Buzzards Bay

National Estuary Program

Ian A. Bowles, Secretary
Executive Office of Energy and Environmental Affairs
Attn: Aisling Eglington, MEPA Office
EEA No. 13940A
100 Cambridge Street, Suite 900
Boston, MA 02114

September 5, 2008

RE: Expanded Environmental Notification Form for Tihonet Mixed-Use Development, EEA No. 13940A

via electronic mail and hard copy

Dear Secretary Bowles:

The Buzzards Bay National Estuary Program has completed its review of the Tihonet Mixed-Use Development Expanded Environmental Notification Form (EENF, EEA No. 13940A), noticed in the Environmental Monitor dated July 23, 2008. This filing by A.D. Makepeace Agawam Development Limited Liability Corporation (henceforth A.D. Makepeace) is a follow-up to the MEPA Special Review Process approved on January 29, 2007 by EEA for their 6,000 acres of land holdings described in the current application. As noted in the EENF filing, the project is considered to be at the 10% design phase.

The Buzzards Bay National Estuary Program is an advisory and planning unit of the Office of Coastal Zone Management. Our mission is to protect and restore water quality and living resources in Buzzards Bay and its surrounding watershed through the implementation of the Buzzards Bay Comprehensive Conservation and Management Plan, a watershed plan approved by the US Environmental Protection Agency and the Commonwealth of Massachusetts as state policy. We have conducted our review based upon the goals and recommendations contained in the Buzzards Bay Comprehensive Conservation and Management Plan, particularly those recommendations that relate to nitrogen loading and eutrophication of Buzzards Bay. Nitrogen loading from this proposed development will affect the waters of the Wareham River estuary, a state listed impaired estuary. For this reason, the primary focus of this comment letter is to address the nitrogen pollution issue.

Project Summary

The EENF consists of multiple phases, and multiple alternatives as described in this simplified summary.

- Phase A consists of two commercial sites in Wareham. One site is an 115,200 sq. ft. office, laboratory, and manufacturing space with 407 parking spaces on an 18.4-acre site. A second site will have a 40,000 sq. ft. medical office on a 6-acre site that will include

170 parking spaces. The latter project has a preferred alternative connection to the Wareham sewage treatment facility.

- Phase B of the project, exclusively in Wareham, covers approximately 1,140 acres with two possible scenarios. A.D. Makepeace's prefers a moderate build (as opposed to a maximum build) conceptual plan with 1.68 million sq. ft. of mixed use commercial development including light industrial, manufacturing, research and development, office, warehouse, medical office, retail, and hotel with wastewater flows estimated up to 121,000 gpd. The wastewater from development in the southern portion of the conceptual plan, estimated to be approximately 32,000 gpd, is proposed to be collected and treated at the Wareham Sewage Treatment Facility. The remaining wastewater is proposed to be treated at a package sewage treatment facility.
- Phase C of the project covers approximately 4,910 acres mostly in Carver and Plymouth, but with some land in Wareham, but is less well defined at this point. The conceptual plan for Phase C includes agricultural (principally existing), mixed use residential, village scale retail, and areas for conservation uses. Purportedly discussions are underway with the communities of Wareham, Plymouth, and Carver to modify zoning to allow for Transfer of Development Rights for this area. In the absence of zoning changes, the project is anticipated to include 1,366 single-family homes, 380 condominiums/townhouse units, and 110 apartment units, as well as existing and expanded agricultural uses.

Comprehensive Nitrogen Management is Needed

Although the EENF is only at the 10% design phase, and even includes a greenhouse gas analysis for each phase, remarkably it lacks any analysis of cumulative nitrogen loading from the various phases of the project. This omission is striking given the fact that the AD Makepeace Wareham Road Mixed Used Development in Plymouth (now called "River Run"), which also discharges to the Wareham River estuary, received a MEPA certificate on April 27, 2007 that required this issue to be addressed (MEPA 13580 DEIR Certificate). This certificate required that AD Makepeace, in its FEIR, address the anticipated nitrogen TMDLs for the Wareham River estuary, and "include a nitrogen-neutral alternative and a nitrogen-offset strategy as recommended by CZM and NEP." The secretary noted further that "the proponent should consult with MassDEP regarding the estuary studies as well as nitrogen reduction strategies and project permitting issues. The FEIR should include an update on these consultations and, to the extent it is available, additional information on the results of the MassDEP studies and any proposed policy or regulatory changes…"

