1.0 RESPONSE TO PHASE II COMMENTS

A. GENERAL

The Town of Nantucket submitted an Environmental Notification Form (ENF) to MEPA on October 1, 2001. The 30-day public comment period for the ENF ended on November 1, 2001 and on November 16, 2001 the Executive Office of Environmental Affairs (EOEA) determined that the project required an Environmental Impact Report (EIR) and established a special procedure for review of the required EIR. The Phase I CWMP/EIR document Needs Analysis was filed as an Addendum to the ENF.

The MEPA Certificate (EOEA No. 12617), issued by the Secretary of Environmental Affairs to the Town of Nantucket, requires the preparation of a Comprehensive Wastewater Management Plan/Environmental Impact Report (CWMP/EIR) for the island and establishes a special procedure for review of this project. The special procedure is a phased review during which the scope for future phases is based in large part on the results of the preceding phase. A summary of the Phase I CWMP/EIR document scope was included in the MEPA certificate. The Phase I CWMP/EIR document scope is the "Need Analysis". The Phase II CWMP/EIR document scope is the "Alternatives and Site Identification and Draft Environmental Impact Report" and was finalized upon the completion of Phase I CWMP/EIR document. The Phase III scope is the "CWMP and Final EIR" and will be finalized upon the completion of Phase II CWMP/EIR document. Each phase of this project will be distributed for review according to MEPA regulations. Therefore, there will be opportunity for the appropriate public comment period for all interested parties to contribute to the outcome of this project.

The Phase II CWMP/EIR document Alternatives and Site Identification was filed on September 30, 2003. Following a 45-day public comment period (including an extension from the Town for MEPA comment), the Secretary of Environmental Affairs issued the MEPA Certificate on December 1, 2003. The Certificate states that "this project adequately and properly complies with the Massachusetts Environmental Policy Act (G.L., c.30, ss. 61-62H) and with its implementing regulations (301 CMR 11.00).

Below is a list of letters received by the MEPA Office during the public comment period for the Phase II CWMP/EIR document Alternatives and Site Identification:

- Massachusetts Environmental Policy Act Office
- Massachusetts Historical Commission
- Dr. Robert A. Rudin
- Lars O. Soderberg, P.E.
- Sylvie O'Donnell
- Debby Deeley Culbertson
- Massachusetts Division of Marine Fisheries
- Board of Selectmen-Town of Nantucket
- Nantucket Land Council, Inc.
- Nantucket Sustainable Development Corporation
- Wannacomet Water Company
- Nantucket Community Association
- Marjorie B. Colley
- Nantucket Civic League
- Nantucket Planning & Economic Development Commission
- Deborah B. Bennett
- Clark M. Whitcomb
- Department of Environmental Protection (SERO)
- Massachusetts Coastal Zone Management
- Division of Fisheries & Wildlife (Received January 2004 - added to Certificate by Consultant)

The MEPA Certificate offers guidance on the following items:

1. Concern for and proposed mitigation measures for land alteration in high hazard areas within the velocity zone of the 100-year storm event. (See response to CZM)
2. Inclusion of a detailed wastewater flow analysis for recommended Need Areas. (See response to DEP)
3. Groundwater discharge and sub-basin impacts. (See response to Nantucket Land Council)
4. Cost estimates for capital and operating, for each component of final recommended plan (Refer to Section 5)
5. Compliance with Executive Order 385 (See NP&EDC response)
6. Intensive Archaeological Survey (See MHC response)

Each letter includes a variety of issues and concerns, which are summarized in the paragraphs that follow. A response to the comments and issues immediately follow each item. The complete MEPA certificate with the comment letters is attached in Appendix M.

1. October 16, 2003 Letter from Ms. Brona Simon, State Archaeologist, Massachusetts Historical Commission:

   - *MHC requests that an intensive (locational) archaeological survey (950 CMR 70) be conducted for the project impact areas.*

     The Administrative Consent Order issued by the Massachusetts Department of Environmental Protection dated October 30, 2003, requires that the Phase III CWMP/EIR document by completed by March 30, 2004. In addition, archaeological reviews cannot be conducted once the ground is frozen, therefore the Town is not able to obtain the necessary permits to conduct the intensive archaeological review prior to the filing of the Phase III CWMP/EIR document. Therefore, the Town will be conducting an intensive archaeological review, according to the regulations presented above, as part of the design phase of the Surfside WWTF Upgrade and FAA property.

