. DEP is in the process of developing a maximum contaminant level (mcl) of 20 ppt for 6 PFAS chemicals (down from the current treatment target of 70 ppt for PFOS and PFOA) which will increase public attention to this drinking water crisis. I support the US Water Alliance watershed approach (One Water Campaign) for jointly addressing drinking water and wastewater challenges faced by local municipalities.

Response: Potential future regulatory requirements, including contaminants of emerging concern, are discussed in Section 4.3.3.

As the waters warm in Nantucket Sound; Gulf of Maine and coastal embayments on Cape Cod, fish species are migrating in from the Mid-Atlantic region (black sea bass; Summer Flounder; Scup; forage fish; shark species; etc.) and moving either into deeper waters offshore or into the Gulf of Maine (lobsters; Winter flounder; sea herring; etc.) which has greatly altered state/federal fisheries management policies and commercial/saltwater angler catches. The “productive capacity” of Essential Fish Habitat in coastal embayments has been altered by warming waters; increased ocean acidity in the water columns and sediments; seasonal hypoxia; other human uses and eutrophication (“N” enrichment). Thus we have a dynamic, nonlinear ecosystem that is not at equilibrium, rather than the steady state equilibrium ecosystem that is assumed in the CWMP/TWMP. Studies on the Pacific Coast have shown an interaction between hypoxia; ocean acidity and eutrophication which could further complicate this situation.

Response: The Town of Falmouth’s CWMP includes the implementation of an adaptive management process to incorporate cost effective non-traditional methods into the plan once they demonstrate feasibility. The adaptive management process will involve ongoing water quality monitoring to monitor and respond to the results of the implementation of the preferred compliance plan.

This adaptive management approach will enable the CWMP to be adjusted based on the monitoring results of the environmental and economic impacts associated with the construction of sewers and implementation of non-traditional projects in Falmouth and allows the Plan to reasonably adapt to dynamic (non steady state) conditions.

An emerging problem is Microplastics contamination of marine biota and the consequences for human consumption. In 2019 the Woods Hole Oceanographic Institution held a conference on this challenge with a public panel dialog and plenary presentation by Dr. Kara Lavender Law (Research Professor of Oceanography at the Sea Education Association). WHOI Sea Grant scientists are conducting research on microplastics in coastal marine animals and assessing the seasonal and storm impacted transport and biological fate of micro- and nanoplastic discharged from wastewater treatment facilities into Massachusetts coastal waters. This research could have relevance to ocean outfalls for treated sewage effluent from the South Cape Embayments and West Falmouth Harbor. I would hope that Ma. DEP would utilize this state of the art research in the implementation of the CWMP/TWMP projects here on Cape Cod (as opposed to the lack of science in developing environmental policy by EPA- see recent article in Boston Globe on EPA Scientific Advisory Committee concerns).

Response: As outlined in Section 9.3 the Town is anticipating evaluating the feasibility of ocean outfalls as part of its future TWMP development schedule, in accordance with State and Federal agency guidelines.

Thus some type of adaptive, ecosystems based management approach (AEbM) is required to manage habitat recovery and fisheries in our coastal embayments. Having a static water column “N” target for recovery of the South Coast Embayments and West Falmouth Harbor will prove inadequate. Having done research on eutrophication in fresh (P) and marine (N) waters, the turnover rate and nutrient recycling within the ecosystem are key factors influencing water quality (see scientific studies on “N” cycle in Waquoit Bay) and the EPA Waquoit Bay Watershed Ecological Risk Assessment which linked bay scallop harvest to loss of eelgrass beds/excess “N” loading. The EMaX energy flow model of the Northeast Continental Shelf Ecosystem faced a problem of matching primary production at the base of the food chain with the yield of living marine/protected/natural trust resources at the top with required alterations at the base of the food chain (adding microbial food web to increase community respiration). As the water column becomes more stratified in the coastal ocean surrounding Cape Cod this imbalance in the carbon flow in the marine food chain will lead to increased natural mortality in food stocks (i.e. Gulf of Maine cod and sea herring being examples).

Response: The Adaptive Management Plan will be used to dynamically monitor and adjust the Plan based on changing observed environmental conditions.

The Cape Cod Commission CWMP/TWMP model didn't include Environmental Justice concerns associated with funding this expensive endeavor (\$ 4-7 billion over the next 20-30 years). We have many seniors on limited incomes and the working poor in service industries that live from paycheck to paycheck and could no longer live on Cape Cod if sewerage and new wwtps with ocean outfalls are the solution to our water quality/habitat restoration challenges in over 50 coastal embayments. Some type of socioeconomic analysis and outreach program is required to address this problem. The Falmouth Water Quality Management Committee insists that property taxes will not be raised to fund the CWMPs/TWMPs for 14 “N” impacted coastal embayments, but this seems highly unlikely to me based upon my experience as a marine scientist/grassroots environmental activist.

Thanks for your consideration of these comments.

Response: Response: The goal of the Final Great Pond TWMP / EIR is to identify the most environmentally sound, reasonable and cost effective approach to meet TMDL goals, thereby minimizing cost to all affected. The Town will also take advantage of available grants and zero interest loans to reduce to the cost of the project to all taxpayers. In addition, during implementation, the Town will identify assistance available for those who qualify.

4. Division of Fisheries and Wildlife, January 13, 2020

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") has reviewed the *Notice of Project Change* (dated December 2019) for the Comprehensive Wastewater Management Plan (CWMP; the Project) and would like to offer the following comments regarding state-listed species and their habitats.

As stated in the Division's previous comments regarding the Project's *Final Environmental Impact Report*, the ponds, bays, and estuarine waters of Falmouth's south coast provide critical foraging, breeding, migration, and over-wintering habitats for a suite of state-listed rare species. We commend the Town of Falmouth for its efforts to improve water quality within these critical habitats, and in particular, for its consideration of both traditional and non-traditional approaches to wastewater and nutrient management.

Portions of the Town of Falmouth are mapped as Priority Habitat for state-listed rare species. All projects proposed within Priority Habitat, which are not otherwise exempt from review pursuant to 321 CMR 10.14, will require review through a direct filing with the Division pursuant to the Massachusetts Endangered Species Act (M.G.L. c. 131A) and its implementing regulations (MESA; 321 CMR 10.00). The MESA is administered by the Division and prohibits the Take of state-listed species, which is defined as "in reference to animals...harm...kill...disrupt the nesting, breeding, feeding or migratory activity...and in reference to plants...collect, pick, kill, transplant, cut or process...Disruption of nesting, breeding, feeding, or migratory activity may result from, but is not limited to, the modification, degradation, or destruction of Habitat" of state-listed species (321 CMR 10.02).

To the extent possible, the Division has evaluated and provided comments below on the recommended actions outlined within the NPC (Section P.3). As the Division has not yet received a direct filing pursuant to the MESA for these recommended actions, including detailed limits of work associated with each, the comments provided below should be considered preliminary in nature.

Response: As outlined in Section 4.4, State-Listed Rare Species requests were filed for each evaluated effluent recharge site. Findings are summarized in Section 4.4.

4.1 Upgrading the Wastewater Treatment Facility

The Division notes that the Town's existing wastewater treatment facility does not appear to be located within the Priority Habitat of state-listed rare species, as indicated in the Massachusetts Natural Heritage Atlas (14th Edition). Therefore, the Division anticipates that any proposed upgrades to the Town's existing wastewater treatment facility would not require review for compliance with the MESA.

Response: No response required.

4.2 Connecting to the Plant / Sewering Great Pond Watershed

The Division notes that wastewater collection systems proposed within Priority Habitat may be exempt from MESA review pursuant to 321 CMR 10.14 (6) and or (10), which state that "[t]he following Projects and Activities shall be exempt from the requirements of 321 CMR 10.18 through 10.23..."

[6] construction, repair, replacement or maintenance of septic systems, private sewage treatment facilities, utility lines, sewer lines, or residential water supply wells within existing paved areas and lawfully developed and maintained lawns or landscaped areas, provided there is no expansion of such existing paved, lawn and landscaped areas;

[10] 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...;

The complete list of MESA filing exemptions may be found on the Division's website. We would encourage the Town to examine design alternatives which avoid and minimize impacts to Priority Habitat, including re-use of existing paved, developed, and or landscaped areas wherever possible. For any proposed work within Priority

Habitat, the Town should consult with the Division to determine whether proposed work is exempt from MESA review or will require review through a direct filing with the Division.

Response: The project goal is to minimize impacts to Priority Habitats wherever possible. As outlined in Section 4.4, State-Listed Rare Species requests were filed for each evaluated effluent recharge site. Findings are summarized in Section 4.4.

4.3 A New Discharge Site

The NPC states that a new discharge site will be needed to accommodate flows from new sewered areas, and that three potential sites are currently being studied. The Division notes that the Augusta Parcel, the Falmouth Country Club, and the Potential Nobska Point Ocean Outfall sites do not appear to be located within the Priority Habitat and that proposed discharge at these locations would not require review for compliance with the MESA.

The Allen Parcel and the Potential Buzzards Bay Ocean Outfall appear to be located within Priority Habitat. Any proposed project or activity at these locations would require review for compliance with the MESA. The Division would encourage the Town to examine alternative locations for the proposed discharge site that are located outside of, or that otherwise avoid and minimize disturbance within, Priority Habitat. For any proposed work within Priority Habitat, including the Allen Parcel and the Potential Buzzards Bay Ocean Outfall, the Division would encourage the Town to contact the Division in advance of a formal filing to proactively address any rare species concerns.

Response: As outlined in Section 4.4, State-Listed Rare Species requests were filed for each evaluated effluent recharge site. Findings are summarized in Section 4.4.

4.4 Joint Base Cape Cod

The NPC states that there is a regional evaluation being conducted on wastewater discharge options on Joint Base Cape Cod (JBCC). Although the NPC doesn't provide substantive detail about this potential option, Figure 3 shows a new proposed force main connecting the existing wastewater treatment facility in Falmouth to an existing JBCC collection system and effluent disposal facility in Bourne. The Division notes that the new proposed force main would occur within Priority Habitat and require review for compliance with the MESA.

In addition, the new proposed force main would cross the Francis A. Crane Wildlife Management Area, which is under the care, custody and control of the Division to conserve the Commonwealth's fish and wildlife resources for the benefit of the citizens of the Commonwealth. In addition, Chapter 47 of the Acts of 2002 transferred the care, custody and control of the northern 15,000 acres of JBCC to the Division as the Camp Edwards Wildlife Management Area. Any proposed easement over the Francis A. Crane or Camp Edwards Wildlife Management Area would require review and approval by the Division and two-thirds of the State Legislature pursuant to Article 97 of the amendments to the State Constitution.

The Town should contact the Division as soon as possible to discuss this proposal. In advance, we request that the Town provide more detailed information about this proposal to the Division for review, including but not limited to whether it would include upgrades to or expansion of existing JBCC effluent disposal facilities. We also request that the Town evaluate alternative locations for this proposal that avoid and minimize work within Priority Habitat or within lands owned or managed by the Division.

We appreciate the opportunity to comment on this project. If you have any questions about components of this letter related to the MESA, please contact Jesse Leddick, Chief of Regulatory Review, at jesse.leddick@mass.gov or 508-389-6386. If you have any questions about the components of this letter related to the Francis A. Crane or Camp Edwards Wildlife Management Area, please contact Jason Zimmer, Southeast District Manager, at jason.zimmer@mass.gov 508-759-3406. We look forward to working with the Town to address the comments provided herein and further its efforts to improve the water quality of Falmouth's south coast.

Response: An update on coordination and outreach to neighboring towns and JBCC is provided in Section 1.2.1 of the Final Great Pond TWMP / EIR.

5. Falmouth Water Stewards, January 15, 2020

Falmouth Water Stewards (FWS) applauds the work of the Falmouth Water Quality Management Committee (WQMC) to address coastal nitrogen pollution during the last five years. Falmouth's water quality problems in coastal waters caused by nitrogen are long-standing and severe, and we understand that the WQMC's work is challenging and arduous. The report - Draft South Coast Embayments Notice of Project Change - represents a thorough synthesis of the status of South Shore embayments, some recent accomplishments, and the major challenges that lie ahead.

FWS commends the town on the successful implementation of the Little Pond Sewer Extension Project. This project was an important step, although in the bigger picture a relatively small step, towards reducing nitrogen loads to all of the Town's 18 estuaries and embayments.

The proposed upgrading of the existing municipal wastewater treatment plant on Blacksmith Road is needed to meet projected increased flows from the Town's existing sewer area.

FWS also commends the Town for putting in motion two other actions that were approved by an April 2014 Town Meeting appropriation (strongly supported by FWS): permitting to widen the Bournes Pond inlet, and the implementation of shellfish aquaculture projects. FWS also applauds the WQMC's investments in the continued monitoring of water quality in response to management actions. This includes monitoring in estuaries like Little Pond where expanded sewers should result in future reductions to nitrogen loads, in estuaries where shellfish aquaculture has been initiated, in the Coonamessett River where wetland restoration projects are underway, and in Bournes Pond where the inlet widening is planned. FWS also supports continued monitoring of water quality in estuaries where no immediate actions are proposed.

FWS also identified a number of shortcomings in this report. Some of these are general, but extremely important, because they will determine the timetable over which improvements to the Town's overall water quality can be addressed as well as the long-term cost of implementing those projects.

- (1) The schedule for implementing cleanup of nitrogen pollution town-wide needs to be more proactive in scheduling implementation. This plan currently calls for no additional sewerage until 2024. This is despite the fact that there are clearly identified areas that will need to be connected to sewers if water quality improvement is to occur, and that Falmouth has a demonstrated ability to effectively expand its sewer network. The report states that the reason for the less aggressive schedule proposed is that any financing for expanding sewers can only come from retirement of debt that will allow funds to be raised without any increase in taxes. This assumption drives the entire timetable presented in this report and pushes any action to reduce nitrogen in Oyster Pond out a minimum of five years and action on estuaries east of Green Pond out into a far and unstated future. This report should include a more aggressive schedule that is based on the assumption that Falmouth residents would support modest tax increases to solve a critical environmental problem-as they have many times in the past.

Response: The Town has developed a fiscally sustainable approach to funding, in phases, the significant infrastructure that is required to meet the TMDLs.

- (2) This report does not adequately address the most important single technical issue that currently constrains Falmouth's ability to remove more nitrogen from its estuaries-the location of a site (or sites) to discharge a greater volume of treated effluent. This is a potentially very contentious issue because discharge of even highly-treated wastewater into one estuary could delay or even prevent water quality improvement of that receiving estuary even while improving water quality elsewhere. Handled hastily, the discharge question has the potential to be a very divisive issue.

This report provides four options for expanded discharge and claims that a decision among these options is anticipated in 2021. But this plan provides no detail on how these sites will be evaluated. These sites also differ from the options that were presented to the public on September 16 (which included an option at Joint Base Cape Cod and an ocean outfall at Nobska Point). Given how this issue will influence all other options available to the Town in the future, the process of selection of potential sites, the evaluation of sites, and the ultimate selection of a preferred discharge site needs to be spelled out in much more detail in this report. Importantly,

the short and long-term costs of this decision should be clearly evaluated, because a decision to go with a potentially cheaper but not Town-wide solution will delay or impede cleanup in the future. Any discharge into the Allen Parcel, which was presented as a viable option on September 16, would fall into this category.

Response: The Alternatives Analysis for effluent recharge is outlined in Section 4.4 of the Final Great Pond TWMP / EIR.

- (2) Any potential for additional discharge into current or expanded open sand beds 14 and 15 north of the Blacksmith Shop Wastewater should be eliminated. This should not be a discharge option for Falmouth. Groundwater flow from these beds is estimated to flow into the Herring Brook estuary. Herring Brook is a small, salt marsh-dominated estuary that currently has low water quality, limited flushing, and a limited ability to absorb additional nitrogen. Recent science indicates that salt marshes, while they contribute to nitrogen removal from surface waters, are themselves vulnerable to increased nitrogen loading because greater nitrogen accelerates decomposition and slumping of salt marsh sediments. Instead of recommending discharge of more effluent to beds 14 and 15, this report should include (a) a clear commitment by the Town to the monitoring of ground and surface water in Herring Brook that is required by its current Department of Environmental Protection (DEP) discharge permit, and (b) a pathway by which Falmouth will fund the completion of a Massachusetts Estuaries Project report and establish a TMDL (Total Maximum Daily Load) for Herring Brook so that it can better evaluate its current impact on that estuary. TMDL is calculated as the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant.

Response: The Herring Brook MEP study is currently underway; findings are anticipated in 2023.

- (3) This plan should include more aggressive actions and commitments to evaluate the nitrogen removed by Innovative Alternative (IA) denitrifying septic systems. The Town has collaborated with the Buzzards Bay Coalition to install and evaluate 25 systems near West Falmouth. Because of the important role that IAs will almost certainly play in reducing nitrogen in areas of Falmouth that are too expensive to sewer, this program should be expanded. Right now, the program addresses only about 0.1 percent of Falmouth's approximately 21,000 housing units. A variety of systems have been installed, but in numbers that are not yet adequate to determine the best performing systems under a variety of conditions (such as year-round or seasonal occupancy). This information could help to greatly increase the amount of nitrogen removal that is achieved by expanding the usage of IA systems.

Response: As outlined in Section 3.9 of the Final Great Pond TWMP / EIR, since 2019, the Town has been involved in several joint efforts with regional partners and representatives from the State on establishing a responsible management entity (RME) either on a regional or municipal level for the management of I/A systems (Appendix 3.15). Additionally, the Town has been involved in independent discussions with the MassDEP on how to accelerate General Use approval for the several highly promising technologies able to achieve ≤ 10 mg TN/L which include NitROE, Nitrex, and the layer cake design.

In 2021, the Water Quality Management Committee began drafting a proposed bylaw that would mandate the use of I/As within a 300 ft. boundary of specified impaired watersheds (Appendix 3.16). The specified estuaries are those that could potentially meet their TMDL using I/A septic systems capable of achieving an average effluent concentration ≤ 10 mg N/L. The watersheds that have the potential to meet their TMDLs using I/As alone included in the current proposed bylaw are West Falmouth Harbor, Quissett Harbor, and Fiddler's Cove.

- (4) This plan should include expanded commitments to monitoring of waters that have been, or will be, affected by management actions. Falmouth is in a unique position to acquire valuable information by conducting more detailed studies of the situations that create "experiments" in which nitrogen fluxes could be quantified before and after certain actions. These situations include (1) Little Pond, West Falmouth Harbor now, and West Falmouth Harbor in the future when the previous high-nitrogen plume generated before the plant's 2005 upgrade to tertiary treatment will no longer enter the estuary, (2)

changes to nitrogen concentrations in response to wetland restoration on the Coonamessett River, (3) the opening of the Bourne Pond inlet, and (4) installation of oyster or another shellfish aquaculture program. Investments in these studies will provide information to help make future decisions about nitrogen-removal approaches other than sewerage.

Response: The Town's monitoring programs and initial findings are summarized in Section 3 of the Final Great Pond TWMP / EIR.

- (5) The assumption that no further action will be required in West Falmouth Harbor might be overly optimistic. Instead of assuming that no future action will be needed, this plan should include continuing efforts at monitoring water quality in West Falmouth Harbor and installation of IA septic systems to reduce additional nitrogen that will provide a buffer around the uncertainty associated with the claim that no action is needed.

Response: TMDL compliance progress will continue to be monitored by the adaptive management program. The TMDL Compliance Approach will be adjusted, if needed, based on the findings of the Program.

- (6) Falmouth has a fertilizer use by-law that most other towns do not. FWS was a strong supporter of this by-law. But it calls for very modest fertilizer reductions. There is no record of any enforcement action ever being taken, and any reductions in nitrogen loading caused by the by-law are totally speculative. No credits should be granted to Falmouth for nitrogen reductions because of the current by-law. The town should develop a fertilizer use enforcement plan.

Response: Section 3 outlines strategies that the Town uses for public education and enforcement of the fertilizer bylaw.

We hope these inputs are taken in the spirit that the Falmouth Water Stewards intend, i.e., we are in complete support of the WQMC's efforts to improve Falmouth's estuaries and offer these inputs to help make the best improvements possible to our embayments. If there are any questions, we are open and available for any support needed.

6. Buzzards Bay Coalition, January 27, 2020

The Buzzards Bay Coalition (Coalition) has reviewed the "Draft South Coast Embayments CWMP/TWMP Notice of Project Change Update-2019" ("2019 NPC") and offers the following comments.

The Coalition is a nonprofit, membership organization dedicated to the restoration, protection and sustainable use and enjoyment of Buzzards Bay and its watershed. The Coalition works to improve the health of the Bay ecosystem for all through education, conservation, research and advocacy and is supported by more than 10,000 individuals, families and businesses throughout the region, including over 1,437 who live in Falmouth.

The town faces a serious issue with respect to nitrogen pollution which threatens Falmouth's economy and environment if left unaddressed. While the Coalition continues to view this planning process as an important step in both Falmouth's and the region's efforts to combat nitrogen pollution, we urge the Secretary to make any final approval contingent upon the town of Falmouth's completion of a nutrient threshold study for Herring Brook and require further evaluation of an ocean discharge site in Vineyard Sound. It is critical that the town's efforts to solve the nitrogen pollution problem in their South Coastal Ponds does not cause or contribute to nitrogen impairment in coastal waters in the western part of town.

Response: The Herring Brook MEP study is currently underway; findings are anticipated in 2023.

6.1 Selection of an Appropriate Wastewater Discharge Site

It is well established that traditional sewers and advanced treatment at wastewater treatment facilities are the most effective methods to remove bacterial and nutrient pollution from wastewater. Identifying a discharge site for this treated wastewater, however, is the town of Falmouth's greatest challenge. The 2019 NPC identifies several potential sites currently being studied, including an ocean outfall into Buzzards Bay and expanded recharge beds at the Town- owned "swap parcel" (existing recharge beds 14 and 15). The Coalition disputes

the feasibility of either of these discharge sites and suggests the town abandon any further investment in their evaluation.

The 2019 NPC estimates that expanded sewerage in Great Pond, Green Pond, and Waquoit Bay will remove between 35,000 and 44,000lbs of total nitrogen from these estuaries.¹ In order to achieve this nitrogen reduction, the town of Falmouth will need to treat an additional 486,000 to 611,000 gallons per day (gpd) at the Wastewater Treatment Plant ("WWTP") in West Falmouth. Assuming the WWTP is achieving a treatment level of 3mg/L total nitrogen, which it fails to do consistently as stated in this 2019 NPC, a nitrogen load of between 4,439 -5,581 lbs/year of nitrogen will be discharged after treatment. Importing this new load to West Falmouth Harbor, Herring Brook, Buzzards Bay or any nitrogen sensitive embayment is inappropriate. Both groundwater discharge and surface water quality regulations prevent the discharge of pollutants which will cause or contribute to a violation of water quality standards. In order to avoid violating state law, the 2019 NPC must further develop discharge sites outside the Buzzards Bay watershed.

Response: The effluent discharge alternatives analysis, outlined in Section 4 of the Final Great Pond TWMP / EIR, includes discharge locations outside of the Buzzards Bay watershed. The Town is evaluating a Vineyard Sound outfall option for long term wastewater discharge. If the outfall is not found to be feasible, the town will look to the Augusta, Allen or possibly the Falmouth Country Club sites for discharge of treated wastewater from future phases of wastewater system expansion.

West Falmouth Harbor Continues to Fail to Meet its Total Maximum Daily Load (TMDL)

The January 10, 2014 Final Environmental Impact Report Certificate required a plan and schedule to bring West Falmouth Harbor into compliance with the TMDL and surface water quality standards by December 2, 2016. Unfortunately, the Harbor has yet to see total nitrogen concentrations at the sentinel station meet the TMDL.

The current modified groundwater discharge permit for the WWTP limits the discharge to West Falmouth Harbor to 450,000 gpd and 4,109lbs/year total nitrogen with a best efforts to meet 3mg/L total nitrogen. The more than 4,109lbs of nitrogen discharged to West Falmouth Harbor from the WWTP is all imported from outside the West Falmouth Harbor watershed. In other words, none of the homes or businesses within the West Falmouth Harbor watershed are connected to sewer. This requires West Falmouth Harbor to absorb septic nitrogen load from within its watershed in addition to the nitrogen load imported from other parts of town. The 2019 NPC cites to modeling which claims that at a wastewater discharge volume of 450,000 gpd at a concentration at or below 3mg/L total nitrogen West Falmouth Harbor should meet the TMDL.

However, the WWTP's has struggled to consistently meet its permit limit of 3mg/L total nitrogen (as it failed to do in 2019) and continues to contribute to the delay in West Falmouth Harbor recovery.

The 2019 NPC states that the permit limit will be exceeded in 2019 due to mechanical malfunctions at the WWTP but that the plant did meet the permit limit in 2017 and 2018. Meeting the permit limit two years out of nearly fifteen years since the WWTP has been upgraded is insufficient to protect West Falmouth Harbor. The waters of West Falmouth Harbor will likely be warmer by the time this nutrient-rich plume enters West Falmouth Harbor, exacerbating the adverse impact this violation will have on water quality. Figure ES.5 in the 2019 NPC, and copied below, illustrates the plant's consistent inability to meet permit limits.

¹ These figures are the sum of the estimated nitrogen loading reductions from sewer extensions found in tables 6.2, 7.2 and 9.1.

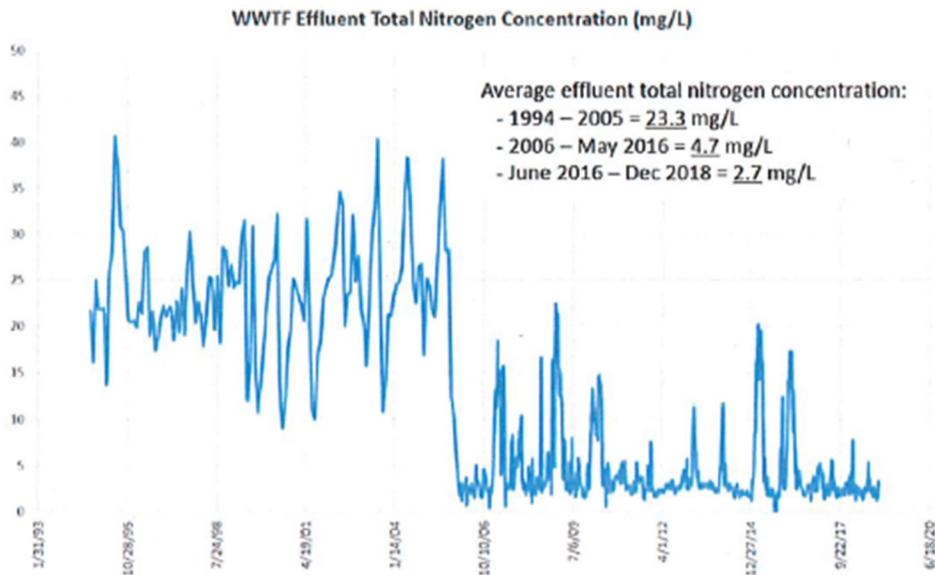


Figure ES.5 Historical Wastewater Treatment Facility Effluent Total Nitrogen Concentrations

While the 2019 NPC acknowledges that the town will need to identify and construct a new discharge site outside the West Falmouth Harbor watershed for any additional flow from new sewerage, the GHD Technical Memo, TASA TM-3 suggests that there could be an increased discharge flow to West Falmouth Harbor above the 450,000gpd if treatment levels were reduced to 2.5 or 1.8 mg/L total nitrogen.² The Coalition expects that the town will not seriously entertain this suggestion given the town's inability to consistently meet a 3mg/L total nitrogen limit.

Response: Multiple recharge options were reviewed and screened as part of this evaluation, including reduced total nitrogen treatment options. The Final Great Pond TWMP / EIR assumes an average annual total nitrogen concentration at the Falmouth WWTF of 3 mg/L.

The Coalition urges the town to identify and pursue a discharge location outside the greater Buzzards Bay watershed capable of discharging both new flow from expanded sewerage in East Falmouth and the existing flow from the WWTP currently discharging to West Falmouth Harbor. The town's failure to consistently meet permit limits at this discharge location warrants a careful look at a new discharge location outside the West Falmouth Harbor watershed for all of the town's wastewater discharge needs.

Response: The effluent discharge alternatives analysis, outlined in Section 4 of the Draft and Final Great Pond TWMP / EIR, includes discharge locations outside of the Buzzards Bay watershed.

Recharge Beds 14 and 15 are Inappropriate for an Increased Discharge

Herring Brook suffers from nitrogen impairment and is listed on the Massachusetts Year 2012 Integrated List of Waters requiring the development of a TMDL. It has been and continues to be the Coalition's position that any increased nitrogen discharged to Herring Brook, unless offset, will further impair that waterbody in violation of state law.

Groundwater modeling confirmed that 15% of the discharge from recharge beds 14 and 15 is expected to flow to Herring Brook resulting in a near tripling of the existing nitrogen load. The Coalition's appeal of the town's 2015 groundwater discharge permit resulted in a requirement to offset new nitrogen to Herring Brook from an increased discharge of wastewater. The appeal also resulted in the town's commitment to partner with the Coalition to design a Nutrient Threshold Study for Herring Brook. The purpose of this study was to understand

² TASA TM-3 at 13.

the health of the estuary and what impact increased nitrogen loading from the discharge site would have on it. While all other Falmouth estuaries have scientific studies to support TMDLs, the town has orphaned and deprioritized Herring Brook, robbing that estuary of critical information needed to guide whether a discharge within that watershed is appropriate and legal. To date, there has been no town allocation of funds to finance a study for Herring Brook.

Herring Brook is a saltmarsh estuary explored by children for generations, adjacent to one of the Cape's most beloved bathing beaches, Old Silver Beach. The Secretary should require the town to pursue alternative discharge sites that do not further impair a listed waterbody and should, at a minimum, require the town to complete a nutrient threshold study for Herring Brook.

Response: The Herring Brook MEP study is currently underway; findings are anticipated in 2023.

Vineyard Sound Outfall

Virtually all of Falmouth's harbors, coves, and coastal ponds require nutrient reductions over current levels. In many cases the best way to reduce existing nitrogen loads is through the expansion of municipal wastewater treatment and disposal. The Coalition supports the town's expansion of sewerage in order to reduce nitrogen loads to impaired estuaries, but challenges the town to further evaluate the feasibility of discharging treated wastewater from the south coast watershed facing Nantucket Sound, back into the Sound. The town's approach, to date, has been to identify several different sites that can absorb a finite amount of wastewater because it is the cheapest alternative in the short term. This has and continues to threaten the health of downstream receiving waters, West Falmouth Harbor and Herring Brook and are outside the basin producing the wastewater. The town must consider an alternative discharge strategy. The most appropriate solution for Falmouth's wastewater disposal challenge may be an ocean outfall at Nobska Point that bypasses all of the Town's sensitive coastal embayments.

TASA TM 6, appended to the 2019 NPC, states that ocean outfalls have the advantage of bypassing nutrient impacted watersheds, estuaries and coastal ponds. Unfortunately, the 2019 NPC does not go far enough in the evaluation of an ocean discharge to the Sounds. Discharging highly-treated effluent directly at the confluence of Buzzards Bay, Vineyard Sound and Nantucket Sound would remove nitrogen loading from the sensitive coastal ponds and harbors. The greater depth and strong flushing of the waters off Nobska Point, potentially make it a water body that can tolerate input of nutrients better than the Town's shallow, restricted coastal harbors and ponds. Furthermore, it returns the treated wastewater partially back to the basin from which it originated.

The town invested resources in a 2018 hydrodynamic model of a Buzzards Bay discharge but failed to equally evaluate the Nobska outfall alternative. The Secretary's 2014 FEIR Certificate anticipated that a proper evaluation of this alternative would require significant technical feasibility studies including studies and modeling of potential impacts. Unfortunately, it does not appear that the town completed this work. The Secretary should direct the town to consider and evaluate a Nobska Point Outfall as an alternative wastewater discharge for the entire town.

The Coalition urges the town of Falmouth to pursue a discharge alternative that meets both near and long term discharge needs and returns the treated water back to the basin in which it originated instead of pursuing alternatives that transfer the nitrogen load to other basins which will continue to cause water quality degradation. If the town pursues an ocean outfall at Nobska, the town can eliminate a more than 4,000 lb source of nitrogen to West Falmouth Harbor in addition to creating discharge capacity for the eastern part of town.

Response: Section 4 outlines ocean outfall alternatives, including a Vineyard Sound Option. As outlined in Section 9.3 ocean outfall evaluations will be conducted to assess the feasibility of an ocean outfall as part of the future TWMP development schedule.

6.2 Innovative and Alternative Septic System Pilot Projects

The Coalition values the opportunity to work with the town of Falmouth on the West Falmouth harbor Shoreline Septic System Remediation Project. This partnership continues to provide significant learning to be applied on a regional basis together with important nitrogen reductions to West Falmouth Harbor. The Coalition offers the following clarifications to section 3.4 of the 2019NPC.

- To date, 27 innovative/alternative systems have been installed as part of this project.
- The Barnstable County Department of Health and the Environment provides the monitoring of the systems. The 2019 NPC indicates that the BCDHE performs groundwater monitoring. No groundwater monitoring is performed. ES-6
- The cost range between the Eliminite equipment and Hoot equipment was \$4,580 and \$10,625 respectively. The blackwater tank equipment cost is \$4,147. The Coalition is unclear as to where the \$15,000 in reference to the blackwater tank originates. 3-15
- There were no FujiCLEANs installed as part of this project. There was a Fast System in combination with a drip dispersal and a SanTOE technology installed in addition to the other technologies listed. 3-15

Nitrogen reducing septic systems will play an important role in meeting water quality goals in many of the region's estuaries. The Coalition supports the continued efforts of the Water Quality Management Committee to create a watershed management and monitoring plan to ensure that the systems installed as part of the town's CWMP are properly maintained and perform as needed. Likely, the most effective and affordable way to ensure performance is through the creation of a responsible municipal management entity whereby the town becomes responsible for maintenance and performance.

Response: Section 3.9 of the Great Pond Final TWMP / EIR provides an update on I/A programs.

6.3 A Board of Health Regulation Requiring Nitrogen Reducing Septic Systems for New Construction

It is clear that the town has invested significantly in wastewater planning. However, new development constructed in town and outside the sewer service area is undoing the investment the town has made in cleaning up their estuaries. The town of Falmouth's Board of Health should require all new construction to install nitrogen reducing septic systems. New septic systems constructed town-wide add new nitrogen to Falmouth's impaired estuaries. The town well knows, and the 2019 NPC specifically describes, several technologies that can reduce nitrogen over conventional septic system levels.

The expansion of sewer takes time. The 2019 NPC describes needed upgrades to the WWTP, the construction of a new discharge site, and then finally the construction of a collection system in 2030. That is a decade away, allowing 10 years' worth of new development to add to the nitrogen problem the town is working hard to remediate.

An increasing number of Boards of Health in southeastern Massachusetts have passed regulations requiring new construction to install a nitrogen reducing septic system. The Coalition looks forward to supporting Falmouth's Board of Health in the passage of a similar requirement in order to protect the town's investment.

Response: As outlined in Section 3.9 of the Final Great Pond TWMP / EIR, in 2021, the Water Quality Management Committee began drafting a proposed bylaw that would mandate the use of I/As within a 300 ft. boundary of specified impaired watersheds (Appendix 3.16). The specified estuaries are those that could potentially meet their TMDL using I/A septic systems capable of achieving an average effluent concentration ≤ 10 mg N/L. The watersheds that have the potential to meet their TMDLs using I/As alone included in the current proposed bylaw are West Falmouth Harbor, Quissett Harbor, and Fiddler's Cove.

6.4 Failure to Consider Town-Wide Water Quality Requirements

The 2019 NPC provides a compliance approach for only a subset of the town's watersheds and remains silent on plans to meet TMDLs for other critical coastal waters in town. Since the Secretary's January 10, 2014 certificate, TMDLs have been issued for Quissett Harbor, Wild Harbor, Rands Harbor, Fiddlers Cove and is in draft form for Megansett Harbor. The Coalition requests that the Secretary require the town to establish a compliance approach for all Falmouth estuaries within twenty-four months of the approval of the 2019 NPC. Furthermore, the 2019 NPC anticipates a construction timeframe of 2035 to 2040 for sewer construction for the South Coast Embayments. The Coalition requests that all compliance plans be implemented in parallel and no later than 2040. The Coalition looks forward to working with the town on developing those additional compliance plans.

Response: The Town agrees that a compliance approach is needed for all of Falmouth's estuaries and has systematically been developing and implementing targeted watershed management plans for its estuaries. Due to the large number of impaired estuaries in Falmouth and the complexities of the planning effort, 24 months is an unrealistic timeframe for this effort.

Conclusion

Falmouth is facing serious nitrogen pollution problems due to the inadequacy of how wastewater is currently being treated. The 2019 NPC is an important step in the process of solving the Town's wastewater problems. However, the wastewater solution considered here must not sacrifice the water quality of other estuaries.

7. Cape Cod Commission, January 28, 2020

The Cape Cod Commission is pleased to see towns on Cape Cod proceed with wastewater and watershed management planning and implementation, and more specifically, to see the Town of Falmouth continue with its efforts on this front.

After MEPA review concludes, the Cape Cod Commission will review the updated elements of Falmouth's CWMP as described in the NPC to determine consistency with the Section 208 Area-wide Water Quality Management Plan for Cape Cod, and issue a consistency determination on the updated CWMP. The Commission may request additional or clarifying information or materials from the Town at that time pursuant to its consistency review.

Response: No response required.

8. Massachusetts Executive Office of Energy and Environmental Affairs, Office of Coastal Zone Management, January 28, 2020

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Notice of Project Change (NPC), noticed in the Environmental Monitor dated December 23, 2019, and offers the following comments.

8.1 Project Description

This NPC is an update on efforts made by the Town of Falmouth to move forward with its Comprehensive Wastewater Management Plan (CWMP)/Targeted Watershed Management Plan (TWMP) in the five years since the issuance of the Secretary's Certificate approving the CWMP/TWMP. The CWMP seeks to address nutrient loading and eutrophication in the watersheds of Little Pond, Great Pond, Green Pond, Bourne's Pond, and Waquoit Bay on the Nantucket Sound side of Falmouth, as well as the West Falmouth Harbor watershed in Buzzards Bay. The 20-year plan (2015 to 2035) proposes a range of strategies including: sewerage, upgrading the wastewater treatment facility in West Falmouth, widening the Bourne's Pond inlet, and implementing a variety of non-traditional wastewater and nitrogen management methods. This NPC reports on the progress of those efforts.

Response: No response required.

8.2 Project Comments

Shellfish Aquaculture and Harvest for Nitrogen Removal

With the release of the Section 208 Area Wide Water Quality Management Plan, many Cape Cod communities have proposed using oysters, quahogs, and/or bay scallops as a biological mechanism for filtering nitrogen (in the form of phytoplankton) from estuaries. While CZM supports biological remediation, the idea is still conceptual, and the nitrogen removal quantities are hypothetical estimates based upon lab studies. For example, despite the estimated nitrogen removal calculations in Fig. 3.4, the NPC reports that the oysters deployed in Little and Bourne's Ponds were only able to reduce nitrogen in the immediate vicinity of the cages (not at the ponds' respective sentinel stations) and in Bourne's Pond an unexpected increase in nitrogen regeneration from the bottom sediments into the water column was reported (p. 3-8). As nitrogen regeneration from sediments is an important component of estuarine nitrogen budgets, CZM suggests that the Town and the Massachusetts Department of Environmental Protection (MassDEP) assess the site-specific differences in how shellfish aquaculture operations affect estuarine ecosystems, including their dissolved oxygen and benthic communities, and whether they offer a sufficient net benefit toward nitrogen remediation.

Recent public comments provided to the Massachusetts Shellfish Initiative, a process involving state and local agencies, legislators, recreational and commercial harvesters, aquaculturists, and environmental and trade organizations, identified a rising concern that town-funded aquaculture for nutrient remediation in southeastern Massachusetts would create new economic competition with local, commercial shellfish harvesters (both wild harvest and aquaculture). Some of those concerns may be addressed by the Town's proposal to hire a licensed, commercial harvester to manage aquaculture operations but the Town, MassDEP, and the Division of Marine Fisheries should evaluate how town-funded aquaculture and the shellfish brought to market may adversely impact the economic viability of local, small businesses.

Response: Section 3.2 of the Final Great Pond TWMP / Supplemental EIR provides an update on the Town's shellfish aquaculture and initial monitoring study findings.

Ocean Outfall

The NPC recommends an expansion and upgrade of the existing wastewater treatment facility as a necessary action for managing the additional wastewater that will be generated through sewerage targeted areas of the Town. Six options for treated wastewater disposal were evaluated and according to the NPC four were selected for conceptual layout: open sand beds at the Allen parcel, subsurface effluent disposal at the Falmouth Country Club, expanding existing sand beds 14 and 15, and an ocean outfall in Buzzards Bay (p. 6-6). In Appendix 5.1, TASA Technical Memo 6, the potential costs of ocean outfalls in Buzzards Bay and Vineyard Sound are compared, with the Vineyard Sound/Nobska Point option estimated at a lower cost. TASA Technical Memo 6 recommends that a hydrodynamic model for a potential ocean outfall off Nobska Point in Vineyard Sound be developed (p. 9). However, Appendix A of the TASA Technical Memo 6 includes the results of a hydrodynamic model for a potential ocean outfall to Buzzards Bay. Future documents should make it clear which, if any, ocean outfall options the Town is likely to pursue. Regardless of which location the Town decides to pursue further, the Town should consult with CZM and MassDEP about the short and long-term requirements for siting and operating an ocean outfall in an ocean sanctuary pursuant to 301 CMR 27.