All these needs are all the more relevant to the 6,000-acre Tihonet Mixed Use Development EENF now before MEPA. As we noted in our comments on the A. D. Makepeace River Run Mixed Use Development project, the Wareham River estuary is now impaired by nitrogen and a listed estuary on the state's 303(d) list for impaired waters. Water quality monitoring of Buzzards Bay embayments conducted by the Coalition for Buzzards Bay Water Quality Monitoring Program shows that the Wareham River Estuary is among the most eutrophic estuaries in Buzzards Bay. State and federal action has already mandated nitrogen removal at the Wareham municipal wastewater treatment facility downstream, and since 2006, total nitrogen discharge from the Wareham facility has been limited to 4.0 ppm between April 1 - October 31, the strictest nitrogen limit for a municipal discharge in the Commonwealth.

Currently DEP has a draft Total Maximum Daily Load (TMDL) for the Wareham-Agawam River watershed that they have not yet released to the public. However, DEP has already noted that despite the upgrade of the town's wastewater plant, and the town's ongoing sewer expansion, this effort is inadequate to meet the TMDL and that the town must further reduce by at least 30% existing nitrogen discharges. This means that future development in the watershed must, at a minimum, result in a no-net increase in nitrogen if the town is to ever meet these newly imposed state and federal nitrogen loading limits. If left unmanaged, the cumulative nitrogen discharges from new development in the watershed, the 6,000 acres in this EENF, will completely negate the benefits that are being achieved by the Town of Wareham through its $50 million dollar, 20-year effort to upgrade the wastewater facility and sewer many areas of the town. The Buzzards Bay NEP recommends that these issues, and others described in this comment letter, be addressed in additional filings under the Special Review Process for this project. This nitrogen loading analysis for this project should also incorporate nitrogen loading contributions from the River Run Mixed Use Development project.

As noted in the DEP's Massachusetts Estuaries Project (MEP) guidance documents, "The Clean Water Act requires states and communities to take action to restore their impaired waters, a process which begins with assessing the condition of impaired waters, determining the causes of impairment, and specifying the maximum amount of pollution that the waterbody can receive and still meet state standards." They also write, "State and federal regulations mandate that the Commonwealth and its communities address water quality impairments created by nitrogen loading. The Massachusetts Estuaries Project will develop nitrogen thresholds for MEP embayments and provide the information necessary to ensure that nitrogen reduction efforts are consistent with federal and state requirements."

Based on the significance of the two Makepeace project's before MEPA, we recommend that MEPA encourage DEP to expedite the release of the draft Wareham River Estuary watershed TMDL to Wareham, Carver, and Plymouth. Although the basic findings of the Wareham River estuary TMDL are already understood (existing loading is roughly 30% over the recommended nitrogen TMDL, and the tremendous growth potential in the watershed will only make matters worse), release of the document, even in its draft form, will benefit all. It will provide specific details about loadings from agricultural lands and septic systems, and will help the towns allocate nitrogen loading management efforts and adopt local standards to meet their nitrogen management needs.

Together, the A.D. Makepeace River Run FEIR and the Tihonet Mixed use EENF are defining the development patterns of 7,320 acres principally in a single embayment subbasin in the Buzzards Bay watershed. MEPA has never considered projects of this scale affecting a single coastal embayment. Cape Cod communities have already learned that it will cost billions of dollars to implement the necessary sewering to meet the recommended nitrogen TMDLs issued by DEP's MEP. Because of the scale of these Makepeace projects, it is vital that MEPA require collaboration between A. D. Makepeace and the towns of Wareham, Carver and Plymouth to manage nitrogen through comprehensive master planning efforts as required under the Special Review Process certificate conditions. This is particularly relevant since the EENF is now only at the 10% design phase. Currently none of the towns have adopted any standards to limit or manage nitrogen from development. Moreover, the generous density bonus Plymouth provides in

their 2006 TDR bylaw is anathema to any TMDL goals because the bylaw fails to address cumulative nitrogen loading impacts. By releasing the TMDL now, MEPA and A.D. Makepeace can use the same nitrogen loading framework and meet the same standard that will be imposed on the Wareham River watershed communities once the state and EPA adopt the TMDL.