2. October 27, 2003, Letter from Dr. Robert A. Rudin, year-round resident of Nantucket:

   - *The report contends that if greater than 30% of an area has severe soil limitations, or if greater than 20% of an area has severe groundwater limitations, then it is not possible to install a modern Title 5 Septic System, and the Report presents a sample calculation to support that contention (p.1-6). The sample calculation is severely flawed; it has applied the percentage limitations of the entire area to each individual lot in that area, a leap of reasoning which conflicts with the actual situation.*

     This methodology used in all calculations as part of the second stage matrix has been approved by the DEP in determining areas of wastewater disposal need. The CWMP scope of work was never intended to study individual parcels, so therefore the analysis was not done on a lot-by-lot basis but rather completed for the Study Area as a whole. The two-step analysis must be used together and not as separate functions. The severe soil limitations and severe groundwater limitations coupled with the other matrix data provides an indication that

a majority of a Study Area is or is not sustainable with on-site wastewater disposal systems. Reviewing of partial information leads to a bias result and does not provide a clear complete picture when making determinations of areas of wastewater disposal need.

- *The sample calculation referred to above makes several further assumptions which are severely flawed; the reality is that development in the Madaket area has been primarily smaller houses, very few of which are 4-bedroom homes, and most have a footprint considerably less than the 1800 sq. ft. used in the example. Furthermore, many Madaket-area homes are built on slabs, or with only crawlspaces, reducing setback requirement for septic systems to half that used in the example.*

  The calculations referred to above are used generally to determine the ability to repair or replace an on-site wastewater disposal system (septic system refers to a specific system and it cannot be assumed that all on-site wastewater disposal systems are septic systems). The example noted presents the "ideal" circumstance for repair or replacement, which we know does not always exist. It is from this example that we try to make the report reader understand the implications of the revised Title 5 Rules and Regulations. Setbacks for on-site wastewater disposal systems are much more complex than the reader notes. Not only foundations and cellars but wetlands, waterways, flood plains, location of the system with regards to the harbor watershed protection district, and in the Madaket area specifically, the setback to private drinking water supply wells is most important. This is not only on each individual lot but the effects of abutting neighbors as well. In the analysis used for the Madaket area from Board of Health records, of the 260 files reviewed, 105 failed to meet the requirements of Title 5 at the time of review. It is important to note that had these same 260 properties been reviewed under the new Title 5 rules and regulations, most of the 260 would have failed to meet the Title 5 requirements for setback from the wastewater system to the drinking water supply. In addition, the density of systems also is an issue in the Madaket area that results in negative impacts with regards to nitrogen loading. Refer to Table 1-2 on page 1-9 of the Phase II CWMP/EIR document for the criteria used to develop the Needs Areas for Madaket.

- *On page 1-8, the Report states that, since the revised Title 5 regulations came into effect in 1995, the "failure rate" for Title 5 inspections has been 44%, and this result is used as another negative factor in the evaluation. At both the public meetings I attended, one prior to publication of the report, and one after publication, the consultant agreed that their use of the word "failure" did not mean that any of the systems so classified were polluting due to physical failure, but it meant that 44% of the systems inspected did not comply with the revised Title 5 criteria. This is hardly surprising, as those systems had been constructed prior to the effective date of the new regulations. The fact that the non-compliance was noted in an inspection prior to sale, leading to corrective measures, is a sign that the Title 5 system is working, not that individual septic systems are faulty.*

  The Title 5 failure category is not used to negatively affect an area but it is used in conjunction with a host of other criteria to evaluate the long-term sustainability of on-site wastewater disposal systems in a particular area. As noted above, reviewing of partial information leads to a bias result and does not provide a clear complete picture when making determinations of areas of wastewater disposal need. The 44 percent failure rate in Madaket is based on comparing Title 5 information from the Board of Health records to resales within the same area during a certain time period. This methodology is very clearly stated in the Phase I CWMP/EIR document , Section 3, page 3-3.

  In the Madaket case, there were 70 resales after March 31, 1995 and 31 properties that either failed a Title 5 inspection or had a major replacement of their system that would qualify as a failure under the new Title 5 regulations. Prior to March 31, 1995, there were 74 failures.