To date, there has been no modeling to determine the appropriate load of nitrogen that will protect the appearance, ecology, and marine resources of the Cape and Islands Ocean Sanctuary (301 CMR 27.07(3)). Several communities, in addition to Falmouth, have recently discussed moving nutrient loads from upland or up-estuary into deeper waters, and the summer population in these communities continues to increase. The regional planning commissions and municipalities should work with state and federal agencies to determine the acceptable load of nitrogen for the Nantucket Sound and Buzzards Bay estuaries.

Response: The Town initiated discussions with CZM during the development of the Great Pond TWMP and will continue discussions through the ocean outfall evaluations outlined in Section 9.3. Meetings were held with CZM on June 15, 2022, and with CZM, DEP, and DMF on July 11, 2022.

Coastal Hazards and Growth

There appears to be little information in this NPC on efforts toward controlling new growth in hazard prone areas or managing growth to control nutrient loading. As growth and development increase in Cape Cod communities, stormwater and fertilizer use are likely to increase as well, resulting in additional nutrient loading. A future NPC should specifically identify and evaluate planning mechanisms for managing growth and associated increases in nitrogen loads.

In previous comments, CZM noted that the availability of sewer infrastructure in coastal areas subject to storm damage, flooding, and erosion could allow new or expanded development in hazard prone areas. It was suggested that the Town investigate growth control measures that meet the spirit and intent of Executive Orders 181 and 149 to minimize the risk of infrastructure damage in flood zones and that the Town's analysis of potential growth in hazard-prone areas include, at a minimum, primary frontal dunes in addition to those areas shown on the most current maps as flood zones.

The NPC states that areas requiring sewers located in barrier beaches will have to be designed and constructed to meet specific state requirements for work within these areas under Executive Order 181. To address this, Section 12.3.2 states that areas requiring sewers cannot promote additional growth on barrier beaches that would not have otherwise been allowed. The planning mechanisms that will assist the Town in managing community growth should be included in the next NPC.

Response: The Town's existing Flow Neutral Bylaw applies to all current and future sewer areas, so it will also apply to the proposed Teaticket Acapesket Sewer Area. The Town's wetland regulations will continue to govern activity in barrier beaches and other resource areas.

Targeted Watershed Management Plan

As a CWMP update that records the Town's nitrogen reduction and mitigation efforts and their results in one place, this NPC is a useful document that shows recent progress and the Town's level of commitment to addressing eutrophication and restoring coastal water quality and habitat. That an eelgrass bed was recently identified in West Falmouth Harbor, where it had not been seen previously, is a sign that the Town's efforts have led to recovery in at least part of the West Falmouth Harbor watershed.

Understanding the difficulties associated with addressing nonpoint source pollution, CZM commends the Town for its efforts made to date and appreciates that the NPC includes watershed-specific options in the event that the proposed plans are not adequate for nitrogen removal. However, the Town should increase the specificity in the individual TWMPs especially regarding performance standards and timelines for evaluating the innovative nitrogen removal strategies (e.g., aquaculture, stormwater improvements, pond management, and permeable reactive barriers). Chapter 12.4 mentions adaptive management and TMDL compliance but provides no details or firm timeline. The TWMPs should have an implementation schedule associated with achieving specific nitrogen removal goals as evidenced through field monitoring. Some strategies may be phased, but the timing of those phases should be made clear and all innovative strategies should have an adaptive management component and an alternative plan that is triggered when performance standards are not met within reasonable, pre-defined time periods.

Response: The next phases of TWMP development are outlined in Section 3.9 of the Great Pond TWMP / EIR.

As an example, the Summary of Compliance Approach for Bourne's Pond and its associated Table 8.1 (p. 8-3) list the proposed methods for reducing nitrogen in the Bourne's Pond watershed and the estimated quantities that each strategy may remove. Roughly half of the nitrogen load is proposed to be removed by shellfish aquaculture and harvest. Given the results to date and considering the uncertainties of weather and biology (predators, disease), expecting that such a large fraction of Bourne's Pond's nitrogen will be removed by shellfish may not be a reliable solution. Sewer extensions, upgrading onsite septic systems, and exploring locations for a permeable reactive barrier are listed as options that the Town could consider if the aquaculture program fails and/or additional nitrogen needs to be removed. The Bourne's Pond TWMP should explicitly state how many trial months are needed before the aquaculture program is deemed adequate/inadequate and at what point the alternatives will be triggered. The TWMP should also explicitly reference the water quality

monitoring sentinel station and the value to be achieved (0.45 mg/l total nitrogen according to the Total Maximum Daily Load document) to demonstrate that the proposed 4,162 kg of nitrogen per year have been removed.

Response: The next phases of TWMP development, which will include the Bournes Pond TWMP, are outlined in Section 3.9 of the Great Pond TWMP / EIR. The Bournes Pond TWMP will outline milestones for the Town's Adaptive Management Program for this watershed.

Regarding the credit for the Town's fertilizer bylaw and outreach efforts, while the contribution to nitrogen removal is only about 5% or less of the total for any given watershed, the figures for several watersheds show that nitrogen has not improved over the last 15 years (e.g., Figs 2.2, 2.5, 2.8, 2.11) despite five years of implementation of the fertilizer bylaw and while additional innovative methods such as aquaculture have been implemented. The NPC provides no data on the actual reduction in fertilizer use in Falmouth. MassDEP allows nitrogen "credits" of 25% of both the fertilizer and stormwater loads if a town commits to addressing them. However, for an accounting of actual nitrogen removal, the Town should make reasonable efforts to quantify the reduction in nitrogen from these two pathways.

Response: The Town's Adaptive Management Program will be used to assess the effectiveness of all technologies outlined in the Preferred TMDL Compliance Approach outlined in the Final Great Pond TWMP / EIR.

In summary, CZM commends the Town of Falmouth for its commitment to improving coastal and estuarine habitats and significant investments made to date. For the next phase of the CWMP/TWMP, the Town should address the need for watershed permits, identify permit conditions for each of the proposed nitrogen remediation actions, work with MassDEP to propose enforceable timelines, and propose how the Town will plan for and manage additional nitrogen inputs associated with growth and development.

Response: The Town is planning and implementing infrastructure projects to meet TMDLs in an environmentally sound, reasonable, and fiscally sustainable manner. Watershed permitting requirements, if promulgated, will be incorporated as required. The Town's Adaptive Management Program will be used to plan for and manage additional nitrogen inputs associated with growth and development.

8.3 Federal Consistency

The proposed project may be subject to CZM federal consistency review. For further information on this process, please contact, Robert Boeri, Project Review Coordinator, at 617-626-1050 or visit the CZM web site at www.state.ma.us/czm/fcr.htm.

Response: The project will undergo CZM federal consistency review, if required.

9. Massachusetts Department of Environmental Protection, January 28, 2020

9.1 Bureau of Water Resources Comments

Wetlands and Waterways. The SERO Wetlands & Waterways Program has reviewed the above referenced EOE file. The proposed and active projects involve the development of a comprehensive wastewater management plan in the Little Pond, Great Pond, Green Pond, Bournes Pond, Eel Pond, Waquoit Bay East & West and West Falmouth Harbor watersheds, including several projects to demonstrate non-traditional technologies and approaches to reduce the extent of sewerage.

Response: No response required.

Wetlands Comments:

Based on the information submitted, it appears that several of the proposed Project components will be located within Wetlands Protection Act (WPA) jurisdiction; potential impacts to a variety of inland and coastal Areas Subject to Protection, including Riverfront Area, can be anticipated. Therefore, WPA Notices of Intent or/and

Requests for Determination of Applicability will need to be submitted to the Falmouth Conservation Commission prior to any temporary or permanent alterations [except for planning and design activities that meet the provisions of the minor activity exemption at 310 CMR 10.02(2)(b)1.g.].

This municipal Project is subject to MassDEP's Stormwater Management Standards as a whole, although not all of the individual standards will apply to all components of the work. Notices of Intent and Water Quality Certification applications should include Stormwater Reports.

Response: WPA Notices of Intent and/or Requests for Determination of Applicability will be submitted during the design phase of infrastructure projects outlined in the TWMP, as required.

Waterways Comments:

The SERO Waterways Program offers the following comments on the Notice of Project Change (NPC) Update Report submitted by the Town of Falmouth.

- The widening of the Bourne Pond inlet, bridge replacement, jetty reconstruction, and associated dredging was authorized under DEP Waterways License No. 14802.
- A comprehensive dredge permit authorizing dredging at 24 locations in Falmouth, including the Bourne Pond inlet, was authorized under DEP Waterways Permit 13266 and 401 Water Quality Certification X238551.
- If any additional proposed work occurs within Chapter 91 Geographic Areas Subject to Jurisdiction, as defined at 310 CMR 9.04, consultation with the Waterways Program is necessary to determine if an additional permit, license, and/or authorization is required.

Response: The Town is in the process of obtaining additional permits for additional coastline restoration work beyond the original scope of the currently permitted project. Any additional permits beyond those already obtained or being applied for will be sought, as required.

Wastewater Management. MassDEP's Southeast Regional Office is pleased to have the opportunity to comment on the Town of Falmouth's South Coast Embayments and West Falmouth Harbor CWMP/TWMP Notice of Project Change Update (the "NPC"). The Town is to be commended on its efforts to restore the south coastal Project impacted by nutrient enrichment and on its commitment to evaluating innovative approaches to help mitigate those impacts.

Response: No response required.

Introduction

The NPC has been prepared as a requirement of the Secretary of Energy and Environmental Affairs' January 10, 2014 Certificate on the Town's CWMP and TWMP. That Certificate stated:

"The NPC shall include: an update on construction and operation of the Little Pond sewerage project; and update on design, construction and implementation of pilot projects; documentation of progress towards achieving (TMDL') (sic) for each sub-watershed; data and analysis of water quality monitoring; and, based on the information developed over this time period, assessment of the effectiveness of the CWMP/TWMP in reducing nitrogen loads in Little Pond and other Project and the need for any revisions to the Falmouth CWMP/TWMP before initiating subsequent CWMP phases. The NPC will address how information, data, and subsequent analysis obtained over the five year period has informed the Town's strategy for meeting water quality standards and TMDLs for Little Pond, Great Pond, Green Pond, Bourne Pond, Waquoit Bay East and the West Falmouth Harbor Project in Falmouth."

The NPC provides a summary of activities completed since 2014 and those anticipated through 2040. The Town plans to utilize a variety of strategies including sewerage, shellfish aquaculture, permeable reactive barriers (PRBs), Innovative/Alternative (I/A) septic systems, fertilizer controls and stormwater management to achieve nitrogen reduction targets necessary to meet the TMDL in each of the Projects covered by the NPC.

The NPC contains a number of innovative and thoughtfully chosen alternative approaches to nutrient management; however, while ambitious in scope and despite admirable goals, it falls short in developing a

clear schedule toward resource restoration and compliance with in all of the targeted embayment systems. MassDEP recognizes that this is a progress report, but expects that future submittals will more explicitly address the implementation schedule of nitrogen reduction strategies in the respective Project.

Response: The next phases of TWMP development are outlined in Table 9.6.

Wastewater Treatment

As noted in the West Falmouth Harbor discussion, the waste water treatment facility (WWTF) is scheduled for upgrades and improvements. The 2013 Draft CWMP/Draft Environmental Impact Report (DCWMP/DEIR/NPC) proposed to expand treatment at the Blacksmith Shop Road (BSR) WWTF from the existing 1.2 MGD to 2.1 MGD. It is not specifically stated in the NPC if this is still the proposal; however, MassDEP assumes that it is. The Town should clarify the ultimate design capacity. Technical Memorandum 4, presented as part of the Appendices, indicates that the BSR WWTF will maintain its treatment capabilities with the Teaticket/Acapesket Sewer Study Area (TASSA), but is unclear about the ability to handle future sewerage projects. The report provides a general outline of improvements/upgrades needed at the treatment works to accommodate both the increase in flow and reliability in performance. The proposed changes are consistent with existing operations and processes at the facility and all design issues will be addressed during plan and/or permitting review.

Response: As outlined in Section 5.1.2.3 the Town of Falmouth is currently in the design phase of the Falmouth WWTF TASA Improvements Project, which will provide capacity to treat anticipated flows from TASA and ESRA (Planning Flow 1). Future upgrades will be required to treat future planning flows.

Wastewater Disposal

The NPC acknowledges limitations in wastewater recharge at the BSR WWTF that other options need to be explored to accommodate additional flows. The NPC appears to be focusing on the Allen Parcel for expanded effluent recharge as well as rerating the allowable loading at Infiltration Beds 14 and 15. However, this rerating, with an eye towards increasing the allowable discharge at these beds must be accompanied by appropriate analysis of potential impacts to downgradient receptors. Further investigations will proceed in 2020 and 2021 as part of the TWMP for Great Pond as well as through the BRP WP 81 Hydrogeological Review application process.

Response: Effluent discharge evaluations, including analysis of potential impacts to downgradient receptors, are outlined in Section 4.4 of the Final Great Pond TWMP/EIR. A BRP WP 83 Hydrogeological Review application will be submitted as part of the permitting process for the Preferred Alternative.

The 2013 DCWMP/DEIR/NPC discussed ocean outfalls as a possible option for a long term solution to wastewater disposal. The current NPC suggests that consideration of an outfall should be held in abeyance for the time being. Whereas land availability for wastewater recharge is becoming more of a Cape wide challenge, MassDEP believes that despite current restrictions, ocean outfall should be further discussed for feasibility in the Great Pond TWMP.

Response: As outlined in Table 9.6 the Town plans to continue to assess the feasibility of an ocean outfall as part of its planning process.

Opportunities for Regional Cooperation

It is MassDEP's opinion, supported by local studies, that economies of scale, both from a cost savings and a sustainability perspective, should drive the planning process to consider regional solutions. As mentioned previously, future planning for the Waquoit Bay watershed may well benefit from coordinating with the towns of Mashpee and Sandwich with respect to whatever infrastructure or other alternative approaches may be needed to meet TMDLs in the combined Waquoit Bay – West and Waquoit Bay – East Project. In addition, Falmouth has been actively engaged in discussions with Barnstable, Bourne, Mashpee and Sandwich regarding a cooperative effort for a regional facility at Joint Base Cape Cod (JBCC). While the Town has acknowledged that at the present time it is interested only in disposal capacity over the long term, it should remain engaged in these regional discussions to maintain all its options. Additionally, the Town should move expeditiously with Mashpee and Sandwich to finalize an Inter-municipal Agreement (IMA) for the Waquoit watershed.

Response: As outlined in Section 1.2.1 the Town of Falmouth is participating in regional wastewater and nitrogen management discussions.

TMDL Compliance. The Town has passed a “Nitrogen Control Bylaw for Fertilizer Management” for which it intends to take a 25 % credit for reduction in the fertilizer loads, as calculated through the Massachusetts Estuaries Project (MEP) Technical Report. MassDEP is willing to accept this as a placeholder, but its effectiveness will have to be borne out by continued monitoring of water quality in Little Pond and subsequent Projects.

Response: The Town will monitor the effectiveness of the fertilizer bylaw and public outreach program as part of its Adaptive Management Program.

The Town has calculated a 25 % reduction credit for stormwater best management practices (BMPs). As in the fertilizer calculations MassDEP is willing to accept this as a placeholder with further monitoring required to demonstrate effectiveness. It should be mentioned, however, leaching catch basins may not be an effective nitrogen reduction strategy. Nitrate nitrogen is a conservative element and unless attenuated, will travel predominantly unimpeded through a homogenous sand and gravel aquifer. Effective stormwater management for nitrogen reduction will likely require alternatives such as the bioretention approaches listed in the NPC.

Response: The Town will monitor the effectiveness of its stormwater management program as part of its Adaptive Management Program.

Shellfish aquaculture will continue to be monitored and evaluated for its effectiveness in providing improvements in water quality and nitrogen reduction. MassDEP is reviewing data regarding uptake in the flesh and shells of these organisms as a means of nitrogen reduction; however, the research on enhanced sediment denitrification associated with shellfish aquaculture is still too speculative at this point for this to be considered in a nitrogen management plan.

Response: In Section 5 of the Great Pond TWMP/EIR a Contingency Compliance Approach is outlined, which will be implemented if preferred alternative technologies do not perform as anticipated. Technology performance will be monitored through the Adaptive Management Program.

The Town is relying on I/A septic systems to make up the highest percentage of the remaining nitrogen reduction. MassDEP wants to make clear that there are currently no I/A systems approved for General Use that are able to perform at the level anticipated by the NPC, and until such time as any of these systems do achieve General Use approval, they are not considered as conventional technologies.

Response: In Section 5 of the Great Pond TWMP/EIR a Contingency Compliance Approach is outlined, which will be implemented if preferred alternative technologies do not perform as anticipated. Technology performance will be monitored through the Adaptive Management Program.

Finally, any future planning must address conventional contingency plans in the event that the alternatives proposed to augment the sewerage projects identified do not achieve the nitrogen reductions anticipated.

Response: In Section 5 of the Great Pond TWMP/EIR a Contingency Compliance Approach is outlined, which will be implemented if preferred alternative technologies do not perform as anticipated. Technology performance will be monitored through the Adaptive Management Program.

Little Pond

The Town has virtually completed the installation of new sewers in the Little Pond Sewer Service Area as proposed in the 2013 DCWMP/DEIR/NPC. Construction of this sewer extension is projected to significantly reduce the nitrogen load to Little Pond; however, as acknowledged in the 2013 DCWMP/DEIR/NPC, that the proposed sewerage alone would not be sufficient to meet the full nitrogen reduction targets. The NPC proposes continued monitoring of water quality in Little Pond to assess the effectiveness of sewerage on the watershed and to guide future actions. It must be noted that the range of estimated nitrogen reductions as listed in the NPC bracket the removal goal; therefore, monitoring is critical in assessing the effectiveness of the proposed approaches.

Recognizing that there is a certain lag between sewer connections and the time water quality improvements will be observed, MassDEP agrees with the monitoring approach proposed while the Town pursues infrastructure projects in watersheds. However, if after a reasonable time, there is no discernable improvement in water and/or habitat quality, further action will be required have to be implemented to meet restoration goals.

Response: The Town's water quality monitoring program for Little Pond is outlined in Section 3.8. Water quality will continue to be monitored through the Town's adaptive management program. This adaptive management approach will enable the CWMP to be adjusted as needed based on the monitoring results.

West Falmouth Harbor

The upgrade of BSR WWTF, located in the West Falmouth Harbor watershed, from a former Class III discharge at an average of 23 mg/L total nitrogen to the current configuration has greatly reduced the nitrogen load to West Falmouth Harbor. The current groundwater discharge permit requires the WWTF's best efforts to discharge no more than 4,109 lbs-N/yr. This is the amount determined by the Massachusetts Estuaries Project (MEP) modeling to achieve the threshold concentration at the Harbor's sentinel station. The upgraded facility has been operating since 2006, and while improvements to the Harbor have not been as rapid as anticipated, there is recent data to suggest that habitat conditions (*i.e.* eelgrass restoration) are beginning to improve. However, the WWTF at times still struggles to meet its discharge goals.

The NPC provides a schedule for adding a third sequencing batch reactor (SBR) to the facility in order to improve performance and allow for more reliable and consistent treatment. Addition of this SBR, along with other proposed upgrades, should be complete by 2022.

Response: The schedule for the Falmouth WWTF TASA Improvements Project, which includes the third SBR tank, is outlined in Section 4.3.1.

Additionally, the Town has installed some I/A septic systems as part of a demonstration project to provide some more immediate reductions in nitrogen load and, at the same time, test the efficiency and performance of these systems to determine the level of treatment of which they may be capable. As with other embayments, the Town is looking for modest nitrogen removal credits from the Town's Fertilizer By-Law and Stormwater BMPs.

Response: An update on the Town's I/A program is provided in Section 3.9.

Great Pond

253 parcels in the Great Pond watershed have been connected to sewer as part of the Little Pond Sewer Service Area (LPSSA). In addition, the Town has developed the TASSA proposing to serve 1,791 parcels of which 1,289 are located in the Great Pond watershed. The proposed TASSA represents 7,179 to 9,105 kg-N/yr of the total N load reduction (12,154 kg-N/yr) for the watershed. This represents between 59% and 75% of the target removal. Alternative approaches suggest N removal credits for the fertilizer by-law, shellfish aquaculture, a PRB and the potential attenuation of N from the Coonamesset River Restoration Project. Given that the proposed conventional option does not meet the target goal, future planning must include a contingency plan utilizing proven technology to make up the difference.

Response: In Section 5 of the Great Pond TWMP/EIR a Contingency Compliance Approach is outlined, which will be implemented if preferred alternative technologies do not perform as anticipated. Technology performance will be monitored through the Adaptive Management Program.

As with Little Pond, it must be noted that the range of estimated nitrogen reductions listed in the NPC bracket the removal goal; therefore, monitoring is critical in assessing the effectiveness of the proposed approaches.

Response: Monitoring will be conducted through the Town's Adaptive Management Program, as outlined in Section 5.4.

Furthermore, there appears to be a discrepancy between the target load reductions appearing on Page 6-10 and in Table 6.2. MassDEP understands that the N load reduction in the table is correct. The discrepancy should be rectified.

Response: Page 6-10 has been revised in the final NPC Report.

The NPC sets a schedule for TASSA construction to commence in 2025. The Town should explore the possibility of consolidating the schedule in order to accelerate construction prior to that date.

Response: The Great Pond TWMP Implementation Schedule is outlined in Table 5.7.

Green Pond

The TASSA anticipates serving 502 parcels in the Green Pond watershed for an estimated nitrogen load removal of 2,058 to 2,610 kg-N/yr. This represents between 46% and 59% of the target removal. The plan for this watershed proposes to augment nitrogen removal from sewerage with credit for the fertilizer by-law, stormwater BMPs, shellfish aquaculture and restoration of the Mill Pond system to improve nitrogen attenuation. Monitoring water quality in Green Pond, as in all Projects, will guide future activities and gauge their effectiveness. Overall, the sum of nitrogen removal from all activities bracket the target nitrogen removal goal. Given that the proposed conventional option does not meet the target goal, future planning must include a contingency plan utilizing proven technology to make up the difference.

Response: A contingency TMDL compliance approach will be included in the Green Pond TWMP.

Bournes Pond

The proposed plan for Bournes Pond does not include any infrastructure proposals. The proposed inlet widening represents approximately 50% of the required load reduction with shellfish aquaculture providing an additional 32% to 40% with the remainder being made up with a credit for the fertilizer by-law and stormwater BMPs. The anticipated sum total of these activities exceeds the removal target. However, a removal of between 676 and 840 kg-N/yr from sediment denitrification associated with shell fish aquaculture is part of that equation. As stated previously, MassDEP believes that much more research is required to verify the efficacy of this credit and that it is premature to factor this into nitrogen removal mechanisms. Without this anticipated credit, the N removal range now brackets the N reduction target. Again, monitoring will be key in demonstrating the effectiveness of these proposals, but a contingency plan utilizing proven technology to address shortfalls must be provided in any future planning.

The NPC notes that the inlet widening should be completed by December 2022.

Response: A contingency TMDL compliance approach will be included in the Bournes Pond TWMP.

Waquoit Bay

The Towns of Falmouth, Mashpee and Sandwich are currently engaged in discussions about appropriate load allocations in order to develop an Inter-municipal Agreement (IMA) to manage jointly nitrogen reductions required in this watershed. The NPC addresses four sub-projects: Eel Pond, Childs River, Hamblin Pond/Little River, and Quashnet/Moonakis River.

Plans for Hamblin Pond/Little River appear to meet the nitrogen targets through the activities proposed by Mashpee in their approved CWMP. However, the activities proposed for the Quashnet/Moonakis Rivers do not meet the nitrogen targets. Mashpee sewerage is augmented by fertilizer reduction and stormwater management (presumably from Falmouth), but no other provisions are documented or discussed to meet the target threshold, including any conventional contingency plans. For Childs River, proposed sewer extensions achieve approximately between 60% and 80% of the required load reduction, but once again, the range of estimated reductions bracket the target reduction goal with no contingency plan to address the potential deficiencies. Finally, the estimated nitrogen load reductions in Eel Pond exceed the removal goal and can be achieved entirely through the proposed sewerage program. Unfortunately, due to the structure of the overall watershed, it does not appear that the excess nitrogen removed in Eel Pond would be available to offset the shortfalls in the other subembayments.

Response: The Preferred Compliance Approach for Waquoit Bay will continue to be refined based on the findings of the Town's Adaptive Management Program and will be updated in the Waquoit Bay TWMP. A contingency TMDL compliance approach will be included in the Waquoit Bay TWMP.

Adaptive Management

The NPC largely relies on the concept of adaptive management to meet TMDL compliance. While there are many interpretations of what “adaptive management” actually means, MassDEP views it as a certain amount of flexibility to recognize alternative approaches that allow for mid-course corrections in the implementation of a recommended plan. As such, a plan that clearly leads to TMDL compliance must be presented in the document and as alternative technologies or approaches are shown to be effective, they may be appropriately incorporated into revisions of the original plan dependent on their relative nitrogen removal credits.

Response: TMDL Compliance Approaches are presented in Section 9.1. The TMDL Compliance Approaches will continue to be refined based on findings of the Town’s Adaptive Management Program.

Conclusion

The NPC is an ambitious step forward. MassDEP commends Falmouth’s effort to start to address the town’s nitrogen issues in a phased approach. MassDEP is encouraged by the town’s willingness to look at alternatives while at the same time reserving judgment on their effectiveness until they can be fully evaluated under field conditions.

Given the reliance on alternative approaches, the Town and MassDEP must determine if and when the Town should pursue watershed permits in the individual watersheds.

Response: The Town will follow regulatory guidance outlined in the watershed permit regulations, if promulgated.

However, MassDEP believes that the NPC lacks a defined schedule for the Project other than Great and Bournes Pond (and to some degree Green Pond). While it is understood that this is an adaptive management plan and that much depends on the results of the demonstration projects, there is no backup plan identified that will result in TMDL compliance for any of the identified Project except for the Waquoit watershed and the WFH watershed (dependent on future modeling). Additionally, there is no prioritization to suggest a sequence in which the Project should be addressed after Great Pond or cost (other than a projected \$40 million) for 2025 through 2040. MassDEP strongly believes that an alternative for TMDL compliance must be identified within an appropriate planning horizon or else much time and effort will have gone into planning and implementation without generating the desired result of habitat restoration in the impacted embayment systems.

Response: The next phases of TWMP Development are outlined in Table 9.6. A Contingency Compliance Approach will be included in each TWMP.

Recognizing that a central tenet of financing the plan is to retire old debt before assuming new debt without tax increases, the town’s anticipated capital outlays for all aspects of the town’s needs should be described as part of future submittals. It is noted that the Table 11.7 does mention betterment percentages and this discussion should be further developed to provide a sound financial plan. While not relieving the town from its responsibility to meet TMDLs, this exercise certainly has the benefit of putting the town’s fiscal challenges in proper perspective.

Response: Table ES.4 – Great Pond TWMP Implementation Schedule outlines the proposed schedule for establishing TASA betterment percentages.

Finally, MassDEP recognizes that the Town is prioritizing its south coast embayments, but it must not lose sight of the need to address other impaired embayments such as Falmouth Inner Harbor, Quisset Harbor, Rands Harbor/Canal, Wild Harbor and Megansett/Squeteague Harbors.

Response: Due to the large number of impaired estuaries in Falmouth, the Town has developed a phased approach for planning and implementation of mitigation strategies. The Town’s overall planning effort (beyond this project) will include the remaining impaired estuaries in Falmouth.

MassDEP recognizes that the NPC is clearly the result of hard work and thoughtful deliberation. Furthermore, MassDEP believes that the NPC can serve as the basis of a sound and innovative plan that with appropriate modifications can accommodate both the needs of the town and MassDEP. MassDEP looks forward to working

cooperatively with Falmouth, as both parties have in numerous past occasions, in order to achieve the goal of habitat restoration that we both ardently desire.

9.2 Bureau of Waste Site Cleanup Comments

NPC #14154 – 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 Comprehensive Wastewater Management Plan is long-term project (2009 – 2040) spanning a very large area (27,251 acres). There are many MCP sites located near and possibly within the proposed project area. Some of these sites have been closed, but other sites require ongoing response actions and reporting until final closure under the MCP. A list of all MCP sites will not be presented here. Interested parties may 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”. MCP reports and the compliance status of specific disposal sites may be viewed using the BWSC Waste Sites/Reportable Release Lookup at: <https://eeaaonline.eea.state.ma.us/portal#!/search/wastesite>

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

Response: Notification pursuant to 310 CMR 40.0000 will be made, if required as part of this project. Regulated areas identified as being within the project area during design will be investigated further by an LSP.

9.3 Bureau of Air and Waste (BAW) Comments

Air Quality. 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

Construction-Related Measures. MassDEP requests that all non-road diesel equipment rated 50 horsepower or greater meet EPA’s Tier 4 emission limits, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the Proponent should use construction equipment that has been retrofitted with appropriate emissions reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of equipment on file for Departmental review.

Response: Recommended construction-related measures will be implemented during project construction.

Massachusetts Idling Regulation. MassDEP reminds the Proponent that unnecessary idling (i.e., in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project (310 CMR 7.11). With regard to construction period activity, typical methods of reducing idling include driver training, periodic inspections by site supervisors, and posting signage. In addition, to ensure compliance with this regulation once the Project is occupied, MassDEP requests that the Proponent install permanent signs limiting idling to five minutes or less on-site.

Response: The project will meet Massachusetts Idling Regulation requirements.

9.4 Proposed s.61 Findings

The “Certificate of the Secretary of Energy and Environmental Affairs on the Notice of Project Change” 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.

Response: MEPA Draft Section 61 Findings and mitigation measures are outlined in Section 7.

9.5 Other Comments/Guidance

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this NPC. If you have any questions regarding these comments, please contact George Zoto at (508) 946-2820.



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February 7, 2020

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
 ON THE
 THIRD NOTICE OF PROJECT CHANGE/COMPREHENSIVE WASTEWATER MANAGEMENT
 PLAN UPDATE

PROJECT NAME : Comprehensive Wastewater Management Plan and Targeted
 Watershed Management Plan – South Coast Embayments and
 West Falmouth Harbor
 PROJECT MUNICIPALITY : Falmouth
 PROJECT WATERSHED : Cape Cod
 EEA NUMBER : 14154
 PROJECT PROPONENT : Town of Falmouth
 DATE NOTICED IN MONITOR : December 23, 2019

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G. L. c. 30, ss. 61-62I) and Section 11.10 of the MEPA regulations (310 CMR 11.00), I hereby determine that this project change **does not require** the submission of a supplemental Environmental Impact Report (EIR). However, as discussed below, the Town is directed to submit Notices of Project Change (NPC) in 2022 that document the draft and final Targeted Watershed Management Plans (TWMP) for Great Pond and provide additional updates about the Comprehensive Wastewater Management Plan (CWMP).

Original Project and Procedural History

The Town of Falmouth (Town) developed a CWMP in 2014 in anticipation of the adoption of Total Maximum Daily Loads (TMDL) by the Massachusetts Department of Environmental Protection (MassDEP) and the United States Environmental Protection Agency (EPA) pursuant to the federal Clean Water Act. Poor water quality, including high nitrogen loads, were documented by the Massachusetts Estuaries Project (MEP) for the following estuaries: Little Pond, Great Pond, Green Pond, Bournes

Pond, Waquoit Bay and West Falmouth Harbor. Based on water quality data and modelling, the MEP developed nitrogen thresholds to restore these waterbodies and potential nitrogen reduction scenarios that allow these estuaries to meet their respective nitrogen thresholds. The MEP nitrogen thresholds were subsequently adopted as TMDLs for nitrogen for these waterbodies.

The CWMP proposed sewer extensions to portions of the Little Pond Watershed; improvements to the Blacksmith Shop Road Wastewater Treatment Facility (WWTF); new treated wastewater recharge beds north of the WWTF, and implementation of the Nitrogen Control Bylaw for Fertilizer. The CWMP also identified non-traditional wastewater and nutrient removal techniques, including shellfish aquaculture, inlet widening, permeable reactive barriers (PRB), stormwater management, composting Eco-Toilets¹, and Innovative/Alternative (I/A) denitrifying septic systems. The CWMP identified pilot projects that would be implemented by the Town, including Bourne's Pond Inlet Widening, installation of an aquaculture system in Little Pond, and the installation of a permeable reactive barrier (PRB) in the West Falmouth Harbor watershed. The CWMP also proposed the development and implementation of an adaptive management plan to document the steps that will be taken to implement the CWMP, including any changes that are necessary to meet TMDLs. Components of the CWMP may have environmental impacts unrelated to wastewater, such as wetlands or rare species habitat, that require documentation and mitigation. MEPA review of the CWMP concluded with the issuance of a Certificate on the Final Environmental Impact Report (FEIR) on January 10, 2014.

The FEIR Certificate identified supplemental filings required of the Town as it continued to design and implement the CWMP. For any pilot project that exceeds MEPA review thresholds, the Town must file an NPC that addresses the pilot project's potential contribution towards attaining water quality standards within the watershed, identifies potential environmental impacts and mitigation measures and reviews alternative designs. In 2016, the Town submitted the first NPC for the Bourne's Pond Inlet Widening Pilot Project, which consisted of widening the inlet to the pond to increase tidal flushing and improve water quality and aquatic habitat. On March 11, 2016, a Certificate on the first NPC was issued indicating that the project change did not require the submission of a supplemental EIR. A second NPC was filed in 2019 to evaluate the effectiveness of engaging private aquaculture growers to propagate oysters at three locations within the Eel River as a method of achieving TMDL compliance. On September 20, 2019, a Certificate on the second NPC was issued indicating that the project change did not require the submission of a supplemental EIR.

The FEIR Certificate also required the Town submit an NPC to provide an overall update on the status of implementation measures set forth in the CWMP, including:

- Implementation and evolution of the CWMP;
- Development of Targeted Watershed Management Plans (TWMPs);
- An update on the Town's progress on achieving TMDL goals;
- Identification of environmental impacts and mitigation measures;
- The results of water quality monitoring;
- A schedule for project implementation and attainment of water quality goals;
- A discussion of regional wastewater management options; and,
- A list of mitigation commitments and draft Section 61 Findings.

¹ According to the NPC, eco-toilets are either composting or urine-diverting fixtures or combinations thereof.

This third NPC which is reviewed in this Certificate was filed to satisfy the requirement in the FEIR Certificate that an update be filed by December 31, 2019.

Third Notice of Project Change

The third NPC provided a summary of activities completed since 2014, reviewed components of the CWMP to be implemented through 2040 and provided updates on the TWMPs for Little Pond and West Falmouth Harbor. It summarized data collected through water quality monitoring and reviewed the status and effectiveness of pilot projects, including shellfish aquaculture, permeable reactive barriers (PRBs), eco-toilets, I/A septic systems, adoption of a Nitrogen Control Bylaw for fertilizer, stormwater management and the Bourne Pond inlet widening project. The third NPC provided updates on the TWMPs for Little Pond and West Falmouth Harbor, and reviewed planning strategies for meeting TMDLs in the Great Pond, Green Pond, Bourne Pond and Waquoit Bay watersheds. It outlined a plan for developing a TWMP for Great Pond, provided a general schedule for implementation of the CWMP and included revised draft Section 61 Findings.

Permitting and Jurisdiction

The CWMP is subject to a mandatory EIR pursuant to 301 CMR 11.03(5)(a)(3) because it will result in construction of one or more new sewer mains ten or more miles in length. The project is subject to ENF thresholds under 301 CMR 11.03(1)(b)(1) because it will alter more than 25 acres of land; 301 CMR 11.03(1)(b)(3) because it may convert land held for natural resource purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to a purpose not in accordance with Article 97; 301 CMR 11.03(2)(b)(2) because it may disturb greater than two acres of designated priority habitat that results in a take of a state-listed endangered or threatened species; 301 CMR 11.03(3)(b)(1)(a) because it will alter a coastal dune and barrier beach; 301 CMR 11.03(3)(b)(1)(d) because it may alter 5,000 or more square feet (sf) of Bordering Vegetated Wetlands (BVW); 301 CMR 11.03(3)(b)(1)(e) because it includes new fill or structure or Expansion of existing fill or structure in a velocity zone; 301 CMR 11.03(b)(1)(f) because it may alter more than half an acre of other wetlands; 301 CMR 11.03(b)(10)(b)(2) because it may result in destruction of an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth; and 301 CMR 11.03(11)(b) because the project is located within a designated Area of Critical Environmental Concern (ACEC).

Components of the CWMP may require one or more permits from MassDEP, including Groundwater Discharge and Sewer Extension/Connection Permits, 401 Water Quality Certifications (WQC), Chapter 91 (c. 91) Licenses, and Watershed Permit pursuant to Chapter 259 of the Acts of 2014. The CWMP may require a Conservation and Management Permit from the NHESP. The project is subject to the EEA Article 97 Land Disposition Policy and the MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol (GHG Policy).

Projects identified in the CWMP will require one or more Orders of Conditions (OOC) from the Falmouth Conservation Commission (and, on appeal only, Superseding Orders of Conditions from MassDEP). The CWMP is subject to review by the Cape Cod Commission (CCC) to determine its consistency with the Section 208 Area-wide Water Quality Management Plan. The project will also

require a National Pollutant Discharge Elimination System (NPDES) Construction Activities Permit from the U.S. Environmental Protection Agency (EPA) and authorizations from the U.S. Army Corps of Engineers (ACOE) under the General Permits for Massachusetts.

The Town will receive Financial Assistance from the Commonwealth through the State Revolving Fund (SRF). Therefore, MEPA jurisdiction is broad and extends to all aspects of the project with the potential to cause Damage to the Environment as defined in the MEPA regulations.

Review of the Third NPC

The third NPC provided a comprehensive analysis of the Town's efforts to address water quality in the south coast embayments and West Falmouth Harbor. It reviewed water quality data, compared nitrogen levels to target concentrations established to meet TMDLs and identified traditional and non-traditional methods for removing nitrogen and attributed a removal rate to each one. The NPC provided supporting technical reports and data, including surface water and groundwater monitoring data, assessments of nitrogen loads, descriptions and results of pilot projects and evaluations of wastewater infrastructure designs.

The use of adaptive management underlies the Town's approach to the executing the CWMP. The results of ongoing monitoring of water quality, groundwater elevations and the effectiveness of nitrogen removal methods as they are implemented will be used to guide decisions on subsequent steps for achieving TMDLs.

Water Quality Monitoring/Data

The NPC reviewed water quality data for Little Pond, Great Pond, Green Pond and Bourne Pond collected by the Falmouth Pond Watch Monitoring Program from 2004 to 2017. Samples were collected from at least four stations in each pond during July and August. The average Total Nitrogen concentration was compared to the target threshold nitrogen concentration established by the MEP report for each water body. According to the NPC, nitrogen levels in each pond exceed the target thresholds, but there are no clear trends in nitrogen concentrations across the sampling stations in each pond.

The Waquoit Bay estuary is located within Falmouth, Mashpee and Sandwich. The NPC summarized water quality data collected by the University of Massachusetts-Dartmouth School for Marine Science and Technology (SMAST) from 2001 to 2017. The MEP report for Waquoit Bay established target threshold nitrogen concentrations for the entire watershed and sub-embayments, including Waquoit Bay- Main Basin, Eel Pond, Childs River, Quashnet River and a portion of Hamblin Pond, all of which are located in Falmouth. Similar to the results for the other water bodies addressed in the CWMP, nitrogen levels exceed the target thresholds and none of the sub-embayments showed any significant trends in nitrogen concentrations over the sampling period.

Pilot Projects

The NPC reviewed seven non-traditional technologies/strategies that have been investigated for use in reducing nitrogen levels in groundwater, including shellfish aquaculture, permeable reactive

barriers (PRBs), eco-toilets, I/A septic systems, adoption of a Nitrogen Control Bylaw for fertilizer, stormwater management and the Bournes Pond inlet widening project.

Aquaculture

The Town has conducted oyster culture pilot projects in Little Pond West Falmouth Harbor, Waquoit Bay and Bournes Pond. As described in the second NPC, the Town is currently soliciting proposals from commercial growers for three sites in Eel Pond. According to the third NPC, large numbers of oysters have been grown successfully in the estuaries and have produced improvements in water quality, including localized reductions of nitrogen. The Little Pond pilot project has been on-going since 2012. A three-year monitoring effort (2013-2015) by SMAST showed some evidence of a localized reduction in nitrogen but there has been no significant reduction in nitrogen concentrations compared to the MEP target thresholds. The third NPC noted evidence of nitrogen removal by oysters in Waquoit Bay and Bournes Pond, but no significant water quality benefits were observed in the sampling results.