Watershed nitrogen management will be the most fiscally and politically challenging issue facing coastal communities in Southeastern Massachusetts and Cape Cod during the next two decades. It requires a comprehensive assessment and management of all nitrogen sources including lawns, agricultural lands, impervious surfaces, and wastewater. Given the impairments to the Wareham River Estuary (including both the Wankinko and Agawam River subbasins), we recommend that MEPA require the applicant to include an alternative strategy in their next MEPA submittal that would meet a "no net increase of nitrogen" for development to help the town achieve nitrogen TMDL goals for the watershed. Implementation of this alternative would prevent the town of Wareham from falling impossibly behind in their attempts to address nitrogen in their coastal embayments. A.D. Makepeace could assure the towns that they are doing their part to prevent the worsening condition of coastal waters. The town could then focus their efforts on further reducing existing nitrogen discharges within their community. Everyone should recognize that it is far easier, both politically and financially, to build wastewater treatment and nitrogen removal capacity at the time of construction than to retrofit conventional wastewater systems later.

There are a number of strategies A. D. Makepeace could implement to meet a no net nitrogen increase goal. Strategies could include adopting more effective wastewater nitrogen-removal technologies, funding sewering in existing nearby unsewered areas as offsets, and adopting agricultural BMPs, such as the elimination of flow through bogs to improve fertilizer retention.

Our review did not consider potential phosphorus impairments to the freshwater rivers and pond systems, but A. D. Makepeace will need to address these impacts on a site and project-specific basis.

Nitrogen Assessment needed for Phase A1 and A2, sewering needed for Phase A2.
Phase A1 and A2 should not be allowed to proceed without an assessment of their nitrogen loadings and how the proponent might achieve a no-net increase in nitrogen loading to the watershed. For example, Phase A2 consists of a 40,000-square foot medical office with an estimated wastewater flow of 7,000 gpd. The EENF identifies a preferred alternative to connect wastewater from this site to the Wareham Water Pollution Control Facility (WPCF). We agree with this strategy, but there are problems with an abandoned sewer line in the area that could require instead the use of a large onsite Title 5 disposal system for the medical office building. Given the nature of this discharge, connection of this facility to the town's wastewater facility is not only desirable, but the proponent and town should consider negotiating an upgrade of the sewer line and expand the connection of other properties in the area as part of a strategy to offset watershed nitrogen loading from this portion of the project to achieve a no net increase of nitrogen from the development.

The town and the applicant may wish to consult with DEP as to whether A2 site would be considered as an industrial facility for sewer extension permits[1]. In addition, the proponent

[1] See 314 CMR 7 and 314 CMR 12.

should explain how industrial and medical wastes would be disposed since they are prohibited under the Title 5 regulations[2].

Increased Coordination with Town Boards Needed

As noted in 301 CMR 11.00: MEPA REGULATIONS, Section 11.09: Special Review Procedures, "the Secretary shall ordinarily (in the case of a Project undertaken by an Agency) or may (in the case of a Project undertaken by a Person) establish a CAC to assist in reviewing the Project." In its January 29, 2007 Special Review Process Certificate, the Secretary noted that "Given the existing relationships among the proponent, host communities and environmental organizations, as well as the provisions of this SRP, I am satisfied that the SRP Certificate purpose of MEPA with regard to public review of the project can be achieved without the establishment of a Citizens Advisory Committee (CAC). The proponent has committed to a transparent collaborative process, and based on comment letters received, has a long history of working cooperatively with the host communities."

However, as noted at the August 22 site visit, neither the Wareham Board of Selectmen nor Wareham Sewer Commissioners were aware of the preferred alternative in A.D. Makepeace's proposal to connect site Phase A2 to the Wareham municipal sewer system. Moreover, in the pre-filing meeting held June 25, only two individuals attended (a Wareham Fire Department official and one resident). The invitation letter sent to the Wareham Planning Board about the meeting had an incorrect address, and when we contacted that office, they had no record of receiving the notification. A.D. Makepeace did place legal notices about the meeting in the newspaper, but apparently this proved ineffective at engaging critical town boards and staff.

In light of these facts, and because various phases will require either Zoning changes or possible new sewer connections in Wareham, and because nitrogen loading limits (soon to be imposed by DEP on the Towns of Wareham, Carver, and Plymouth with the issuance of a Nitrogen TMDL) will have profound implications as to sewering needs, zoning, and transfer of development right standards in each community, it would be wise for the Secretary to establish a Municipal Advisory Committee where the sewer, zoning, and nitrogen issues could be discussed and addressed. These meetings would help A. D. Makepeace meet condition 7 of its certificate: "In addition, the proponent shall be required to hold quarterly public update meetings, which meetings shall be open to the public, held in a publicly accessible location in one of the three host towns, and notice of which shall be provided in each of the three communities at least seven (7) days prior to the meeting."