  While it is not surprising that many systems would fail due to the system age, the Title 5 Regulations are promulgated for the protection of the public health. While it is certainly true that many systems could be repaired with a Title 5 variance, each time a variance is granted the environment is compromised in some way. This repair/replacement is called "maximum feasible compliance" whereby a system is repaired to the best of its ability rather than having to condemn a property.

  Even eliminating the Title 5 Failure Criteria all together from the analytical process, the Madaket Study Area still remains as a Need Area, moving from the second highest rated need area to the third highest need area, and from a rating of 8.40 to 7.434.

- *On page 1-28, estimated wastewater flows are used as another criterion to evaluate several proposals. Without comment by the consultants, the flow estimates for the Madaket area, which are then used in this evaluation, include an increase of 67%. This appears to be based on the assumption that 67% of the existing developed properties will in the future add a second dwelling, which is allowed in principle on Nantucket. In practice, very few second dwellings could be built in Madaket area due to covenants placed on the deeds of many properties when that part of the land was originally subdivided, due to zoning-enforced groundcover restrictions, and due to current Title 5 water well-septic system separations requirements.*

  All present and future flows are based on information provided by the Town. With respect to the potential for multiple dwellings, no Town Department and/or Agency could provide definitive information with which to base future wastewater projections. However, the NP&EDC indicated that they have estimated that about 25 percent of the existing developed properties that could have a second dwelling actually added a second dwelling. Since no definitive information existed, the Town and Earth Tech agreed to assume the estimate of 67 percent.

  Since the publication of the Phase II CWMP/EIR document, Earth Tech has provided the Town with a series of maps based on GIS data and Town Assessor data. The NP&EDC worked with these maps and datasets to more clearly define the build-out number. Based on this information, the NP&EDC 2004 Buildout Scenarios confirmed the assumption of 67 percent as a reasonable average for second dwelling buildout.

  Although there are areas where the covenants forbid second dwellings, such as Tristam's Landing and Long Pond, the analysis was completed due to the fact that if sewer infrastructure were implemented in the Madaket area, the septic and drinking well separation of Title 5 would no longer hold true. Since the CWMP/EIR is a long-term planning document, the Town has the opportunity to incorporate any additional information that is developed by Federal, State and/or Local authorities and/or private entities prior to the implementation of the recommendations, if appropriate.

- *The Report states on page 2-128 that a one-third Acre lot is the absolute minimum lot size for which an I/A system would be feasible, but no calculation is given. I believe that statement to be incorrect. According to the text, the statement is based on the same type of calculations used in Section 1, in which case my comments A. and B. above apply.*

  Lot size has a direct impact on whether or not a system can be repaired or replaced on-site. Previous examples showed the correlation between a lot of one-half acre or less with "ideal" and "less than ideal" site conditions. Reducing the lot size to one-third acre provides for even less than ideal site conditions particularly when severe soil and groundwater conditions are added. One-third acre is generally accepted as the minimum lot size able to recreate a Title 5 system on-site without major variances.

  Because this analysis was completed on a Study Area basis and not lot-by-lot, averages for the entire area were used in the equations and it was also assumed that no variances would be granted. The overall evaluation of each Study Area needs to be reviewed as there were multiple criteria used to develop the analysis. As noted above, reviewing of partial information leads to a bias result and does not provide a clear complete picture when making determinations of areas of wastewater disposal need. In Madaket alone, one-third acre would provide for a 1-bedroom home without any other criteria affecting the analysis due to the presence of drinking water supply on each lot. Many of these lots are 5,000 sq. ft., which in of itself would not pass a Title 5 inspection. I/A Systems require not only land area to site the "mini treatment plant" but sufficient land area for a leach field and sufficient depth to groundwater as well.