I/A Septic Systems and Eco-Toilets

The Town conducted studies of the effectiveness and feasibility of I/A septic systems and eco-toilets. The eco-toilet test program had limited participation by residents despite a number of financial incentives offered to homeowners due to concerns about on-going maintenance needs of these system. Nitrogen removal rates ranged from 48 percent to 86 percent, but these positive results are offset by significant installation and maintenance costs. A number of I/A technologies were evaluated in a two-phased pilot program in West Falmouth Harbor. Most of these systems achieved nitrogen removal rates of at least 68 percent, but site-specific constraints significantly affect installation costs.

Permeable Reactive Barriers (PRB)

According to the NPC, PRBs have been successfully used to remediate groundwater contaminated by hazardous waste but have not been widely used to remove nitrogen. The Town conducted detailed evaluations of soil characteristics and groundwater hydrology at two sites in the Great Pond watershed and a site in the Bournes Pond watershed. One Great Pond site and the Bournes Pond site were identified as good candidates for the use of PRB systems because they are characterized by moderate to high nitrate concentrations, shallow depths to nitrate-contaminated groundwater, soil comprised of well-graded sand and groundwater velocities and chemistry well-suited to this technology. The Town and the Woods Hole Oceanographic Institute (WHOI) have jointly applied for a grant to fund installation of a PRB at the Great Pond site.

Nitrogen Control Bylaw for Fertilizer

The Town adopted a Nitrogen Control Bylaw for Fertilizer at the Fall Town Meeting in 2012. According to the third NPC, fertilizer accounts for five to 10 percent of nitrogen entering the watersheds. With exceptions for golf courses, agriculture and horticulture, the Bylaw-prohibits application of fertilizer from October 16th to April 14th, within 100 feet of a wetland, on impervious surfaces and during heavy rain events. The Bylaw specifies the type of fertilizer and its application rate on golf courses. The Town has sought to increase compliance with the Bylaw through annual mailings

to its residents and through a standard condition in Order of Conditions issued by the Falmouth Conservation Commission.

Stormwater Management

According to the third NPC, stormwater runoff contributes five to 10 percent of nitrogen entering the watersheds and implementation of stormwater Best Management Practices (BMP) can remove 25 percent of the nitrogen from this source. The Town has identified locations in the Green Pond, Falmouth Inner Harbor, Waquoit Bay and Great Pond watersheds where BMPs could be constructed to treat runoff, and is seeking funding from the EPA to evaluate additional BMP technologies before proceeding with any of these pilot projects. The Town anticipates installing BMPs where feasible in connection with roadway projects.

Bournes Pond Inlet Widening

As noted earlier, the Town filed the first NPC in 2016 proposing to widen the Bournes Pond inlet to increase tidal flushing. It is estimated that this measure will remove 50 percent of the target nitrogen load and improve shellfish and eelgrass habitat. The Town expects this project to be completed in 2022.

Targeted Watershed Management Plan Updates

Little Pond

The Town has nearly completed construction of a wastewater collection system in the Little Pond Sewer Service Area (LPSSA). This project will provide connections to the sanitary sewer system to 1,350 parcels, of which 1,010 are in the Little Pond watershed, 253 parcels are in the Great Pond watershed and 87 are in areas that recharge directly to Vineyard Sound. This project alone is expected to achieve at least 70 percent of the nitrogen load reduction necessary to meet the TMDL goal. According to the third NPC, water quality in Little Pond is expected to improve gradually as nitrogen plumes from disconnected septic systems flow through groundwater and are dissipated in Little Pond. The Town will monitor water quality to assess the effectiveness of the sewerage project and to guide future implementation of additional measures to remove nitrogen from the watershed. In addition to nitrogen reductions expected through the Nitrogen Control Bylaw and stormwater management, the third NPC identified the potential use of I/A systems and aquaculture to reduce nitrogen levels to meet the target concentration.

West Falmouth Harbor

The Town's WWTF is located within this watershed. It was upgraded in 2005 to provide tertiary treatment with denitrification filters to provide enhanced nitrogen removal. Additional nitrogen removal capacity was added to the WWTF in connection with the LPSSA sewerage project. Treated effluent is discharged to 13 recharge beds in the West Falmouth Harbor watershed and to two recharge beds in the Herring River watershed constructed to accommodate added flows from the LPSSA project. The WWTF's groundwater discharge permit specifies an annual nitrogen discharge limit of 4,109 pounds, which corresponds to the amount determined by the MEP to achieve the target threshold concentration. According to the third NPC and public comments, the WWTF has not consistently met discharge

requirements. In order to treat and dispose of increased wastewater from the LPSSA and future sewerage projects, a third Sequencing Batch reactor (SBR) will be added to the WWTF and the additional effluent disposal capacity must be provided. Additional information on the Town's selected plan for modifying this facility will be provided in the draft TWMP.

TMDL Compliance Plans for other Watersheds

The third NPC reviewed the current status of planning in the other watersheds where a TWMP has not yet been finalized.

Great Pond

The Great Pond watershed is the next one for which the Town will prepare a TWMP. As noted earlier, 253 parcels in this watershed have been sewerage as part of the LPSSA project. The Town has begun the conceptual design of the Teaticket Acapesket Sewer Service Area (TASSA) wastewater collection system that will provide sewer service to 1,791 parcels, including 1,289 parcels in the Great Pond watershed. The combined effect of sewerage portions of the watershed by the LPSSA and TASSA projects is expected to result in the removal of up to approximately 75 percent of the nitrogen loading necessary to meet the TMDL. The Town will also monitor potentially significant nitrogen attenuation associated with the Coonamessett River Restoration project, which will restore abandoned cranberry bogs to a natural wetland system. In addition to the Nitrogen Control Bylaw and stormwater management, the Town may use aquaculture and a PRB to gain further reductions in nitrogen.

As noted above, the TASSA project will require the expansion of the WWTF with a third Sequencing Batch Reactor (SBR) and the addition of disposal capacity through open sand beds, subsurface effluent disposal or an ocean outfall. The Scope for the Great Pond TWMP detailed below requires the Town to prepare a comprehensive analysis of alternative treatment and disposal options, including an evaluation of water quality benefits and environmental impacts of each alternative.

Green Pond

The TASSA project will connect 502 parcels in the Green Pond watershed to the Town's wastewater system, which is expected to remove approximately half of the nitrogen necessary to meet the TMDL. Additional measures that may be implemented to achieve the TMDL include continued implementation of the Nitrogen Control Bylaw, stormwater management in the Captain's Lane area and aquaculture. The third NPC also reviewed water quality issues in Mill Pond, which is directly downstream of actively-farmed cranberry bogs and flows into Green Pond. Management of fertilizer use and water flow in the cranberry bogs, construction of a detention pond and grate between the cranberry bogs and Mill Pond and harvesting of macrophytes in Mill Pond are additional measures that could reduce nitrogen levels in Green Pond.

Bournes Pond

As noted earlier, the Town will widen the Bournes Pond inlet from 50 feet to 90 feet to increase tidal flushing and remove approximately 50 percent of the nitrogen load in the watershed. Shellfish aquaculture in the pond is expected to achieve most of the remaining reduction in nitrogen levels needed

to achieve the TMDL; stormwater management and implementation of the Town's Nitrogen Control Bylaw are also expected to contribute to nitrogen removal.

Waquoit Bay

The Waquoit Bay watershed includes parts of Falmouth, Mashpee and Sandwich. As noted in the third NPC, there are regional opportunities for addressing nitrogen loads in the watershed, including the potential use of the wastewater treatment facility at the Joint Base Cape Cod (JBCC) by Falmouth, Barnstable, Bourne Mashpee and Sandwich. The Waquoit Bay watershed is comprised of six subwatersheds, of which five are located in Falmouth: Eel Pond, Childs River, Hamblin Pond/Little River, Quashnet/Moonakis River and Waquoit Bay. The Town is considering sewerage parts of the Eel Pond and Childs River watersheds, which would connect 1,315 parcels to the Town's WWTF. The NPC did not address any necessary expansion of the treatment or disposal facilities. In addition, the Town of Mashpee is planning to sewer areas within the Childs River, Quashnet River and Hamblin Pond/Little River watersheds. Sewerage areas within the Waquoit Bay watershed will achieve well over 50 percent of the nitrogen reduction necessary to achieve the TMDL. Continued implementation of the Nitrogen Control Bylaw, stormwater management and aquaculture installations may be used for further reductions in nitrogen to meet the TMDL.

Conclusion

Comments from State agencies and environmental groups are generally supportive of the Town's effort in preparing the CWMP, including its evaluation of a broad range of nitrogen removal measures. Several significant issues of concern were highlighted by commenters, including MassDEP and CZM, and should be comprehensively addressed in future MEPA filings as described below. These issues include the lack of a commitment to a firm schedule for implementing nitrogen reduction measures and completing TWMPs for other watersheds in Falmouth; the attribution of high nitrogen removal rates to non-traditional methods, particularly aquaculture, and the Town's reliance on these methods for achieving TMDLs; the potentially long delay between monitoring the results of pilot projects and using the adaptive management approach to determine any supplemental actions necessary to achieve TMDLs; and the need for the Town to identify conventional backup measures if targets are not reached. According to the third NPC, the Town intends to file NPCs describing draft and final TWMPs for the Great Pond watershed in 2022. In addition to providing a detailed description of the TWMP, the NPC should provide additional information and analysis on the development and implementation of other parts of the CWMP.

SCOPE

General

The NPC for the draft TWMP for Great Pond (hereafter referred to as the draft TWMP) should be filed early in 2022 to accommodate the Town's schedule for the final TWMP to be reviewed by the end of 2022. It should follow the outline for the TWMP included in the third NPC, as supplemented by this Scope. The draft TWMP should clearly identify a Preferred Alternative and demonstrate that it

includes all feasible measures to avoid Damage to the Environment, or, to the extent it cannot be avoided, to minimize and mitigate Damage to the Environment to the maximum extent practicable.

The third NPC did not include a schedule for implementing the TWMPs or completing the planning needed for adoption of TWMPs in other watersheds beyond Great Pond. To better evaluate the impacts of implementation of the CWMP and potential alternatives and mitigation measures to avoid and minimize impacts, the draft TWMP should include a schedule for other watersheds included in the CWMP. I refer the Town to comments from MassDEP requesting additional information about the implementation of the CWMP.

Project Description and Permitting

The draft TWMP should provide background information on the development of the CWMP and the TWMP. It should provide a detailed description of the Preferred Alternative for the Great Pond TWMP, identify environmental impacts, including rare species habitat, wetlands, water quality, historic and cultural resources, land protected under Article 97 and ACECs. The draft TWMP should identify measures to mitigate impacts, including construction-period measures. It should review the growth projections used to plan for the nitrogen removal requirements of the sewerage and non-traditional measures identified in the draft TWMP and the potential secondary impacts associated with development and growth that may be facilitated by implementation of the CWMP.

The draft TWMP should clarify the proposed design and treatment capacity of the WWTF to accommodate the TASSA project wastewater flows and describe, at a conceptual level, how flows from future sewerage projects could be accommodated at the facility. I note that MassDEP is evaluating the implications of per- and polyfluoralkyl substances (PFAS) in wastewater, including potential effects of elevated PFAS concentrations in effluent on downstream water supplies and in wastewater residuals. The draft TWMP should review any guidance or regulatory requirements produced by MassDEP or EPA related to PFAS and other contaminants of emerging concern (CEC) that could affect the design of the WWTF or other components of the CWMP. The draft TWMP should provide the results of any sampling or monitoring of these contaminants.

The draft TWMP should identify all required state, local and federal permits or other approvals, provide a brief description and analysis of applicable statutory and regulatory standards and requirements, and describe how the project will meet those standards. It should provide updated information on the effectiveness of nitrogen removal measures identified in TMDL compliance plans. In 2018, MassDEP issued the Pleasant Bay Watershed Permit to the towns of Brewster, Chatham, Harwich and Orleans. This was the first Watershed Permit issued pursuant to Chapter 259 of the Acts of 2014. Based on consultation with MassDEP, the draft TWMP should review the scope and general requirements of a watershed permit and how it may be applicable to the CWMP as a whole or specific watersheds within the CWMP, including Great Pond. According to NHESP, the WWTF, potential effluent discharge sites identified in the third NPC and the JBCC are located within Priority Habitat of rare species. The Town should consult with NHESP prior to filing the draft TWMP regarding potential project components to be constructed in rare species habitat.

Alternatives Analysis

The draft TWMP should include an analysis of alternatives for all major components of the Preferred Alternative. Implementation of the TASSA project will require modifications to the WWTF. The draft TWMP should include a summary of the alternatives reviewed for the collection system and modifications to the WWTF provided in Appendix 5 of the third NPC, including any more recent alternatives the Town has considered.

The draft TWMP should provide comprehensive and detailed analysis of alternative discharge technologies and locations from the WWTF that builds upon the evaluation included in the third NPC. At a minimum, it should describe and evaluate open sand beds, subsurface effluent disposal and ocean outfall alternatives for effluent discharge. For effluent recharge alternatives, the analysis should review potential impacts to downgradient receptors, including Herring Brook, and any nitrogen offsets that may be necessary. At a minimum, the draft TWMP should further evaluate the Nobska Point and Buzzards Bay ocean discharge options identified in the third NPC. The Town should consult with MassDEP and CZM regarding what information should be provided for the outfall alternatives with respect to the Ocean Sanctuaries Act. I refer the Town to comments from MassDEP, CZM, Buzzards Bay Coalition and Falmouth Water Stewards, which may inform the Town's analysis.

Water Quality Monitoring and Adaptive Management

The draft TWMP should review water quality data collected in connection with the aquaculture and other pilot projects and WWTF discharge to provide an updated estimate of the expected nitrogen removal effectiveness of proposed measures as a means of achieving the Great Pond TMDL and water quality goals in other watersheds. If necessary, the draft TWMP should identify any changes to the TMDL compliance plan identified in the third NPC based on data collected on the effectiveness of proposed measures. This analysis should specifically respond to the concerns expressed by MassDEP and CZM that the nitrogen removal effectiveness of shellfish aquaculture may be lower than anticipated in the third NPC and should support the proposed nitrogen removal credits for measures identified in the draft TWMP.

As noted by MassDEP, while the adaptive management approach adopted by the Town facilitates informed decision-making for future actions, it relies to a large extent on water quality monitoring that may take several years to collect and analyze. Furthermore, the TWMP and other TMDL compliance plans identify nitrogen removal measures that may not achieve future target concentrations and do not provide a backup plan for that event. By the time the draft TWMP is filed, the Town will have collected additional data on aquaculture and potentially other pilot projects. This data should be used to support the nitrogen removal estimates included in the draft TWMP for Great Pond and other TWMPs and TMDL compliance plans. The TWMP should identify proven technologies as contingency measures in the event that monitoring demonstrates that the proposed non-traditional nitrogen removal methods do not perform as expected.

Regional Planning

The draft TWMP should provide updates on opportunities for wastewater planning on a regional scale identified in the third NPC, including its coordination with Sandwich and Mashpee to establish nutrient loadings and responsibilities for the Waquoit Bay watershed and discussions related to the potential use of the JBCC wastewater facility. I encourage Falmouth, Sandwich and Mashpee to enter

into an Inter-Municipal Agreement (IMA) to formalize their working relationship. The draft TWMP should identify any potential contingency measures for nitrogen removal that may developed through these regional planning efforts.

Climate Change

Governor Baker's Executive Order 569: Establishing an Integrated Climate Change Strategy for the Commonwealth (EO 569; the Order) was issued on September 16, 2016. The Order recognizes the serious threat presented by climate change and directs agencies within the administration to develop and implement an integrated strategy that leverages state resources to combat climate change and prepare for its impacts. The Order seeks to ensure that Massachusetts will meet greenhouse gas (GHG) emissions reduction limits established under the Global Warming Solution Act of 2008 (GWSA) and will work to prepare state government and cities and towns for the impacts of climate change. Review of these issues through the GHG Policy and requirements to analyze the effects of climate change through EIR review is an important part of this statewide strategy. These analyses inform State Agencies and proponents' understanding of a project's GHG emissions and a project's vulnerability to the effects of climate change.

Adaptation and Resiliency

The Town is a participant in the Commonwealth's Municipal Vulnerability Preparedness (MVP) program. The MVP program is a community-driven process to define natural and climate-related hazards, identify existing and future vulnerabilities and strengths of infrastructure, environmental resources and vulnerable populations, and develop, prioritize and implement specific actions the Town can take to reduce risk and build resilience.

I encourage the Town to consult the data available on the resilientMA.org website to develop climate change scenarios for the project and identify potential adaptation measures. EEA's *Climate Change Adaptation Report*² (September 2011) and the Town's *Climate Change Vulnerability Assessment*³ (dated December, 2019) provide additional resources to assist in this analysis. The draft TWMP should review the capacity of the wastewater collection and treatment systems under projected levels of precipitation and sea level conditions and the resiliency of the system to the effects of climate change. It should identify any components, such as pump stations, located within coastal or inland flood zones and consider alternative locations for the infrastructure or identify design measures to improve the resiliency of the project.

Greenhouse Gas Emissions

The FEIR Certificate required the Town to consult with MassDEP during final design of proposed improvements and upgrades for the WWTF and consider implementation of additional GHG reduction measures. This project is subject to review under the May 5, 2010 MEPA GHG Policy. The Policy requires Proponents to quantify carbon dioxide (CO₂) emissions and identify measures to avoid, minimize or mitigate such emissions. The analysis should quantify the direct and indirect CO₂ emissions of the project's energy use. Direct emissions include on-site stationary sources, which typically emit

² Available online at <http://www.mass.gov/eea/docs/eea/energy/cca/eea-climate-adaptation-report.pdf>

³ Available online at http://www.falmouthmass.us/DocumentCenter/View/7018/FalmouthVA_Final_Report_Draft

GHGs by burning fossil fuel for heat, hot water, steam and other processes. Indirect emissions result from the consumption of energy, such as electricity, that is generated off-site by burning of fossil fuels, and from emissions from vehicles used by employees, vendors, customers and others. The Policy directs proponents to use applicable building codes to establish a project emissions baseline that is “code-compliant.” However, there is no building energy code equivalent that applies specifically to WWTFs or energy use models (such as eQUEST) designed to estimate the projected energy use of the WWTF processing energy loads.

The draft TWMP should include an evaluation of GHG emissions associated with modification to the WWTF and any other facilities, such as pump stations, that may emit GHG. It should establish a Base Case and an as-proposed Preferred Alternative Case along with providing the other information required by the Policy. Both the projected energy consumption and related GHG emission should be quantified for both cases. Design assumptions for the base case should be based on a typical WWTF and pump station design that meets the requirements of TR-16, *Guides for the Design of Wastewater Treatment Works*, 2016 Edition, which is commonly used as a guide for wastewater facility design in Massachusetts. The as-proposed Preferred Alternative design should include features and measures that would result in a significant reduction from the Base Case in both the consumption of grid electricity and the related GHG emissions. Measures that should be evaluated include: increasing piping sizes to reduce friction loss; use of premium efficiency pumps and motors; and use of variable frequency pump drives (VFD).

The Town should consult MassDEP’s “Energy Efficiency and Renewable Energy Opportunities at Water and Wastewater Facilities” webpage⁴, the Water Environment Research Foundation’s *Utilities of the Future Energy Findings*⁵ report published in 2014, the EPA’s *Evaluation of Energy Conservation Measures for Wastewater Facilities*⁶ (2010), the *Water and Wastewater Energy Management Best Practices Handbook*⁷ (2010) prepared by the New York State Energy Research and Development Authority, and other resources to identify energy efficiency practices at WWTFs. For key components and systems of the WWTF, the draft TWMP should review energy-efficient alternatives identified in the reports cited above and indicate whether the Town will adopt the measure or not, and provide a rationale for the decision. The draft TWMP should review opportunities for on-site energy generation, including biogas and solar photovoltaic (PV) systems. The Town should consult with MEPA staff before completing this analysis.

Mitigation and Draft Section 61 Findings

The draft TWMP should include a separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each permit or other approval to be issued by State Agencies. The draft TWMP should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for

⁴ <http://www.mass.gov/eea/agencies/massdep/climate-energy/energy/water-utilities/energy-efficiency-at-water-and-wastewater-facilities.html>

⁵ Available online at <https://www.werf.org/a/ka/Search/ResearchProfile.aspx?ReportId=ENER6C13>

⁶ Available online at <https://nepis.epa.gov/Exec/ZyPDF.cgi/P1008SBM.PDF?Dockey=P1008SBM.PDF>

⁷ Available online at <https://www.nyserda.ny.gov/-/media/Files/Programs/Clean-Energy-Communities/NYSERDA-Water-Wastewater-Energy-Management-Best-Practices-Handbook.pdf>

implementation, and a schedule for implementation. It should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing.

Responses to Comments

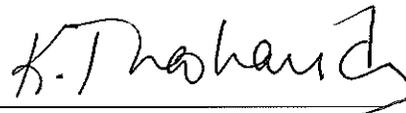
The draft TWMP should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the draft TWMP should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is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

Circulation

The Town should circulate the draft TWMP to those parties who commented on the third NPC, 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. Per 301 CMR 11.16(5), the Town may circulate copies of the draft TWMP to commenters in CD-ROM format or by directing commenters to a project website address. However, the Town must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. The Town should send correspondence accompanying the CD-ROM or website address indicating that hard copies are available upon request, noting relevant comment deadlines, and appropriate addresses for submission of comments. The draft TWMP submitted to the MEPA office should include a digital copy of the complete document. A copy of the draft TWMP should be made available for review at the Falmouth Public Library.

February 7, 2020

Date



Kathleen A. Theoharides

Comments received:

01/03/2020	David Dow
01/10/2020	David Dow
01/13/2020	Natural Heritage and Endangered Species Program (NHESP)
01/15/2020	Falmouth Water Stewards
01/27/2020	Buzzards Bay Coalition
01/28/2020	Cape Cod Commission
01/28/2020	Massachusetts Office of Coastal Zone Management (CZM)
01/28/2020	Massachusetts Department of Environmental Protection (MassDEP) – Southeast Regional Office

KAT/AJS/ajs

From: [David Dow](#)
To: [Strycky, Alexander \(EEA\)](#)
Cc: [David Dow](#)
Subject: Relationship between MEPA EEA 14154 & US EPA Science Advisory Board WOTUS Review
Date: Friday, January 10, 2020 10:38:05 PM

From: David Dow <ddow420@comcast.net>
Subject: Comments for EPA Chartered Scientific Advisory Board on WOTUS
Date: January 8, 2020 at 11:11:42 AM EST
To: armitage.thomas@epa.gov
Cc: David Dow <ddow420@comcast.net>

I am a retired marine scientist and grassroots environmental activist living on Cape Cod, Ma.
I have been involved in the EPA/US Army Corps of Engineers WOTUS (Water of the US) dialog since 2017, when I participated in an online public hearing. I live in the Waquoit Bay Watershed on Cape Cod which has eutrophication problems in Ashumet Pond from “P” enrichment from the former wastewater treatment plant at Joint Base Cape Cod (JBCC) and “N” enrichment from septic systems which has caused loss of habitat for marine biota and water quality problems in Waquoit Bay. When I worked at the Northeast Fisheries Science Center in Woods Hole, I participated in the EPA-lead Waquoit Bay Watershed Ecological Risk Assessment project which identified nutrients as the major human stressor in the watershed. This project explored the relationship between bay scallops; loss of eelgrass beds and “N” enrichment from the watershed.

The Cape Cod Commission; Massa. Department of Environmental Protection and EPA Region 1 have been overseeing the Comprehensive Wastewater Management Plans/Targeted Watershed Management Plans (CWMP/TWMP) program to reduce “N” loading from septic systems to our > 50 coastal embayments suffering from eutrophication. The Conservation Law Foundation consent decree was folded into the CWMP/TWMP process.

There are 14 “N” sensitive embayments in the Town of Falmouth (which includes Waquoit Bay which is occupied by the towns of Falmouth; Mashpee and Sandwich). I recently submitted comments to Ma. DEP on the Falmouth Notice of Project Change for the South Coast Embayments and West Falmouth Harbor for Phase 1 of the

CWP/TWMP. (see Letter to Editor in CapeCodToday).

In more recent times, PFOS and PFOA from the Ashumet Valley Plume (AVP) at Joint Base Cape Cod has contaminated public and private drinking water wells in Falmouth and Mashpee. This required GAC (granular activated carbon treatment) to remove PFOS and PFOA from the drinking water wells. The source areas for the AVP include: former fire training area and wastewater treatment plant at JBCC plus the water/sediments of Ashumet and Johns Ponds. Thus the plume has expanded to a big blob effecting both public and private drinking water in Falmouth and Mashpee. I represent the Sierra Club on the University of Rhode Island STEEP (Sources, Transport, Exposure, Effects of PFAS) grant Cape Cod Advisory Committee. The STEEP grant project includes monitoring of 150 private drinking water wells on Cape Cod for 25-30 PFAS chemicals and research on the uptake of PFAS chemicals by fish in Ashumet Pond (US Geological Survey endeavor). I have spent over 20 years engaged in the CERCLA/SDWA cleanup at JBCC.

My specific concerns about the proposed EPA changes to WOTUS include:

- * Dropping groundwater based watersheds (like those here on Cape Cod) from the jurisdictional of the Clean Water Act) is a bad idea

- * Need to address wastewater (“N” enrichment of coastal embayments and “P” pollution of freshwater ponds) and drinking water challenges (toxic chemicals and contaminants of emerging concern) simultaneously in an integrated and cost effective fashion

- * Since the treatment systems and waste site cleanup standards will require a lot of resources (\$ and people), Environmental Justice and polluter pays concerns need to be addressed

- * Since the NOAA Fisheries Essential Fish Habitat regulations extend into state jurisdictional water(0—3 miles), the effects of nutrients; increased water temperature and ocean acidity; periodic hypoxia; microplastics; etc. need to be considered in addition to water quality improvements. I used to serve on the New England Fishery Management Council’s Habitat Plan Development Team which helped develop Omnibus Habitat Amendments 2 which was published in 2018

* There is a need to use the best available science in developing targetted “N” cleanup standards for coastal embayments and “P” for freshwater ponds and maximum contaminant levels for PFAS chemicals in drinking water. When I participated in the online WOTUS public hearing, no mention was made of science and environmental protection as the basis for the proposed changes. President Trump’s Executive Order and the Trump Administrations new definition of federalism were given as the justification. Since the wastewater and drinking water problems on Cape Cod will take many years to resolve and be quite costly, we can’t afford to have the infrastructure costs funded entirely by state/local entities.

Thanks for your consideration of these comments.

Dr. David D. Dow

Letter - Implementation of Comprehensive and Targeted Wastewater Management on Cape

from Dr. David Dow, East Falmouth

ARTICLE | **LETTERS TO THE EDITOR** | JANUARY 4, 2020 04:45 AM | BY **CAPECODTODAY STAFF**

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Letters to the editor reflect the opinion of the letter writer. They do not necessarily represent the opinions of the editors, staff and advertisers of CCToday.

I recently submitted comments to the Massachusetts Department of Environmental Protection on the Town of Falmouth’s Notice of Project Change for the South Coast Embayments and West Falmouth Harbor Comprehensive Wastewater Management Plan (CWMP)/Targeted Wastewater Management Plan (TWMP). This is the first phase for restoring habitats (eelgrass beds; oyster reefs; salt marshes) for marine biota and improving water quality (reducing Nitrogen loading from septic systems and improving water transparency) for 13 watersheds within the town boundaries and the Waquoit Bay Watershed which includes Falmouth; Mashpee and Sandwich.

Since I live in the Waquoit Bay Watershed and have been engaged as a grassroots environmental activist in the Superfund/Safe Drinking Water Act cleanup at Joint Base Cape Cod for over 20 years, I am concerned about the drinking water and wastewater challenges where I live. In addition, perfluorinated chemical contamination of private and public drinking water wells from the Ashumet Valley Plume has created concerns about toxic chemicals in our drinking water. Thus I accepted an invitation to join the Cape Cod Advisory Committee for the University of Rhode Island's STEEP (Sources, Transport, Exposure, Effects of PFAS) grant which has been measuring the levels of PFAS chemicals in private drinking water wells on Cape Cod. Ma. DEP is developing a maximum contaminant levels for 6 PFAS chemicals of 20 parts per trillion (down from the current hazard warning level of 70 ppt).

During my time working as a marine scientist at the Fisheries Lab in Woods Hole, I served as the recreational fisheries coordinator in the Northeast; participated in the New England Fishery Management Council's Habitat Plan Development Team (which helped develop Omnibus Habitat Amendment 2 which was published in 2018); served on the Environmental Protection Agencies Waquoit Bay Watershed Ecological Risk Assessment project; and participated in the EMaX (Energy Modeling and Analysis Exercise) research project which developed a food chain carbon flow model from the Northeast Continental Shelf Ecosystem. Thus I have a concern on the effects of the CWMPs/TWMPs on Cape Cod on both habitat restoration critical to marine biota and water quality (both excess nutrients and toxic chemicals). I support the US Water Alliance's One Water concept of addressing both drinking water and wastewater from a watershed perspective. The Cape Cod Commission; Ma. DEP and EPA Region 1 have adopted a watershed perspective for the CWMP/TWMP for the > 50 "N" impacted embayments here on Cape Cod.

Some of my concerns on the Falmouth Notice of Project Change (EEA # 14164) include:

* Essential Fish Habitat in coastal embayments are effected by warming waters and ocean acidity; shifting ranges of managed fish species from the Mid-Atlantic region or migrating further offshore/into the rapidly warming Gulf of Maine (i.e. Summer Flounder moving in and American lobsters migrating out of Nantucket Sound); microplastics contamination from stormwater and wastewater treatment plants (wwtps); contaminants of emerging concern (cecs) bioaccumulating in the marine food chain; seasonal hypoxia (low dissolved oxygen levels win bottom waters of Cape Cod Bay) in addition to eutrophication ("N" loading from septic systems).

* The primary solution to be employed by the Town of Falmouth is upgraded or new wwtps with ocean outfalls for treated swage effluent (which likely will contain cecs) and disposal of sewage sludge which likely contains PFAS chemicals. This is likely to be a costly approach to implement without government grants covering 50% of the infrastructure costs and close down costs for residents to connect to sewers/close down their septic systems. There has been discussion of the Town of Barnstable taking over the former wwtp at JBCC and expanding it to serve the Upper Cape towns. Thus the cost of this component of the project is poorly understood.

* The NPC doesn't discuss environmental justice concerns that would include seniors on fixed incomes and service industry employees living paycheck to pay check and how they would pay for these expensive infrastructure improvements. Some type of socioeconomic analysis is required which would be accompanied a community outreach program.

* Finally an ecosystem based approach for management of marine biota and their habitats is required to address the reality that we live in rapidly changing marine environment which is not at a steady state. equilibrium condition (underlying concept for CWMP/TWMP watershed plans). The Waquoit Bay ERA project examined the interaction between bay scallop fishery collapse and loss of eelgrass beds/excess nitrogen loading.

Others may want to offer additional comments on the strengths and weaknesses of the CWMP/TWMP watershed approach here on Cape Cod to address both our drinking water and wastewater challenges. The comment period on EEA # 14164 extends until January 13, 2020.

Dr. David Dow

East Falmouth, Ma.

From: [Strysky, Alexander \(EEA\)](#) on behalf of [MEPA \(ENV\)](#)
To: [Strysky, Alexander \(EEA\)](#)
Subject: FW: Comments on MEPA EEA #14164
Date: Friday, January 3, 2020 2:27:22 PM

Alex Strysky
MEPA Office
100 Cambridge St.
Boston, MA 02114
(617) 626-1025

From: David Dow <ddow420@comcast.net>
Sent: Friday, January 3, 2020 10:49 AM
To: MEPA (ENV) <mepa@mass.gov>
Cc: David Dow <ddow420@comcast.net>
Subject: Comments on MEPA EEA #14164

Dear Alex Strysky:

I am submitting comments on the Falmouth South Coast Embayments and West Falmouth Harbor CWMP/TWMP Notice of Project Change (EEA #14164). I am a resident of the Waquoit Bay Watershed in East Falmouth and retiree from the Northeast Fisheries Science Center in Woods Hole, Ma. My duties included being Recreational Fisheries Coordinator in the Northeast, being a member of the New England Fishery Management Council's Habitat Plan Development Team which helped develop Omnibus Habitat Amendment 2 (which was published in 2018) and being a member of the EPA-lead Waquoit Bay Watershed Ecological Risk Assessment project. I was involved in the EPA / US Army Corps of Engineers dialog on Water of the US (WOTUS) as a grassroots environmental activist. WOTUS redefined the federal jurisdictional for the Clean Water Act under which the Falmouth Comprehensive Wastewater Management Plan (CWMP)/Targeted Watershed Management Plan (TWMP) is being developed (along with oversight by the Cape Cod Commission and Ma. DEP).

Since I view the CWMP/TWMP from the perspective of both restoring water quality (i.e. lowering "N" loading

from septic systems) and restoration of Essential Fish Habitat (eelgrass beds; oyster reefs; saltmarshes; etc.),

I have serious doubts that the Falmouth CWMP/TWMP will meet these goals for the 13 “N” impacted watersheds

within its boundaries and the Waquoit Bay watershed which is shared with Mashpee and Sandwich. The South

Coast Embayments and West Falmouth Harbor represent the first phase of this endeavor and is the focus of the

Notice of Project Change published in the Environmental Monitor on December 23, 2019.

Given the limited 20 day

comment period, I will focus on a few items in the action plan for the next 5 years.

Since Falmouth needs to upgrade its wastewater treatment plant and develop an additional ocean outfall or join

the proposed effort by the Town of Barnstable to take over the wwtp at Joint Base Cape Cod which discharges

treated effluent into the Cape Canal, there is a lot of uncertainty on the costs of this endeavor and who will pay for it.

The Little Pond Watershed pilot sewerage project was funded by a \$ 50 million grant with homeowners paying \$ 3-5

thousand to hook up to the sewer/close down their septic systems. Since EPA’s WOTUS revision eliminates ground-

water based watersheds from the CWA jurisdiction, it seems unlikely to me that they will fund this expensive endeavor

which leaves the financial burden (hundreds of million of dollars) up to the residents of Falmouth/Commonwealth of

Massachusetts. In addition, the excess sludge from the wwtp will be contaminated by toxic chemicals (PFAS and other

contaminants of emerging concern) which will have to be disposed of as hazardous wastes.

Perchlorate and PFAS

chemicals have contaminated public and private drinking water wells in Falmouth (the Environmental Working Group

lists 10 toxic chemicals above their levels of concern in Falmouth Drinking Water- includes TCE a contaminant of concern

at Joint Base Cape Cod). Thus the wastewater and drinking water challenges are interconnected in Falmouth and have

to be addressed in a joint fashion which is totally ignored in the CWMP/TWMP.

Contaminants of emerging concern (cecs)

are already found in Nantucket Sound and the South Coast Embayments (see Provincetown Center for Coastal Studies

Monitoring Program reports). Ma. DEP is in the process of developing a maximum contaminant level (mcl) of 20 ppt

for 6 PFAS chemicals (down from the current treatment target of 70 ppt for PFOS and

PFOA) which will increase public attention to this drinking water crisis. I support the US Water Alliance watershed approach (One Water Campaign) for jointly addressing drinking water and wastewater challenges faced by local municipalities.

As the waters warm in Nantucket Sound; Gulf of Maine and coastal embayments on Cape Cod, fish species are migrating in from the Mid-Atlantic region (black sea bass; Summer Flounder; Scup; forage fish; shark species; etc.) and moving either into deeper waters offshore or into the Gulf of Maine (lobsters; Winter flounder; sea herring; etc.) which has greatly altered state/federal fisheries management policies and commercial/saltwater angler catches. The “productive capacity” of Essential Fish Habitat in coastal embayments has been altered by warming waters; increased ocean acidity in the water columns and sediments; seasonal hypoxia; other human uses and eutrophication (“N” enrichment). Thus we have a dynamic, nonlinear ecosystem that is not at equilibrium, rather than the steady state equilibrium ecosystem that is assumed in the CWMP/TWMP. Studies on the Pacific Coast have shown an interaction between hypoxia; ocean acidity and eutrophication which could further complicate this situation.

An emerging problem is Microplastics contamination of marine biota and the consequences for human consumption. In 2019 the Woods Hole Oceanographic Institution held a conference on this challenge with a public panel dialog and plenary presentation by Dr. Kara Lavender Law (Research Professor of Oceanography at the Sea Education Association). WHOI Sea Grant scientists are conducting research on microplastics in coastal marine animals and assessing the seasonal and storm impacted transport and biological fate of micro- and nanoplastic discharged from wastewater treatment facilities into Massachusetts coastal waters. This research could have relevance to ocean outfalls for treated sewage effluent from the South Cape Embayments and West Falmouth Harbor. I would hope that Ma. DEP would utilize this state of the art research in the implementation of the CWMP/TWMP projects here on Cape Cod (as opposed to the lack of science in developing environmental policy by EPA- see recent article in Boston Globe on EPA Scientific Advisory Committee concerns).

Thus some type of adaptive, ecosystems based management approach (AEbM) is required to manage habitat recovery and fisheries in our coastal embayments. Having a static water column “N” target for recovery of the South Coast Embayments and West Falmouth Harbor will prove inadequate. Having done research on eutrophication in fresh (P) and marine (N) waters, the turnover rate and nutrient recycling within the ecosystem are key factors

influencing water quality (see scientific studies on “N” cycle in Waquoit Bay) and the EPA Waquoit Bay Watershed Ecological Risk Assessment which linked bay scallop harvest to loss of eelgrass beds/excess “N” loading. The EMaX energy flow model of the Northeast Continental Shelf Ecosystem faced a problem of matching primary production at the base of the food chain with the yield of living marine/protected/natural trust resources at the top with required alterations at the base of the food chain (adding microbial food web to increase community respiration). As the water column becomes more stratified in the coastal

ocean surrounding Cape Cod this imbalance in the carbon flow in the marine food chain will lead to increased natural mortality in food stocks (i.e. Gulf of Maine cod and sea herring being examples).

The Cape Cod Commission CWMP/TWMP model didn’t include Environmental Justice concerns associated with funding this expensive endeavor (\$ 4-7 billion over the next 20-30 years). We have many seniors on limited incomes and the working poor in service industries that live from paycheck to paycheck and could no longer live on Cape Cod if sewerage and new wwtps with ocean outfalls are the solution to our water quality/habitat restoration challenges in over 50 coastal embayments. Some type of socioeconomic analysis and outreach program is required to address this problem. The Falmouth Water Quality Management Committee insists that property taxes will not be raised to fund the CWMPs/TWMPs for 14 “N” impacted coastal embayments, but this seems highly unlikely to me based upon my experience as a marine scientist/grassroots environmental activist.

Thanks for your consideration of these comments.

Dr. David D. Dow
East Falmouth, Ma.



MASSWILDLIFE

DIVISION OF FISHERIES & WILDLIFE

1 Rabbit Hill Road, Westborough, MA 01581

p: (508) 389-6300 | f: (508) 389-7890

MASS.GOV/MASSWILDLIFE

January 13, 2020

Kathleen A. Theoharides, Secretary
Executive Office of Environmental Affairs
Attention: MEPA Office
Alex Strysky, EEA No. 14154
100 Cambridge Street
Boston, Massachusetts 02114

Project Name: Comprehensive Wastewater Management Plan
Proponent: Town of Falmouth
Location: South Coast Embayments and West Falmouth Harbor
Document Reviewed: CWMP/TWMP Notice of Project Change
EEA No.: 14154
NHESP No.: 08-23886

Dear Secretary Theoharides:

The Natural Heritage & Endangered Species Program of the Massachusetts Division of Fisheries & Wildlife (the "Division") has reviewed the *Notice of Project Change* (dated December 2019) for the Comprehensive Wastewater Management Plan (CWMP; the Project) and would like to offer the following comments regarding state-listed species and their habitats.

As stated in the Division's previous comments regarding the Project's *Final Environmental Impact Report*, the ponds, bays, and estuarine waters of Falmouth's south coast provide critical foraging, breeding, migration, and over-wintering habitats for a suite of state-listed rare species. We commend the Town of Falmouth for its efforts to improve water quality within these critical habitats, and in particular, for its consideration of both traditional and non-traditional approaches to wastewater and nutrient management.

Portions of the Town of Falmouth are mapped as Priority Habitat for state-listed rare species. All projects proposed within Priority Habitat, which are not otherwise exempt from review pursuant to 321 CMR 10.14, will require review through a direct filing with the Division pursuant to the Massachusetts Endangered Species Act (M.G.L. c. 131A) and its implementing regulations (MESA; 321 CMR 10.00). The MESA is administered by the Division and prohibits the Take of state-listed species, which is defined as "in reference to animals...harm...kill...disrupt the nesting, breeding, feeding or migratory activity...and in reference to plants...collect, pick, kill, transplant, cut or process...Disruption of nesting, breeding, feeding, or migratory activity may result from, but is not limited to, the modification, degradation, or destruction of Habitat" of state-listed species (321 CMR 10.02).

To the extent possible, the Division has evaluated and provided comments below on the recommended actions outlined within the NPC (Section P.3). As the Division has not yet received a direct filing pursuant

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to the MESA for these recommended actions, including detailed limits of work associated with each, the comments provided below should be considered preliminary in nature.