Better Characterization of Existing Land Use Needed

Section 2.0 of the EENF (baseline environmental resource assessment) notes that of the 6,074 acres of AD Makepeace land holdings (in Table 2.2.8, Vegetation Cover, page 2-16), 220 acres are defined as open water, 356 acres are vegetated wetlands and 892 acres are cranberry bogs. While these numbers are essentially correct, and match DEP's 1993 core wetlands coverage posted at MassGIS (including some corrections for new bogs created since 1993), these numbers fail to convey the fact that the stated "cranberry bog" area includes only the production surface of the bogs, not the surrounding berms, holding ponds, staging areas, bog roads, sand pits, etc. Figure 1, top image, illustrates this point.

[2] See 310 CMR 15.004.

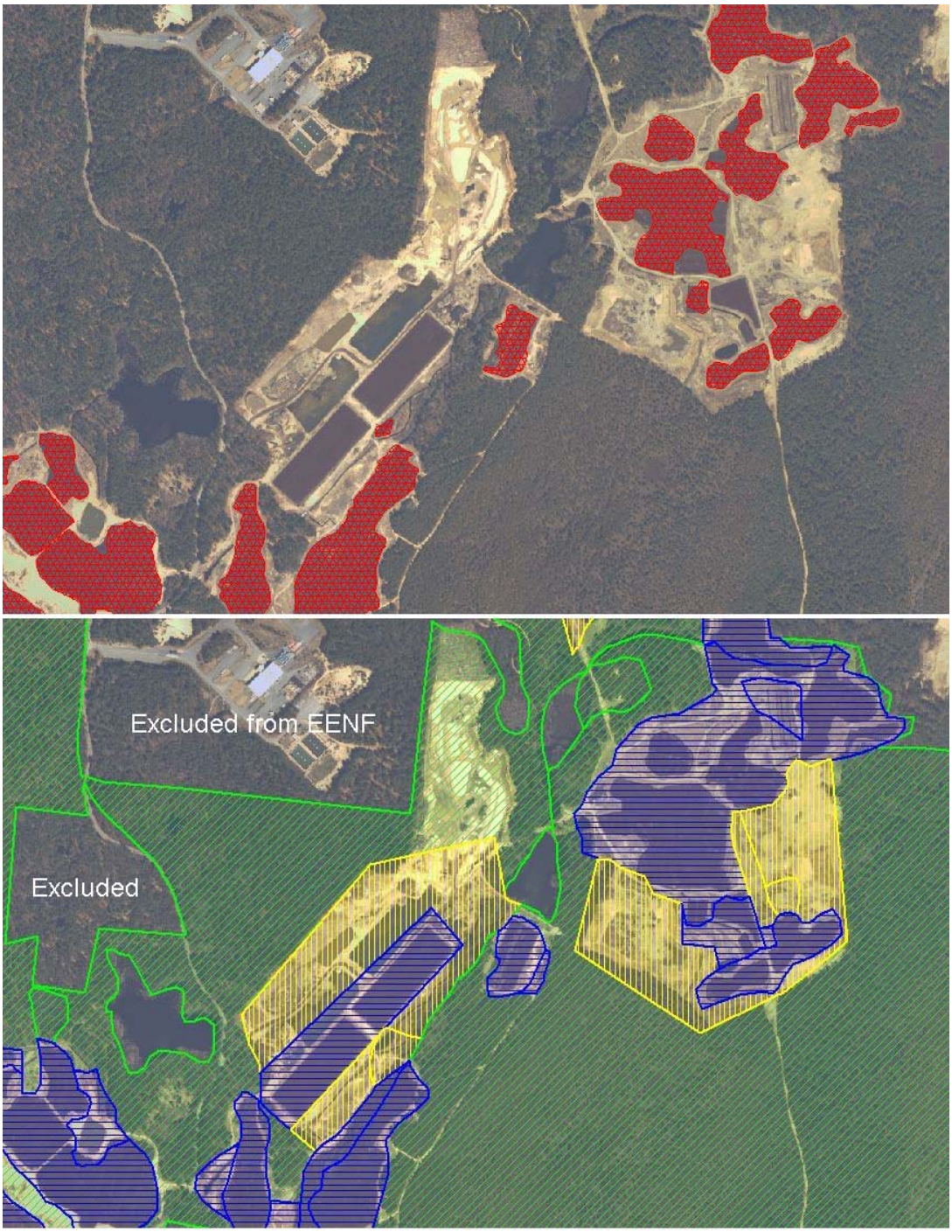


Figure 1. Sample area showing results of differing methods for mapping "cranberry bog" area. The top shows the EENF approach of using bog production area only, which was based on 1993 DEP core wetlands cover, together with areas of some new bogs to obtain the total