- *The Report further argues against I/A systems as an alternative through a seriously flawed cost analysis. First, the I/A systems are designed (pp4-11,12) and costed based on two examples of seriously problematic properties, then the total cost is calculated by taking the cost of such a single example and assuming that every home in the Madaket area would require such a system (Table 4-5, page 4-17). It is absurd to assume that no homes in the Madaket area could pass a Title 5 inspection or could not install a fully compliant system by conventional means. The true number could not be determined accurately without a site-by-site investigation, but my estimate of the number of I/A systems required would be something closer to 50, certainly no more than 100, absolutely not 549.*

Again, this CWMP/EIR was never intended to be completed on a lot-by-lot basis but on a Study Area basis. Therefore, the averages for each area were used in the analysis. Solutions were investigated for each Study Area as a whole and not a lot-by-lot analysis. The entire Study Area of Madaket, as well as Warren's Landing, is included in the Madaket Harbor Watershed and Long Pond as delineated and approved by the Town. While the writer argues that there are some systems in this area that could pass a Title 5 inspection, each system within this area contributes in some way to the Watershed. As part of the Massachusetts Estuaries Project, these "contributions" are in the form of pollutants to the water quality, specifically nutrients. So while your individual system may pass a Title 5 on that particular day, there could potentially be negative impacts to the harbor, marine fisheries, aquatic life and possibly the drinking water supply in the area. There does not seem to be any scientific justification with regards to the writer's estimates on I/A systems. Again, due to the very specific site conditions required by each system, this number will vary.

- *On page 4-4 the Report states "Building a communal system on the FAA site would have a positive impact to the Madaket…area. The parcel has the potential for high density development with the current zoning and land use." This is certainly an erroneous and misleading statement, as the property is zoned for minimum 2-acre lots, almost as good as it gets anywhere on Nantucket. Furthermore, the property is currently held by the U.S. Government, and is likely to be deeded eventually to the Town of Nantucket, thus making it improbable that it will ever be commercially developed.*

  The statement "The parcel has the potential for high density development with the current zoning and land use" is not erroneous by any means. The parcel contains approximately 100 acres. Deducting for roadways and dividing the resultant by the 2-acre zoning results in about 40 residential house lots. That, in our estimation, is a high-density development when you take into consideration the impact to not only the environment but drinking water supply, wastewater impacts, and Town services as well. This analysis does consider the potential for the property to be used for a Chapter 40B development that would results in a much higher density development.

The letter writer is also incorrect in his statement that the property would automatically be deeded to the Town. The United States Government has a very long and complicated process of property dissolution. One only need look at the state of the economy, particularly in the state and federal governments, to see the properties that are being disbanded and sold to the highest bidder. Discussions with the FAA have indicated that many developers and real estate agents have already looked at the property for possible development. Given the positive benefits to obtaining this property, the Town has proactively entered into the property transfer discussions with the FAA on a legal level.

- *One significant fact which is not stated is that maintaining the current use of on-site septic systems in the Madaket area could lead to the construction of no more than a very limited number of new dwellings in the area, due to Title 5 restrictions. Installation of a communal sewerage system, under present zoning, would remove the environmental restrictions which currently limit development, leading to the possible construction of some 400 additional dwellings in the area, nearly all of those on very small lots which are presently unbuildable. This additional development could only be prevented through as-built re-zoning, which would require the granting of Massachusetts legislative and gubernatorial permission, as well as positive vote by Nantucket town Meeting. None of this is assured, and none of it is addressed in the Report other than a very low-key one-line statement on page 6-6.*

Sections 4, 5 and 6 all deal with the recommended plan for the Island and mitigation measures necessary. There has been much thought and discussion, at public meetings and with various Town officials, departments and agencies, including the NP&EDC, relative to the growth issues on the Island, particularly in the Madaket area. The recommended plan, low-pressure sewers, has growth deterrents built into it. Before any plan is implemented, the Town officials have indicated that they will have the necessary measures in place to avoid the issues the writer brings up. The State has already approved limiting systems and precedents have been set, which Nantucket can use to model whatever plan it chooses to implement. Current Assessor records show a total of less than 100 build able lots within the delineated Madaket Study Area and not 400 as the writer notes.

3. October 29, 2003, Letter from Lars O. Soderberg, P.E., resident Nantucket

- *The word failure and imminent failure appear frequently and are very heavy contributors in the rating criteria in table 1-2 leading to the recommendation of low pressure sewers. I cannot find a definition of failure in the report, but to me a failed septic tank is pouring out untreated waste and this has not been the case in Madaket. As the authors developed this failure rate from town records I surmise it means there was a Title 5 upgrade because a sale and no physical failure at all.*

  The complete Title 5 Regulations can be found at 310 CMR 15.00, the State Environmental Code. Failures to the Title 5 are too extensive to document here but can be found in its entirety in the Regulations. Failures are much more complex than "untreated waste pouring from a septic tank". A complete discussion of the criteria used to determine the Needs Areas is included in Phase I CWMP/EIR document, Section 3 as well as Phase II CWMP/EIR document, Section 1.