Upgrading the Wastewater Treatment Facility

The Division notes that the Town's existing wastewater treatment facility does not appear to be located within the Priority Habitat of state-listed rare species, as indicated in the Massachusetts Natural Heritage Atlas (14th Edition). Therefore, the Division anticipates that any proposed upgrades to the Town's existing wastewater treatment facility would not require review for compliance with the MESA.

Connecting to the Plant / Sewering Great Pond Watershed

The Division notes that wastewater collection systems proposed within Priority Habitat may be exempt from MESA review pursuant to 321 CMR 10.14 (6) and or (10), which state that "[t]he following Projects and Activities shall be exempt from the requirements of 321 CMR 10.18 through 10.23..."

[6] construction, repair, replacement or maintenance of septic systems, private sewage treatment facilities, utility lines, sewer lines, or residential water supply wells within existing paved areas and lawfully developed and maintained lawns or landscaped areas, provided there is no expansion of such existing paved, lawn and landscaped areas;

[10] 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...;

The complete list of MESA filing exemptions may be found on the Division's website. We would encourage the Town to examine design alternatives which avoid and minimize impacts to Priority Habitat, including re-use of existing paved, developed, and or landscaped areas wherever possible. For any proposed work within Priority Habitat, the Town should consult with the Division to determine whether proposed work is exempt from MESA review or will require review through a direct filing with the Division.

A New Discharge Site

The NPC states that a new discharge site will be needed to accommodate flows from new sewered areas, and that three potential sites are currently being studied. The Division notes that the Augusta Parcel, the Falmouth Country Club, and the Potential Nobska Point Ocean Outfall sites do not appear to be located within the Priority Habitat and that proposed discharge at these locations would not require review for compliance with the MESA.

The Allen Parcel and the Potential Buzzards Bay Ocean Outfall appear to be located within Priority Habitat. Any proposed project or activity at these locations would require review for compliance with the MESA. The Division would encourage the Town to examine alternative locations for the proposed discharge site that are located outside of, or that otherwise avoid and minimize disturbance within, Priority Habitat. For any proposed work within Priority Habitat, including the Allen Parcel and the Potential Buzzards Bay Ocean Outfall, the Division would encourage the Town to contact the Division in advance of a formal filing to proactively address any rare species concerns.

Joint Base Cape Cod

The NPC states that there is a regional evaluation being conducted on wastewater discharge options on Joint Base Cape Cod (JBCC). Although the NPC doesn't provide substantive detail about this potential option, Figure 3 shows a new proposed force main connecting the existing wastewater treatment facility in Falmouth to an existing JBCC collection system and effluent disposal facility in Bourne. The Division notes that the new proposed force main would occur within Priority Habitat and require review for compliance with the MESA.

In addition, the new proposed force main would cross the Francis A. Crane Wildlife Management Area, which is under the care, custody and control of the Division to conserve the Commonwealth's fish and wildlife resources for the benefit of the citizens of the Commonwealth. In addition, Chapter 47 of the Acts of 2002 transferred the care, custody and control of the northern 15,000 acres of JBCC to the Division as the Camp Edwards Wildlife Management Area. Any proposed easement over the Francis A. Crane or Camp Edwards Wildlife Management Area would require review and approval by the Division and two-thirds of the State Legislature pursuant to Article 97 of the amendments to the State Constitution.

The Town should contact the Division as soon as possible to discuss this proposal. In advance, we request that the Town provide more detailed information about this proposal to the Division for review, including but not limited to whether it would include upgrades to or expansion of existing JBCC effluent disposal facilities. We also request that the Town evaluate alternative locations for this proposal that avoid and minimize work within Priority Habitat or within lands owned or managed by the Division.

We appreciate the opportunity to comment on this project. If you have any questions about components of this letter related to the MESA, please contact Jesse Leddick, Chief of Regulatory Review, at jesse.leddick@mass.gov or 508-389-6386. If you have any questions about the components of this letter related to the Francis A. Crane or Camp Edwards Wildlife Management Area, please contact Jason Zimmer, Southeast District Manager, at jason.zimmer@mass.gov 508-759-3406. We look forward to working with the Town to address the comments provided herein and further its efforts to improve the water quality of Falmouth's south coast.

Sincerely,



Everose Schlüter, Ph.D.
Assistant Director

cc: Julian Suso, Falmouth Town Manager
J. Jefferson Gregg, GHD Inc.
Town of Falmouth Board of Selectmen
Town of Falmouth Planning Board
Town of Falmouth Conservation Commission



P.O. Box 156
Falmouth, MA 02541

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JAN 17 2020

MEPA

January 15, 2020

Secretary Kathleen Theoharides
Executive Office of Energy and Environmental Affairs
MEPA Office
100 Cambridge Street
Suite 900
Boston, MA 02114

Dear Secretary Theoharides:

Falmouth Water Stewards (FWS) applauds the work of the Falmouth Water Quality Management Committee (WQMC) to address coastal nitrogen pollution during the last five years. Falmouth's water quality problems in coastal waters caused by nitrogen are long-standing and severe, and we understand that the WQMC's work is challenging and arduous. The report – *Draft South Coast Embayments Notice of Project Change* – represents a thorough synthesis of the status of South Shore embayments, some recent accomplishments, and the major challenges that lie ahead.

FWS commends the town on the successful implementation of the Little Pond Sewer Extension Project. This project was an important step, although in the bigger picture a relatively small step, towards reducing nitrogen loads to all of the Town's 18 estuaries and embayments.

The proposed upgrading of the existing municipal wastewater treatment plant on Blacksmith Road is needed to meet projected increased flows from the Town's existing sewered area.

FWS also commends the Town for putting in motion two other actions that were approved by an April 2014 Town Meeting appropriation (strongly supported by FWS): permitting to widen the Bourne Pond inlet, and the implementation of shellfish aquaculture projects. FWS also applauds the WQMC's investments in the continued monitoring of water quality in response to management actions. This includes monitoring in estuaries like Little Pond where expanded sewers should result in future reductions to nitrogen loads, in estuaries where shellfish aquaculture has been initiated, in the Coonamessett River where wetland restoration projects are underway, and in Bourne Pond where the inlet widening is planned. FWS also supports continued monitoring of water quality in estuaries where no immediate actions are proposed.

FWS also identified a number of shortcomings in this report. Some of these are general, but extremely important, because they will determine the timetable over which improvements to the

Town's overall water quality can be addressed as well as the long-term cost of implementing those projects.

(1) The schedule for implementing cleanup of nitrogen pollution town-wide needs to be more proactive in scheduling implementation. This plan currently calls for no additional sewerage until 2024. This is despite the fact that there are clearly identified areas that will need to be connected to sewers if water quality improvement is to occur, and that Falmouth has a demonstrated ability to effectively expand its sewer network. The report states that the reason for the less aggressive schedule proposed is that any financing for expanding sewers can only come from retirement of debt that will allow funds to be raised without any increase in taxes. This assumption drives the entire timetable presented in this report and pushes any action to reduce nitrogen in Oyster Pond out a minimum of five years and action on estuaries east of Green Pond out into a far and unstated future. This report should include a more aggressive schedule that is based on the assumption that Falmouth residents would support modest tax increases to solve a critical environmental problem—as they have many times in the past.

(2) This report does not adequately address the most important single technical issue that currently constrains Falmouth's ability to remove more nitrogen from its estuaries—the location of a site (or sites) to discharge a greater volume of treated effluent. This is a potentially very contentious issue because discharge of even highly-treated wastewater into one estuary could delay or even prevent water quality improvement of that receiving estuary even while improving water quality elsewhere. Handled hastily, the discharge question has the potential to be a very divisive issue.

This report provides four options for expanded discharge and claims that a decision among these options is anticipated in 2021. But this plan provides no detail on how these sites will be evaluated. These sites also differ from the options that were presented to the public on September 16 (which included an option at Joint Base Cape Cod and an ocean outfall at Nobska Point). Given how this issue will influence all other options available to the Town in the future, the process of selection of potential sites, the evaluation of sites, and the ultimate selection of a preferred discharge site needs to be spelled out in much more detail in this report. Importantly, the short and long-term costs of this decision should be clearly evaluated, because a decision to go with a potentially cheaper but not Town-wide solution will delay or impede cleanup in the future. Any discharge into the Allen Parcel, which was presented as a viable option on September 16, would fall into this category.

(3) Any potential for additional discharge into current or expanded open sand beds 14 and 15 north of the Blacksmith Shop Wastewater should be eliminated. This should not be a discharge option for Falmouth. Groundwater flow from these beds is estimated to flow into the Herring Brook estuary. Herring Brook is a small, salt marsh-dominated estuary that currently has low water quality, limited flushing, and a limited ability to absorb additional nitrogen. Recent science indicates that salt marshes, while they contribute to nitrogen removal from surface waters, are themselves vulnerable to increased nitrogen loading because greater nitrogen accelerates decomposition and slumping of salt marsh sediments. Instead of recommending discharge of more effluent to beds 14 and 15, this report should include (a) a clear commitment by the Town to the monitoring of ground and surface water in Herring Brook that is required by its current Department of Environmental Protection (DEP) discharge permit, and (b) a pathway by which Falmouth will fund the completion of a Massachusetts Estuaries Project report and establish a TMDL (Total Maximum Daily Load) for Herring Brook so that it can better evaluate its current impact on that estuary. TMDL is calculated as the maximum amount of a pollutant allowed to

enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant.

(4) This plan should include more aggressive actions and commitments to evaluate the nitrogen removed by Innovative Alternative (IA) denitrifying septic systems. The Town has collaborated with the Buzzards Bay Coalition to install and evaluate 25 systems near West Falmouth. Because of the important role that IAs will almost certainly play in reducing nitrogen in areas of Falmouth that are too expensive to sewer, this program should be expanded. Right now, the program addresses only about 0.1 percent of Falmouth's approximately 21,000 housing units. A variety of systems have been installed, but in numbers that are not yet adequate to determine the best performing systems under a variety of conditions (such as year-round or seasonal occupancy). This information could help to greatly increase the amount of nitrogen removal that is achieved by expanding the usage of IA systems.

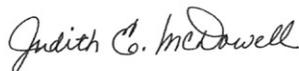
(5) This plan should include expanded commitments to monitoring of waters that have been, or will be, affected by management actions. Falmouth is in a unique position to acquire valuable information by conducting more detailed studies of the situations that create "experiments" in which nitrogen fluxes could be quantified before and after certain actions. These situations include (1) Little Pond, West Falmouth Harbor now, and West Falmouth Harbor in the future when the previous high-nitrogen plume generated before the plant's 2005 upgrade to tertiary treatment will no longer enter the estuary, (2) changes to nitrogen concentrations in response to wetland restoration on the Coonamessett River, (3) the opening of the Bournes Pond inlet, and (4) installation of oyster or another shellfish aquaculture program. Investments in these studies will provide information to help make future decisions about nitrogen-removal approaches other than sewerage.

(6) The assumption that no further action will be required in West Falmouth Harbor might be overly optimistic. Instead of assuming that no future action will be needed, this plan should include continuing efforts at monitoring water quality in West Falmouth Harbor and installation of IA septic systems to reduce additional nitrogen that will provide a buffer around the uncertainty associated with the claim that no action is needed.

(7) Falmouth has a fertilizer use by-law that most other towns do not. FWS was a strong supporter of this by-law. But it calls for very modest fertilizer reductions. There is no record of any enforcement action ever being taken, and any reductions in nitrogen loading caused by the by-law are totally speculative. No credits should be granted to Falmouth for nitrogen reductions because of the current by-law. The town should develop a fertilizer use enforcement plan.

We hope these inputs are taken in the spirit that the Falmouth Water Stewards intend, i.e., we are in complete support of the WQMC's efforts to improve Falmouth's estuaries and offer these inputs to help make the best improvements possible to our embayments. If there are any questions, we are open and available for any support needed.

Respectfully submitted,



Judith E. McDowell, President
Falmouth Water Stewards



January 27, 2020

Secretary Kathleen Theoharides
Executive Office of Energy and Environmental Affairs
MEPA Office
100 Cambridge Street
Suite 900
Boston, MA 02114

Re: Falmouth Comprehensive Wastewater Management Plan EEA#14154

Dear Secretary Theoharides,

The Buzzards Bay Coalition (Coalition) has reviewed the “Draft South Coast Embayments CWMP/TWMP Notice of Project Change Update – 2019” (“2019 NPC”) and offers the following comments.

The Coalition is a nonprofit, membership organization dedicated to the restoration, protection and sustainable use and enjoyment of Buzzards Bay and its watershed. The Coalition works to improve the health of the Bay ecosystem for all through education, conservation, research and advocacy and is supported by more than 10,000 individuals, families and businesses throughout the region, including over 1,437 who live in Falmouth.

The town faces a serious issue with respect to nitrogen pollution which threatens Falmouth’s economy and environment if left unaddressed. While the Coalition continues to view this planning process as an important step in both Falmouth’s and the region’s efforts to combat nitrogen pollution, we urge the Secretary to make any final approval contingent upon the town of Falmouth’s completion of a nutrient threshold study for Herring Brook and require further evaluation of an ocean discharge site in Vineyard Sound. It is critical that the town’s efforts to solve the nitrogen pollution problem in their South Coastal Ponds does not cause or contribute to nitrogen impairment in coastal waters in the western part of town.

www.savebuzzardsbay.org

114 Front Street, New Bedford, Massachusetts 02740 | Tel: 508-999-6363 Fax: 508-984-7913

21 Luscombe Avenue, Woods Hole, Massachusetts 02543 | Tel: 508-540-6222



I. Selection of an Appropriate Wastewater Discharge Site

It is well established that traditional sewers and advanced treatment at wastewater treatment facilities are the most effective methods to remove bacterial and nutrient pollution from wastewater. Identifying a discharge site for this treated wastewater, however, is the town of Falmouth's greatest challenge. The 2019 NPC identifies several potential sites currently being studied, including an ocean outfall into Buzzards Bay and expanded recharge beds at the Town-owned "swap parcel" (existing recharge beds 14 and 15). The Coalition disputes the feasibility of either of these discharge sites and suggests the town abandon any further investment in their evaluation.

The 2019 NPC estimates that expanded sewerage in Great Pond, Green Pond, and Waquoit Bay will remove between 35,000 and 44,000lbs of total nitrogen from these estuaries.¹ In order to achieve this nitrogen reduction, the town of Falmouth will need to treat an additional 486,000 to 611,000 gallons per day (gpd) at the Wastewater Treatment Plant ("WWTP") in West Falmouth. Assuming the WWTP is achieving a treatment level of 3mg/L total nitrogen, which it fails to do consistently as stated in this 2019 NPC, a nitrogen load of between 4,439 -5,581 lbs/year of nitrogen will be discharged after treatment. Importing this new load to West Falmouth Harbor, Herring Brook, Buzzards Bay or any nitrogen sensitive embayment is inappropriate. Both groundwater discharge and surface water quality regulations prevent the discharge of pollutants which will cause or contribute to a violation of water quality standards. In order to avoid violating state law, the 2019 NPC must further develop discharge sites outside the Buzzards Bay watershed.

A. West Falmouth Harbor Continues to Fail to Meet its Total Maximum Daily Load ("TMDL")

The January 10, 2014 Final Environmental Impact Report Certificate required a plan and schedule to bring West Falmouth Harbor into compliance with the TMDL and surface water quality standards by December 2, 2016. Unfortunately, the Harbor has yet to see total nitrogen concentrations at the sentinel station meet the TMDL.

The current modified groundwater discharge permit for the WWTP limits the discharge to West Falmouth Harbor to 450,000 gpd and 4,109lbs/year total nitrogen with a best efforts to meet 3mg/L total nitrogen. The more than 4,109lbs of nitrogen discharged to West Falmouth Harbor from the WWTP is all imported from outside the West Falmouth Harbor watershed. In other words, none of the homes or businesses within the West Falmouth Harbor watershed are connected to sewer. This requires West Falmouth Harbor to absorb septic nitrogen load from within its watershed in addition to the nitrogen load imported from other parts of town. The 2019 NPC cites to modeling which claims that at a wastewater discharge volume of 450,000 gpd at a concentration at or below 3mg/L total nitrogen West Falmouth Harbor should meet the TMDL.

¹ These figures are the sum of the estimated nitrogen loading reductions from sewer extensions found in tables 6.2, 7.2 and 9.1.

However, the WWTP's has struggled to consistently meet its permit limit of 3mg/L total nitrogen (as it failed to do in 2019) and continues to contribute to the delay in West Falmouth Harbor recovery.

The 2019 NPC states that the permit limit will be exceeded in 2019 due to mechanical malfunctions at the WWTP but that the plant did meet the permit limit in 2017 and 2018. Meeting the permit limit two years out of nearly fifteen years since the WWTP has been upgraded is insufficient to protect West Falmouth Harbor. The waters of West Falmouth Harbor will likely be warmer by the time this nutrient-rich plume enters West Falmouth Harbor, exacerbating the adverse impact this violation will have on water quality. Figure ES.5 in the 2019 NPC, and copied below, illustrates the plant's consistent inability to meet permit limits.

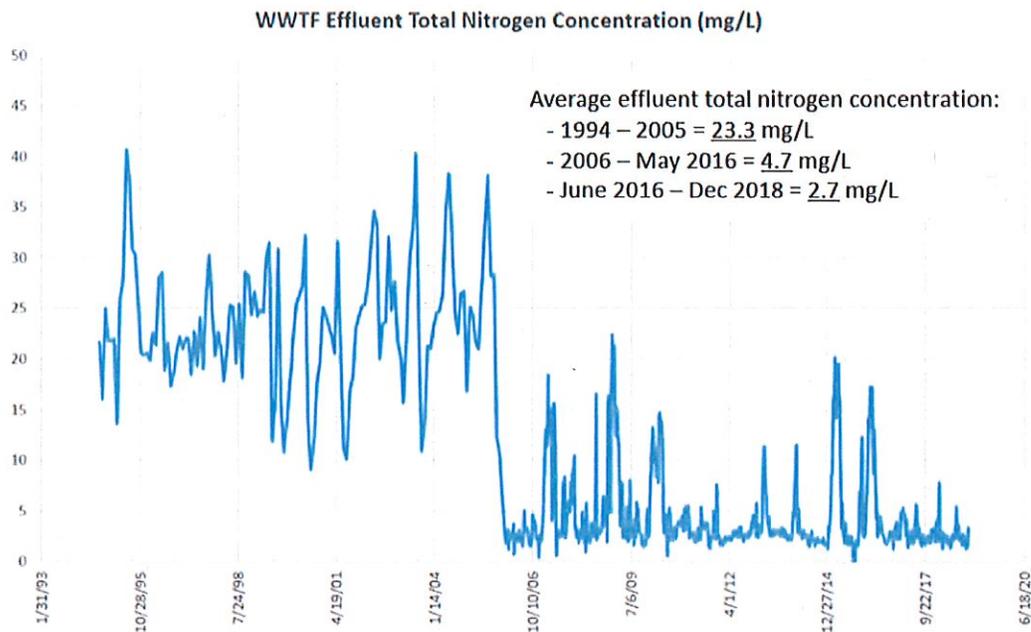


Figure ES.5 Historical Wastewater Treatment Facility Effluent Total Nitrogen Concentrations

While the 2019 NPC acknowledges that the town will need to identify and construct a new discharge site outside the West Falmouth Harbor watershed for any additional flow from new sewerage, the GHD Technical Memo, TASA TM-3 suggests that there could be an increased discharge flow to West Falmouth Harbor above the 450,000gpd if treatment levels were reduced to 2.5 or 1.8 mg/L total nitrogen.² The Coalition expects that the town will not seriously entertain this suggestion given the town's inability to consistently meet a 3mg/L total nitrogen limit.

² TASA TM-3 at 13.

The Coalition urges the town to identify and pursue a discharge location outside the greater Buzzards Bay watershed capable of discharging both new flow from expanded sewerage in East Falmouth and the existing flow from the WWTP currently discharging to West Falmouth Harbor. The town's failure to consistently meet permit limits at this discharge location warrants a careful look at a new discharge location outside the West Falmouth Harbor watershed for all of the town's wastewater discharge needs.

B. Recharge Beds 14 and 15 are Inappropriate for an Increased Discharge

Herring Brook suffers from nitrogen impairment and is listed on the Massachusetts Year 2012 Integrated List of Waters requiring the development of a TMDL. It has been and continues to be the Coalition's position that any increased nitrogen discharged to Herring Brook, unless offset, will further impair that waterbody in violation of state law.

Groundwater modeling confirmed that 15% of the discharge from recharge beds 14 and 15 is expected to flow to Herring Brook resulting in a near tripling of the existing nitrogen load. The Coalition's appeal of the town's 2015 groundwater discharge permit resulted in a requirement to offset new nitrogen to Herring Brook from an increased discharge of wastewater. The appeal also resulted in the town's commitment to partner with the Coalition to design a Nutrient Threshold Study for Herring Brook. The purpose of this study was to understand the health of the estuary and what impact increased nitrogen loading from the discharge site would have on it. While all other Falmouth estuaries have scientific studies to support TMDLs, the town has orphaned and deprioritized Herring Brook, robbing that estuary of critical information needed to guide whether a discharge within that watershed is appropriate and legal. To date, there has been no town allocation of funds to finance a study for Herring Brook.

Herring Brook is a saltmarsh estuary explored by children for generations, adjacent to one of the Cape's most beloved bathing beaches, Old Silver Beach. The Secretary should require the town to pursue alternative discharge sites that do not further impair a listed waterbody and should, at a minimum, require the town to complete a nutrient threshold study for Herring Brook.

C. Vineyard Sound Outfall

Virtually all of Falmouth's harbors, coves, and coastal ponds require nutrient reductions over current levels. In many cases the best way to reduce existing nitrogen loads is through the expansion of municipal wastewater treatment and disposal. The Coalition supports the town's expansion of sewerage in order to reduce nitrogen loads to impaired estuaries, but challenges the town to further evaluate the feasibility of discharging treated wastewater from the south coast watershed facing Nantucket Sound, back into the Sound. The town's approach, to date, has been to identify several different sites that can absorb a finite amount of wastewater because it is the cheapest alternative in the short term. This has and continues to threaten the health of downstream receiving waters, West Falmouth Harbor and Herring Brook and are outside the basin producing the wastewater. The town must consider an alternative discharge strategy. The

most appropriate solution for Falmouth's wastewater disposal challenge may be an ocean outfall at Nobska Point that bypasses all of the Town's sensitive coastal embayments.

TASA TM 6, appended to the 2019 NPC, states that ocean outfalls have the advantage of bypassing nutrient impacted watersheds, estuaries and coastal ponds. Unfortunately, the 2019 NPC does not go far enough in the evaluation of an ocean discharge to the Sounds. Discharging highly-treated effluent directly at the confluence of Buzzards Bay, Vineyard Sound and Nantucket Sound would remove nitrogen loading from the sensitive coastal ponds and harbors. The greater depth and strong flushing of the waters off Nobska Point, potentially make it a water body that can tolerate input of nutrients better than the Town's shallow, restricted coastal harbors and ponds. Furthermore, it returns the treated wastewater partially back to the basin from which it originated.

The town invested resources in a 2018 hydrodynamic model of a Buzzards Bay discharge but failed to equally evaluate the Nobska outfall alternative. The Secretary's 2014 FEIR Certificate anticipated that a proper evaluation of this alternative would require significant technical feasibility studies including studies and modeling of potential impacts. Unfortunately, it does not appear that the town completed this work. The Secretary should direct the town to consider and evaluate a Nobska Point Outfall as an alternative wastewater discharge for the entire town.

The Coalition urges the town of Falmouth to pursue a discharge alternative that meets both near and long term discharge needs and returns the treated water back to the basin in which in originated instead of pursuing alternatives that transfer the nitrogen load to other basins which will continue to cause water quality degradation. If the town pursues an ocean outfall at Nobska, the town can eliminate a more than 4,000 lb source of nitrogen to West Falmouth Harbor in addition to creating discharge capacity for the eastern part of town.

II. Innovative and Alternative Septic System Pilot Projects

The Coalition values the opportunity to work with the town of Falmouth on the West Falmouth harbor Shoreline Septic System Remediation Project. This partnership continues to provide significant learning to be applied on a regional basis together with important nitrogen reductions to West Falmouth Harbor. The Coalition offers the following clarifications to section 3.4 of the 2019 NPC.

- To date, 27 innovative/alternative systems have been installed as part of this project.
- The Barnstable County Department of Health and the Environment provides the monitoring of the systems. The 2019 NPC indicates that the BCDHE performs groundwater monitoring. No groundwater monitoring is performed. ES-6
- The cost range between the Eliminite equipment and Hoot equipment was \$4,580 and \$10,625 respectively. The blackwater tank equipment cost is \$4,147. The Coalition is unclear as to where the \$15,000 in reference to the blackwater tank originates. 3-15

- There were no FujiCLEANs installed as part of this project. There was a Fast System in combination with a drip dispersal and a SanTOE technology installed in addition to the other technologies listed. 3-15

Nitrogen reducing septic systems will play an important role in meeting water quality goals in many of the region's estuaries. The Coalition supports the continued efforts of the Water Quality Management Committee to create a watershed management and monitoring plan to ensure that the systems installed as part of the town's CWMP are properly maintained and perform as needed. Likely, the most effective and affordable way to ensure performance is through the creation of a responsible municipal management entity whereby the town becomes responsible for maintenance and performance.

III. A Board of Health Regulation Requiring Nitrogen Reducing Septic Systems for New Construction

It is clear that the town has invested significantly in wastewater planning. However, new development constructed in town and outside the sewer service area is undoing the investment the town has made in cleaning up their estuaries. The town of Falmouth's Board of Health should require all new construction to install nitrogen reducing septic systems. New septic systems constructed town-wide add new nitrogen to Falmouth's impaired estuaries. The town well knows, and the 2019 NPC specifically describes, several technologies that can reduce nitrogen over conventional septic system levels.

The expansion of sewer takes time. The 2019 NPC describes needed upgrades to the WWTP, the construction of a new discharge site, and then finally the construction of a collection system in 2030. That is a decade away, allowing 10 years' worth of new development to add to the nitrogen problem the town is working hard to remediate.

An increasing number of Boards of Health in southeastern Massachusetts have passed regulations requiring new construction to install a nitrogen reducing septic system. The Coalition looks forward to supporting Falmouth's Board of Health in the passage of a similar requirement in order to protect the town's investment.

IV. Failure to Consider Town-Wide Water Quality Requirements

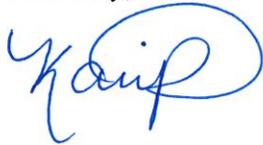
The 2019 NPC provides a compliance approach for only a subset of the town's watersheds and remains silent on plans to meet TMDLs for other critical coastal waters in town. Since the Secretary's January 10, 2014 certificate, TMDLs have been issued for Quissett Harbor, Wild Harbor, Rands Harbor, Fiddlers Cove and is in draft form for Megansett Harbor. The Coalition requests that the Secretary require the town to establish a compliance approach for all Falmouth estuaries within twenty-four months of the approval of the 2019 NPC. Furthermore, the 2019 NPC anticipates a construction timeframe of 2035 to 2040 for sewer construction for the South Coast Embayments. The Coalition requests that all compliance plans be implemented in parallel

and no later than 2040. The Coalition looks forward to working with the town on developing those additional compliance plans.

Conclusion

Falmouth is facing serious nitrogen pollution problems due to the inadequacy of how wastewater is currently being treated. The 2019 NPC is an important step in the process of solving the Town’s wastewater problems. However, the wastewater solution considered here must not sacrifice the water quality of other estuaries.

Sincerely,



Korrin N. Petersen, Esq.
Senior Attorney
petersen@savebuzzardsbay.org
(508) 999-6363 ext 206

Cc: Town of Falmouth
Board of Selectmen
Board of Health
Conservation Commission
Planning Board
Department of Public Works
Water Quality Management Committee

Representative Dylan Fernandes
Massachusetts Department of Environmental Protection
US Environmental Protection Agency
Cape Cod Commission

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CAPE COD
COMMISSION

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Via Email

January 28, 2020

Kathleen A. Theoharides, Secretary of Energy and Environmental Affairs
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office, Alex Strycky, MEPA Analyst
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: Notice of Project Change — EEA No. 14154 (Cape Cod Commission File No.07014)
Town of Falmouth Comprehensive Wastewater Management Plan

Dear Secretary Theoharides:

The Cape Cod Commission is pleased to see towns on Cape Cod proceed with wastewater and watershed management planning and implementation, and more specifically, to see the Town of Falmouth continue with its efforts on this front.

After MEPA review concludes, the Cape Cod Commission will review the updated elements of Falmouth's CWMP as described in the NPC to determine consistency with the Section 208 Area-wide Water Quality Management Plan for Cape Cod, and issue a consistency determination on the updated CWMP. The Commission may request additional or clarifying information or materials from the Town at that time pursuant to its consistency review.

Sincerely,

Kristy Senatori
Executive Director

Cc: Project File
Jeff Gregg, GHD Inc., via email
Julian Suso, Falmouth Town Manager, via email
Falmouth Cape Cod Commission Representative via email
Cape Cod Commission Chair via email
Cape Cod Commission Committee on Planning and Regulation Chair via email



THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
251 Causeway Street, Suite 800, Boston, MA 02114-2136
(617) 626-1200 FAX: (617) 626-1240

MEMORANDUM

TO: Kathleen Theoharides Secretary, EEA
ATTN: Alex Strycky, MEPA Office
FROM: Lisa Berry Engler, Director, CZM
DATE: January 28, 2020

RE: EEA 14154 - Notice of Project Change Update Report, South Coast Embayments, Comprehensive Wastewater Management Plan/Targeted Watershed Management Plan, Falmouth

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Notice of Project Change (NPC), noticed in the *Environmental Monitor* dated December 23, 2019, and offers the following comments.

Project Description

This NPC is an update on efforts made by the Town of Falmouth to move forward with its Comprehensive Wastewater Management Plan (CWMP)/Targeted Watershed Management Plan (TWMP) in the five years since the issuance of the Secretary's Certificate approving the CWMP/TWMP. The CWMP seeks to address nutrient loading and eutrophication in the watersheds of Little Pond, Great Pond, Green Pond, Bourne's Pond, and Waquoit Bay on the Nantucket Sound side of Falmouth, as well as the West Falmouth Harbor watershed in Buzzards Bay. The 20-year plan (2015 to 2035) proposes a range of strategies including: sewerage, upgrading the wastewater treatment facility in West Falmouth, widening the Bourne's Pond inlet, and implementing a variety of non-traditional wastewater and nitrogen management methods. This NPC reports on the progress of those efforts.

Project Comments

Shellfish Aquaculture and Harvest for Nitrogen Removal

With the release of the Section 208 Area Wide Water Quality Management Plan, many Cape Cod communities have proposed using oysters, quahogs, and/or bay scallops as a biological mechanism for filtering nitrogen (in the form of phytoplankton) from estuaries. While CZM supports biological remediation, the idea is still conceptual, and the nitrogen removal quantities are hypothetical estimates based upon lab studies. For example, despite the estimated nitrogen removal calculations in Fig. 3.4, the NPC reports that the oysters deployed in Little and Bourne's Ponds were only able to reduce nitrogen in the immediate vicinity of the cages (not at the ponds' respective sentinel stations) and in Bourne's Pond an unexpected increase in nitrogen regeneration from the bottom sediments into the water column was reported (p. 3-8). As nitrogen regeneration from sediments is an important component of estuarine nitrogen budgets, CZM suggests that the Town and the Massachusetts



Department of Environmental Protection (MassDEP) assess the site-specific differences in how shellfish aquaculture operations affect estuarine ecosystems, including their dissolved oxygen and benthic communities, and whether they offer a sufficient net benefit toward nitrogen remediation.

Recent public comments provided to the Massachusetts Shellfish Initiative, a process involving state and local agencies, legislators, recreational and commercial harvesters, aquaculturists, and environmental and trade organizations, identified a rising concern that town-funded aquaculture for nutrient remediation in southeastern Massachusetts would create new economic competition with local, commercial shellfish harvesters (both wild harvest and aquaculture). Some of those concerns may be addressed by the Town's proposal to hire a licensed, commercial harvester to manage aquaculture operations but the Town, MassDEP, and the Division of Marine Fisheries should evaluate how town-funded aquaculture and the shellfish brought to market may adversely impact the economic viability of local, small businesses.

Ocean Outfall

The NPC recommends an expansion and upgrade of the existing wastewater treatment facility as a necessary action for managing the additional wastewater that will be generated through sewerage targeted areas of the Town. Six options for treated wastewater disposal were evaluated and according to the NPC four were selected for conceptual layout: open sand beds at the Allen parcel, subsurface effluent disposal at the Falmouth Country Club, expanding existing sand beds 14 and 15, and an ocean outfall in Buzzards Bay (p. 6-6). In Appendix 5.1, TASA Technical Memo 6, the potential costs of ocean outfalls in Buzzards Bay and Vineyard Sound are compared, with the Vineyard Sound/Nobska Point option estimated at a lower cost. TASA Technical Memo 6 recommends that a hydrodynamic model for a potential ocean outfall off Nobska Point in Vineyard Sound be developed (p. 9). However, Appendix A of the TASA Technical Memo 6 includes the results of a hydrodynamic model for a potential ocean outfall to Buzzards Bay. Future documents should make it clear which, if any, ocean outfall options the Town is likely to pursue. Regardless of which location the Town decides to pursue further, the Town should consult with CZM and MassDEP about the short and long-term requirements for siting and operating an ocean outfall in an ocean sanctuary pursuant to 301 CMR 27.

To date, there has been no modeling to determine the appropriate load of nitrogen that will protect the appearance, ecology, and marine resources of the Cape and Islands Ocean Sanctuary (301 CMR 27.07(3)). Several communities, in addition to Falmouth, have recently discussed moving nutrient loads from upland or up-estuary into deeper waters, and the summer population in these communities continues to increase. The regional planning commissions and municipalities should work with state and federal agencies to determine the acceptable load of nitrogen for the Nantucket Sound and Buzzards Bay estuaries.

Coastal Hazards and Growth

There appears to be little information in this NPC on efforts toward controlling new growth in hazard prone areas or managing growth to control nutrient loading. As growth and development increase in Cape Cod communities, stormwater and fertilizer use are likely to increase as well, resulting in additional nutrient loading. A future NPC should specifically identify and evaluate planning mechanisms for managing growth and associated increases in nitrogen loads.

In previous comments, CZM noted that the availability of sewer infrastructure in coastal areas subject to storm damage, flooding, and erosion could allow new or expanded development in hazard-

prone areas. It was suggested that the Town investigate growth control measures that meet the spirit and intent of Executive Orders 181 and 149 to minimize the risk of infrastructure damage in flood zones and that the Town's analysis of potential growth in hazard-prone areas include, at a minimum, primary frontal dunes in addition to those areas shown on the most current maps as flood zones.

The NPC states that areas requiring sewers located in barrier beaches will have to be designed and constructed to meet specific state requirements for work within these areas under Executive Order 181. To address this, Section 12.3.2 states that areas requiring sewers cannot promote additional growth on barrier beaches that would not have otherwise been allowed. The planning mechanisms that will assist the Town in managing community growth should be included in the next NPC.

Targeted Watershed Management Plan

As a CWMP update that records the Town's nitrogen reduction and mitigation efforts and their results in one place, this NPC is a useful document that shows recent progress and the Town's level of commitment to addressing eutrophication and restoring coastal water quality and habitat. That an eelgrass bed was recently identified in West Falmouth Harbor, where it had not been seen previously, is a sign that the Town's efforts have led to recovery in at least part of the West Falmouth Harbor watershed.

Understanding the difficulties associated with addressing nonpoint source pollution, CZM commends the Town for its efforts made to date and appreciates that the NPC includes watershed-specific options in the event that the proposed plans are not adequate for nitrogen removal. However, the Town should increase the specificity in the individual TWMPs especially regarding performance standards and timelines for evaluating the innovative nitrogen removal strategies (e.g., aquaculture, stormwater improvements, pond management, and permeable reactive barriers). Chapter 12.4 mentions adaptive management and TMDL compliance but provides no details or firm timeline. The TWMPs should have an implementation schedule associated with achieving specific nitrogen removal goals as evidenced through field monitoring. Some strategies may be phased, but the timing of those phases should be made clear and all innovative strategies should have an adaptive management component and an alternative plan that is triggered when performance standards are not met within reasonable, pre-defined time periods.

As an example, the Summary of Compliance Approach for Bourne's Pond and its associated Table 8.1 (p. 8-3) list the proposed methods for reducing nitrogen in the Bourne's Pond watershed and the estimated quantities that each strategy may remove. Roughly half of the nitrogen load is proposed to be removed by shellfish aquaculture and harvest. Given the results to date and considering the uncertainties of weather and biology (predators, disease), expecting that such a large fraction of Bourne's Pond's nitrogen will be removed by shellfish may not be a reliable solution. Sewer extensions, upgrading onsite septic systems, and exploring locations for a permeable reactive barrier are listed as options that the Town could consider if the aquaculture program fails and/or additional nitrogen needs to be removed. The Bourne's Pond TWMP should explicitly state how many trial months are needed before the aquaculture program is deemed adequate/inadequate and at what point the alternatives will be triggered. The TWMP should also explicitly reference the water quality monitoring sentinel station and the value to be achieved (0.45 mg/l total nitrogen according to the Total Maximum Daily Load document) to demonstrate that the proposed 4,162 kg of nitrogen per year have been removed.

Regarding the credit for the Town's fertilizer bylaw and outreach efforts, while the contribution to nitrogen removal is only about 5% or less of the total for any given watershed, the figures for several watersheds show that nitrogen has not improved over the last 15 years (e.g., Figs 2.2, 2.5, 2.8, 2.11) despite five years of implementation of the fertilizer bylaw and while additional innovative methods such as aquaculture have been implemented. The NPC provides no data on the actual reduction in fertilizer use in Falmouth. MassDEP allows nitrogen "credits" of 25% of both the fertilizer and stormwater loads if a town commits to addressing them. However, for an accounting of actual nitrogen removal, the Town should make reasonable efforts to quantify the reduction in nitrogen from these two pathways.

In summary, CZM commends the Town of Falmouth for its commitment to improving coastal and estuarine habitats and significant investments made to date. For the next phase of the CWMP/TWMP, the Town should address the need for watershed permits, identify permit conditions for each of the proposed nitrogen remediation actions, work with MassDEP to propose enforceable timelines, and propose how the Town will plan for and manage additional nitrogen inputs associated with growth and development.

Federal Consistency

The proposed project may be subject to CZM federal consistency review. For further information on this process, please contact, Robert Boeri, Project Review Coordinator, at 617-626-1050 or visit the CZM web site at www.state.ma.us/czm/fcr.htm.

LE/tc

cc: Stephen McKenna, CZM Cape & Islands Regional Coordinator
Brian Dudley, MA DEP Southeast Regional Office, 20 Riverside Drive, Lakeville, MA 02347
Peter McConarty, Falmouth DPW, 59 Town Hall Square, Falmouth, MA 02540



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

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

January 28, 2020

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

RE: NPC Review. EOEEA #14154
FALMOUTH. Falmouth CWMP (South
Coast Embayments and West Falmouth
Harbor) at 180 Scranton Avenue

Dear Secretary Theoharides,

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Notice of Project Change (NPC) for the Falmouth CWMP (South Coast Embayments and West Falmouth Harbor) located at 180 Scranton Avenue, Falmouth, Massachusetts (EOEEA # 14154). The Project Proponent provides the following information for the Project:

The Town of Falmouth has worked diligently during the last five years, from the time that the initial Secretary's Certificate was issued, to develop and evaluate various demonstration/pilot projects as discussed in the approved CWMP/TWMP. This document provides an update of the findings of that work and next steps in the development of the next Targeted Watershed Management Plan for Great Pond as requested in the Secretary's Certificate. This is a continuation of the implementation of the approved plan and its adaptive management approach that is fundamental to our environmental and economic sustainability of Falmouth. This document also addresses the various issues raised in the Secretary's Certificate regarding the filing of subsequent NPC's related to the CWMP/TWMP process. We have consulted with the MEPA Office, the Massachusetts Department of Environmental Protection, the Cape Cod Commission and many other stakeholders on this document and on our overall planning process, and have responded to their input.

Bureau of Water Resources Comments

Wetlands and Waterways. The SERO Wetlands & Waterways Program has reviewed the above-referenced EOEA file. The proposed and active projects involve the development of a comprehensive

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

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wastewater management plan in the Little Pond, Great Pond, Green Pond, Bournes Pond, Eel Pond, Waquoit Bay East & West and West Falmouth Harbor watersheds, including several projects to demonstrate non-traditional technologies and approaches to reduce the extent of sewerage.

Wetlands Comments:

Based on the information submitted, it appears that several of the proposed Project components will be located within Wetlands Protection Act (WPA) jurisdiction; potential impacts to a variety of inland and coastal Areas Subject to Protection, including Riverfront Area, can be anticipated. Therefore, WPA Notices of Intent or/and Requests for Determination of Applicability will need to be submitted to the Falmouth Conservation Commission prior to any temporary or permanent alterations [except for planning and design activities that meet the provisions of the minor activity exemption at 310 CMR 10.02(2)(b)1.g.].