of 892 acres of cranberry bogs cited in EENF Table 2.2.8. The bottom shows MassGIS 1999 land use overlain on 2005 aerial photographs. The 1999 land use characterization of cranberry bog area (blue crosshatch) includes bog berms some roads, and staging areas. This acreage, together with additional supporting bog lands defined as "urban open" or "mining" land use (yellow crosshatched), better characterize the true acreage of lands in agricultural production, and totals 1,550 acres. The green crosshatched area is forested land; note that some forest was recently cleared for agriculture support, as shown in the top center area of the photograph.

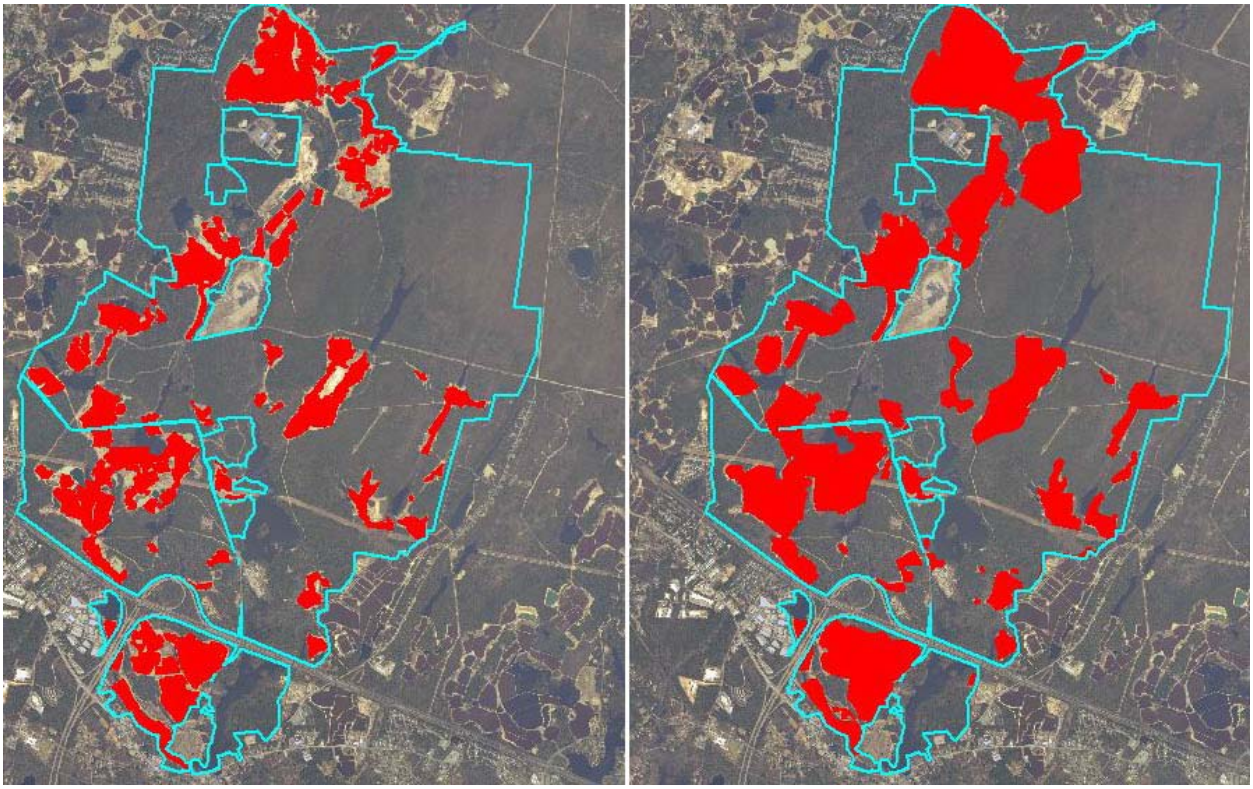


Figure 2. Comparison of the two methodologies for calculating bog acreage described in Figure 1. Left shows 910 acres (slightly higher than the 892 reported by A.D. Makepeace in the EENF probably because squared off bog areas were included in our calculations), right shows 1,550 acres based on a calculation that includes berms, bog roads, and supporting lands to the active bog growing surfaces.