  Much discussion has surface with regards to the definition of a "failure". Therefore, the writer must not review partial information that leads to a bias result and does not provide a clear complete picture when making determinations of areas of wastewater disposal need. The Title 5 failure category is not used to negatively affect an area but it is used in conjunction with a host of other criteria to evaluate the long-term sustainability of on-site wastewater disposal systems in a particular area. Even by eliminating the Title 5 Failure Criteria all together from the analytical process, the Madaket Study Area would still remain as a Need Area, moving from the second highest rated need area to the third highest need area, and from a rating of 8.40 to 7.434.

- *Under lot size, on page 1-5, the authors state the assumption that all lots of ½ acre or less require a title 5 variance and this is not the case. The assumption of 4 bedrooms as typical is unrealistically harsh on these small lots.*

  There is no assumption intended for the diagram in Section 1, page 1-6 but rather it serves as a visual to the explanation of "Lot Size" in the analysis previously discussed.

- *Systems built before 1978 are all assumed to be candidates for imminent failure, but are actually candidates for title 5 upgrades.*

  The age criterion is used in conjunction with the other criteria in the matrix evaluation (Phase II CWMP/EIR document, Section 1) in order to rate specific areas on Island. Given the lack of any State environmental code managing the siting, designing and constructing of on-site wastewater disposal systems prior to 1978, most of the systems built during this time frame would fail to stand up the standards now in place. It needs to be understood that that analysis was based upon not granting variances for upgrading and/or new construction. While some could certainly be replaced or repaired, the analysis was not completed on a lot-by-lot basis and therefore it was determined that a majoring of the systems could not be replace and/or upgraded to meet current Title 5 rules and regulations without the issuance of variances. The analysis also looks at the overall impact of on-site wastewater disposal systems, such as the Madaket Harbor Watershed in general.

- *Table 1-28 sizes the flows to the new plant and brings up the issue of secondary dwellings. Fishers Landing (Warrens Landing in the report) and Tristam's Long Pond have covenants against secondary dwellings on the small lots (by restricting the number of bedrooms). The design flows may be overstated by some 50 percent.*

  All present and future flows are based on information provided by the Town. With respect to the potential for multiple dwellings, no Town Department and/or Agency could provide definitive information with which to base future wastewater projections. However, the NP&EDC indicated that they have estimated that about 25 percent of the existing developed properties that could have a second dwelling actually added a second dwelling. Since no definitive information existed, the Town and Earth Tech agreed to assume the estimate of 67 percent.

  Since the publication of the Phase II CWMP/EIR document, Earth Tech has provided the Town with a series of maps based on GIS data and Town Assessor data. The NP&EDC worked with these maps and datasets to more clearly define the build-out number. Based on this information, the NP&EDC 2004 Buildout Scenarios confirmed the assumption of 67 percent as a reasonable average for second dwelling buildout.

Although there are areas where the covenants forbid second dwellings, such as Tristam's Landing and Long Pond, the analysis was completed due to the fact that if sewer infrastructure were implemented in the Madaket area, the septic and drinking well separation of Title 5 would no longer hold true. Since the CWMP/EIR is a long-term planning document, the Town has the opportunity to incorporate any additional information that is developed by Federal, State and/or Local authorities and/or private entities prior to the implementation of the recommendations, if appropriate.

- *The purpose of implementing these recommendations is not clearly defined.*
  1. *The implied reason throughout this report is to preserve the single source aquifer on which Madaket depends*
  2. *A major reason would be to reduce the nitrogen and coliform levels in Madaket Harbor and estuaries.*
  3. *A third reason, and as a result of building a large plant in Madaket, would be to maximize the developable lots and allowable secondary dwellings in Madaket.*

Number 1 is an important goal, but the report presents no evidence that the aquifer is being degraded. There has not been any evidence that this is happening in all the years I have been watching this problem.

The nitrogen levels have certainly increased over the years and undoubtedly the septic tanks contribute to this. Whether or not this is pollution and what portion comes from septic systems has not been determined.