This municipal Project is subject to MassDEP's Stormwater Management Standards as a whole, although not all of the individual standards will apply to all components of the work. Notices of Intent and Water Quality Certification applications should include Stormwater Reports.

Waterways Comments:

The SERO Waterways Program offers the following comments on the Notice of Project Change (NPC) Update Report submitted by the Town of Falmouth.

- The widening of the Bourne Pond inlet, bridge replacement, jetty reconstruction, and associated dredging was authorized under DEP Waterways License No. 14802.
- A comprehensive dredge permit authorizing dredging at 24 locations in Falmouth, including the Bourne Pond inlet, was authorized under DEP Waterways Permit 13266 and 401 Water Quality Certification X238551.
- If any additional proposed work occurs within Chapter 91 *Geographic Areas Subject to Jurisdiction*, as defined at 310 CMR 9.04, consultation with the Waterways Program is necessary to determine if an additional permit, license, and/or authorization is required.

Wastewater Management. MassDEP's Southeast Regional Office is pleased to have the opportunity to comment on the Town of Falmouth's South Coast Embayments and West Falmouth Harbor CWMP/TWMP Notice of Project Change Update (the "NPC"). The Town is to be commended on its efforts to restore the south coastal Project impacted by nutrient enrichment and on its commitment to evaluating innovative approaches to help mitigate those impacts.

Introduction

The NPC has been prepared as a requirement of the Secretary of Energy and Environmental Affairs' January 10, 2014 Certificate on the Town's CWMP and TWMP. That Certificate stated:

"The NPC shall include: an update on construction and operation of the Little Pond sewerage project; and update on design, construction and implementation of pilot projects; documentation of progress towards achieving (TMDL') (sic) for each sub-watershed; data and analysis of water quality monitoring; and, based on the information developed over this time period, assessment of the effectiveness of the CWMP/TWMP in reducing nitrogen loads in Little Pond and other Project and the need for any revisions to the Falmouth CWMP/TWMP before initiating subsequent CWMP phases. The NPC will address how information, data, and subsequent analysis obtained over the five year period has informed the Town's strategy for meeting water quality standards and TMDLs for

Little Pond, Great Pond, Green Pond, Bournes Pond, Waquoit Bay East and the West Falmouth Harbor Project in Falmouth.”

The NPC provides a summary of activities completed since 2014 and those anticipated through 2040. The Town plans to utilize a variety of strategies including sewerage, shellfish aquaculture, permeable reactive barriers (PRBs), Innovative/Alternative (I/A) septic systems, fertilizer controls and stormwater management to achieve nitrogen reduction targets necessary to meet the TMDL in each of the Projects covered by the NPC.

The NPC contains a number of innovative and thoughtfully chosen alternative approaches to nutrient management; however, while ambitious in scope and despite admirable goals, it falls short in developing a clear schedule toward resource restoration and compliance with in all of the targeted embayment systems. MassDEP recognizes that this is a progress report, but expects that future submittals will more explicitly address the implementation schedule of nitrogen reduction strategies in the respective Project.

Wastewater Treatment

As noted in the West Falmouth Harbor discussion, the waste water treatment facility (WWTF) is scheduled for upgrades and improvements. The 2013 Draft CWMP/Draft Environmental Impact Report (DCWMP/DEIR/NPC) proposed to expand treatment at the Blacksmith Shop Road (BSR) WWTF from the existing 1.2 MGD to 2.1 MGD. It is not specifically stated in the NPC if this is still the proposal; however, MassDEP assumes that it is. The Town should clarify the ultimate design capacity. Technical Memorandum 4, presented as part of the Appendices, indicates that the BSR WWTF will maintain its treatment capabilities with the Teaticket/Acapesket Sewer Study Area (TASSA), but is unclear about the ability to handle future sewerage projects. The report provides a general outline of improvements/upgrades needed at the treatment works to accommodate both the increase in flow and reliability in performance. The proposed changes are consistent with existing operations and processes at the facility and all design issues will be addressed during plan and/or permitting review.

Wastewater Disposal

The NPC acknowledges limitations in wastewater recharge at the BSR WWTF that other options need to be explored to accommodate additional flows. The NPC appears to be focusing on the Allen Parcel for expanded effluent recharge as well as rerating the allowable loading at Infiltration Beds 14 and 15. However, this rerating, with an eye towards increasing the allowable discharge at these beds must be accompanied by appropriate analysis of potential impacts to downgradient receptors. Further investigations will proceed in 2020 and 2021 as part of the TWMT for Great Pond as well as through the BRP WP 81 Hydrogeological Review application process.

The 2013 DCWMP/DEIR/NPC discussed ocean outfalls as a possible option for a long term solution to wastewater disposal. The current NPC suggests that consideration of an outfall should be held in abeyance for the time being. Whereas land availability for wastewater recharge is becoming more of a Cape wide challenge, MassDEP believes that despite current restrictions, ocean outfall should be further discussed for feasibility in the Great Pond TWMP.

Opportunities for Regional Cooperation

It is MassDEP's opinion, supported by local studies, that economies of scale, both from a cost savings and a sustainability perspective, should drive the planning process to consider regional solutions. As

mentioned previously, future planning for the Waquoit Bay watershed may well benefit from coordinating with the towns of Mashpee and Sandwich with respect to whatever infrastructure or other alternative approaches may be needed to meet TMDLs in the combined Waquoit Bay – West and Waquoit Bay – East Project. In addition, Falmouth has been actively engaged in discussions with Barnstable, Bourne, Mashpee and Sandwich regarding a cooperative effort for a regional facility at Joint Base Cape Cod (JBCC). While the Town has acknowledged that at the present time it is interested only in disposal capacity over the long term, it should remain engaged in these regional discussions to maintain all its options. Additionally, the Town should move expeditiously with Mashpee and Sandwich to finalize an Inter-municipal Agreement (IMA) for the Waquoit watershed.

TMDL Compliance. The Town has passed a “Nitrogen Control Bylaw for Fertilizer Management” for which it intends to take a 25 % credit for reduction in the fertilizer loads, as calculated through the Massachusetts Estuaries Project (MEP) Technical Report. MassDEP is willing to accept this as a placeholder, but its effectiveness will have to be borne out by continued monitoring of water quality in Little Pond and subsequent Projects.

The Town has calculated a 25 % reduction credit for stormwater best management practices (BMPs). As in the fertilizer calculations MassDEP is willing to accept this as a placeholder with further monitoring required to demonstrate effectiveness. It should be mentioned, however, leaching catch basins may not be an effective nitrogen reduction strategy. Nitrate nitrogen is a conservative element and unless attenuated, will travel predominantly unimpeded through a homogenous sand and gravel aquifer. Effective stormwater management for nitrogen reduction will likely require alternatives such as the bioretention approaches listed in the NPC.

Shellfish aquaculture will continue to be monitored and evaluated for its effectiveness in providing improvements in water quality and nitrogen reduction. MassDEP is reviewing data regarding uptake in the flesh and shells of these organisms as a means of nitrogen reduction; however, the research on enhanced sediment denitrification associated with shellfish aquaculture is still too speculative at this point for this to be considered in a nitrogen management plan.

The Town is relying on I/A septic systems to make up the highest percentage of the remaining nitrogen reduction. MassDEP wants to make clear that there are currently no I/A systems approved for General Use that are able to perform at the level anticipated by the NPC, and until such time as any of these systems do achieve General Use approval, they are not considered as conventional technologies.

Finally, any future planning must address conventional contingency plans in the event that the alternatives proposed to augment the sewerage projects identified do not achieve the nitrogen reductions anticipated.

Little Pond

The Town has virtually completed the installation of new sewers in the Little Pond Sewer Service Area as proposed in the 2013 DCWMP/DEIR/NPC. Construction of this sewer extension is projected to significantly reduce the nitrogen load to Little Pond; however, as acknowledged in the 2013 DCWMP/DEIR/NPC, that the proposed sewerage alone would not be sufficient to meet the full nitrogen reduction targets. The NPC proposes continued monitoring of water quality in Little Pond to assess the effectiveness of sewerage on the watershed and to guide future actions. It must be noted

that the range of estimated nitrogen reductions as listed in the NPC bracket the removal goal; therefore, monitoring is critical in assessing the effectiveness of the proposed approaches.

Recognizing that there is a certain lag between sewer connections and the time water quality improvements will be observed, MassDEP agrees with the monitoring approach proposed while the Town pursues infrastructure projects in watersheds. However, if after a reasonable time, there is no discernable improvement in water and/or habitat quality, further action will be required have to be implemented to meet restoration goals.

West Falmouth Harbor

The upgrade of BSR WWTF, located in the West Falmouth Harbor watershed, from a former Class III discharge at an average of 23 mg/L total nitrogen to the current configuration has greatly reduced the nitrogen load to West Falmouth Harbor. The current groundwater discharge permit requires the WWTF's best efforts to discharge no more than 4,109 lbs-N/yr. This is the amount determined by the Massachusetts Estuaries Project (MEP) modeling to achieve the threshold concentration at the Harbor's sentinel station. The upgraded facility has been operating since 2006, and while improvements to the Harbor have not been as rapid as anticipated, there is recent data to suggest that habitat conditions (*i.e.* eelgrass restoration) are beginning to improve. However, the WWTF at times still struggles to meet its discharge goals.

The NPC provides a schedule for adding a third sequencing batch reactor (SBR) to the facility in order to improve performance and allow for more reliable and consistent treatment. Addition of this SBR, along with other proposed upgrades, should be complete by 2022.

Additionally, the Town has installed some I/A septic systems as part of a demonstration project to provide some more immediate reductions in nitrogen load and, at the same time, test the efficiency and performance of these systems to determine the level of treatment of which they may be capable. As with other embayments, the Town is looking for modest nitrogen removal credits from the Town's Fertilizer By-Law and Stormwater BMPs.

Great Pond

253 parcels in the Great Pond watershed have been connected to sewer as part of the Little Pond Sewer Service Area (LPSSA). In addition, the Town has developed the TASSA proposing to serve 1,791 parcels of which 1,289 are located in the Great Pond watershed. The proposed TASSA represents 7,179 to 9,105 kg-N/yr of the total N load reduction (12,154 kg-N/yr) for the watershed. This represents between 59% and 75% of the target removal. Alternative approaches suggest N removal credits for the fertilizer by-law, shellfish aquaculture, a PRB and the potential attenuation of N from the Coonamesset River Restoration Project. Given that the proposed conventional option does not meet the target goal, future planning must include a contingency plan utilizing proven technology to make up the difference.

As with Little Pond, it must be noted that the range of estimated nitrogen reductions listed in the NPC bracket the removal goal; therefore, monitoring is critical in assessing the effectiveness of the proposed approaches. Furthermore, there appears to be a discrepancy between the target load reductions appearing on Page 6-10 and in Table 6.2. MassDEP understands that the N load reduction in the table is correct. The discrepancy should be rectified.

The NPC sets a schedule for TASSA construction to commence in 2025. The Town should explore the possibility of consolidating the schedule in order to accelerate construction prior to that date.

Green Pond

The TASSA anticipates serving 502 parcels in the Green Pond watershed for an estimated nitrogen load removal of 2,058 to 2,610 kg-N/yr. This represents between 46% and 59% of the target removal. The plan for this watershed proposes to augment nitrogen removal from sewerage with credit for the fertilizer by-law, stormwater BMPs, shellfish aquaculture and restoration of the Mill Pond system to improve nitrogen attenuation. Monitoring water quality in Green Pond, as in all Projects, will guide future activities and gauge their effectiveness. Overall, the sum of nitrogen removal from all activities bracket the target nitrogen removal goal. Given that the proposed conventional option does not meet the target goal, future planning must include a contingency plan utilizing proven technology to make up the difference.

Bournes Pond

The proposed plan for Bournes Pond does not include any infrastructure proposals. The proposed inlet widening represents approximately 50% of the required load reduction with shellfish aquaculture providing an additional 32% to 40% with the remainder being made up with a credit for the fertilizer by-law and stormwater BMPs. The anticipated sum total of these activities exceeds the removal target. However, a removal of between 676 and 840 kg-N/yr from sediment denitrification associated with shell fish aquaculture is part of that equation. As stated previously, MassDEP believes that much more research is required to verify the efficacy of this credit and that it is premature to factor this into nitrogen removal mechanisms. Without this anticipated credit, the N removal range now brackets the N reduction target. Again, monitoring will be key in demonstrating the effectiveness of these proposals, but a contingency plan utilizing proven technology to address shortfalls must be provided in any future planning.

The NPC notes that the inlet widening should be completed by December 2022.

Waquoit Bay

The Towns of Falmouth, Mashpee and Sandwich are currently engaged in discussions about appropriate load allocations in order to develop an Inter-municipal Agreement (IMA) to manage jointly nitrogen reductions required in this watershed. The NPC addresses four sub-projects: Eel Pond, Childs River, Hamblin Pond/Little River, and Quashnet/Moonakis River.

Plans for Hamblin Pond/Little River appear to meet the nitrogen targets through the activities proposed by Mashpee in their approved CWMP. However, the activities proposed for the Quashnet/Moonakis Rivers do not meet the nitrogen targets. Mashpee sewerage is augmented by fertilizer reduction and stormwater management (presumably from Falmouth), but no other provisions are documented or discussed to meet the target threshold, including any conventional contingency plans. For Childs River, proposed sewer extensions achieve approximately between 60% and 80% of the required load reduction, but once again, the range of estimated reductions bracket the target reduction goal with no contingency plan to address the potential deficiencies. Finally, the estimated nitrogen load reductions in Eel Pond exceed the removal goal and can be achieved entirely through the proposed sewerage program. Unfortunately, due to the structure of the overall watershed, it does not appear that the excess nitrogen removed in Eel Pond would be available to offset the shortfalls in the other subembayments.

Adaptive Management

The NPC largely relies on the concept of adaptive management to meet TMDL compliance. While there are many interpretations of what “adaptive management” actually means, MassDEP views it as a certain amount of flexibility to recognize alternative approaches that allow for mid-course corrections in the implementation of a recommended plan. As such, a plan that clearly leads to TMDL compliance must be presented in the document and as alternative technologies or approaches are shown to be effective, they may be appropriately incorporated into revisions of the original plan dependent on their relative nitrogen removal credits.

Conclusion

The NPC is an ambitious step forward. MassDEP commends Falmouth’s effort to start to address the town’s nitrogen issues in a phased approach. MassDEP is encouraged by the town’s willingness to look at alternatives while at the same time reserving judgment on their effectiveness until they can be fully evaluated under field conditions.

Given the reliance of alternative approaches, the Town and MassDEP must determine if and when the Town should pursue watershed permits in the individual watersheds.

However, MassDEP believes that the NPC lacks a defined schedule for the Project other than Great and Bournes Pond (and to some degree Green Pond). While it is understood that this is an adaptive management plan and that much depends on the results of the demonstration projects, there is no backup plan identified that will result in TMDL compliance for any of the identified Project except for the Waquoit watershed and the WFH watershed (dependent on future modeling). Additionally, there is no prioritization to suggest a sequence in which the Project should be addressed after Great Pond or cost (other than a projected \$40 million) for 2025 through 2040. MassDEP strongly believes that an alternative for TMDL compliance must be identified within an appropriate planning horizon or else much time and effort will have gone into planning and implementation without generating the desired result of habitat restoration in the impacted embayment systems.

Recognizing that a central tenet of financing the plan is to retire old debt before assuming new debt without tax increases, the town’s anticipated capital outlays for all aspects of the town’s needs should be described as part of future submittals. It is noted that the Table 11.7 does mention betterment percentages and this discussion should be further developed to provide a sound financial plan. While not relieving the town from its responsibility to meet TMDLs, this exercise certainly has the benefit of putting the town’s fiscal challenges in proper perspective.

Finally, MassDEP recognizes that the Town is prioritizing its south coast embayments, but it must not lose sight of the need to address other impaired embayments such as Falmouth Inner Harbor, Quisset Harbor, Rands Harbor/Canal, Wild Harbor and Megansett/Squeteague Harbors.

MassDEP recognizes that the NPC is clearly the result of hard work and thoughtful deliberation. Furthermore, MassDEP believes that the NPC can serve as the basis of a sound and innovative plan that with appropriate modifications can accommodate both the needs of the town and MassDEP. MassDEP looks forward to working cooperatively with Falmouth, as both parties have in numerous past occasions, in order to achieve the goal of habitat restoration that we both ardently desire.

Bureau of Waste Site Cleanup Comments

NPC #14154 – 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 Comprehensive Wastewater Management Plan is long-term project (2009 – 2040) spanning a very large area (27,251 acres). There are many MCP sites located near and possibly within the proposed project area. Some of these sites have been closed, but other sites require on-going response actions and reporting until final closure under the MCP. A list of all MCP sites will not be presented here. Interested parties may 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”. MCP reports and the compliance status of specific disposal sites may be viewed using the BWSC Waste Sites/Reportable Release Lookup at: <https://eeaonline.eea.state.ma.us/portal#!/search/wastesite>

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

Bureau of Air and Waste (BAW) Comments

Air Quality. 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

Construction-Related Measures. MassDEP requests that all non-road diesel equipment rated 50 horsepower or greater meet EPA’s Tier 4 emission limits, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the Proponent should use construction equipment that has been retrofitted with appropriate emissions reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of equipment on file for Departmental review.

Massachusetts Idling Regulation. MassDEP reminds the Proponent that unnecessary idling (i.e., in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project (310 CMR 7.11). With regard to construction period activity, typical methods of reducing idling include driver training, periodic inspections by site supervisors, and posting signage. In addition, to ensure compliance with this regulation once the Project is occupied,

MassDEP requests that the Proponent install permanent signs limiting idling to five minutes or less on-site.

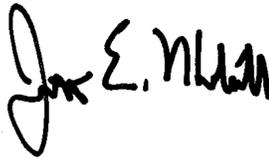
Proposed s.61 Findings

The “Certificate of the Secretary of Energy and Environmental Affairs on the Notice of Project Change” 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.

Other Comments/Guidance

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this NPC. If you have any questions regarding these comments, please contact George Zoto at (508) 946-2820.

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, BWR
Gerard Martin, Deputy Regional Director, BWSC
Seth Pickering, Deputy Regional Director, BAW
Jennifer Viveiros, Deputy Regional Director, ADMIN
Brian Dudley, Chief, Wastewater Management and MEP, BWR
Andrew Osei, Wastewater Management, BWR
Jim Mahala, Chief, Wetlands and Waterways, BWR
David Hill, Wetlands and Waterways, BWR
Nate Corcoran, Wetlands and Waterways, BWR
Brendan Mullaney, Wetlands and Waterways, BWR
Allen Hemberger, Site Management, BWSC

Responses to Comments on the 2022 Draft Great Pond Targeted Watershed Management Plan

This memo addresses comments received from the public and environmental review process for the Draft Great Pond Targeted Watershed Management Plan.

This response to comments document is organized by comment letter. First, the comment letter author and date are listed, then excerpts from the letter covering each issue raised are printed in standard type, and then the response to each issue is provided ***bold italics***.

All “Section” references in this response to comments document are to Sections of the Final Great Pond Targeted Watershed Management Plan unless otherwise specified. Reviewers and Commenters can refer to these sections for further information about how we have addressed the comments. All written comment letters are attached at the end of this document.

Comments were received from the following entities and individuals:

- 10/11/2022 Secretary of Energy and Environmental Affairs (Certificate)
- 8/19/2022 Massachusetts Office of Coastal Zone Management
- 8/26/2022 Janet Kleuver
- 8/28/2022 Don Mallinson
- 8/30/2022 Kathleen Stigberg
- 9/29/2022 Buzzards Bay Coalition
- 9/29/2022 Massachusetts Department of Environmental Protection (MassDEP) / Southeast Regional Office (SERO)
- 7/21/2022 Email from David Dow to Amy Lowell (Town of Falmouth)

1. EOEEA Certificate of the Secretary of Energy and Environmental Affairs, Dated October 11, 2022

1.1 General

The Supplemental EIR/Final TWMP should provide an updated overview of the Preferred Alternative for the Great Pond TWMP and identify any changes since the filing of the 4th NPC/Draft TWMP.

Response: No changes have been made to the Preferred Alternative since the filing of the 4th NPC/Draft TWMP. None of the modifications incorporated into the Final TWMP/EIR result in a change to the Preferred Alternative.

1.2 Project Description and Permitting

The Supplemental EIR/Final TWMP should provide estimates of the environmental impacts of the TWMP, including impacts on rare species habitat, wetlands, water quality, historic and cultural resources, land protected under Article 97 and ACECs.

Response: Environmental impacts on rare species habitat, wetlands, water quality, historic and cultural resources and land protected under Article 97 and ACECs are evaluated in Section 10 of the Final TWMP / EIR.

It should include detailed responses to comments received on the 3rd NPC, which were to have been provided in the 4th NPC/Draft TWMP, as well responses to comments submitted on the 4th NPC/Draft TWMP,

Response: Responses to comments received on the 3rd NPC are provided in the 2020 MEPA response memo now included in Appendix 1-1 to the Final TWMP / EIR. Responses to comments received on the

4th NPC are provided in this 2022 MEPA response memo. Both sets of comment letters are included in the Final TWMP / EIR Appendix 1-1.

including a commitment to provide MassDEP and the Buzzards Bay Coalition with copies of the SMAST Herring Brook study when it is completed.

Response: The Town of Falmouth will submit the SMAST Herring Brook study to MassDEP and the Buzzards Bay Coalition when it is completed.

In order to ensure that the issues raised by commenters are addressed, the Supplemental EIR/Final TWMP should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended to, and shall not be construed to, enlarge the Scope of the Supplemental EIR/Final TWMP beyond what has been expressly identified in this certificate.

Response: Responses to comments received on the 3rd NPC are provided in the 2020 MEPA response memo. Responses to comments received on the 4th NPC are provided in this 2022 MEPA response memo. These are included in the Final TWMP / EIR Appendix 1-1.

The Supplemental EIR/Final TWMP should provide an update on watershed permitting, and any updated analysis of flow rates or effluent disposal that may be available at the time of the filing.

Response: No changes have been made to the flow rate and effluent disposal analysis since the filing of the 4th NPC/Draft TWMP. None of the modifications incorporated into the Final TWMP/EIR result in a change to these analyses. At the time of the filing of the Final TWMP/EIR the MassDEP watershed permitting regulations are still in draft form and have not been finalized.

The Supplemental EIR/Final TWMP should also address how the TWMP will be modified to accommodate estimated flows from future anticipated development, and when any additional upgrades to the WWTF could be anticipated.

Response: The Final TWMP / EIR includes a 20% wastewater allocation for undesignated redevelopment within the TASA collection system (as outlined in Table ES.1). Anticipated growth in the Great Pond watershed will be evaluated through the Town's adaptive management program and the Great Pond TMDL Compliance Approach will be modified, if needed, based on the findings of the adaptive management program. Additional upgrades to the WWTF are anticipated at the completion of the Great & Bournes Pond TWMP and Waquoit Bay TWMP. The TWMP Development Schedule for both documents is outlined in Table 9.6 – Future TWMP Development Schedule.

1.3 Climate Change, Adaptation and Resiliency

The Supplemental EIR/Final TWMP should develop climate change scenarios for the project and identify potential adaptation measures. It should review the capacity of the wastewater collection and treatment systems under projected levels of precipitation and sea level conditions and the resiliency of the system to the effects of climate change. The Supplemental EIR/Final TWMP should identify any components, such as pump stations, located within coastal or inland flood zones and consider alternative locations for the infrastructure or identify design measures to improve the resiliency of the project. I encourage the Town to use the MA Climate Resilience Design Standards Tool prepared by the Resilient Massachusetts Action Team (RMAT) (the "MA Resilience Design Tool") to evaluate climate risks and assist in climate resilience strategies to be undertaken by the project. Effective April 2022, the Tool now provides numeric values for the 24-hour rainfall event based on various storm scenarios and planning horizons (e.g., 100-year storm as of 2070), based on user inputs. These values or other available climate data should be used to assess the resiliency of the wastewater infrastructure, including the WWTF and pump stations.

Response: A MA Climate Resilience Design Standards Tools analysis was conducted for the Preferred Alternative and is summarized in Section 6.1 of the Final TWMP / EIR.

1.4 Future Filings

The 4th NPC/Draft TWMP indicated that the Town will file one or more NPCs over the next nine years to document the TWMPs for Green Pond, Bournes Pond and Waquoit Bay, and to evaluate an ocean outfall. The Supplemental EIR/Final TWMP should provide an anticipated schedule for the submittal of the next NPC(s). To outline the parameters for future reviews of TWMPs and other filings, and in light of the Town's anticipated plans to apply for a watershed permit (which would constitute a new Agency Action for MEPA purposes), I encourage the Town to request a Special Review Procedure (SRP) for MEPA review of submittals that will follow the Final TWMP for Great Pond. The Town should consult with the MEPA Office on the development of the SRP, which, if developed for the CWMP, would be available for public review and comment before it is finalized. The SRP could establish a standard framework for determining the scope of MEPA review of future projects without the need for case-by-case determinations of MEPA jurisdiction.

Response: The proposed schedule for future Notice of Project Change reports is outlined in Section 9.3. The Town will consult with the MEPA Office regarding the appropriate planning document and review process for the next phase of planning when the next phase of planning commences.

1.5 Mitigation and Draft Section 61 Findings

The Supplemental EIR/Final TWMP should include a separate chapter summarizing proposed mitigation measures, including measures to address construction impacts of the project.

Response: Proposed mitigation measures are summarized in Section 7.3 of the Final TWMP / EIR.

This chapter should also include draft Section 61 Findings for each permit or other approval to be issued by State Agencies.

Response: Draft Section 61 Findings are summarized in Section 7.2 of the Final TWMP / EIR.

The draft Section 61 Findings should be updated to include any additional mitigation that may be warranted, based on a review of impacts of the Final TWMP as a whole. The Supplemental EIR/Final TWMP should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and a schedule for implementation. It should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing.

Response: Planned mitigation measures for the TASA Collection System Phases 1 and 2 are outlined in Section 7.3.2. Planned mitigation measures for the TASA Improvements Falmouth WWTF Upgrade and Recharge Facilities for TASA / ESRA Flows projects are outlined in Section 7.3.3. As outlined in the report anticipated costs to implement the planned mitigation measures are carried in the overall project cost estimates outlined in Section 5.1.2.5.

2. Massachusetts Executive Office of Energy and Environmental Affairs, Office of Coastal Zone Management; August 19, 2022

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Notice of Project Change (NPC), noticed in the Environmental Monitor dated August 10, 2022, and offers the following comments.

2.1 Project Description

This NPC provides an update to the town's approved Comprehensive Wastewater Management Plan (CWMP) outlining the Targeted Watershed Management Plan for Great Pond as called for by the February 7, 2020, Secretary's Certificate, EEA-14154. The CWMP seeks to address nutrient loading and eutrophication in the watersheds of Little Pond, Great Pond, Green Pond, Bourne's Pond, and Waquoit Bay on the Nantucket Sound side of Falmouth, as well as the West Falmouth Harbor watershed in Buzzards Bay. The 20-year plan (2015 to 2035) proposes a range of strategies including: sewerage, upgrading the wastewater treatment facility in West

Falmouth, widening the Bourne's Pond inlet, and implementing a variety of non-traditional wastewater and nitrogen management methods.

Response: No response required.

2.2 Project Comments

CZM has reviewed the proposal to remediate 12,154 kg of N/year via a combination of sewerage, shellfish aquaculture, installation of a permeable reaction barrier (PRB), stormwater treatment, and fertilizer management and believes the plan appears reasonable. CZM continues to urge caution regarding the efficacy and reliability of in situ biological remediation of groundwater (via PRB) and surface water (via aquaculture) nitrogen. The town acknowledges this concern with a contingency compliance alternative outlined in section 5.2 where an additional section of town would be sewerage in order to remove up to 4,966 kg of N/year if non-sewerage nitrogen remediation actions produce the expected results. However, it is not clear under what conditions the contingency would be triggered. The town should establish an explicit timeframe over which the PRB, aquaculture, and other remediation methods will be evaluated and the specific conditions that would trigger implementation of the additional sewerage contingency should the alternative remediation measures not produce sufficient results.

Response: The Town is committed to long-term monitoring of surface water quality in Great Pond as part of the Town's Adaptive Management and Monitoring Program, described in Section 5.4 of the Final TWMP / EIR. Water quality monitoring findings will be used to assess the need to implement the Contingency Alternative as part of this Adaptive Management and Monitoring Program.

2.3 Federal Consistency Review

The proposed project may be subject to CZM federal consistency review and if so must be found to be consistent with CZM's enforceable program policies. For further information on this process, please contact Robert Boeri, Project Review Coordinator, at robert.boeri@mass.gov, or visit the CZM web site at <https://www.mass.gov/federal-consistency-review-program>.

Response: The project will undergo CZM federal consistency review, if required.

3. Janet Kluever, August 26, 2022

The technology chosen for the proposed plan (centralized sewerage) is the most expensive and least environmentally sound option. The plan should instead be based primarily on urine diversion technologies as the most cost effective way to achieve the greatest environmental benefit. Urine diversion is the "Innovative, alternative on-site system " which appears to provide the greatest environmental and cost benefit. The plan should be returned to the Town for a careful comparison and [re]evaluation of the "innovative, alternative on-site alternative" of urine diversion technology compared to sewer technology with regard to cost, energy use, nutrient recovery, environmental impact, greenhouse gas emissions, and long-term social equity.

The objectives in developing a TWMP plan include

"... a final plan [should be] chosen through careful comparison and evaluation of the alternatives."

The plan chosen should be "...the most environmentally sound and the most cost effective." – "A screening process should be employed to determine those alternatives which appear to provide the greatest environmental and cost benefit."

"Decentralized alternatives should be evaluated in meeting long-term wastewater treatment and disposal needs.", particularly "...Innovative, alternative on-site systems."

The Town has not even considered this technology despite a study by The Green Center that proves its worth. I am greatly disturbed by their tunnel vision that focuses only on sewers as a solution to this problem.

Response: Section 3.4 of the Final TWMP / EIR discusses the pilot program that was implemented by the Town of Falmouth to evaluate the nitrogen removal, costs, and public acceptance aspects of eco-toilets. As outlined in Section 3.4, due primarily to the low public participation in the pilot project, at this time Falmouth does not have plans to pursue additional eco-toilet initiatives. The Town's ecotoilet

pilot program and results were described in thorough detail in the “Final Report to the Town of Falmouth Performance of Eco-Toilets” dated April 2018, prepared by Erika Woods & George Heufelder of the Barnstable County Department of Health and Environment for The Falmouth Water Quality Management Committee, which was included as Appendix 3.3 of the Town’s 2018 “Notice of Project Change to the CWMP/FEIR and TWMP.”

Sections 3.2-3.3, 3.5-3.7 and 3.9 of this Final TWMP / EIR outline how several non-traditional nitrogen and wastewater management technologies are incorporated into the Town’s planning process.

4. Don Mallinson, August 28, 2022

Flush and forget is a wonderful approach for users. Much better than emptying chamber pots out the window or even trips to the outhouse in winter. Centralized wastewater treatment is super convenient for you and me, too, but least environmentally sound and extremely expensive just to be able to flush and forget.

I suggest the proposed Sewer Great Pond plan chosen be the:

1. Most environmentally sound and the most cost effective.
2. Screening process should be employed to determine those alternatives which appear to provide the greatest environmental and cost benefit.
3. Decentralized alternatives should be evaluated in meeting long-term wastewater treatment and disposal needs, particularly “innovative, alternative on-site systems.”
4. Urine diversion is an “innovative, alternative on-site system” which appears to be the most environmentally sound and most cost effective alternative that would meet the Town’s long term wastewater treatment and disposal needs.

The plan instead should be based primarily on urine diversion technologies as the most cost effective way to achieve the greatest environmental benefit. Urine diversion is the innovative on-site system which appears to provide the greatest environmental and cost benefit.

Response: Section 3.4 of the Final TWMP / EIR discusses the pilot program that was implemented by the Town of Falmouth to evaluate the nitrogen removal, costs, and public acceptance aspects of eco-toilets. As outlined in Section 3.4, due primarily to the low public participation in the pilot project, at this time Falmouth does not have plans to pursue additional eco-toilet initiatives. The Town’s ecotoilet pilot program and results were described in thorough detail in the “Final Report to the Town of Falmouth Performance of Eco-Toilets” dated April 2018, prepared by Erika Woods & George Heufelder of the Barnstable County Department of Health and Environment for The Falmouth Water Quality Management Committee, which was included as Appendix 3.3 of the Town’s 2018 “Notice of Project Change to the CWMP/FEIR and TWMP.”

Sections 3.2-3.3, 3.5-3.7 and 3.9 of this Final TWMP / EIR outline how several non-traditional nitrogen and wastewater management technologies are incorporated into the Town’s planning process.

5. Kathleen Stigberg, August 30, 2022

I write to encourage the Town Of Falmouth to consider Urine Diversion as a most cost effective method to this TWMP. I advise you to sit down with Hilde Maingay and Earle Barnhart at the Green Center, Inc. They have devoted their lives to saving our environment. There are entire towns and provinces throughout the world that are adhering to these simple methods that perform better and are far more cost effective and practical. It has been determined that if 87% of men urinated into a urinal that went to an underground tank, which could be pumped out, pasteurized for \$.01 per gallon and then delivered to farms to fertilize their fields. That Urine diversion (or 43% of men and women. It is just easier for men), would remove the amount of nitrogen that is destroying our water ways. The nitrogen and phosphorus are do not have to be treated and then retracted, because we cannot grow food without phosphorus. This is enormously costly and stupid. There are only 4 places in the world where phosphorus can be mined; Russia, China, U.S. and the other escapes me. There is only about an 80 year supply. So, why would we take this valuable source of phosphorus and Nitrogen and put it in a sewage treatment plant. It is as shortsighted as what we currently do by bringing our waste deep into the earth and then wait for it to travel into our watershed. At a time where the consequences of climate change are

causing the suffering of millions of people in this country and around the world, I would encourage you to be more forward in your approach. The plan should be the most environmentally sound and most cost effective. It is neither.

One would never expect that some beautiful homes in Falmouth have composting toilet systems. They are odorless, waterless, cost effective and environmental and economically superior to the grossly massive systems that always become problematic and cost the homeowner and the taxpayer huge amounts of money. Please be open minded and forward thinking. Thank you for your time.

Response: Section 3.4 of the Final TWMP / EIR discusses the pilot program that was implemented by the Town of Falmouth to evaluate the nitrogen removal, costs, and public acceptance aspects of eco-toilets. As outlined in Section 3.4, due primarily to the low public participation in the pilot project, at this time Falmouth does not have plans to pursue additional eco-toilet initiatives. The Town's ecotoilet pilot program and results were described in thorough detail in the "Final Report to the Town of Falmouth Performance of Eco-Toilets" dated April 2018, prepared by Erika Woods & George Heufelder of the Barnstable County Department of Health and Environment for The Falmouth Water Quality Management Committee, which was included as Appendix 3.3 of the Town's 2018 "Notice of Project Change to the CWMP/FEIR and TWMP."

Sections 3.2-3.3, 3.5-3.7 and 3.9 of this Final TWMP / EIR outline how several non-traditional nitrogen and wastewater management technologies are incorporated into the Town's planning process.

6. Buzzards Bay Coalition, September 29, 2022

The Buzzards Bay Coalition (Coalition) has reviewed the "Draft Great Pond Targeted Watershed Management Plan" (2022 TWMP) and offers the following comments.

The Coalition is a nonprofit, membership organization dedicated to the restoration, protection and sustainable use and enjoyment of Buzzards Bay and its watershed. The Coalition works to improve the health of the Bay ecosystem for all through education, conservation, research and advocacy and is supported by more than 10,000 individuals, families and businesses throughout the region, including over 1,437 who live in Falmouth.

It is clear that Falmouth faces a serious issue with respect to nitrogen pollution threatening its economy and environment if left unaddressed. The Coalition supports Falmouth's investment in wastewater planning and expanded infrastructure. In fact, the Coalition supported Falmouth's \$24Million wastewater spending article at Falmouth's 2022 Annual Meeting. However, while the Coalition continues to view this planning document as an important step in both Falmouth's and the region's efforts to combat nitrogen pollution, we urge the Secretary to make clear that increased discharges of wastewater to beds 14 and 15 at the wastewater treatment facility should not be pursued by Falmouth. It is critical that Falmouth's efforts to solve the nitrogen pollution problem in their South Coastal Ponds does not cause or contribute to nitrogen impairment in coastal waters in the western part of town.

Simply put, Falmouth must make responsible wastewater disposal decisions now for future generations. Falmouth does this by prioritizing an ocean outfall as their long-term wastewater disposal solution.

6.1 Prioritize an Ocean Outfall to the Sound

The Coalition urges Falmouth to prioritize an ocean outfall into Nantucket Sound as the best investment in Falmouth's wastewater disposal needs, the best environmental outcome available, and the most equitable as the sewer service being provide for the Great Pond area is within the same coastal watershed draining to the Sound. Falmouth must abandon the short-term and irresponsible idea of discharging to beds 14 and 15 in West Falmouth.

Response: As outlined in Section 9.3 the Town has begun ocean outfall evaluations to assess the feasibility of this alternative and plans to thoroughly investigate the ocean outfall option for future treated wastewater flows. The Town appreciates the Coalition's support for this initiative and hopes to collaborate with the Buzzards Bay Coalition on this issue moving forward.

There are many reasons why an ocean outfall is the best option. The Coalition's comments provide three primary reasons why Falmouth MUST pursue an ocean outfall and abandon land-based disposal options currently under consideration.

a. Herring Brook is an Inappropriate Location to Receive Wastewater Discharges.

Herring Brook is a saltmarsh adjacent to one of the Cape's most beloved bathing beaches, Old Silver Beach. The saltmarsh has been explored and enjoyed by children for generations. The 2022 TWMP indicates that expanded land-based discharge to existing disposal beds 14 and 15 is the preferred short-term alternative. Groundwater modeling performed by Falmouth's consultants confirmed that 15% of the discharge from recharge beds 14 and 15 is expected to flow to Herring Brook resulting in a near tripling of the existing nitrogen load to that waterbody. The Coalition's appeal of Falmouth's 2015 groundwater discharge permit resulted in a requirement to offset new nitrogen to Herring Brook from an increased discharge of wastewater. Those offsets have not occurred.

Herring Brook suffers from nitrogen impairment and is listed on the Massachusetts Year 2012 Integrated List of Waters requiring the development of a Total Maximum Daily Load "TMDL". It has been and continues to be the Coalition's position that any nitrogen discharged to Herring Brook, unless offset, will further impair that waterbody in violation of state law.

Response: The Town respectfully disagrees with the way in which the Coalition describes the discharge and discharge permit compliance. The Coalition's comment makes it sound like the Town is discharging nitrogen directly to Herring Brook, whereas the Town is discharging, in accordance with its groundwater discharge permit, tertiary-treated wastewater to the ground thousands of feet southeast of (not directly upgradient of) Herring Brook. The Town is operating in compliance with its groundwater discharge permit.

Expansion of Open Sand Beds 14 and 15 is a critical part of the Town's short term plan to improve water quality in Great Pond. The Herring Brook study will provide feedback regarding the wetland's ability to accommodate additional nutrient load. For mid- to long-term flows, the Town is evaluating the feasibility of an ocean outfall. If the outfall is successful, the Town will stop discharge to Open Sand Beds 9-15. If the outfall is unsuccessful, Falmouth will construct land-based area in the Vineyard Sound watershed (at the Augusta, Allen or Golf Course parcel) for future flows.

The 2015 appeal also resulted in Falmouth's commitment to partner with the Coalition to design a Nutrient Threshold Study for Herring Brook. The purpose of this study was to understand the health of the estuary and what impact increased nitrogen loading from the discharge site would have on it. Falmouth failed to partner with the Coalition on said study. Instead, Falmouth pursued a study on their own. Falmouth did not collaborate with the Coalition on the study, did not inform the Coalition of the study, and did not seek any feedback from the Coalition on the Scope of the study or on contractor selection. Falmouth anticipates a completed study by UMass Dartmouth's School of Marine Science and Technology in 2023. The Coalition notes the evasive manner in which Falmouth pursued the study and will critically review the results of the study when they become available. The Coalition specifically requests that the Secretary require Falmouth to provide the Coalition a draft of the study once available and provide the Coalition with a 90 day comment period.

Response: The Town will provide the Herring Brook report to the Coalition upon receipt.

The Coalition urges the Secretary to specifically reject land-based disposal at beds 14 and 15 as an alternative.

b. Increasing Nutrients to Freshwater Ponds Must be Avoided

Freshwater ponds Cape-wide are regularly showing the adverse impacts of nutrient pollution. Closures due to cyanobacteria are unfortunately routine and expose the public to serious health risks. These cyanobacteria closures are due to warmer waters and excessive levels of nutrients entering the freshwater ponds, including nutrients from wastewater.

It is inevitable that land-based discharges will impact the Cape's extensive network of freshwater ponds. Falmouth's engineers found that 42% of the bed 14 and 15 groundwater plume would flow to Crocker Pond.

Falmouth's discharge at beds 14 and 15 already places the pond at risk. Increasing this discharge will further add nutrients to this vulnerable surface water.

Alternatively, if Falmouth continues to discharge at groundwater sites, Falmouth must immediately pursue Phosphorus treatment at the wastewater treatment facility.