Thus, whereas the bog surface area is defined as 892 acres in the EENF, land defined as cranberry bogs in MassGIS' 1999 land use coverage totals 1,400 acres of cranberry bog (figure 1 bottom). In this GIS coverage, some cranberry bog support lands including berms, roads, sand pits, staging areas and tail water recovery ponds, are categorized as either "mining" or "urban open", and these areas total an additional 111 acres. In addition, some forested land has been cleared since the 1999 photography analysis in support of bog operations, as evidenced in the 2005 MassGIS orthophotographs (figure 1, bottom). These new areas cleared for bog operation support total an estimated 40 acres. Thus, the actual acreage of cranberry bog and supporting production lands is closer to 1,550 acres, or 658 acres more than cited in the EENF (See Figure 2 for comparison of the methodologies). Furthermore, there are an additional 64 acres of power line easements, and 48 acres defined as transportation or industrial for a total 770 acres that are developed in some form, but not accounted for. Thus, there are not really 4,605 acres of developable upland as implied by Table 2.2.8. After subtracting out unaccounted for agriculturally developed cranberry bog areas, mining, "urban open lands," industrial, and transportation land already developed, there are no more than 3,835 acres of forested upland not yet developed[3].

This latter number is important to better understand how many acres of developable land within the 6,000 acres of land holdings will really be developed or protected as open space. In our

[3] The actual value is less because there are other uses and developed areas not included in our analysis.

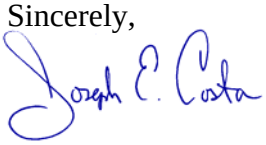
opinion, it is inappropriate for calculations of open space to include cranberry bogs or the upland part of the lands in agricultural, mining, and other similar developed land uses. The proponent and the towns need to consider this information in municipal master planning efforts, setting open space protection targets, and any formulations of Transfer of Development Rights bylaws.[4]

Adopt Low Impact Development and Smart Growth techniques in every phase
The Buzzards Bay NEP supports the use of smart growth techniques, including the clustering of development, open space set asides, and transfer of development right strategies to mitigate environmental impacts from all phases of this development.

We also support Low Impact Development stormwater management practices like biofilters, rain gardens, permeable pavers, green roofs, rain barrels, vegetated swales, stormwater infiltration systems, and alternative landscaping. These practices are particularly important because fecal coliforms contained in stormwater runoff impair coastal waters in the Wareham River estuary. New development and redevelopment should avoid any connections to existing municipal stormwater networks that discharge to any surface waters.

For example, Phase A2 is located on a six-acre site with 170 parking spaces with roughly 75% of the 6 acre site impervious (3 acres new impervious, plus 1 acre of existing impervious). The proponent does adopt some LID techniques, like establishing 25% of the parking area with an impervious surface, however the proposed detention basin is not an LID technique. The proponent should consider proponent should consider alternate BMPs at this site, like installing a green roof or bioretention for water quality of parking lot flow. The bioretention system could have an underdrain system so that stormwater flow over its capacity could discharge to a considerably smaller detention basin. Both this site and A1 should include LID techniques, whether or not they are redevelopment projects[5]. Other phases of development should adopt these goals as they become better defined.

Sincerely,



Joseph E. Costa, PhD
Executive Director

cc: David Janik, CZM So. Coastal Coordinator
David Johnston, Acting Regional Director, Southeast Regional Office, MA DEP
Brian Dudley, MA DEP, MEP
Plymouth Board of Selectmen, Conservation Commission, Planning Board
Wareham Board of Selectmen, Conservation Commission, Planning Board
Carver Board of Selectmen, Planning Board, Conservation Commission
Mark Gifford, Wareham DPW
Michael Hogan, A.D. Makepeace Company
Mark Rasmussen, Coalition for Buzzards Bay
Plymouth / Carver Aquifer Advisory Committee (attn: Dr. Sarah G. Hewins , Chair, 108 Main Street, Carver, MA 02330
Stacy Minihane Beals and Thomas 32 court St. Plymouth MA 02360
Michael Martin, Wareham Fire District Water Superintendent
Bill Napolitano, SRPEDD

[4] The Town of Wareham is the only watershed town that has not yet adopted such a law.
[5] Redevelopment projects have different performance standards, but the proponent can still adopt LID techniques.