If number 3 is the reason, there are many of us in Madaket who will oppose this any way we can.

The Executive Summary in the Phase II CWMP/EIR document clearly defines the goals of the Town and Earth Tech with regards to undertaking the CWMP/EIR. On of the major goals is to preserve the single source aquifer that cannot be replaced with any other public water supply. This single source aquifer is not only depended on by residents of Madaket but the entire Island as well. However, the protection of public health is clearly a major goal of the elected officials. Specific to the Madaket Area, reducing nitrogen and coliform leveling Madaket harbor, Hither Creek and the associated estuaries is also a goal.

Recent information developed as part of the Massachusetts Estuaries Program and presented at the January 29, 2004 Madaket Water Quality Workshop clearly shows that on-site wastewater disposal systems are causing degradation and pollution in the water bodies in and around Madaket. The goals of the CWMP/EIR are numerous, but maximizing any development potential on Island is clearly NOT included nor implied anywhere in the Report. Phase II CWMP/EIR document, Section 5 and 6 also address the goals in detail.

Your own statements "…watching this problem" and "…undoubtedly the septic tanks contribute to this" indicate that there are chronic issues that are impacting the Madaket Area. The CWMP/EIR document summarizes these problems and independent evaluations by others, such as the Massachusetts Estuaries Program and Nantucket's Division of Marine Fisheries, confirm the results.

4. October 31, 2003, Letter from Sylvie O'Donnell, resident Nantucket.

- *For Earth Tech to aver that locating a WWTF on the FAA property has no constraints is a stretch. The site is within the Madaket Harbor Protection District.*

Based on the information received during the review of the FAA property, the site received a rating of "Opportunity", which reflects the positive aspects of the environment that could be viewed as a benefit in the siting of facilities there. The Phase II CWMP/EIR document had environmental as well as archaeological reviews completed as part of the analysis. Additional environmental and archaeological reviews are proposed as part of the design phase of projects involving this property.

Bear in mind, the entire FAA site is not being recommended for use so only those areas proposed for use were evaluated as these are the areas of impact. As is evident on Figure 3-1, the FAA site is only partially within the Town designated Madaket Harbor Watershed District. Evident though is the fact that both the Madaket and Warrens Landing Study Areas are wholly within the Watershed delineation.

The hydrogeological analysis completed as part of the Phase II CWMP/EIR document, Appendix F, evaluates the impact that the on-site wastewater disposal systems have on the Watershed as well as the potential impact from the discharge of highly treated effluent. The highly treated discharge reduces the nitrogen loading considerably not only in Madaket Harbor and Hither Creek but Long Pond as well.

- *No evidence is provided in the report for the statement "Approximately 200 homes…lie within the immediate area contributing groundwater to Long Pond." (6.0 P1), which contention is used for the conclusion that turns a negative into a positive, a constraint to an opportunity.*

  A complete hydrogeological analysis was completed for the FAA site and is included in Appendix F of the Phase III CWMP/FEIR document.

- *There is no public water supply at Madaket Beach.*

  The public water supply information was obtained from MassGIS and will be corrected in the Phase III CWMP/EIR document.

- *The Estuaries Project is in its second year of study of Madaket Harbor, not "currently not even on a list and could not be promised it would be in the near future." As reported on P. 1-4 and again on 1-7.*

  The Phase II CWMP/EIR document Executive Summary explains the coordination of the CWMP/EIR with the Massachusetts Estuaries Project. No mention of the Estuaries Project can be found as the writer reports on page either 1-4 or 1-7. It appears the writer may be quoting from the Phase I CWMP/EIR document, which was filed in April 2001, before the Estuaries Project was begun in Madaket. The efforts of the CWMP/EIR are being coordinated with the efforts of the Estuaries Projects not only in Madaket but Sesachacha Pond and Nantucket Harbor as well.

- *Warrens Landing Study Area (Fishers Landing) has municipal water, not private water wells. (P.6-3).*

  This information will be corrected in the Phase III CWMP/EIR document.

- *The FAA site "has the potential for high density development with the current zoning and land use." (P4-4). In fact, the site is in an area zoned 2 acre.*

  The parcel contains approximately 100 acres. Deducting for roadways and dividing the resultant by the 2-acre zoning results in about 40 residential house lots. That, in our estimation, is a high-density development when you take into consideration the impact to not only the environment but drinking water supply, wastewater impacts, and Town services as well. This analysis does consider the potential for the property to be used for a Chapter 40B development that would results in a much higher density development.