Response: Expansion of Open Sand Beds 14 and 15 is a critical part of the Town's short term plan to improve water quality in Great Pond. The Herring Brook study will provide feedback regarding the wetland's ability to accommodate additional nutrient load. In the long term, the Town evaluating the feasibility of an ocean outfall. If the outfall is successful, the Town will stop discharge to Open Sand Beds 9-15. If the outfall is unsuccessful, Falmouth will construct land-based area in the Vineyard Sound watershed (at the Augusta, Allen or Golf Course parcel) for future flows. As discussed in Section 4.4.2 a phosphorus evaluation was conducted and indicated a soil absorption capacity between the beds and Crocker Pond of at least 100 years. The Town's groundwater monitoring program for Open Sand Beds 14 & 15 has indicated that the only well with a clear total phosphorus concentration trend increase associated with the discharge is MW-21A, the shallowest of two wells constructed less than 10 feet horizontally from the open sand beds (the increase at this location was anticipated).

c. Inequitable Treatment of Buzzards Bay Water Quality

Falmouth's discharges to Buzzards Bay waters are not grounded in sound science. In fact, the ecology and water quality in Buzzards Bay is more vulnerable to nutrient pollution than the open, well flushed waters of Vineyard and Nantucket Sound. It makes little sense to transfer nitrogen pollution away from Vineyard and Nantucket Sound and add it to the more sensitive water of Buzzards Bay.

Allowing a further discharge to Herring Brook and Buzzards Bay continues a policy of inequitable discharge of pollution into Buzzards Bay and the pollution must be mitigated. Chapter 7 of the 2022 TWMP identifies proposed mitigation measure for each permit issued by the state for the Great Pond project. The 2022 TWMP states that the removal of nitrogen from entering Great Pond will make substantial progress towards achieving the Great Pond TMDL. However, the 2022 TWMP does not account for the adverse impacts suffered by Buzzards Bay waters as the receiving waters of the nitrogen load from the Great Pond sewer project.

Buzzards Bay currently receives a permitted flow of 710,000 gallons per day of treated wastewater and associated nitrogen and phosphorus load from non Buzzards Bay watersheds. As Falmouth pursues cleanup efforts in other areas of towns, the nutrient pollution is being transferred to Buzzards Bay estuaries – estuaries that are also suffering from nitrogen pollution. There is no other municipal wastewater treatment facility in the Buzzards Bay watershed that transfers pollution from outside the Buzzards Bay watershed. Falmouth is the only Bay community that has been allowed to transfer pollution load from one watershed to another.

In order to compensate for the transfer of pollution to Buzzards Bay waters, the Secretary should require Falmouth to plan for and pursue mitigation efforts that remove existing sources of nitrogen in an amount equal to the nitrogen added to Buzzards Bay waters.

6.2 West Falmouth Harbor Fails to Meet Water Quality Standards and TMDL.

Despite limitations on the discharge at Falmouth's wastewater treatment facility, West Falmouth Harbor continues to suffer from some of the worst water quality in all of Buzzards Bay. The 2022 TWMP includes a contingency compliance approach for the Great Pond watershed which includes additional sewerage needs in the event the first phase does not meet the TMDL. The 2022 TWMP must also include a contingency compliance approach for West Falmouth Harbor

The Coalition requests that the Secretary require Falmouth to develop a contingency compliance approach for West Falmouth Harbor.

Response: The effluent plume from the original WWTF has taken much longer to flush from the groundwater than originally estimated. The Total Nitrogen concentration in MW-19 (the monitoring well closest to Snug Harbor) has reached 3 mg/L only this year, 17 years after discharge from the upgraded WWTF began in 2005. The nitrogen concentration in West Falmouth Harbor is still expected to decrease as the load from the old WWTF flushes out. As noted above, expansion of Open Sand Beds 14 and 15 is

a critical part of the Town's short term plan to improve water quality in Great Pond. The Herring Brook study will provide feedback regarding the wetland's ability to accommodate additional nutrient load. In the long term, the Town is evaluating the feasibility of an ocean outfall. If the outfall is successful, the Town will stop discharge to Open Sand Beds 9-15. If the outfall is unsuccessful, Falmouth will construct land-based area in the Vineyard Sound watershed (at the Augusta, Allen or Golf Course parcel) for future flows.

6.3 Board of Health Regulations for New Development

It is clear that Falmouth has invested significantly in wastewater planning. However, new development constructed in town and outside the sewer service area is undoing the investment Falmouth has made in cleaning up their estuaries. Falmouth's Board of Health should require all new construction to install nitrogen reducing septic systems that reduce nitrogen by 75%.

An increasing number of Boards of Health in southeastern Massachusetts have passed regulations requiring new construction to install a nitrogen reducing septic system. The Coalition looks forward to supporting Falmouth's Board of Health in the passage of a similar requirement in order to protect Falmouth's investment.

Response: The Water Quality Management Committee has been working on a draft bylaw that would mandate the use of I/A's within a 300 ft. boundary of specific impaired water bodies. The specific impaired water bodies are those that could potentially meet their TMDL using I/A septic systems capable of achieving an average effluent concentration ≤ 10 mg N/L. The draft bylaw is included as Appendix 3.16 to the Final TWMP / EIR. There are other areas in Falmouth's watersheds where I/As could be appropriate (for example, less densely developed areas, and upper watersheds; areas where sewers are not envisioned). However, as the Coalition is aware, it would be extremely helpful if the DEP improved its process for review and approval of I/A systems, to (1) add a new category of I/A system approval for systems that achieve a lower effluent nitrogen concentration and/or greater percent nitrogen reduction and (2) to simplify and accelerate the approval process for these systems.

6.4 Compliance Approach for Buzzards Bay Estuaries Needed

The 2022 TWMP provides a compliance approach for only a subset of Falmouth's watersheds and remains silent on plans to meet TMDLs for other critical coastal waters in town. TMDLs have been issued for Quisset Harbor, Wild Harbor, Rands Harbor, Fiddlers Cove and is in draft form for Megansett Harbor. The Coalition requests that the Secretary require Falmouth to establish a compliance approach for all Falmouth estuaries within twelve months of the approval of the 2022 NPC.

Response: The Town agrees that a compliance approach is needed for all of Falmouth's estuaries and has systematically been developing and implementing targeted watershed management plans for its estuaries. Due to the large number of impaired estuaries in Falmouth and the complexities of the planning effort, twelve months is an unrealistic timeframe for this effort.

6.5 Existing Sewer Area Redevelopment Allocation

The 2022 TWMP allocates 140,000 gallons per day to Existing Sewer Area Redevelopment Allocation (ESRA). If this ESRA represents new flow volume to the wastewater treatment facility, the Coalition urges Falmouth to require such new developments to offset the additional flow. New flow within the existing sewer service area takes sewer treatment capacity away from sewer existing on-site septic systems and adds new sources of wastewater pollution to Buzzards Bay waters.

Response: The Town's flow neutral bylaw governs wastewater flow from development in sewer services areas. The Select Board has developed a policy for granting variances to the flow neutral bylaw, specifying priority areas for variance consideration: economic development, affordable housing, mixed use development in the business redevelopment zone and municipal use. The bylaw does not require flow offset, which would be expensive and complex to implement and enforce. The Town may consider a sewer impact fee for new/increased flow; that fee could be allocated towards nutrient related wastewater infrastructure projects.

Conclusion

The Coalition has long encouraged Falmouth to pursue a long-term solution to the disposal of treated wastewater through an ocean outfall. Many of the Coalition's comments and concerns can be addressed with an ocean outfall as opposed to expanded land-based disposal.

The Coalition appreciates the opportunity to comment.

Response: The Town appreciates the Coalition's support and looks forward to collaborating on the effort to determine the feasibility of an outfall, and on the pursuit of an outfall if feasible.

7. Massachusetts Department of Environmental Protection, September 29, 2022

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Notice of Project Change (NPC) for the Falmouth CWMP/Targeted Watershed Management Plan located at 180 Scranton Avenue, Falmouth, Massachusetts (EOEEA # 14154). The Project Proponent provides the following information for the Project:

The project change involves an update to the Town's approved 2013 CWMP, outlining the TWMP for Great Pond as called for February 7, 2020 Secretary's Certificate, EEA No. 14154.

The February 2020 Secretary's Certificate issued to the Town of Falmouth recognized the efforts the Town had made in evaluating and piloting nitrogen removal measures to improve water quality in its coastal pond watersheds. Section 3 of this document provides a summary of pilot project implementation progress since the 2019 Notice of Project Change Report.

The following technologies are discussed: shellfish aquaculture, permeable reactive barriers (PRBs), eco-toilets, stormwater management, fertilizer management, nitrogen attenuation augmentation, and innovative and alternative (I/A) septic systems.

Response: No response required.

7.1 Bureau of Water Resources (BWR) Comments

Wetlands

The SERO Wetlands & Waterways Program has reviewed the above-referenced EOEA file. The proposed and active projects involve the development of a comprehensive wastewater management plan in the Little Pond, Great Pond, Green Pond, Bournes Pond, Eel Pond, Waquoit Bay East & West and West Falmouth Harbor watersheds, including several projects to demonstrate non-traditional technologies and approaches to reduce the extent of sewerage.

Based on the information submitted, it appears that several of the proposed project components will be located within Wetlands Protection Act jurisdiction; potential impacts to a variety of inland and coastal Areas Subject to Protection, including Riverfront Area, can be anticipated. Therefore, WPA Notices of Intent or/and Requests for Determination of Applicability will need to be submitted to the Falmouth Conservation Commission prior to any temporary or permanent alterations [except for planning and design activities that meet the provisions of the minor activity exemption at 310 CMR 10.02(2)(b)1.g.].

Response: WPA Notices of Intent and/or Requests for Determination of Applicability will be submitted during the design phase of infrastructure projects outlined in the TWMP, as required.

This municipal Project is subject to MassDEP's Stormwater Management Standards as a whole, although not all the individual standards will apply to all components of the work. Notices of Intent and WQC applications should include Stormwater Reports.

Response: WPA Notices of Intent and/or Requests for Determination of Applicability will be submitted during the design phase of infrastructure projects outlined in the TWMP and shall include Stormwater Reports, as required.

Waterways

None of the activities outlined in the NPC appear to require authorization from the Waterways Program.

No response required.

Wastewater Management

MassDEP's Southeast Regional Office is pleased to have the opportunity to comment on the Town of Falmouth's Notice of Project Change to their Targeted Watershed Management Plan (TWMP). MassDEP commends the Town on its efforts to restore coastal embayments impacted by nutrient enrichment.

Introduction

The submittal of the Great Pond TWMP has the foundation of multiple Massachusetts Environmental Policy Act (MEPA) reviews for the Town of Falmouth. In 2008, Falmouth received an Executive Office of Energy and Environmental Affairs (EOEEA) Secretary's Certificate for the Environmental Notification Form. In 2012, Falmouth received an EOEEA Secretary's Certificate for Draft Environmental Impact Report (DEIR) for the Draft Comprehensive Wastewater Management Plan (CWMP). In 2014, Falmouth received an EOEEA Secretary's Certificate for the Final Environmental Impact Report (FEIR) for the Final CWMP. Lastly, in 2020, Falmouth received an EOEEA Secretary's Certificate for the Notice of Project Change (NPC) for the CWMP. The Town of Falmouth has submitted this Notice of Project Change Form (NPC) for the Great Pond Targeted Watershed Management Plan in accordance with the February 7, 2020 Executive Office of Energy and Environmental Affairs (EOEEA) Secretary's Certificate for the Town's South Coast Embayments Comprehensive Wastewater Management Plan (CWMP).

Since 2020, the Town has continued to refine plans towards Total Maximum Daily Load (TMDL) compliance for Falmouth's South Coast Embayments. The Great Pond TWMP consists of a mix of traditional and non-traditional wastewater management strategies with a conventional wastewater management contingency plan to back-up the use of non-traditional strategies in the preferred plan. The preferred plan includes aquaculture, permeable reactive barriers, stormwater management credits and fertilizer reduction credits as well as sewer collection system extensions to be treated at the existing Falmouth Wastewater Treatment Facility (WWTF). The WWTF treated effluent is discharged outside of the Great Pond watershed. As Falmouth is solely responsible for nitrogen load contributions to Great Pond, the Town has organized its plan as a town-only solution; although, the Town has engaged in upper cape discussions on regional use of the Otis Air Force Base Wastewater Treatment Facility and remained open for potential collaboration on the long-term planning horizon.

All planning is around present-day flows per the 2005 final Massachusetts Estuaries Project (MEP) report, of which were adopted in the final TMDL. In the MEP report, a town-wide buildout analysis was conducted taking into consideration information directly provided by the Town. The Great Pond TWMP does not acknowledge future growth within the watershed from this point in time, nor does it substantiate previous buildout projections or provide an update of what has been executed among previous projections. However, the Town is planning on using the treatment facility to address other TMDL watersheds and will apply adaptive management to refine the TWMP as necessary as nitrogen reduction projections can outperform or underperform assumptions.

The document contains a thoughtfully planned approach to wastewater management planning. Notwithstanding unpredicted changes in land use and considering the use of "present day loads" per the MEP and TMDL, the Town may achieve the estimated removal requirements and meet concentrations at the sentinel stations. Further MEPA review may be required depending on concerns that may be triggered during the hydrogeological review for the proposed disposal beds or a potential hydrogeological review of expansion of the beds if unforeseen environmental impacts go beyond the scope of MassDEP permitting or require a comprehensive engagement with other agencies. This could be flagged during the watershed permitting process.

Response: As outlined in Table 2.4 in the Final TWMP / EIR, future flow allocations were included in the estimated TASA wastewater flows for sizing of collection system and treatment processes. As noted

above, the Town's adaptive management program will be used to refine the TMDL Compliance Approach, and incorporate observed growth as it relates to nitrogen removal, as necessary.

Great Pond Watershed Total Maximum Daily Load (TMDL) Compliance

The Great Pond watershed is divided into 24 sub-watersheds, but for simplicity is grouped into two sub-watersheds: Great Pond including Coonamessett River and Perch Pond. The total threshold nitrogen load for Great Pond including Perch Pond and Coonamessett River is 7,195 kg/year. According to the Massachusetts Estuaries Project report for Great/Perch Pond the total present day nitrogen load is 19,349 kg/year and the build-out Nitrogen load is 22,163 kg/yr. This results in a required nitrogen reduction of 12,154 kg/ yr. using the "present day" load and 14,968 kg/yr. using the build-out load. The TWMP presents a preferred plan to achieve and sustain the required reduction targets using the "present day" load. The preferred plan consists of aquaculture, a permeable reactive barrier at Shorewood Drive, Stormwater Best Management Practices (BMPs), nitrogen reduction credits from local fertilizer bylaw compliance and wastewater treatment sewer extensions in the core sewer area identified to be the Little pond sewer area and the Teaticket Acapesket Sewer Area. This plan is backed up with a contingency plan that consists of solely the conventional wastewater management approach of collection and treatment.

The Town of Falmouth is permitted to discharge treated wastewater effluent according to the requirements of the Groundwater Discharge Permit 168-6. The Town has formed three planning horizons for assessing the treatment facility's treatment and discharge capacity requirements: short-term, medium-term, and long-term. In the short-term, the Town is expected to need treatment and discharge capacity to address the existing average permitted flow of 0.71 million gallons per day (MGD), the flow allocation of 0.36 MGD for the Great Pond sewer extensions and an existing sewer area redevelopment allocation (ESRA) of 0.14 GMD for a total capacity of 1.21 MGD. In the medium-term, in addition to the short-term planning flows, the facility is projected to receive an additional 0.34 MGD to account for sewer extensions to address other watersheds with TMDLs for a total average wastewater flow of 1.55 MGD. As per the contingency plan, if the non-conventional approaches cannot consistently reduce nitrogen load, the sewer extensions within the contingency alternative would be required to meet the TMDL. This is estimated to be an additional 0.19 MGD for a total average wastewater flow of 1.74 MGD.

MassDEP supports the Town's plan to carry out the preferred alternative approach towards calculated TMDL compliance which includes non-traditional and traditional approaches and to apply adaptive management on execution of the contingency plan to meet the thresholds of the TMDL if needed. MassDEP is currently drafting watershed permitting regulations; as such, MassDEP recommends that after promulgation of the regulations the Town obtain a watershed permit to formalize review and assessment of non-traditional strategies for nitrogen crediting as well as facilitate coordination on other TMDL and watershed specific matters such as sentinel station monitoring. There is a 13% difference in the "present-day" nitrogen load and the build-out nitrogen load. MassDEP recommends that planning is conducted around build-out loads to promote sustainable growth within the watershed. This is encouraged to meet target thresholds and sustain water quality levels that will promote habitat restoration. However, MassDEP understands that adaptive management will have to be exercised as the Town is managing TMDL compliance responsibilities for several watersheds that will send flows to the facility and is still weighing disposal options. Uniquely, compared to other Towns, a watershed permit for Great Pond may incorporate a conceptual plan for addressing buildout flows so, at the minimum, future flows are still considered in planning. Notwithstanding those particulars that can be discussed within watershed permitting, the Town should track buildout in order to keep the most accurate understanding of the current septic land use load of the watershed for planning purposes.

Response: Buildout will be tracked as part of Falmouth's adaptive management program. Watershed permitting requirements, if promulgated, will be incorporated as required.

Lastly, the figures of the report that include nitrogen reduction removal estimates from sewerage can be improved through a footnote clarifying the assumed average total nitrogen concentration. It appears that the best-efforts concentration of 3mg/l from the permit was used, but this can be clarified.

Response: Nitrogen removal estimates were developed assuming an average septic concentration of 26.25 mg/L (consistent with the MEP reports). The tables and figures in the report do not include

nitrogen introduced back into the Great Pond watershed because the Recommended Plan does not involve treated effluent discharge into the Great Pond watershed.

Alternative Strategies and Demonstration Projects

The Falmouth Great Pond TWMP employs a mix of conventional and non-traditional nitrogen abatement strategies in order to achieve nitrogen reductions. The non-traditional strategies include aquaculture, a permeable reactive barrier at Shorewood Drive, Stormwater Best Management Practices (BMPs), nitrogen reduction credits from local fertilizer bylaw compliance.

Shellfish Aquaculture

Falmouth estimates to be able to achieve a reduction of 1,950 kg/year to 3,150 kg/year of nitrogen from oyster aquaculture. This estimate includes uptake of nitrogen by the oysters and denitrification of the sediments on the waterbody floor. The Town has conducted an oyster aquaculture demonstration project in the Eel River within the Waquoit Bay watershed. Three sites that support 20,000 sq. ft of floating gear were selected. The Town manages the aquaculture licenses of the sites, while the private growers are responsible for purchasing, transporting, installing, maintaining, and harvesting the shellfish. The program requires that the growers produce a minimum of 18,600 kg per year of net increase in harvest weight. As part of the Town's quality assurance project plan, the Town requires the growers to report the deployment and harvest weights of the oysters each season and provide samples to the Town for independent analysis of nitrogen content to confirm that target reductions are realized. According to the TWMP, Falmouth specific municipal propagation data suggests an average reduction of 130 kg nitrogen per year. Falmouth is conducting shellfish surveys for aquaculture application in Great Pond and is planning on surveying and evaluating the feasibility of application in all of their remaining embayments. The Town has also conducted demonstration projects in Little Pond and Bournes Pond. The Little Pond estimated effected nitrogen removal is 29 kg of nitrogen per year on 0.25 acres with a potential to expand to 0.5 acres to remove 60 kg of nitrogen per year.

The TWMP states that "oysters grown in Little Pond are relayed to Great Pond, Green Pond, and West Falmouth Harbor for recreational and commercial harvest" (page 10). Oyster propagation for nitrogen removal, or aquaculture, requires the removal of the oysters from the watershed to account for the net nitrogen removal. If there are aquaculture efforts taking place in other watersheds, the Town should be wary of adding a nitrogen input from one TMDL watershed to another through oyster relocation for commercial and recreational harvest.

Response: Little Pond is a conditionally approved area for shellfish aquaculture and oysters can only be grown in this area during their first year. The nitrogen removal potential of oysters grown in Little Pond is determined only for the first year of growth. The crop overwinters on land, and then completes the second year of growth in areas [in other ponds] that will ultimately be open for harvest in the fall. During this second year of growth, the oysters will generally at least double in size and continue to remove more nitrogen. The additional nitrogen removal potential from the second year of growth is not being claimed in any of the watersheds for the Little Pond oysters. While there is potential for return of nitrogen through organism loss (decaying tissue) or incomplete harvest during the second year, the nitrogen uptake from the second-year growth of the entire harvest would negate any potential addition of nitrogen from the Little Pond watershed. At the end of the second year growing season, municipal oysters are systematically relayed on a staggered schedule to highly monitored areas where they are effectively harvested by commercial and recreational harvesters. However, potential nitrogen impacts of transferring oysters between watersheds will be evaluated as needed, as part of Falmouth's adaptive management program.

MassDEP recommends that the Town submit their Quality Assurance Project Plan for aquaculture to the department for review as well as the Town's policy on aquaculture as suggested on page 9 of section 3 of the TWMP if the two documents differ.

Response: The Town does not have a QAPP for aquaculture but does have a Draft Aquaculture Plan which was included as Appendix 3.2 in the 2019 CWMP/TWMP Notice of Project Change Update. Portions of the Town's aquaculture policy were outlined the second Notice of Project Change submitted in 2019.

MassDEP cautions the Town of Falmouth on relying on the denitrification of sediment enabled by oyster biodeposition for TMDL compliance. This is a difficult removal activity to quantify and predict to happen for a consistent removal rate as it is very contingent on the biodeposit impact area which can vary from system to system and be impacted by other benthic activity. In general, removal rates for aquaculture are speculative and can vary from year to year; therefore, depending on additional lack of certainty with sediment denitrification estimates can increase the risk of the Town not meeting the target threshold for Great Pond and promoting habitat restoration.

Response: The Town is aware of the challenge of quantification and prediction of denitrification of sediment associated with shellfish aquaculture. Shellfish aquaculture denitrification effectiveness will continue to be assessed as part of Falmouth's adaptive management program. As noted in Table 5.1 I/A technology could provide supplementary nitrogen removal if TMDL goal is not met through primary alternatives.

Permeable Reactive Barriers (PRB)

The Town of Falmouth is conducting an emulsified vegetable oil (EVO) PRB demonstration project in the Great Pond watershed. The projected data collection period spans from June 2020 to May 2022. The objective of the project is to provide the data necessary to refine the long-term operational cost of an injection based PRB by designing the PRB to fail or reduce efficiency within the project performance period. This will enable the Town to be able to determine the amount of EVO required for a full-scale application. A complete report of the Project's findings is anticipated to be formed in December 2022. MassDEP recommends that the Town submit copies of the final report to MassDEP SERO Wastewater Cape & Islands and MassDEP Boston Underground Injection Control program to facilitate coordination with the Town.

Response: The Town has submitted bi-annual post-injection sampling summary reports to UIC post injection. The Final 24-months post injection Report was submitted to UIC in July 2022.

Stormwater Management

The Town of Falmouth has worked to assess the feasibility of several locations to implement stormwater Best Management Practices (BMP) for nitrogen removal. Based on the required steps of implementing the BMP for the identified catchment areas, the Town is first assessing the effectiveness of upstream media boxes. Best Management Practices are implemented in all road improvement projects and all know BMPs have been mapped. Recent BMP projects included Teaticket Path reconstruction project, the Town Hall employee parking lot improvements, and the Coonamessett Gateway park improvements. On June 28, 2021, The Town passed a construction and post construction by-law to address illicit discharges and the Select Board adopted Stormwater Management Rules and Regulations. MassDEP recommends that the Town continue to employ BMPs where feasible to maximize the possible nitrogen reductions from good stormwater management.

Response: As outlined in Section 5 Falmouth will continue to employ BMPs where feasible to maximize nitrogen reduction through stormwater management.

Fertilizer Management

In 2012, the Town of Falmouth passed a Nitrogen Control By-law for fertilizer. Since then, the town has continued to educate through annual mailing to properties within 100 feet of all coastal estuaries and through pamphlets attached to water bills. MassDEP recommends that the Town continue to educate and enforce, to the best of its ability, fertilizer control to maximize nitrogen reductions.

Response: No response required.

Other Opportunities

Falmouth continues to assess the applicability and effectiveness of other opportunities for nitrogen reduction. The Town has tried several alternative strategies in Mill Pond such as macrophyte harvesting, supplemental pond aeration and enhanced attenuation through a detention pond. Currently the Town is assessing the effectiveness of a permeable reactive barrier upgradient of detention pond. The Town has also tried to incorporate eco-toilets as part of preferred nitrogen reduction plan. The Town is also estimating the nitrogen reduction benefits from the Coonamessett River Restoration Project.

Response: No response required.

Adaptive Management

MassDEP views adaptive management as a certain amount of flexibility to recognize alternative approaches and developing data that allow for mid-course corrections in the implementation of a recommended plan. Developing data that can cause changes to the Great Pond TWMP as presented includes the following: water quality monitoring data, eel grass and benthic habitat monitoring, performance of non-traditional technologies and abatement methods. The Town's contingency plan for the Great Pond Watershed reductions are considered for execution after implementation of reduction plans for other watersheds with TMDLs. If necessary, the contingency plan may be subject to the capacity of treatment and disposal and the undetermined plans for expansion. MassDEP recommends that as data is generated, assumptions should be checked and refined as needed to assure adequate nitrogen load removal is executed on an annual basis. The NPC inclines that the Town is conducting this practice and will continue to do so as it will lay a good foundation for watershed permit collaboration between the Town and MassDEP for documented rates of removal towards meeting the TMDL.

Response: As outlined in Section 5, the Town's adaptive management approach will enable the CWMP to be adjusted based on the monitoring results of the environmental and economic impacts associated with the construction of sewers and implementation of non-traditional projects in Falmouth.

Opportunities for Regional Cooperation

The Town of Falmouth is the sole contributor of nitrogen load to the Great Pond watershed. As such, there are no opportunities for regional cooperation directly for nitrogen reduction strategies. However, Falmouth has been a key contributor to the progression of wastewater management planning and watershed planning on Cape Cod. The Town has contributed in multiple forums to discuss innovative alternative septic systems, non-traditional strategies and responsible management entities. Lastly, the Town works seamlessly with other state and federal agencies as part of information sharing and leveraging resources. MassDEP commends the Town in its pursuit of environmental protection and restoration.

Response: No response required.

Wastewater Collection and Treatment

The proposed sewerage plan per the Great Pond TWMP is 253 parcels from the Little Pond Sewer Service Area Project (LPSSA) and 1,289 parcels from the Teaticket Acapesket Study Area Project (TASA). The anticipated septic nitrogen load removal from the Great Pond Watershed is 1,000 kilograms per year and 6,188 kilograms per year, respectively. The Town is currently in the design phase to provide capacity to treat additional flows from TASA. The Town is expecting TASA to increase average daily flows by 0.36 million gallons per day.

Response: No response required.

Wastewater Collection System

The 253 parcels within the Great Pond watershed that was part of the LPSSA Project were sewerage in 2017. According to the Town, 99.5% of the parcels have connected to the sewer system. The TASA Project will be executed in two phases. The proposed phase one consists of two new lift stations and two existing lift stations. This would require four sewer easements on private properties. If the Town cannot obtain these easements the collection area will be served by low pressure sewer or grinder pumps. Phase one focuses on infrastructure on the Maravista and Teaticket Peninsulas within the Great Pond Watershed, while phase two focuses on infrastructure on the Acapesket Peninsula in both Great Pond and Green Pond watersheds. The Town plans to have design work completed through 2024, while treatment facility is under construction for upgrades.

Response: No response required.

Wastewater Treatment

The Falmouth WWTF consists of primary treatment screens and bar racks, two (2) sequencing batch reactors (SBRs), one (1) post-equalization tank, and one (1) denitrification filter for secondary treatment and two (2)

ultraviolet channels for disinfection. In April 2022, Falmouth approved a \$24,000,000 appropriation for wastewater treatment facility expansion and in May 2022 the Town approved of borrowing authorization for the appropriation. The Project is currently being designed and is expected to go out to bid in the spring of 2023. The Town plans for facility upgrade construction to be completed through 2024 and collection system expansion to occur through 2028.

The upgrades include the improvement of the secondary treatment process by adding one (1) SBR tank, general improvements to sludge processing, the addition of a new equalization tank and the replacement of the existing UV disinfection system. These upgrades will ensure that the Town maintains permit compliance in treating the existing service redevelopment allocation (ESRA) and the new flow from TASA Project. Additional evaluations will be required in the future to assess requirements to treat additional flows from other TMDL watersheds and if necessary, the Town's contingency plan sewer area. MassDEP supports the Town's incorporation of sewerage as an effective method for nitrogen abatement as it will also establish infrastructure to enable the Town to address contaminants of emerging concern, if necessary, with treatment additions such as membrane filtration, advanced oxidation, and granular activated carbon adsorption.

Response: No response required.

Wastewater Disposal

Falmouth currently discharges treated wastewater effluent to 15 open sand beds. Open sand beds 1-13 are in the West Falmouth Harbor watershed and are subject to an annual effluent nitrogen load limit of 4,109 pounds per year. Open sand beds 14 and 15 are located outside of the West Falmouth Harbor watershed.

The Town has been working diligently to identify a potential treated effluent discharge site. In 2007, 25 potential sites were identified and screened. In 2019, of the 25 sites, six (6) land-based sites and two (2) ocean outfall options were evaluated with preliminary analysis. From the sites analyzed in 2019, the three (3) potential land-based effluent discharge options and the two (2) ocean outfall options remain as potential wastewater disposal options. The three (3) potential land-based effluent discharge options are the Allen parcel, expanded discharge at beds 14 and 15, and the Augusta Parcel. The two (2) ocean outfall options are direct discharges into Buzzards Bay and Vineyard Sound.

Response: No response required.

Expanded Beds 14 and 15

The permitted hydraulic loading rate for beds 14 and 15 is based on a loading rate of 7 gallons per day per square foot. In 2020, the Town conducted a hydraulic loading test using treated effluent from the Falmouth WWTF. The test was conducted according to the MassDEP approved "Final Hydraulic Load Testing – Work Plan" (dated July 7, 2020). The capacity of the beds was observed to be greater than the WWTF effluent that was available for the test, so the test did not determine the maximum infiltration rate for the beds; however, it did demonstrate that the beds could accommodate at least 11 gpd/sf.

A particle tracking simulation was conducted by the Town's consultant to estimate potential effluent migration from the discharge area to downgradient waterbodies. The report stated that 0.76 mgd of average annual flow could be recharge to beds 14 and 15 without migration to West Falmouth Harbor. At the simulated flow of 0.76 mgd, there is an increase in percentage of flow to Herring Brook and Buzzards Bay. MassDEP recommends that if the Town decides to maximize flow at beds 14 and 15, additional simulations should be conducted once a conceptual layout has been established for a potential open sand bed expansion through a WP83 hydrogeological analysis application.

Response: Additional particle tracking and groundwater mounding simulations for the proposed conceptual layout at design flow will be prepared and submitted as part of the WP83 hydrogeological analysis application during the permitting phase of this project, as needed.

Allen Parcel

The Allen Parcel is a 70-acre plot of undeveloped, town-owned land that abuts residential neighborhoods to the south and west. In 2018, the Town conducted preliminary hydraulic load testing at this site and determined a

potential loading rate of 130gpd/sf. Due to this in conceptual planning the Town can use the max MassDEP design loading rate of 7 gpd/sf with the understanding that an effective loading rate can be demonstrated after consistent use and a hydraulic loading test with treated effluent wastewater. Preliminary soil evaluation results showed an estimated 10-inch layer of less permeable silt loam about 28-inches to 38-inches below grade that would need to be removed and replaced with Title 5 medium to coarse sand.

A particle tracking simulation was conducted by the Town's consultant to estimate potential effluent migration from the discharge area using flow the short-term planning flows and long-term planning flows. In both planning flow scenarios, mixed groundwater and treated effluent discharge flows to Great Pond vis Flax Pond and/or the Coonamessett River and Green Pond via Flax Pond, Backus Brook, and/or Mill Pond. This resulted in 65% of flow to Great Pond and 35% of flow to Green Pond. MassDEP recommends that if the Town decides to utilize the Allen Parcel as a discharge site, additional simulations should be conducted once a conceptual layout has been established and flows are more refined for a potential open sand bed through a WP83 hydrogeological analysis application. MassDEP must be present for any loading tests and soil evaluations within the WP83 application process.

Response: If this site is selected as part of a future planning evaluation, additional particle tracking and groundwater mounding simulations for the proposed conceptual layout at design flow will be prepared and submitted as part of the WP83 hydrogeological analysis application during the permitting phase of this project, as needed.

Augusta Parcel

The Augusta Parcel is a 20-acre plot of undeveloped, town-owned land surrounded by residential and commercial properties in the Great Pond watershed. It is the site for the proposed booster pump station as part of the TASA collection system. In 2018, the Town conducted preliminary hydraulic load testing at this site to determine a potential loading rate of 138 gpd/sf. Due to this in conceptual planning the Town is using the max MassDEP design loading rate of 7 gpd/sf with the understanding that an effective loading rate can be demonstrated after consistent use and a hydraulic loading test with treated effluent wastewater.

A particle tracking simulation was conducted by the Town's consultant to estimate potential effluent migration from the discharge area using flow the short-term planning flows and long-term planning flows. This analysis indicated that with short-term planning horizon flows all the potential discharge flow would migrate through Great Pond and with long-term planning horizon flows a small percentage of flow would migrate through Perch Pond, of which flows into Great Pond. MassDEP recommends that if the Town decides to utilize the Augusta Parcel as a discharge site, additional simulations should be conducted once a conceptual layout has been established and flows are more refined for a potential open sand bed through a WP83 hydrogeological analysis application. MassDEP must be present for any loading tests and soil evaluations within the WP83 application process.

Response: If this site is selected as part of a future planning evaluation, additional particle tracking and groundwater mounding simulations for the proposed conceptual layout at design flow will be prepared and submitted as part of the WP83 hydrogeological analysis application during the permitting phase of this project, as needed.

Ocean Outfalls

The Town is evaluating the feasibility of an ocean outfall as the solution to the discharge capacity needs. The Town has developed a hydrodynamic ocean model through their consultant to simulate the discharge plume dispersion to a potential outfall in Buzzards Bay. The simulation indicated a negligible effect on total nitrogen concentrations in Buzzards Bay and West Falmouth Harbor assuming a Falmouth WWTF effluent total nitrogen discharge concentration of 3 mg/l. A similar analysis was conducted for Buzzards Bay and Vineyard Sound in 2022. MassDEP suggests that the Town consider the Ocean Sanctuaries Act prerequisites that must be met for new or modified discharges into an ocean sanctuary. There is a minimum requirement for water quality data that must be captured within those prerequisites that should be incorporated into a timeline if this path is pursued. The Buzzard's Bay Coalition is a good resource for this process as they are also pursuing an ocean outfall in Buzzards Bay.

Response: Planning evaluations for an ocean outfall shall incorporate Ocean Sanctuaries Act prerequisites. The Town plans to continue its coordination and consultation with Buzzards Bay Coalition as a resource in this process.

Conclusion

The NPC report presents a step forward for the Town of Falmouth. MassDEP commends Falmouth's effort to make great strides towards the Great Pond's nitrogen reduction targets for the next 6 years. Acknowledgement and planning around buildout flows would assure that the plan not only addresses current needs but future needs as well to meet the embayments nitrogen reduction targets. Notwithstanding unpredicted changes in land use and considering the use of "present day loads" per the MEP and TMDL, the Town may achieve the estimated removal requirements and meet concentrations at the sentinel stations. The document contains a well-planned approach to wastewater management planning. Further MEPA review may be required depending on concerns that may be triggered during the hydrogeological review for the proposed disposal beds or a potential hydrogeological review of expansion of the beds if unforeseen environmental impacts go beyond the scope of MassDEP permitting or require a comprehensive engagement with other agencies. This could be flagged during the watershed permitting process.

Response: The Town will provide the information required as part of the groundwater discharge permit application / hydrogeological review process. The Town believes that the hydrogeological and environmental issues associated with discharge bed expansion will be within the scope of MassDEP permitting

7.2 Bureau of Waste Site Cleanup Comments

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 Comprehensive Wastewater Management Plan is long-term project (2009 – 2040) spanning a very large area (27,251 acres). There are many MCP sites located near and possibly within the proposed Project area. Some of these sites have been closed, but other sites require ongoing response actions and reporting until final closure under the MCP. A list of all MCP sites will not be presented here. Interested parties may 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". MCP reports and the compliance status of specific disposal sites may be viewed using the BWSC Waste Sites/Reportable Release Lookup at: <https://eeasonline.eea.state.ma.us/portal#!/search/wastesite>

The Project Proponent is advised that if oil and/or hazardous material are identified during the implementation of this Project, notification pursuant to the Massachusetts Contingency Plan (310 CMR 40.0000) must be made to MassDEP, if necessary. A Licensed Site Professional (LSP) should be retained to determine if notification is required and, if need be, to render appropriate opinions. The LSP may evaluate whether risk reduction

measures are necessary if contamination is present. The BWSC may be contacted for guidance if questions arise regarding cleanup.

Response: Notification pursuant to 310 CMR 40.0000 will be made, if required as part of this project. Regulated areas identified as being within the project area during design will be investigated further by an LSP.

Spills Prevention and Control.

A spills contingency plan addressing prevention and management of potential releases of oil and/or hazardous materials from pre- and post-construction activities should be presented to workers at the site and enforced. The plan should include but not be limited to, refueling of machinery, storage of fuels, and potential on-site activity releases.

Response: As the project proceeds, the necessary submittals will be made as required.

7.3 Bureau of Air and Waste (BAW) Comments

Air Quality

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

Response: As the project proceeds, CMR requirements regarding air quality will be followed.

Construction-Related Measures

MassDEP requests that all non-road diesel equipment rated 50 horsepower or greater meet EPA's Tier 4 emission limits, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the Proponent should use construction equipment that has been retrofitted with appropriate emissions reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of equipment on file for Departmental review.

Response: As the project proceeds the construction-related measures recommended above will be followed.

Massachusetts Idling Regulation.

MassDEP reminds the Proponent that unnecessary idling (i.e., in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project (310 CMR 7.11). With regard to construction period activity, typical methods of reducing idling include driver training, periodic inspections by site supervisors, and posting signage. In addition, to ensure compliance with this regulation once the Project is occupied, MassDEP requests that the Proponent install permanent signs limiting idling to five minutes or less on-site.

Response: As the project proceeds, CMR requirements regarding air quality will be followed.

Climate Change/GHG

Climate Change – Sea Level Rise.

The Project's location will subject it to the impacts of climate change-induced sea level rise. MassDEP recommends that the Proponent consider various scenarios and future conditions that are beyond the scope of the 100-year flood elevations designated in the Flood Insurance Rate Maps (FIRMs) to evaluate impacts such as sea level rise, shoreline change, and hurricane inundation. Recognizing the vulnerability of the coastline in the vicinity of the proposed Project site, the Proponent should be prepared to address the impacts of sea level

rise and damage to property, businesses, and infrastructure over the lifespan of the Project. The potential risks to the Project should be evaluated based on sea level rise scenarios developed by known authorities, including the Massachusetts Coastal Zone Management Agency or community/localized studies. One recommended resource is the Massachusetts Sea Level Rise and Coastal Flooding Viewer <https://www.mass.gov/service-details/massachusetts-sea-level-rise-and-coastal-floodingviewer>. Please note that the viewer doesn't include all types of wastewater treatment and drinking water infrastructure.

Adaptation strategies should be considered to accommodate the effects of sea level rise and manage risk. Adding pre-disaster adaptation and post-disaster recovery measures will improve the Project resiliency to flooding and the impacts of extreme storm events. Please be aware that the Sea Level Rise and Coastal Flooding Viewer does not account for storm surge, waves, erosion, and other dynamic factors, while FIRMs do not account for sea level rise, shoreline erosion, changes in the frequency and magnitude of storm events, etc. Therefore, it's important to review and consider these combined with hurricane surge scenarios (which use current sea level) in order to plan for worst case scenarios and appropriate adaptation measures.

Response: A MA Climate Resilience Design Standards Tools analysis was conducted for the Preferred Alternative and is summarized in Section 6.1 of the Final TWMP / EIR.

Proposed S.61 Findings

The "Certificate of the Secretary of Energy and Environmental Affairs on the Notice of Project Change" 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.

Response: MEPA Draft Section 61 Findings and mitigation measures are outlined in Section 7 of the Final TWMP / EIR.

8. Email from David Dow to Amy Lowell (Town of Falmouth) dated July 31, 2022

The following comments on the Draft TWMP /EIR were emailed to the Wastewater Superintendent but were not sent to MEPA. Responses to these comments are provided below

In reading through the Executive Summary, I had some questions about exploring the expansion of the wastewater treatment plan and increasing sewerage Little Pond & Teaticket-Acapesket Sewer Service Areas.

* At a recent meeting of the Massa. Army National Guard's Military Civilian Community Council, the Town Of Barnstable presented a proposal to takeover the wwtp at Joint Base Cape Cod and expand it to serve the 4 Upper Cape Towns; JBCC and Barnstable with an ocean outfall in Nantucket Sound off of Falmouth. Is this proposal being considered as a Contingency Compliance Approach for the Great Pond TWMP ?