5. November 1, 2003, Letter from Debby Deeley Culbertson, resident Nantucket.

- *The "consultants" kept mentioning that a certain percentage of septic systems had "failure". This was not because they did have physical failure, rather that they didn't comply with the revised Title V regulations.*

  The Title 5 failures mentioned in the Report are fully documented and based on Town records. When a system is inspected, if it does not meet the standards set by Title 5, then it is a failure and either needs repair or replacement. If it cannot meet the standards set in the revised Title 5, then variances must be granted in order to meet "Best Feasible Compliance" with the law. Each time a variance is granted in order to do this, a compromise to the environment exists. The complete Title 5 can be accessed at 310 CMR 15.00, which can further explain the regulations.

- *I also found that many of their general data was based on figures that were more Island wide, versus what Madaket truly is. They mentioned second dwellings as criteria. In Madaket, there really isn't any ability for a homeowner to add a second dwelling due to the already in place Title V regulation, which limits bedrooms and well-septic separation, added to the area's zoning ground cover restrictions that is already in place.*

This statement is erroneous in that there are currently parcels in Madaket with second dwellings as well as parcels that could support the second dwelling. While we acknowledge that there are certain areas where the second dwelling is prohibited through covenants, there are also, areas, which do not have these covenants. The analysis was also completed as a secondary impact potential if the Title 5 restriction was lifted due to infrastructure.

- *If this sewage treatment plant is truly deemed necessary, I would encourage the "consultants" to look into further options for the location of this plant.*

Phase II CWMP/EIR document, Section 3 specifically addresses this issue. Screenings have been completed by all the required agencies as to the use of this land. The FAA property was determined to have the most opportunity for the WWTF with regards to negative impacts to items such as but not limited to the environment, public health, and drinking water supplies.

- *The only way to properly know if Madaket and its surrounding neighbors are in need of a sewage plant is to do a property-by-property survey through town records or through site-review.*

This statement is not correct. This methodology used in all calculations as part of the two stage matrix that has been approved by the DEP in determining areas of wastewater disposal need. The CWMP scope of work was never intended to study individual parcels, so therefore the analysis was not done on a lot-by-lot basis but rather completed for the Study Area as a whole. The two-step analysis must be used together and not as separate functions. The severe soil limitations and severe groundwater limitations coupled with the other matrix data provides an indication that a majority of a Study Area is or is not sustainable with on-site wastewater disposal systems. Reviewing of partial information leads to a bias result and does not provide a clear complete picture when making determinations of areas of wastewater disposal need.

Recent information developed as part of the Massachusetts Estuaries Program and presented at the January 29, 2004 Madaket Water Quality Workshop clearly shows that on-site wastewater disposal systems are causing degradation and pollution in the water bodies in and around Madaket and therefore confirms the process used in the CWMP/EIR.

5. November 5, 2003, Letter from Nantucket Land Council

- *The CWMP states that the wastewater management recommendations for the areas of Polpis, Pocomo, Wauwinet, and Quidnet will be determined when the Massachusetts Estuaries Project (MEP) has completed its investigations of these areas. However, the CWMP states, management of these areas will most likely be addressed in the proposed Septage Management Plan. The CWMP is assuming that strategies put forward in the future Septage Management Plan will be sufficient to not exceed the Total Maximum Daily Loads (TMDL) calculated by MEP.*

  The recommendation for the above-mentioned areas is to be managed by the Septage Management Plan until such time as the MEP is finalized in these areas and a more finite solution is recommended. The CWMP does not assume that strategies put forward in the future Septage Management Plan will be sufficient to not exceed the Total Maximum Daily Loads (TMDL) calculated by MEP. In fact, if the TMDL determines that nutriant loadings is causing degradation to the environment, than even properly operating Title 5 systems will not be sufficient. Therefore, since the CWMP/EIR is a long-term planning document, the Town has the opportunity to incorporate any additional information that is developed by Federal, State and/or Local authorities and/or private entities prior to the implementation of the recommendations, if appropriate.