Response: The JBCC WWTF has been acquired by Converge LLC. As outlined in Section 1.2.1 the Town is participating in discussions and evaluations related to the potential use of wastewater infrastructure at JBCC.

* If the Falmouth wwtp is expanded how does the plan address disposal of excess sewage sludge which is currently being shipped to an out of state landfill. When I was younger, I worked at the City of Philadelphia's Northeast Sewage Treatment Plan which had an anaerobic digester for excess sewage sludge which generated energy from the methane gas which helped run the facility. In recent times sewage sludge contains toxic chemicals (including PFAS) which may constrain the landfill disposal options. The Cape Cod Commission's Municipal Solid Waste Disposal Plan focuses on rail transport for trash to out of state landfills

and on Cape composting for garbage. The Bourne Integrated Solid Waste Management Facility doesn't accept sewage sludge, but may be considering composting or anaerobic digester.

Response: The Falmouth WWTF currently hauls thickened sludge off-site for incineration. As part of future upgrades, sludge handling technologies will be assessed to determine whether sludge thickening continues to be the most cost effective alternative for sludge processing.

* An offshore ocean outfall in Nantucket Sound could lead to the bioaccumulation of toxic chemicals (PFAS; methyl mercury; etc.) and promote microalgal blooms which produce red tides from "Nitrogen enrichment". I used to be the recreational fisheries coordinator in the Northeast at the Fisheries Lab in Woods Hole & have a concern in this area which is likely shared by commercial fishing and saltwater angling groups.

Response: The Town is planning to continue evaluating the feasibility of an ocean outfall, as summarized in Table 9.6. These evaluations will include water quality data collection and review, and hydrodynamic modeling to assess anticipated nitrogen impacts of a proposed ocean outfall. The Town will undertake a public participation and outreach program to review ocean outfall evaluation findings and engage stakeholders in the planning process.

* In 2021 I wrote a series of articles on: "The Challenges Facing the Cape Cod Aquifer" which included a piece on water quantity which is a major concern during Summer droughts which would be exacerbated by an ocean outfall (See uuffm.org under "Challenges").

Response: The Town is anticipating conducting an evaluation of potential effects of a proposed ocean outfall to the sole source aquifer as part of the ocean outfall evaluations outlined in Section 9.3.

* George Heufelder wrote a piece in the Cape Cod Times on how 30-40% of the homes can't be sewered & will require installation of Innovative/Alternative Septic System which will be a quite expensive solution for homeowners (in addition to contributing to the funding of sewerage and expansion of the Falmouth wwtp). What types of financial aid will be provided to these homeowners?

Response: Requirement of installation of I/A systems is not part of the Recommended Plan for Great Pond (though it could ultimately be implemented as part of Adaptive Management for this watershed). If/when requirement of installation of I/As becomes a part of the recommended plan for a Falmouth watershed, the Town will evaluate would means of addressing affordability for homeowners.

* Between 1995-2006, I participated in the EPA Headquarters Waquoit Bay Watershed Ecological Risk Assessment Project which determined that nutrients ("Nitrogen" in Waquoit Bay and "Phosphorus" in Ashumet Pond) were the major human stressor. Does the Total Nitrogen TMDL goal 12,154 kg-N/year just restore water transparency or will it allow recovery of eelgrass beds & bay scallop harvests ?

Response: According to the Massachusetts Estuaries Project, the nitrogen TMDLs were intended to be sufficient to facilitate recovery of eelgrass beds. Long term monitoring will determine whether or not the desired eelgrass recovery occurs after the TMDLs are achieved.

It appears to me as a retired marine biologist that some type of active restoration program is required. The same is true for salt marshes and oyster beds which are Essential Fish Habitat for finfish and shellfish. The bottom sediments have shifted to mud/silts which have different nutrient biogeochemical recycling properties than the former sandy sediments. Thus restoring Waquoit Bay to its former glory is likely to be a costly and time consuming process (beyond increasing water column transparency by reducing Total Nitrogen Loading). The Nitrogen Cycle is quite complex for Total "N" involving the atmosphere; water column and sediments & human activities in coastal watersheds.

Response: The Town's Adaptive Management Program is designed to allow for the piloting of non-traditional technologies, which can be incorporated into the Recommended Plan as they demonstrate effectiveness. The use of non-traditional technologies targets nitrogen mitigation through reduction of nitrogen entering the groundwater (through sewerage and I/A systems), remediation of nitrogen in the groundwater (through technologies such as permeable reactive barriers) and restoration through nitrogen breakdown in the estuaries (through strategies such as shellfish aquaculture).

Thanks for considering these issues and getting back to me.
Dr. David Dow
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October 11, 2022

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
 ON THE
 4th NOTICE OF PROJECT CHANGE

PROJECT NAME : Falmouth Comprehensive Wastewater Management Plan/ Great Pond Targeted Watershed Management Plan
 PROJECT MUNICIPALITY : Falmouth
 PROJECT WATERSHED : Cape Cod
 EEA NUMBER : 14154
 PROJECT PROPONENT : Town of Falmouth
 DATE NOTICED IN MONITOR : August 10, 2022

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G. L. c. 30, ss. 61-62I) and Section 11.10 of the MEPA regulations (310 CMR 11.00), I hereby determine that this project change **requires** the submission of a Supplemental Environmental Impact Report (Supplemental EIR). The Supplemental EIR should contain the final Targeted Watershed Management Plan (TWMP) for Great Pond and more information about impacts and mitigation as described below.

Original Project and Procedural History

The Town of Falmouth (Town) developed a Comprehensive Wastewater Management Plan (CWMP) in 2014 in anticipation of the adoption of Total Maximum Daily Loads (TMDL) for waterbodies by the Massachusetts Department of Environmental Protection (MassDEP) and the United States Environmental Protection Agency (EPA) pursuant to the federal Clean Water Act. Poor water quality, including high nitrogen loads, were documented by the Massachusetts Estuaries Project (MEP) for the following estuaries: Little Pond, Great Pond, Green Pond, Bournes Pond, Waquoit Bay and West Falmouth Harbor. Based on water quality data and modeling, the MEP developed nitrogen thresholds (limits) to restore these waterbodies and potential nitrogen reduction scenarios that allow these estuaries to meet their respective nitrogen thresholds. The MEP nitrogen thresholds were subsequently adopted as TMDLs for these waterbodies.

The Town's CWMP was filed as an Environmental Notification Form (ENF) with the MEPA Office in 2008, followed by the submission of Draft and Final Environmental Impact Reports (EIRs). The CWMP proposed sewer extensions to portions of the Little Pond Watershed; improvements to the Blacksmith Shop Road Wastewater Treatment Facility (the WWTF); new treated wastewater recharge beds north of the WWTF, and implementation of a Nitrogen Control Bylaw for Fertilizer. The CWMP also identified non-traditional wastewater and nutrient removal techniques, including shellfish aquaculture, inlet widening, permeable reactive barriers (PRB), stormwater management, composting Eco-Toilets, and Innovative/Alternative (I/A) denitrifying septic systems. The CWMP identified pilot projects that would be implemented by the Town, including Bournes Pond Inlet Widening Pilot Project, installation of an aquaculture system in Little Pond, and the installation of a permeable reactive barrier (PRB) in the West Falmouth Harbor watershed. The CWMP also proposed the development and implementation of an adaptive management plan to document the steps that will be taken to implement the CWMP, including any changes that may be necessary over time to meet TMDLs. Components of the CWMP were anticipated to have environmental impacts unrelated to wastewater, such as wetlands or rare species habitat. MEPA review of the CWMP concluded with the issuance of a Certificate on the Final Environmental Impact Report (FEIR) on January 10, 2014.

The FEIR Certificate identified supplemental filings required of the Town as it continues to design and implement the CWMP. Specifically, for any pilot project that exceeds MEPA review thresholds, the Town must file an NPC that addresses the pilot project's potential contribution towards attaining water quality standards within the watershed, identifies potential environmental impacts and mitigation measures and reviews alternative designs. In 2016, the Town submitted the first NPC for the Bournes Pond Inlet Widening Pilot Project, which consisted of widening the inlet to the pond to increase tidal flushing and improve water quality and aquatic habitat. A second NPC was filed in 2019 to evaluate the effectiveness of engaging private aquaculture growers to propagate oysters at three locations within the Eel River as a method of achieving TMDL compliance. Certificates issued on both NPCs indicated that the project change did not require the submission of a supplemental EIR.

As required in the 2014 FEIR Certificate, a 3rd NPC was submitted in 2019. The 3rd NPC provided a summary of activities completed since 2014, summarized data collected through water quality monitoring and reviewed the status and effectiveness of pilot projects, reviewed components of the CWMP to be implemented through 2040, provided updates on the TWMPs for Little Pond and West Falmouth Harbor and reviewed planning strategies for meeting TMDLs in the Great Pond, Green Pond, Bournes Pond and Waquoit Bay watersheds. The Certificate on the 3rd NPC was issued on February 7, 2020 and required that this 4th NPC be filed to describe a draft TWMP for the Great Pond watershed.

Project Change

The 4th NPC/Draft TWMP identified the Town's Preferred Alternative for reducing nitrogen levels in the Great Pond watershed to achieve compliance with the TMDL, which includes:

- Shellfish aquaculture in Great Pond to remove nitrogen by enhancing natural denitrification processes and through direct uptake by shellfish;
- Installation of a PRB at Shorewood Drive to remove nitrogen from groundwater;
- Stormwater Best Management Practices (BMPs) at selected sites to reduce nitrogen in runoff;

- Ongoing implementation of the Town's Nitrogen Control Bylaw for fertilizer to minimize nitrogen loads from fertilizers, which accounts for five to ten percent of the nitrogen load;
- Extension of the sewer collection system to properties in the Great Pond watershed through construction of the Teaticket/Acapesket Sewer Area (TASA) project; and,
- Expansion of existing Open Sand Beds 14 and 15 located at the WWTF for disposal of increased volume of treated wastewater.

Areas where activities proposed in the 4th NPC/Draft TWMP will occur, including Great Pond and the WWTF, are located within one mile of an Environmental Justice (EJ) populations designated as Minority, and Minority and Income, and within five miles of EJ populations designated as Minority and Income and Income located in Falmouth, Bourne and Mashpee.

Permitting and Jurisdiction

The 2014 CWMP was originally subject to a mandatory EIR pursuant to 301 CMR 11.03(5)(a)(3) because it will result in construction of one or more new sewer mains ten or more miles in length. The project is subject to ENF thresholds under 301 CMR 11.03(1)(b)(1) because it will alter more than 25 acres of land; 301 CMR 11.03(1)(b)(3) because it may convert land held for natural resource purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth to a purpose not in accordance with Article 97; 301 CMR 11.03(2)(b)(2) because it may disturb greater than two acres of designated priority habitat that results in a take of a state-listed endangered or threatened species; 301 CMR 11.03(3)(b)(1)(a) because it will alter a coastal dune and barrier beach; 301 CMR 11.03(3)(b)(1)(d) because it may alter 5,000 or more square feet (sf) of Bordering Vegetated Wetlands (BVW); 301 CMR 11.03(3)(b)(1)(e) because it includes new fill or structure or Expansion of existing fill or structure in a velocity zone; 301 CMR 11.03(b)(1)(f) because it may alter more than half an acre of other wetlands; 301 CMR 11.03(b)(10)(b)(2) because it may result in destruction of an archaeological site listed in the State Register of Historic Places or the Inventory of Historic and Archaeological Assets of the Commonwealth; and 301 CMR 11.03(11)(b) because the project is located within a designated Area of Critical Environmental Concern (ACEC).

Components of the CWMP may require one or more permits from MassDEP, including Groundwater Discharge Permit, 401 Water Quality Certifications (WQC), Chapter 91 (c. 91) Licenses, and Watershed Permit pursuant to Chapter 259 of the Acts of 2014. The CWMP may require a Conservation and Management Permit from the NHESP. Projects identified in the CWMP will require one or more Orders of Conditions (OOC) from the Falmouth Conservation Commission (and, on appeal only, Superseding Orders of Conditions from MassDEP). The CWMP is subject to review by the Cape Cod Commission (CCC) to determine its consistency with the Section 208 Area-wide Water Quality Management Plan. The project will also require a National Pollutant Discharge Elimination System (NPDES) Construction Activities Permit from the U.S. Environmental Protection Agency (EPA) and authorizations from the U.S. Army Corps of Engineers (ACOE) under the General Permits for Massachusetts. The project is subject to the EEA Article 97 Land Disposition Policy and the MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol (GHG Policy). The Great Pond TWMP will require a Groundwater Discharge Permit and potentially a Watershed Permit from MassDEP, an OOC from the Falmouth Conservation Commission (and, on appeal only, Superseding Orders of Conditions from MassDEP) and review by the CCC to determine its consistency with the Section 208 Area-wide Water Quality Management Plan.

The Great Pond TWMP described in this 4th NPC will require a Groundwater Discharge Permit from MassDEP. It will require one or more Orders of Conditions (OOC) from the Falmouth Conservation Commission (and, on appeal only, Superseding Orders of Conditions from MassDEP). The 4th NPC/Draft TWMP did not quantify the environmental impacts of the TWMP; this information should be provided in the Supplemental EIR and additional permits may be required.

The Town will receive Financial Assistance through the State Revolving Fund (SRF). Therefore, MEPA jurisdiction is broad and extends to all aspects of the project with the potential to cause Damage to the Environment as defined in the MEPA regulations.

Review of the 4th NPC/Great Pond TWMP

The 4th NPC provided an analysis of the Town's efforts to address water quality in the Great Pond watershed. It reviewed water quality data, compared nitrogen levels to target concentrations established to meet TMDLs and identified traditional and non-traditional methods for removing nitrogen. The 4th NPC provided supporting technical reports and data evaluating wastewater treatment and discharge options based on water quality and nitrogen loading data prepared for the MEP. It identified measures to minimize construction impacts and included draft Section 61 Findings. The 4th NPC/Draft TWMP did not include a description of the impacts of the TWMP as reflected in MEPA review thresholds, nor did it provide responses to comments received on the 3rd NPC. This information should be provided in the Final TWMP, in addition to responses to comments received on the 4th NPC/Draft CWMP. According to the Town, the TASA project will be constructed entirely within roadways and previously disturbed areas. However, the 4th NPC/Draft TWMP did not quantify the overall impacts of the TWMP; this information should be provided in the Supplemental EIR.

Recommended Plan for the Great Pond TWMP

The 4th NPC/Draft TWMP estimated wastewater flows to the WWTF in the short term ("Planning Flow 1") and mid-term ("Planning Flow 2") representing planned sewer extension projects. Sewer extensions to the Little Pond Sewer Service Area (LPSA) and Teaticket/Acapesket Sewer Area (TASA) were previously identified in the CWMP as measures needed to address nitrogen loadings in the Little Pond and Great Pond watersheds. The LPSA project, which was recently completed, connected 1,350 parcels to the WWTF, including 1,010 parcels in the Little Pond watershed, 253 parcels in the Great Pond watershed and 87 parcels in areas that recharge directly to Vineyard Sound. The TASA project, which will be constructed in two phases, will provide sewer service to approximately 1,800 parcels, including 1,300 parcels in the Great Pond watershed and 500 parcels in the Green Pond watershed. Phase One of the TASA project focuses on infrastructure on the Maravista and Teaticket Peninsulas within the Great Pond watershed and includes 13 miles of sewer mains, two new lift stations and connections to two existing lift stations. Phase Two of the TASA project will include construction of collection system infrastructure on the Acapesket Peninsula in both Great Pond and Green Pond watersheds, including 15.1 miles of sewer mains and four new lift stations.

As shown in Table 1 below, Planning Flow 1 includes existing flows to the WWTF plus additional flows from the LPSA, TASA and sewerage of additional parcels within areas already served by sewers ("Existing Sewer Area Redevelopment Allocation" or ESRA). Planning Flow 2 includes

anticipated wastewater volumes from future sewerage in other watersheds to reduce nitrogen loads in those waterbodies. Planning Flow 3 represents a contingency scenario where alternative technologies, particularly aquaculture and PRBs, are determined to be less effective in removing nitrogen than predicted and additional sewerage is required to reduce nitrogen loads in the Great Pond watershed. ¹

Table 1. Planning Flows (Table 2.4 in the Draft TWMP).

Planning Flow	Flow Components	Average Wastewater Flow (mgd)	Average Current Septic Nitrogen Load Removed from Great Pond Watershed (kg/yr) ^{7,8}
Planning Flow 1: Great Pond Preferred Alternative	Existing Permitted Flow ¹	0.71	1,000 ⁶
	Existing Sewer Area Redevelopment Allocation (ESRA) ²	0.14	0
	Teaticket / Acapesket Sewer Area (TASA) ³	0.36 ⁷	6,188 ⁸
Planning Flow 2: South Coast Preferred Alternative	Potential Bourne Pond and Waquoit Bay Sewer Area ^{3,4}	0.34	0 ⁹
Planning Flow 3: Great Pond Contingency Alternative	Great Pond Contingency Sewering ⁵	0.19	4,966
Planning Flow 1 Total		1.21	7,188
Planning Flow 2 Total		1.55	7,188⁹
Planning Flow 3 Total		1.74	12,154⁹
Notes:			
1. Groundwater Discharge Permit No. 168-6, effective date February 5, 2021 (2021 Permit).			
1. For this analysis the ESRA was estimated as 20% of existing permitted flow.			
2. Flow includes WQMC allowance for infiltration / inflow (I/I) in a gravity system. Estimated I/I is not included in nitrogen load calculations			
3. Potential future sewer area outlined by the WQMC which includes Seacoast Shores, Antler Shores, Seapit, Fishermans Cove and Oyster Pond. WQMC analysis is based on the MVP tool future projections for these areas. These areas are all located outside of the Great Pond watershed.			
4. Great Pond Contingency sewerage provides an estimate of additional sewerage to meet TMDL if load removal targets are not met by proposed pilot technologies.			
5. Estimated septic nitrogen load removal from the portion of the LPSA located in the Great Pond watershed.			
6. Estimated wastewater flows for TASA were developed using water use data from 2014-2016 and a 20% wastewater allocation to account for undesignated redevelopment and potential development of currently un-developable parcels. The future allocation in this flow estimate is not included in the nitrogen load estimate to allow for a comparison of anticipated current septic nitrogen load removed through sewerage to the current septic nitrogen load that needs to be removed from the watershed to meet the TMDL. The collection system and treatment facility will be sized to convey and treat anticipated future flows from the identified sewerage.			
7. Estimated existing septic nitrogen load removal from the portion of the TASA located in the Great Pond watershed.			
8. All wastewater flow in Planning Flow 2 is anticipated to be collected outside of the Great Pond watershed.			

The WWTF will be upgraded to provide treatment capacity for Planning Flow 1 and improve the secondary treatment process by adding a 3rd Sequencing Batch Reactor (SBR) treatment system, improvements to sludge processing, a new equalization tank and by replacing the existing ultraviolet

¹ Future sewerage, WWTF improvements and effluent discharge facilities associated with addressing Planning Flow 2 and, if necessary, Planning Flow 3, will be described in one or more future MEPA filings.

(UV) disinfection system. The upgrades are needed to ensure that the Town maintains permit compliance in treating additional flows from areas with existing sewers and new flows and loads from the LPSA and TASA projects. The TWMP provided a conceptual layout showing treatment and sludge handling processes that could be added to the WWTF to accommodate a potential future expansion to address Planning Flows 2 and 3. The 4th NPC/Draft TWMP did not propose treatment of per- and poly-fluoralkyl substances (PFAS) in wastewater; however, the proposed upgrades to the WWTF will not preclude future expansion of the facility to accommodate additional treatment processes in the future.

As noted by MassDEP, the MEP report for the Great Pond watershed calculated the total present day nitrogen load in the watershed as 19,349 kilograms (kg) per year (kg/yr) and projected the build-out nitrogen load to be 22,163 kg/yr. The total threshold nitrogen load required for the Great Pond watershed to meet the TMDL is 7,195 kg/year; therefore, removal of 12,154 kg/ yr of nitrogen is necessary to meet the TMDL assuming the present-day load and 14,968 kg/yr must be removed to meet anticipated future loads. Nitrogen removal by each component of the Draft TWMP is shown in Table 2, and is anticipated to meet the estimated reductions needed for the present-day load.

Table 2. Nitrogen removal by individual components of the TWMP (Table 2.3 in the Draft TWMP).

Compliance Component – Nitrogen Removal Approach	Estimated Nitrogen Loading Reduction (kg-N/year) ⁴	
	Preferred Alternative	Contingency Alternative
Fertilizer Bylaw (25% of fertilizer load) ^{1,2}	425	0
Stormwater Best Management Practices (25% of impervious load) ^{1,2}	580	0
Shellfish Aquaculture (uptake) ^{1,2}	1,300 – 2,100	0
Shellfish Aquaculture (denitrification) ^{1,2}	650 – 1,050	0
Permeable Reactive Barrier at Shorewood Drive (300 feet) ^{1,2}	1,325	0
Sewer Extension – Little Pond Sewer Area (Great Pond)	1,000	1,000
Sewer Extension – Teaticket Acapesket Sewer Area 1 ³	2,890	2,890
Sewer Extension – Teaticket Acapesket Sewer Area 2 ³	3,298	3,298
Sewer Extensions – Contingency	0	4,966
Total Estimated Reduction	11,468 – 12,668	12,154
Nitrogen Removal TMDL Goal	12,154	12,154
Notes:		
1. Anticipated removal rates provided by the Falmouth WQMC. See Section 3 for background.		
2. Advancements in I/A technology will provide supplementary nitrogen removal if not met through primary alternatives.		
3. Estimated wastewater flows developed using water use data from 2014, 2015 and 2016 and a 20% allocation to account for undesignated redevelopment and potential development of currently un-developable parcels.		
4. If a treated effluent site is selected within the Great Pond watershed additional nitrogen loading reduction will be required to offset the nitrogen load returned to the watershed through treated effluent discharge.		

MassDEP recommends that the Town seek a Watershed Permit after the regulations under development are finalized and promulgated. The Watershed Permit would formalize review and assessment of non-traditional strategies for nitrogen crediting as well as facilitate coordination on other

TMDL and watershed specific matters such as sentinel station monitoring. According to MassDEP, because the TWMP has been designed to meet present-day loads, the Watershed Permit could incorporate a conceptual plan for addressing future flows under build-out conditions in addition to addressing options for achieving TMDL compliance through implementation of adaptive management. The 4th NPC/Draft TWMP should address any modifications to the TWMP that may be necessary to accommodate estimated flows from future anticipated development.

Alternatives Analysis

Non-Traditional Technologies

The Preferred Alternative includes the use of four non-traditional treatment technologies/strategies for the removal of nitrogen, including aquaculture, installation of a PRB, construction of stormwater BMPs and implementation of the Town's Nitrogen Control Bylaw. These non-traditional nitrogen removal methods were previously reviewed in the CWMP included in the 3rd NPC. The CWMP also reviewed the use of eco-toilets as a non-traditional nitrogen removal technology; however, the technology is not included in the Preferred Alternative for Great Pond due to the low participation by the public in an eco-toilet pilot project conducted by the Town.

Disposal Options

The TWMP included an analysis of land and offshore treated effluent disposal alternatives. As described below, three sites were evaluated for land-based disposal, including expansion of two open sand beds (Sand Beds 14 and 15) located at the WWTF, the 20-acre Augusta parcel and the 70-acre Allen parcel. All of the land-based discharge site alternatives are located on Town-owned land. As required by the Certificate on the 3rd NPC, the analysis in this filing identified potential impacts to downgradient receptors of each disposal alternative.

Sand Beds 14 and 15 are existing open sand beds located at the northern end of the Town's WWTF site. The sand beds are currently used for effluent discharge and are permitted to accept 0.26 mgd of effluent based on a hydraulic loading rate of 7 gpd per sf; however, a test conducted by the Town in 2020 indicated that the beds could accommodate at least 11 gpd per sf. The Town proposes to expand Sand Beds 14 and 15 by approximately 3.1 acres to accommodate additional flow of up to 0.5 mgd. Modeling conducted by the Town indicated that treated effluent discharged at Sand Beds 14 and 15 would eventually reach Herring Brook and Buzzards Bay, which are located outside the Great Pond watershed.

According to the 4th NPC/Draft TWMP, treated effluent would be disposed of at the Augusta parcel in both open sand beds and in subsurface leaching trenches so that that Town could construct playing fields on the portion of the site with a subsurface disposal. In 2018, preliminary tests conducted the Town determined that the Augusta site has a potential loading rate of 138 gpd per sf; however, according to MassDEP, this rate would have to be confirmed through additional testing. Modeling of effluent flow indicated that a small percentage of the effluent would reach Perch Pond, which flows into Great Pond.

A 14-acre portion of this Allen parcel is available for use for effluent discharge. Preliminary

testing conducted by the Town determined that the Allen parcel has a potential loading rate of up to 130 gpd per sf; however, a layer of silt loam is present at the site which, if found within the area to be used for effluent discharge, would have to be excavated and replaced with sand. Modeling of effluent flow indicated that effluent in groundwater would flow to Great Pond via Flax Pond and/or the Coonamessett River and Green Pond via Flax Pond, Backus Brook, and/or Mill Pond.

According to the 4th NPC/Draft TWMP, expansion of Sand Beds 14 and 15 is the Preferred Alternative for effluent disposal because it is only 0.5 miles from the WWTF, compared to at least 2.5 miles for the other sites, which significantly reduces the cost of discharge pipes from the WWTF and minimizes impacts associated with construction of the discharge pipes. In addition, land alteration would be minimized under the Preferred Alternative because it involves only a small expansion of existing beds. The 4th NPC/Draft TWMP did not identify any other factors that would eliminate any of the sites from consideration, including the capacity of each site to infiltrate effluent, or impacts to rare species habitat or wetlands. As noted by MassDEP and the Buzzards Bay Coalition, modeling conducted by the Town indicated that effluent discharged at Sand Beds 14 and 15 would reach Herring Brook and Buzzards Bay, though located outside the Great Pond watershed, and increase the nitrogen load to Herring Brook. The Town has commissioned a study, expected to be completed in 2023, by the University of Massachusetts-Dartmouth's School of Marine Science and Technology (SMAST) to evaluate nitrogen loads in Herring Brook which would provide data necessary to evaluate the impacts of the Preferred Alternative on Herring Brook. The Town has committed to providing a copy of the study to MassDEP and Buzzards Bay Coalition when it is completed. According to MassDEP, additional modeling of the effluent migration from Sand Beds 14 and 15 will be required after the Town develops a conceptual layout for the expansion of the sand beds. The information from both of these studies will be available for MassDEP's consideration when determining if the sand bed expansion can be permitted.

Ocean Outfall Alternatives

According to the 4th NPC/Draft TWMP, the Town is evaluating the feasibility of constructing an ocean outfall through which treated effluent would be discharged. An ocean outfall would provide a long-term solution to the Town's effluent disposal needs. Potential discharge outfall locations have been identified, including one off Nobska Point, which would discharge effluent to Vineyard Sound, and an outfall in Buzzards Bay west of West Falmouth Harbor. According to the 4th NPC/Draft TWMP, preliminary studies have indicated that both outfall alternatives could accommodate all discharges from the WWTF without significantly impacting the water quality in the receiving water bodies. The Town is conducting additional analyses of the water quality impacts of outfalls at these locations; however, the Town has not developed a conceptual design, evaluated impacts or addressed permitting requirements. The Town has not developed a conceptual design for an ocean outfall and the 4th NPC/Draft TWMP did not include an evaluation of impacts or compliance with regulatory standards. Should the Town decide to pursue an ocean outfall, additional MEPA review will be required.

Climate Change

Adaptation and Resiliency

The 3rd NPC Certificate required a review of the capacity of the wastewater collection and treatment systems under future climate conditions and a discussion of the resiliency of the system,

including any proposed components such as pump stations, to the effects of climate change. The TWMP indicated that the TASA project would be designed to include climate resiliency measures but did not provide an analysis of climate risks and potential mitigation measures; this analysis should be provided in the Supplemental EIR/Final TWMP.

Greenhouse Gas Emissions

The TWMP included a summary of the energy use by the WWTF with proposed upgrades to increase its treatment capacity from 0.71 mgd to 1.21 mgd. A Base Case was modeled to reflect a WWTF design without GHG mitigation measures; according to the TWMP, the Base Case design would use 14.49 kBTU per gpd. The Preferred Alternative design will include energy efficiency measures to reduce energy use to 11.4 kBTU per gpd; however, because of the increased flows to be treated by the expanded WWTF, GHG emissions will increase from 265.3 tons per year (tpy) to 355.3 tpy. The design of the WWTF will incorporate the following energy efficiency measures:

- Sub-metering system to allow tracking of energy use by individual processes and equipment;
- Energy management system that will lock out specified operations during periods of peak energy demand;
- Upgrade motors to variable frequency drives (VFD);
- Reduced ventilation and heating when building is unoccupied;
- Supervisory Control and Data Acquisition (SCADA) system to monitor energy usage trends and allow for optimized process control;
- Optimize lighting with high-efficiency fixtures, light sensors and timers; and,
- High-efficiency building envelope, including upgraded windows and roof and wall insulation.

During the final design stage, the Town will evaluate potential on-site energy generating systems, including use of a hydro-turbine in the effluent pipe, heat recovery from effluent using a heat exchanger, a geothermal system and installation of a ground-mounted solar photovoltaic (PV) generating system that could generate up to 270,000 kilowatt-hours (kWh) of electricity per year.

Conclusion

The 4th NPC/Draft TWMP was generally responsive to the Scope included in the Certificate on the 3rd NPC. Comments from State agencies, including MassDEP and the Office of Coastal Zone Management (CZM) and others are generally supportive of the Town's effort in preparing the CWMP, including its evaluation of a broad range of nitrogen removal measures. Significant issues raised in comment letters include the potential for effluent disposed of on land to increase nitrogen load in waterbodies. As noted above, the Town will be required to provide additional analyses of effluent disposal during the permitting process. The Supplemental EIR/Final TWMP should address the Scope detailed below, which includes estimates of impacts of the TWMP overall, analysis of climate risks affecting the project and measures to improve resiliency, and responses to comments received on the 3rd NPC and 4th NPC/Draft TWMP.

SCOPE

General

The Supplemental EIR/Final TWMP should provide an updated overview of the Preferred Alternative for the Great Pond TWMP and identify and changes since the filing of the 4th NPC/Draft TWMP.

Project Description and Permitting

The Supplemental EIR/Final TWMP should provide estimates of the environmental impacts of the TWMP, including impacts on rare species habitat, wetlands, water quality, historic and cultural resources, land protected under Article 97 and ACECs. It should include detailed responses to comments received on the 3rd NPC, which were to have been provided in the 4th NPC/Draft TWMP, as well responses to comments submitted on the 4th NPC/Draft TWMP, including a commitment to provide MassDEP and the Buzzards Bay Coalition with copies of the SMAST Herring Brook study when it is completed. In order to ensure that the issues raised by commenters are addressed, the Supplemental EIR/Final TWMP should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended to, and shall not be construed to, enlarge the Scope of the Supplemental EIR/Final TWMP beyond what has been expressly identified in this certificate. The Supplemental EIR/Final TWMP should provide an update on watershed permitting, and any updated analysis of flow rates or effluent disposal that may be available at the time of the filing. The Supplemental EIR/Final TWMP should also address how the TWMP will be modified to accommodate estimated flows from future anticipated development, and when any additional upgrades to the WWTF could be anticipated.

Climate Change

Adaptation and Resiliency

The Supplemental EIR/Final TWMP should develop climate change scenarios for the project and identify potential adaptation measures. It should review the capacity of the wastewater collection and treatment systems under projected levels of precipitation and sea level conditions and the resiliency of the system to the effects of climate change. The Supplemental EIR/Final TWMP should identify any components, such as pump stations, located within coastal or inland flood zones and consider alternative locations for the infrastructure or identify design measures to improve the resiliency of the project. I encourage the Town to use the MA Climate Resilience Design Standards Tool prepared by the Resilient Massachusetts Action Team (RMAT) (the “MA Resilience Design Tool”)² to evaluate climate risks and assist in climate resilience strategies to be undertaken by the project. Effective April 2022, the Tool now provides numeric values for the 24-hour rainfall event based on various storm scenarios and planning horizons (e.g., 100-year storm as of 2070), based on user inputs. These values or other available climate data should be used to assess the resiliency of the wastewater infrastructure, including the WWTF and pump stations.

² https://resilientma.org/rmat_home/designstandards/

Future Filings

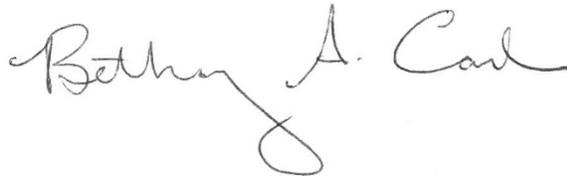
The 4th NPC/Draft TWMP indicated that the Town will file one or more NPCs over the next nine years to document the TWMPs for Green Pond, Bourne Pond and Waquoit Bay, and to evaluate an ocean outfall. The Supplemental EIR/Final TWMP should provide an anticipated schedule for the submittal of the next NPC(s). To outline the parameters for future reviews of TWMPs and other filings, and in light of the Town's anticipated plans to apply for a watershed permit (which would constitute a new Agency Action for MEPA purposes), I encourage the Town to request a Special Review Procedure (SRP) for MEPA review of submittals that will follow the Final TWMP for Great Pond. The Town should consult with the MEPA Office on the development of the SRP, which, if developed for the CWMP, would be available for public review and comment before it is finalized. The SRP could establish a standard framework for determining the scope of MEPA review of future projects without the need for case-by-case determinations of MEPA jurisdiction.

Mitigation and Draft Section 61 Findings

The Supplemental EIR/Final TWMP should include a separate chapter summarizing proposed mitigation measures, including measures to address construction impacts of the project. This chapter should also include draft Section 61 Findings for each permit or other approval to be issued by State Agencies. The draft Section 61 Findings should be updated to include any additional mitigation that may be warranted, based on a review of impacts of the Final TWMP as a whole. The Supplemental EIR/Final TWMP should contain clear commitments to implement these mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and a schedule for implementation. It should clearly indicate which mitigation measures will be constructed or implemented based upon project phasing.

Circulation

The Town should circulate the Supplemental EIR/Final TWMP to each Person or Agency who previously commented on the 4th NPC/Draft TWMP, each Agency from which the Project will seek Permits, Land Transfers or Financial Assistance, and to any other Agency or Person identified in the Scope. Per 301 CMR 11.16(5), the Proponent may circulate copies of the Supplemental EIR/Final TWMP to commenters in CD-ROM format or by directing commenters to a project website address. Pursuant to 301 CMR 11.16(5), the Town may circulate copies electronically. However, the Town must make a reasonable number of hard copies available to accommodate those without convenient access to a computer and distribute these upon request on a first-come, first-served basis. Copies of the Supplemental EIR/Final TWMP should be made available for review at the Falmouth Public Library.

October 11, 2022

Date

Bethany A. Card

Comments received:

08/19/2022 Massachusetts Office of Coastal Zone Management (CZM)
08/26/2022 Janet Kleuver
08/28/2022 Don Mallinson
08/30/2022 Kathleen Stigberg
09/29/2022 Buzzards Bay Coalition
09/29/2022 Massachusetts Department of Environmental Protection (MassDEP)/Southeast
Regional Office (SERO)

BAC/AJS/ajs



MEMORANDUM

TO: Bethany A. Card, Secretary, EEA
ATTN: Jennifer Hughes, MEPA Office
FROM: Lisa Berry Engler, Director, CZM
DATE: August 19, 2022
RE: EEA 14154 - Notice of Project Change Update Report, Great Pond Comprehensive Wastewater Management Plan/Targeted Watershed Management Plan; Falmouth



The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Notice of Project Change (NPC), noticed in the *Environmental Monitor* dated August 10, 2022, and offers the following comments.

Project Description

This NPC provides an update to the town's approved Comprehensive Wastewater Management Plan (CWMP) outlining the Targeted Watershed Management Plan for Great Pond as called for by the February 7, 2020, Secretary's Certificate, EEA-14154. The CWMP seeks to address nutrient loading and eutrophication in the watersheds of Little Pond, Great Pond, Green Pond, Bourne's Pond, and Waquoit Bay on the Nantucket Sound side of Falmouth, as well as the West Falmouth Harbor watershed in Buzzards Bay. The 20-year plan (2015 to 2035) proposes a range of strategies including: sewerage, upgrading the wastewater treatment facility in West Falmouth, widening the Bourne's Pond inlet, and implementing a variety of non-traditional wastewater and nitrogen management methods.

Project Comments

CZM has reviewed the proposal to remediate 12,154 kg of N/year via a combination of sewerage, shellfish aquaculture, installation of a permeable reaction barrier (PRB), stormwater treatment, and fertilizer management and believes the plan appears reasonable. CZM continues to urge caution regarding the efficacy and reliability of *in situ* biological remediation of groundwater (via PRB) and surface water (via aquaculture) nitrogen. The town acknowledges this concern with a contingency compliance alternative outlined in section 5.2 where an additional section of town would be seweraged in order to remove up to 4,966 kg of N/year if non-sewerage nitrogen remediation actions produce the expected results. However, it is not clear under what conditions the contingency would be triggered. The town should establish an explicit timeframe over which the PRB, aquaculture, and other remediation methods will be evaluated and the specific conditions that would trigger implementation of the additional sewerage contingency should the alternative remediation measures not produce sufficient results.

Federal Consistency Review

The proposed project may be subject to CZM federal consistency review and if so must be found to be consistent with CZM's enforceable program policies. For further information on this process, please contact Robert Boeri, Project Review Coordinator, at robert.boeri@mass.gov, or visit the CZM web site at <https://www.mass.gov/federal-consistency-review-program>.

LE/tc/sm



cc: Peter Johnson-Staub, Acting Town Manager, Falmouth
Anastasia Rudenko, GHD, Inc.
Dan Gilmore, DEP, Southeast Regional Office
Todd Callaghan, CZM
Stephen McKenna, CZM



alexander.strysky@mass.gov

[Dashboard\(javascript:void\(0\);\)](#) > [View Comment\(javascript:void\(0\);\)](#)

View Comment

Comment Details

EEA #/MEPA ID 14154	First Name Janet	Address Line 1 447 Currier Road	Organization --
Comments Submit Date 8-26-2022	Last Name Kluever	Address Line 2 --	Affiliation Description Individual
Certificate Action Date 9-29-2022	Phone --	State MASSACHUSETTS	Status Opened
Reviewer Strysky, Alexander	Email Swimwom@gmail.com	Zip Code 02536	

Comment Title or Subject

Topic: Sewer project for Great Pond Watershed in Falmouth

Comments

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The technology chosen for the proposed plan (centralized sewerage) is most expensive and least environmentally sound option. The plan should instead be based primarily on urine diversion technologies as the most cost effective way to achieve the greatest environmental benefit. Urine diversion is the "...Innovative, alternative on-site system " which appears to provide the greatest environmental and cost benefit. The plan should be returned to the Town for a "... careful comparison and [re]evaluation of the "...innovative, alternative on-site alternative" of urine diversion technology compared to sewer technology with regard to cost, energy use, nutrient recovery, environmental impact, greenhouse gas emissions, and long-term social equity.

The objectives in developing a TWMP plan include

- "... a final plan [should be] chosen through careful comparison and evaluation of the alternatives."
- The plan chosen should be "...the most environmentally sound and the most cost effective." – "A screening process should be employed to determine those alternatives which appear to provide the greatest environmental and cost benefit."
- "Decentralized alternatives should be evaluated in meeting long-term wastewater treatment and disposal needs.", particularly "...Innovative, alternative on-site systems."

The Town has not even considered this technology despite a study by The Green Center that proves its worth. I am greatly disturbed by their tunnel vision that focuses only on sewers as a solution to this problem.

Attachments

Update Status

Status

Opened ▼

SUBMIT

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From: [Hughes, Jennifer \(EEA\)](#)
To: [Strycky, Alexander \(EEA\)](#)
Subject: FW: EEA# 14154
Date: Monday, October 3, 2022 11:01:50 AM

From: Don Mallinson <dfmallinson@gmail.com>
Sent: Sunday, August 28, 2022 2:11 PM
To: Hughes, Jennifer (EEA) <Jennifer.Hughes@mass.gov>
Subject: EEA# 14154

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Project Name: Falmouth Comprehensive Wastewater Management Plan / Targeted Wastewater Management/Plan EEA#:14154

Flush and forget is a wonderful approach for users. Much better than emptying chamber pots out the window or even trips to the outhouse in winter. Centralized wastewater treatment is super convenient for you and me, too, but least environmentally sound and extremely expensive just to be able to flush and forget.

I suggest the proposed Sewer Great Pond plan chosen be the:

- 1/ Most environmentally sound and the most cost effective.
- 2/ Screening process should be employed to determine those alternatives which appear to provide the greatest environmental and cost benefit.
- 3/ Decentralized alternatives should be evaluated in meeting long-term wastewater treatment and disposal needs, particularly “innovative, alternative on-site systems.”
- 4/ Urine diversion is an “innovative, alternative on-site system” which appears to be the most environmentally sound and most cost effective alternative that would meet the Town’s long term wastewater treatment and disposal needs.

The plan instead should be based primarily on urine diversion technologies as the most cost effective way to achieve the greatest environmental benefit. Urine diversion is the innovative on-site system which appears to provide the greatest environmental and cost benefit.

Thank you,

Don Mallinson

746 Carriage Shop Rd

E. Falmouth MA 02536

dfmallinson@gmail.com

774-255-1745

Sent from [Mail](#) for Windows

From: [Hughes, Jennifer \(EEA\)](#)
To: [Strycky, Alexander \(EEA\)](#)
Subject: FW: EEA#: 14154
Date: Monday, October 3, 2022 11:01:50 AM

From: Kathleen Stigberg <capeandislandskay@yahoo.com>
Sent: Tuesday, August 30, 2022 4:13 PM
To: Hughes, Jennifer (EEA) <Jennifer.Hughes@mass.gov>
Subject: EEA#: 14154

CAUTION: This email originated from a sender outside of the Commonwealth of Massachusetts mail system. Do not click on links or open attachments unless you recognize the sender and know the content is safe.

RE: Falmouth Comprehensive Wastewater Management Plan/Targeted Watershed Management/Plan
EEA#: 14154

I write to encourage the Town Of Falmouth to consider Urine Diversion as a most cost effective method to this TWMP. I advise you to sit down with Hilde Maingay and Earle Barnhart at the Green Center, Inc. They have devoted their lives to saving our environment. There are entire towns and provinces throughout the world that are adhering to these simple methods that perform better and are far more cost effective and practical. It has been determined that if 87% of men urinated into a urinal that went to an underground tank, which could be pumped out, pasteurized for \$.01 per gallon and then delivered to farms to fertilize their fields. That Urine diversion (or 43% of men and women. It is just easier for men), would remove the amount of nitrogen that is destroying our water ways. The nitrogen and phosphorus are do not have to be treated and then retracted, because we cannot grow food without phosphorus. This is enormously costly and stupid. There are only 4 places in the world where phosphorus can be mined; Russia, China, U.S. and the other escapes me. There is only about an 80 year supply. So, why would we take this valuable source of phosphorus and Nitrogen and put it in a sewage treatment plant. It is as shortsighted as what we currently do by bringing our waste deep into the earth and then wait for it to travel into our watershed. At a time where the consequences of climate change are causing the suffering of millions of people in this country and around the world, I would encourage you to be more forward in your approach. The plan should be the most environmentally sound and most cost effective. It is neither.

One would never expect that some beautiful homes in Falmouth have composting toilet systems. They are odorless, waterless, cost effective and environmental and economically superior to the grossly massive systems that always become problematic and cost the homeowner and the taxpayer huge amounts of money. Please be open minded and forward thinking. Thank you for your time.

Kathleen Stigberg
12 Solar Way
East Falmouth, MA 02536
508-356-3161



September 29, 2022

Secretary Bethany A. Card
Executive Office of Energy and Environmental Affairs
MEPA Office
100 Cambridge Street
Suite 900
Boston, MA 02114

Re: Great Pond Targeted Watershed Management Plan – Town of Falmouth

Dear Secretary Card,

The Buzzards Bay Coalition (Coalition) has reviewed the “Draft Great Pond Targeted Watershed Management Plan” (2022 TWMP) and offers the following comments.

The Coalition is a nonprofit, membership organization dedicated to the restoration, protection and sustainable use and enjoyment of Buzzards Bay and its watershed. The Coalition works to improve the health of the Bay ecosystem for all through education, conservation, research and advocacy and is supported by more than 10,000 individuals, families and businesses throughout the region, including over 1,437 who live in Falmouth.

It is clear that Falmouth faces a serious issue with respect to nitrogen pollution threatening its economy and environment if left unaddressed. The Coalition supports Falmouth’s investment in wastewater planning and expanded infrastructure. In fact, the Coalition supported Falmouth’s \$24Million wastewater spending article at Falmouth’s 2022 Annual Meeting. However, while the Coalition continues to view this planning document as an important step in both Falmouth’s and the region’s efforts to combat nitrogen pollution, we urge the Secretary to make clear that increased discharges of wastewater to beds 14 and 15 at the wastewater treatment facility **should not be pursued** by Falmouth. It is critical that Falmouth’s efforts to solve the nitrogen pollution problem in their South Coastal Ponds does not cause or contribute to nitrogen impairment in coastal waters in the western part of town.

Simply put, Falmouth must make responsible wastewater disposal decisions now for future generations. **Falmouth does this by prioritizing an ocean outfall as their long-term wastewater disposal solution.**

1. Prioritize an Ocean Outfall to the Sound

The Coalition urges Falmouth to prioritize an ocean outfall into Nantucket Sound as the best investment in Falmouth’s wastewater disposal needs, the best environmental outcome available, and the most equitable as the sewer service being provide for the Great Pond area is within the same coastal

watershed draining to the Sound. Falmouth must abandon the short-term and irresponsible idea of discharging to beds 14 and 15 in West Falmouth.

There are many reasons why an ocean outfall is the best option. The Coalition's comments provide three primary reasons why Falmouth MUST pursue an ocean outfall and abandon land-based disposal options currently under consideration.

a. Herring Brook is an Inappropriate Location to Receive Wastewater Discharges.

Herring Brook is a saltmarsh adjacent to one of the Cape's most beloved bathing beaches, Old Silver Beach. The saltmarsh has been explored and enjoyed by children for generations. The 2022 TWMP indicates that expanded land-based discharge to existing disposal beds 14 and 15 is the preferred short-term alternative. Groundwater modeling performed by Falmouth's consultants confirmed that 15% of the discharge from recharge beds 14 and 15 is expected to flow to Herring Brook resulting in a near tripling of the existing nitrogen load to that waterbody. The Coalition's appeal of Falmouth's 2015 groundwater discharge permit resulted in a requirement to offset new nitrogen to Herring Brook from an increased discharge of wastewater. Those offsets have not occurred.

Herring Brook suffers from nitrogen impairment and is listed on the Massachusetts Year 2012 Integrated List of Waters requiring the development of a Total Maximum Daily Load "TMDL". It has been and continues to be the Coalition's position that any nitrogen discharged to Herring Brook, unless offset, will further impair that waterbody in violation of state law.

The 2015 appeal also resulted in Falmouth's commitment to partner with the Coalition to design a Nutrient Threshold Study for Herring Brook. The purpose of this study was to understand the health of the estuary and what impact increased nitrogen loading from the discharge site would have on it. Falmouth failed to partner with the Coalition on said study. Instead, Falmouth pursued a study on their own. Falmouth did not collaborate with the Coalition on the study, did not inform the Coalition of the study, and did not seek any feedback from the Coalition on the Scope of the study or on contractor selection. Falmouth anticipates a completed study by UMass Dartmouth's School of Marine Science and Technology in 2023. The Coalition notes the evasive manner in which Falmouth pursued the study and will critically review the results of the study when they become available. **The Coalition specifically requests that the Secretary require Falmouth to provide the Coalition a draft of the study once available and provide the Coalition with a 90 day comment period.**

The Coalition urges the Secretary to specifically reject land-based disposal at beds 14 and 15 as an alternative.

b. Increasing Nutrients to Freshwater Ponds Must be Avoided

Freshwater ponds Cape-wide are regularly showing the adverse impacts of nutrient pollution. Closures due to cyanobacteria are unfortunately routine and expose the public to serious health risks. These cyanobacteria closures are due to warmer waters and excessive levels of nutrients entering the freshwater ponds, including nutrients from wastewater.

It is inevitable that land-based discharges will impact the Cape's extensive network of freshwater ponds. Falmouth's engineers found that 42% of the bed 14 and 15 groundwater plume would flow to Crocker

Pond. Falmouth's discharge at beds 14 and 15 already places the pond at risk. Increasing this discharge will further add nutrients to this vulnerable surface water.

Alternatively, if Falmouth continues to discharge at groundwater sites, Falmouth must immediately pursue Phosphorus treatment at the wastewater treatment facility.

c. Inequitable Treatment of Buzzards Bay Water Quality

Falmouth's discharges to Buzzards Bay waters are not grounded in sound science. In fact, the ecology and water quality in Buzzards Bay is more vulnerable to nutrient pollution than the open, well flushed waters of Vineyard and Nantucket Sound. It makes little sense to transfer nitrogen pollution away from Vineyard and Nantucket Sound and add it to the more sensitive water of Buzzards Bay.

Allowing a further discharge to Herring Brook and Buzzards Bay continues a policy of inequitable discharge of pollution into Buzzards Bay and the pollution must be mitigated. Chapter 7 of the 2022 TWMP identifies proposed mitigation measure for each permit issued by the state for the Great Pond project. The 2022 TWMP states that the removal of nitrogen from entering Great Pond will make substantial progress towards achieving the Great Pond TMDL. However, the 2022 TWMP does not account for the adverse impacts suffered by Buzzards Bay waters as the receiving waters of the nitrogen load from the Great Pond sewer project.

Buzzards Bay currently receives a permitted flow of 710,000 gallons per day of treated wastewater and associated nitrogen and phosphorus load from non Buzzards Bay watersheds. As Falmouth pursues cleanup efforts in other areas of towns, the nutrient pollution is being transferred to Buzzards Bay estuaries – estuaries that are also suffering from nitrogen pollution. There is no other municipal wastewater treatment facility in the Buzzards Bay watershed that transfers pollution from outside the Buzzards Bay watershed. Falmouth is the only Bay community that has been allowed to transfer pollution load from one watershed to another.

In order to compensate for the transfer of pollution to Buzzards Bay waters, the Secretary should require Falmouth to plan for and pursue mitigation efforts that remove existing sources of nitrogen in an amount equal to the nitrogen added to Buzzards Bay waters.

2. West Falmouth Harbor Fails to Meet Water Quality Standards and TMDL.

Despite limitations on the discharge at Falmouth's wastewater treatment facility, West Falmouth Harbor continues to suffer from some of the worst water quality in all of Buzzards Bay. The 2022 TWMP includes a contingency compliance approach for the Great Pond watershed which includes additional sewerage needs in the event the first phase does not meet the TMDL. The 2022 TWMP must also include a contingency compliance approach for West Falmouth Harbor

The Coalition requests that the Secretary require Falmouth to develop a contingency compliance approach for West Falmouth Harbor.

3. Board of Health Regulations for New Development

It is clear that Falmouth has invested significantly in wastewater planning. However, new development constructed in town and outside the sewer service area is undoing the investment Falmouth has made

in cleaning up their estuaries. Falmouth of Falmouth's Board of Health should require all new construction to install nitrogen reducing septic systems that reduce nitrogen by 75%.

An increasing number of Boards of Health in southeastern Massachusetts have passed regulations requiring new construction to install a nitrogen reducing septic system. The Coalition looks forward to supporting Falmouth's Board of Health in the passage of a similar requirement in order to protect Falmouth's investment.

4. Compliance Approach for Buzzards Bay Estuaries Needed

The 2022 TWMP provides a compliance approach for only a subset of Falmouth's watersheds and remains silent on plans to meet TMDLs for other critical coastal waters in town. TMDLs have been issued for Quissett Harbor, Wild Harbor, Rands Harbor, Fiddlers Cove and is in draft form for Megansett Harbor. The Coalition requests that the **Secretary require Falmouth to establish a compliance approach for all Falmouth estuaries within twelve months of the approval of the 2022 NPC.**

5. Existing Sewer Area Redevelopment Allocation

The 2022 TWMP allocates 140,000 gallons per day to Existing Sewer Area Redevelopment Allocation (ESRA). If this ESRA represents new flow volume to the wastewater treatment facility, the Coalition urges Falmouth to require such new developments to offset the additional flow. New flow within the existing sewer service area takes sewer treatment capacity away from sewer existing on-site septic systems and adds new sources of wastewater pollution to Buzzards Bay waters.

Conclusion

The Coalition has long encouraged Falmouth to pursue a long-term solution to the disposal of treated wastewater through an ocean outfall. Many of the Coalition's comments and concerns can be addressed with an ocean outfall as opposed to expanded land-based disposal.

The Coalition appreciates the opportunity to comment.

Sincerely,



Korrin N. Petersen, Esq.
Vice President of Clean Water Advocacy
petersen@savebuzzardsbay.org

Cc: Massachusetts Department of Environmental Protection



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

Bethany A. Card
Secretary

Martin Suuberg
Commissioner

September 29, 2022

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

RE: NPC Review. EOEEA #14154
FALMOUTH. Falmouth CWMP/Targeted
Watershed Management Plan

Dear Secretary Card,

The Southeast Regional Office of the Department of Environmental Protection (MassDEP) has reviewed the Notice of Project Change (NPC) for the Falmouth CWMP/Targeted Watershed Management Plan located at 180 Scranton Avenue, Falmouth, Massachusetts (EOEEA # 14154). The Project Proponent provides the following information for the Project:

The project change involves an update to the Town's approved 2013 CWMP, outlining the TWMP for Great Pond as called for February 7, 2020 Secretary's Certificate, EEA No. 14154

The February 2020 Secretary's Certificate issued to the Town of Falmouth recognized the efforts the Town had made in evaluating and piloting nitrogen removal measures to improve water quality in its coastal pond watersheds. Section 3 of this document provides a summary of pilot project implementation progress since the 2019 Notice of Project Change Report.

The following technologies are discussed: shellfish aquaculture, permeable reactive barriers (PRBs), eco-toilets, stormwater management, fertilizer management, nitrogen attenuation augmentation, and innovative and alternative (I/A) septic systems.

Bureau of Water Resources (BWR) Comments

Wetlands. The SERO Wetlands & Waterways Program has reviewed the above-referenced EOEA file. The proposed and active projects involve the development of a comprehensive wastewater management plan in the Little Pond, Great Pond, Green Pond, Bournes Pond, Eel Pond, Waquoit Bay East & West and West Falmouth Harbor watersheds, including several projects to demonstrate non-traditional technologies and approaches to reduce the extent of sewerage.

This information is available in alternate format. Contact Glynis Bugg at 617-348-4040.

TTY# MassRelay Service 1-800-439-2370

MassDEP Website: www.mass.gov/dep

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Based on the information submitted, it appears that several of the proposed project components will be located within Wetlands Protection Act jurisdiction; potential impacts to a variety of inland and coastal Areas Subject to Protection, including Riverfront Area, can be anticipated. Therefore, WPA Notices of Intent or/and Requests for Determination of Applicability will need to be submitted to the Falmouth Conservation Commission prior to any temporary or permanent alterations [except for planning and design activities that meet the provisions of the minor activity exemption at 310 CMR 10.02(2)(b)1.g.].

This municipal Project is subject to MassDEP's Stormwater Management Standards as a whole, although not all the individual standards will apply to all components of the work. Notices of Intent and WQC applications should include Stormwater Reports.

Waterways. None of the activities outlined in the NPC appear to require authorization from the Waterways Program.

Wastewater Management

MassDEP's Southeast Regional Office is pleased to have the opportunity to comment on the Town of Falmouth's Notice of Project Change to their Targeted Watershed Management Plan (TWMP). MassDEP commends the Town on its efforts to restore coastal embayments impacted by nutrient enrichment.

Introduction

The submittal of the Great Pond TWMP has the foundation of multiple Massachusetts Environmental Policy Act (MEPA) reviews for the Town of Falmouth. In 2008, Falmouth received an Executive Office of Energy and Environmental Affairs (EOEEA) Secretary's Certificate for the Environmental Notification Form. In 2012, Falmouth received an EOEEA Secretary's Certificate for Draft Environmental Impact Report (DEIR) for the Draft Comprehensive Wastewater Management Plan (CWMP). In 2014, Falmouth received an EOEEA Secretary's Certificate for the Final Environmental Impact Report (FEIR) for the Final CWMP. Lastly, in 2020, Falmouth received an EOEEA Secretary's Certificate for the Notice of Project Change (NPC) for the CWMP. The Town of Falmouth has submitted this Notice of Project Change Form (NPC) for the Great Pond Targeted Watershed Management Plan in accordance with the February 7, 2020 Executive Office of Energy and Environmental Affairs (EOEEA) Secretary's Certificate for the Town's South Coast Embayments Comprehensive Wastewater Management Plan (CWMP).

Since 2020, the Town has continued to refine plans towards Total Maximum Daily Load (TMDL) compliance for Falmouth's South Coast Embayments. The Great Pond TWMP consists of a mix of traditional and non-traditional wastewater management strategies with a conventional wastewater management contingency plan to back-up the use of non-traditional strategies in the preferred plan. The preferred plan includes aquaculture, permeable reactive barriers, stormwater management credits and fertilizer reduction credits as well as sewer collection system extensions to be treated at the existing Falmouth Wastewater Treatment Facility (WWTF). The WWTF treated effluent is discharged outside of the Great Pond watershed. As Falmouth is solely responsible for nitrogen load contributions to Great Pond, the Town has organized its plan as a town-only solution; although, the Town has engaged in upper cape discussions on regional use of the Otis Air Force Base Wastewater Treatment Facility and remained open for potential collaboration on the long-term planning horizon.

All planning is around present-day flows per the 2005 final Massachusetts Estuaries Project (MEP) report, of which were adopted in the final TMDL. In the MEP report, a town-wide buildout analysis

was conducted taking into consideration information directly provided by the Town. The Great Pond TWMP does not acknowledge future growth within the watershed from this point in time, nor does it substantiate previous buildout projections or provide an update of what has been executed among previous projections. However, the Town is planning on using the treatment facility to address other TMDL watersheds and will apply adaptive management to refine the TWMP as necessary as nitrogen reduction projections can outperform or underperform assumptions.

The document contains a thoughtfully planned approach to wastewater management planning. Notwithstanding unpredicted changes in land use and considering the use of “present day loads” per the MEP and TMDL, the Town may achieve the estimated removal requirements and meet concentrations at the sentinel stations. Further MEPA review may be required depending on concerns that may be triggered during the hydrogeological review for the proposed disposal beds or a potential hydrogeological review of expansion of the beds if unforeseen environmental impacts go beyond the scope of MassDEP permitting or require a comprehensive engagement with other agencies. This could be flagged during the watershed permitting process.

Great Pond Watershed Total Maximum Daily Load (TMDL) Compliance

The Great Pond watershed is divided into 24 sub-watersheds, but for simplicity is grouped into two sub-watersheds: Great Pond including Coonamessett River and Perch Pond. The total threshold nitrogen load for Great Pond including Perch Pond and Coonamessett River is 7,195 kg/year. According to the Massachusetts Estuaries Project report for Great/Perch Pond the total present day nitrogen load is 19,349 kg/year and the build-out Nitrogen load is 22,163 kg/yr. This results in a required nitrogen reduction of 12,154 kg/ yr. using the “present day” load and 14,968 kg/yr. using the build-out load. The TWMP presents a preferred plan to achieve and sustain the required reduction targets using the “present day” load. The preferred plan consists of aquaculture, a permeable reactive barrier at Shorewood Drive, Stormwater Best Management Practices (BMPs), nitrogen reduction credits from local fertilizer bylaw compliance and wastewater treatment sewer extensions in the core sewer area identified to be the Little pond sewer area and the Teaticket Acapesket Sewer Area. This plan is backed up with a contingency plan that consists of solely the conventional wastewater management approach of collection and treatment.

The Town of Falmouth is permitted to discharge treated wastewater effluent according to the requirements of the Groundwater Discharge Permit 168-6. The Town has formed three planning horizons for assessing the treatment facility’s treatment and discharge capacity requirements: short-term, medium-term, and long-term. In the short-term, the Town is expected to need treatment and discharge capacity to address the existing average permitted flow of 0.71 million gallons per day (MGD), the flow allocation of 0.36 MGD for the Great Pond sewer extensions and an existing sewer area redevelopment allocation (ESRA) of 0.14 GMD for a total capacity of 1.21 MGD. In the medium-term, in addition to the short-term planning flows, the facility is projected to receive an additional 0.34 MGD to account for sewer extensions to address other watersheds with TMDLs for a total average wastewater flow of 1.55 MGD. As per the contingency plan, if the non-conventional approaches cannot consistently reduce nitrogen load, the sewer extensions within the contingency alternative would be required to meet the TMDL. This is estimated to be an additional 0.19 MGD for a total average wastewater flow of 1.74 MGD.

MassDEP supports the Town’s plan to carry out the preferred alternative approach towards calculated TMDL compliance which includes non-traditional and traditional approaches and to apply adaptive management on execution of the contingency plan to meet the thresholds of the TMDL if needed.

MassDEP is currently drafting watershed permitting regulations; as such, MassDEP recommends that after promulgation of the regulations the Town obtain a watershed permit to formalize review and assessment of non-traditional strategies for nitrogen crediting as well as facilitate coordination on other TMDL and watershed specific matters such as sentinel station monitoring. There is a 13% difference in the “present-day” nitrogen load and the build-out nitrogen load. MassDEP recommends that planning is conducted around build-out loads to promote sustainable growth within the watershed. This is encouraged to meet target thresholds and sustain water quality levels that will promote habitat restoration. However, MassDEP understands that adaptive management will have to be exercised as the Town is managing TMDL compliance responsibilities for several watersheds that will send flows to the facility and is still weighing disposal options. Uniquely, compared to other Towns, a watershed permit for Great Pond may incorporate a conceptual plan for addressing build-out flows so, at the minimum, future flows are still considered in planning. Notwithstanding those particulars that can be discussed within watershed permitting, the Town should track buildout in order to keep the most accurate understanding of the current septic land use load of the watershed for planning purposes. Lastly, the figures of the report that include nitrogen reduction removal estimates from sewerage can be improved though a footnote clarifying the assumed average total nitrogen concentration. It appears that the best-efforts concentration of 3mg/l from the permit was used, but this can be clarified.

Alternative Strategies and Demonstration Projects

The Falmouth Great Pond TWMP employs a mix of conventional and non-traditional nitrogen abatement strategies in order to achieve nitrogen reductions. The non-traditional strategies include aquaculture, a permeable reactive barrier at Shorewood Drive, Stormwater Best Management Practices (BMPs), nitrogen reduction credits from local fertilizer bylaw compliance.

Shellfish Aquaculture

Falmouth estimates to be able to achieve a reduction of 1,950 kg/year to 3,150 kg/year of nitrogen from oyster aquaculture. This estimate includes uptake of nitrogen by the oysters and denitrification of the sediments on the waterbody floor. The Town has conducted an oyster aquaculture demonstration project in the Eel River within the Waquoit Bay watershed. Three sites that support 20,000 sq. ft of floating gear were selected. The Town manages the aquaculture licenses of the sites, while the private growers are responsible for purchasing, transporting, installing, maintaining, and harvesting the shellfish. The program requires that the growers produce a minimum of 18,600 kg per year of net increase in harvest weight. As part of the Town’s quality assurance project plan, the Town requires the growers to report the deployment and harvest weights of the oysters each season and provide samples to the Town for independent analysis of nitrogen content to confirm that target reductions are realized. According to the TWMP, Falmouth specific municipal propagation data suggests an average reduction of 130 kg nitrogen per year. Falmouth is conducting shellfish surveys for aquaculture application in Great Pond and is planning on surveying and evaluating the feasibility of application in all of their remaining embayments. The Town has also conducted demonstration projects in Little Pond and Bournes Pond. The Little Pond estimated effected nitrogen removal is 29 kg of nitrogen per year on 0.25 acres with a potential to expand to 0.5 acres to remove 60 kg of nitrogen per year.

The TWMP states that “oysters grown in Little Pond are relayed to Great Pond, Green Pond, and West Falmouth Harbor for recreational and commercial harvest” (page 10). Oyster propagation for nitrogen removal, or aquaculture, requires the removal of the oysters from the watershed to account for the net nitrogen removal. If there are aquaculture efforts taking place in other watersheds, the

Town should be wary of adding a nitrogen input from one TMDL watershed to another through oyster relocation for commercial and recreational harvest. MassDEP recommends that the Town submit their Quality Assurance Project Plan for aquaculture to the department for review as well as the Town's policy on aquaculture as suggested on page 9 of section 3 of the TWMP if the two documents differ. MassDEP cautions the Town of Falmouth on relying on the denitrification of sediment enabled by oyster biodeposition for TMDL compliance. This is a difficult removal activity to quantify and predict to happen for a consistent removal rate as it is very contingent on the biodeposit impact area which can vary from system to system and be impacted by other benthic activity. In general, removal rates for aquaculture are speculative and can vary from year to year; therefore, depending on additional lack of certainty with sediment denitrification estimates can increase the risk of the Town not meeting the target threshold for Great Pond and promoting habitat restoration.

Permeable Reactive Barriers (PRB)

The Town of Falmouth is conducting an emulsified vegetable oil (EVO) PRB demonstration project in the Great Pond watershed. The projected data collection period spans from June 2020 to May 2022. The objective of the project is to provide the data necessary to refine the long-term operational cost of an injection based PRB by designing the PRB to fail or reduce efficiency within the project performance period. This will enable the Town to be able to determine the amount of EVO required for a full-scale application. A complete report of the Project's findings is anticipated to be formed in December 2022. MassDEP recommends that the Town submit copies of the final report to MassDEP SERO Wastewater Cape & Islands and MassDEP Boston Underground Injection Control program to facilitate coordination with the Town.

Stormwater Management

The Town of Falmouth has worked to assess the feasibility of several locations to implement stormwater Best Management Practices (BMP) for nitrogen removal. Based on the required steps of implementing the BMP for the identified catchment areas, the Town is first assessing the effectiveness of upstream media boxes. Best Management Practices are implemented in all road improvement projects and all know BMPs have been mapped. Recent BMP projects included Teaticket Path reconstruction project, the Town Hall employee parking lot improvements, and the Coonamessett Gateway park improvements. On June 28, 2021, The Town passed a construction and post construction by-law to address illicit discharges and the Select Board adopted Stormwater Management Rules and Regulations. MassDEP recommends that the Town continue to employ BMPs where feasible to maximize the possible nitrogen reductions from good stormwater management.

Fertilizer Management

In 2012, the Town of Falmouth passed a Nitrogen Control By-law for fertilizer. Since then, the town has continued to educate through annual mailing to properties within 100 feet of all coastal estuaries and through pamphlets attached to water bills. MassDEP recommends that the Town continue to educate and enforce, to the best of its ability, fertilizer control to maximize nitrogen reductions.

Other Opportunities

Falmouth continues to assess the applicability and effectiveness of other opportunities for nitrogen reduction. The Town has tried several alternative strategies in Mill Pond such as macrophyte harvesting, supplemental pond aeration and enhanced attenuation through a detention pond. Currently the Town is assessing the effectiveness of a permeable reactive barrier upgradient of detention pond. The Town has also tried to incorporate eco-toilets as part of preferred nitrogen reduction plan. The

Town is also estimating the nitrogen reduction benefits from the Coonamessett River Restoration Project.

Adaptive Management

MassDEP views adaptive management as a certain amount of flexibility to recognize alternative approaches and developing data that allow for mid-course corrections in the implementation of a recommended plan. Developing data that can cause changes to the Great Pond TWMP as presented includes the following: water quality monitoring data, eel grass and benthic habitat monitoring, performance of non-traditional technologies and abatement methods. The Town's contingency plan for the Great Pond Watershed reductions are considered for execution after implementation of reduction plans for other watersheds with TMDLs. If necessary, the contingency plan may be subject to the capacity of treatment and disposal and the undetermined plans for expansion. MassDEP recommends that as data is generated, assumptions should be checked and refined as needed to assure adequate nitrogen load removal is executed on an annual basis. The NPC inclines that the Town is conducting this practice and will continue to do so as it will lay a good foundation for watershed permit collaboration between the Town and MassDEP for documented rates of removal towards meeting the TMDL.

Opportunities for Regional Cooperation

The Town of Falmouth is the sole contributor of nitrogen load to the Great Pond watershed. As such, there are no opportunities for regional cooperation directly for nitrogen reduction strategies. However, Falmouth has been a key contributor to the progression of wastewater management planning and watershed planning on Cape Cod. The Town has contributed in multiple forums to discuss innovative alternative septic systems, non-traditional strategies and responsible management entities. Lastly, the Town works seamlessly with other state and federal agencies as part of information sharing and leveraging resources. MassDEP commends the Town in its pursuit of environmental protection and restoration.

Wastewater Collection and Treatment

The proposed sewerage plan per the Great Pond TWMP is 253 parcels from the Little Pond Sewer Service Area Project (LPSSA) and 1,289 parcels from the Teaticket Acapesket Study Area Project (TASA). The anticipated septic nitrogen load removal from the Great Pond Watershed is 1,000 kilograms per year and 6,188 kilograms per year, respectively. The Town is currently in the design phase to provide capacity to treat additional flows from TASA. The Town is expecting TASA to increase average daily flows by 0.36 million gallons per day.

Wastewater Collection System

The 253 parcels within the Great Pond watershed that was part of the LPSSA Project were sewerage in 2017. According to the Town, 99.5% of the parcels have connected to the sewer system. The TASA Project will be executed in two phases. The proposed phase one consists of two new lift stations and two existing lift stations. This would require four sewer easements on private properties. If the Town cannot obtain these easements the collection area will be served by low pressure sewer or grinder pumps. Phase one focuses on infrastructure on the Maravista and Teaticket Peninsulas within the Great Pond Watershed, while phase two focuses on infrastructure on the Acapesket Peninsula in both Great Pond and Green Pond watersheds. The Town plans to have design work completed through 2024, while treatment facility is under construction for upgrades.

Wastewater Treatment

The Falmouth WWTF consists of primary treatment screens and bar racks, two (2) sequencing batch reactors (SBRs), one (1) post-equalization tank, and one (1) denitrification filter for secondary treatment and two (2) ultraviolet channels for disinfection. In April 2022, Falmouth approved a \$24,000,000 appropriation for wastewater treatment facility expansion and in May 2022 the Town approved of borrowing authorization for the appropriation. The Project is currently being designed and is expected to go out to bid in the spring of 2023. The Town plans for facility upgrade construction to be completed through 2024 and collection system expansion to occur through 2028.

The upgrades include the improvement of the secondary treatment process by adding one (1) SBR tank, general improvements to sludge processing, the addition of a new equalization tank and the replacement of the existing UV disinfection system. These upgrades will ensure that the Town maintains permit compliance in treating the existing service redevelopment allocation (ESRA) and the new flow from TASA Project. Additional evaluations will be required in the future to assess requirements to treat additional flows from other TMDL watersheds and if necessary, the Town's contingency plan sewer area. MassDEP supports the Town's incorporation of sewerage as an effective method for nitrogen abatement as it will also establish infrastructure to enable the Town to address contaminants of emerging concern, if necessary, with treatment additions such as membrane filtration, advanced oxidation, and granular activated carbon adsorption.

Wastewater Disposal

Falmouth currently discharges treated wastewater effluent to 15 open sand beds. Open sand beds 1-13 are in the West Falmouth Harbor watershed and are subject to an annual effluent nitrogen load limit of 4,109 pounds per year. Open sand beds 14 and 15 are located outside of the West Falmouth Harbor watershed.

The Town has been working diligently to identify a potential treated effluent discharge site. In 2007, 25 potential sites were identified and screened. In 2019, of the 25 sites, six (6) land-based sites and two (2) ocean outfall options were evaluated with preliminary analysis. From the sites analyzed in 2019, the three (3) potential land-based effluent discharge options and the two (2) ocean outfall options remain as potential wastewater disposal options. The three (3) potential land-based effluent discharge options are the Allen parcel, expanded discharge at beds 14 and 15, and the Augusta Parcel. The two (2) ocean outfall options are direct discharges into Buzzards Bay and Vineyard Sound.

Expanded Beds 14 and 15

The permitted hydraulic loading rate for beds 14 and 15 is based on a loading rate of 7 gallons per day per square foot. In 2020, the Town conducted a hydraulic loading test using treated effluent from the Falmouth WWTF. The test was conducted according to the MassDEP approved "Final Hydraulic Load Testing – Work Plan" (dated July 7, 2020). The capacity of the beds was observed to be greater than the WWTF effluent that was available for the test, so the test did not determine the maximum infiltration rate for the beds; however, it did demonstrate that the beds could accommodate at least 11 gpd/sf.

A particle tracking simulation was conducted by the Town's consultant to estimate potential effluent migration from the discharge area to downgradient waterbodies. The report stated that 0.76 mgd of average annual flow could be recharge to beds 14 and 15 without migration to West Falmouth Harbor. At the simulated flow of 0.76 mgd, there is an increase in percentage of flow to Herring Brook and Buzzards Bay. MassDEP recommends that if the Town decides to maximize flow at beds

14 and 15, additional simulations should be conducted once a conceptual layout has been established for a potential open sand bed expansion through a WP83 hydrogeological analysis application.

Allen Parcel

The Allen Parcel is a 70-acre plot of undeveloped, town-owned land that abuts residential neighborhoods to the south and west. In 2018, the Town conducted preliminary hydraulic load testing at this site and determined a potential loading rate of 130gpd/sf. Due to this in conceptual planning the Town can use the max MassDEP design loading rate of 7 gpd/sf with the understanding that an effective loading rate can be demonstrated after consistent use and a hydraulic loading test with treated effluent wastewater. Preliminary soil evaluation results showed an estimated 10-inch layer of less permeable silt loam about 28-inches to 38-inches below grade that would need to be removed and replaced with Title 5 medium to coarse sand.

A particle tracking simulation was conducted by the Town's consultant to estimate potential effluent migration from the discharge area using flow the short-term planning flows and long-term planning flows. In both planning flow scenarios, mixed groundwater and treated effluent discharge flows to Great Pond vis Flax Pond and/or the Coonamessett River and Green Pond via Flax Pond, Backus Brook, and/or Mill Pond. This resulted in 65% of flow to Great Pond and 35% of flow to Green Pond. MassDEP recommends that if the Town decides to utilize the Allen Parcel as a discharge site, additional simulations should be conducted once a conceptual layout has been established and flows are more refined for a potential open sand bed through a WP83 hydrogeological analysis application. MassDEP must be present for any loading tests and soil evaluations within the WP83 application process.

Augusta Parcel

The Augusta Parcel is a 20-acre plot of undeveloped, town-owned land surrounded by residential and commercial properties in the Great Pond watershed. It is the site for the proposed booster pump station as part of the TASA collection system. In 2018, the Town conducted preliminary hydraulic load testing at this site to determine a potential loading rate of 138 gpd/sf. Due to this in conceptual planning the Town is using the max MassDEP design loading rate of 7 gpd/sf with the understanding that an effective loading rate can be demonstrated after consistent use and a hydraulic loading test with treated effluent wastewater.

A particle tracking simulation was conducted by the Town's consultant to estimate potential effluent migration from the discharge area using flow the short-term planning flows and long-term planning flows. This analysis indicated that with short-term planning horizon flows all the potential discharge flow would migrate through Great Pond and with long-term planning horizon flows a small percentage of flow would migrate through Perch Pond, of which flows into Great Pond. MassDEP recommends that if the Town decides to utilize the Augusta Parcel as a discharge site, additional simulations should be conducted once a conceptual layout has been established and flows are more refined for a potential open sand bed through a WP83 hydrogeological analysis application. MassDEP must be present for any loading tests and soil evaluations within the WP83 application process.

Ocean Outfalls

The Town is evaluating the feasibility of an ocean outfall as the solution to the discharge capacity needs. The Town has developed a hydrodynamic ocean model through their consultant to simulate the discharge plume dispersion to a potential outfall in Buzzards Bay. The simulation indicated a

negligible effect on total nitrogen concentrations in Buzzards Bay and West Falmouth Harbor assuming a Falmouth WWTF effluent total nitrogen discharge concentration of 3 mg/l. A similar analysis was conducted for Buzzards Bay and Vineyard Sound in 2022. MassDEP suggests that the Town consider the Ocean Sanctuaries Act prerequisites that must be met for new or modified discharges into an ocean sanctuary. There is a minimum requirement for water quality data that must be captured within those prerequisites that should be incorporated into a timeline if this path is pursued. The Buzzard's Bay Coalition is a good resource for this process as they are also pursuing an ocean outfall in Buzzards Bay.

Conclusion

The NPC report presents a step forward for the Town of Falmouth. MassDEP commends Falmouth's effort to make great strides towards the Great Pond's nitrogen reduction targets for the next 6 years. Acknowledgement and planning around buildout flows would assure that the plan not only addresses current needs but future needs as well to meet the embayments nitrogen reduction targets. Notwithstanding unpredicted changes in land use and considering the use of "present day loads" per the MEP and TMDL, the Town may achieve the estimated removal requirements and meet concentrations at the sentinel stations. The document contains a well-planned approach to wastewater management planning. Further MEPA review may be required depending on concerns that may be triggered during the hydrogeological review for the proposed disposal beds or a potential hydrogeological review of expansion of the beds if unforeseen environmental impacts go beyond the scope of MassDEP permitting or require a comprehensive engagement with other agencies. This could be flagged during the watershed permitting process.

Bureau of Waste Site Cleanup Comments

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 Comprehensive Wastewater Management Plan is long-term project (2009 – 2040) spanning a very large area (27,251 acres). There are many MCP sites located near and possibly within the proposed Project area. Some of these sites have been closed, but other sites require on-going response actions and reporting until final closure under the MCP. A list of all MCP sites will not be presented here. Interested parties may 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". MCP reports and the compliance status of specific disposal sites may be viewed using the BWSC Waste Sites/Reportable Release Lookup at: <https://eeaonline.eea.state.ma.us/portal#!/search/wastesite>

The Project Proponent is advised that if oil and/or hazardous material are identified during the implementation of this Project, notification pursuant to the Massachusetts Contingency Plan (310 CMR 40.0000) must be made to MassDEP, if necessary. A Licensed Site Professional (LSP) should be retained to determine if notification is required and, if need be, to render appropriate opinions. The LSP may evaluate whether risk reduction measures are necessary if contamination is present. The BWSC may be contacted for guidance if questions arise regarding cleanup.

Spills Prevention and Control. A spills contingency plan addressing prevention and management of potential releases of oil and/or hazardous materials from pre- and post-construction activities should be presented to workers at the site and enforced. The plan should include but not be limited to, refueling of machinery, storage of fuels, and potential on-site activity releases.

Bureau of Air and Waste (BAW) Comments

Air Quality. 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

Construction-Related Measures. MassDEP requests that all non-road diesel equipment rated 50 horsepower or greater meet EPA's Tier 4 emission limits, which are the most stringent emission standards currently available for off-road engines. If a piece of equipment is not available in the Tier 4 configuration, then the Proponent should use construction equipment that has been retrofitted with appropriate emissions reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified, or MassDEP-approved diesel oxidation catalysts (DOCs) or Diesel Particulate Filters (DPFs). The Proponent should maintain a list of the engines, their emission tiers, and, if applicable, the best available control technology installed on each piece of equipment on file for Departmental review.

Massachusetts Idling Regulation. MassDEP reminds the Proponent that unnecessary idling (i.e., in excess of five minutes), with limited exception, is not permitted during the construction and operations phase of the Project (310 CMR 7.11). With regard to construction period activity, typical methods of reducing idling include driver training, periodic inspections by site supervisors, and posting signage. In addition, to ensure compliance with this regulation once the Project is occupied, MassDEP requests that the Proponent install permanent signs limiting idling to five minutes or less on-site.

Climate Change/GHG

Climate Change – Sea Level Rise.

The Project's location will subject it to the impacts of climate change-induced sea level rise. MassDEP recommends that the Proponent consider various scenarios and future conditions that are beyond the scope of the 100-year flood elevations designated in the Flood Insurance Rate Maps (FIRMs) to evaluate impacts such as sea level rise, shoreline change, and hurricane inundation. Recognizing the vulnerability of the coastline in the vicinity of the proposed Project site, the Proponent should be prepared to address the impacts of sea level rise and damage to property, businesses, and infrastructure over the lifespan of the Project. The potential risks to the Project should be evaluated based on sea level rise scenarios developed by known authorities, including the Massachusetts Coastal Zone Management Agency or community/localized studies. One recommended resource is the Massachusetts Sea Level Rise and Coastal Flooding Viewer <https://www.mass.gov/service-details/massachusetts-sea-level-rise-and-coastal-flooding-viewer>. Please note that the viewer doesn't include all types of wastewater treatment and drinking water infrastructure.

Adaptation strategies should be considered to accommodate the effects of sea level rise and manage risk. Adding pre-disaster adaptation and post-disaster recovery measures will improve the Project

resiliency to flooding and the impacts of extreme storm events. Please be aware that the Sea Level Rise and Coastal Flooding Viewer does not account for storm surge, waves, erosion, and other dynamic factors, while FIRMs do not account for sea level rise, shoreline erosion, changes in the frequency and magnitude of storm events, etc. Therefore, it's important to review and consider these combined with hurricane surge scenarios (which use current sea level) in order to plan for worst case scenarios and appropriate adaptation measures.

Proposed s.61 Findings

The "Certificate of the Secretary of Energy and Environmental Affairs on the Notice of Project Change" 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.

Other Comments/Guidance

The MassDEP Southeast Regional Office appreciates the opportunity to comment on this NPC. If you have any questions regarding these comments, please contact George Zoto at George.Zoto@mass.gov or Jonathan Hobill at Jonathan.Hobill@mass.gov.

Very truly yours,



Jonathan E. Hobill,
Regional Engineer,
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JH/GZ

Cc: DEP/SERO

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