- *The MEP is also investigating the Madaket Harbor/Long Pond watershed. The data gathered by MEP will be extremely valuable to determine appropriate wastewater management technologies.*

  The efforts of the CWMP/EIR are being coordinated with the MEP. The Madaket and Warrens Landing Needs Areas qualified as areas of Need (unsustainable long-term with ion-site wastewater systems) based on the initial matrix criteria. The watershed criteria further confirmed both these Study Areas as areas of Need. The Phase II CWMP/EIR document identified a recommendation for low-pressure sewers to remove the on-site wastewater systems from this watershed. Proceeding with the current CWMP/EIR schedule allows further coordination with the MEP TMDLs. This may mean changing treatment technologies or prioritization. The CWMP/EIR is a dynamic and evolving process.

Recent information developed as part of the Massachusetts Estuaries Program and presented at the January 29, 2004 Madaket Water Quality Workshop clearly shows that on-site wastewater disposal systems are causing degradation and pollution in the water bodies in and around Madaket and therefore confirms the recommendations contained in the CWMP/EIR.

- *Phase I of the CWMP determined that Cisco and Miacomet were not "needs areas". Phase II of the CWMP states that a further review of localized septic system failure rates on file with the Board of Health helped with their needs analysis. Water testing in Hummock Pond and Miacomet pond show increased nutrient counts in the past twenty years. Conventional Title V systems do not prevent a large portion of nitrates and phosphorous from entering the groundwater and eventually into the ponds. The CWMP recommends that the two areas will be included in the proposed Septage Management Plan, and recommended the continued use of on-site systems. The NLC urges that Innovative/Alternative technologies be used in these areas to reduce unnecessary pollutants from entering the groundwater and adjacent ponds.*

  Based on the rating criteria, both Cisco and Miacomet have attributes that should support properly operating and maintained on-site wastewater systems. The key is "properly operating and maintained". The Septage Management Plan (SMP) will address site specific issues such as these. Cursory review of both these areas shows that they do not have a considerable amount of older on-site wastewater systems, which may not operate as efficiently as those meeting the new Title 5 standards. The SMP will address proper siting of new systems in environmentally sensitive areas, which may entail endorsing I/A systems as the only option. It will be imperative for the Regulatory Authority of the proposed SMP to thoroughly review requested variances to Title 5 in environmentally sensitive areas as well as prohibit any variances on new systems. The Regulatory Authority of the proposed SMP needs to also review upgrades and/or modifications by the appropriate use of I/A systems within the Cisco and Miacoment study areas.

- *Results from the screening analysis used for the Madaket FAA site states that there is no "sensitive habitat" either in the site or nearby surrounding areas. This statement is in error because the site does fall within mapped areas of Estimated Habitats of Wildlife, and Priority Sites of Rare Species Habitats and Exemplary Natural Communities.*

The Phase II CWMP/EIR document contained an initial site survey of only the areas of proposed disturbance not only of the FAA site but the Surfside WWTF site as well. This survey stated no evidence of negative impact on only that portion of the sites that was proposed to be utilized. As part of the Massachusetts Natural Heritage & Endangered Species Program comment and the Nantucket Land Council comment, an intensive survey of the proposed sites will be performed.

However, the Administrative Consent Order issued by the Massachusetts Department of Environmental Protection dated October 30, 2003, requires that the Phase III CWMP/EIR document by completed by March 30, 2004. In addition, archaeological reviews cannot be conducted once the ground is frozen, therefore the Town was not able to obtain the necessary permits to conduct the intensive archaeological review prior to the filing of the Phase III CWMP/EIR document. Therefore, the Town will be conducting an intensive archaeological review as part of the design phase of the Surfside WWTF Upgrade and FAA property.

- *The CWMP does not adequately address future growth implications as a result of the proposed Madaket treatment facility. There is a lack of certainty that the town will have the ability to prevent lots currently undevelopable, according to Title V standards, from hooking into a future sewer system. The CWMP needs to analyze the maximum buildout for the area that would include these undevelopable lots. On page 5-42 the CWMP notes that the proposed communal system at the FAA site will not cause a long-term negative change in development and land use patterns because the potential for development at the site will be eliminated. However, associated off-site changes are not addressed. What are the associated costs to the municipal budget if undevelopable lots are to become developable? Is the stormwater infrastructure for the Madaket watershed adequate to incorporate a larger amount of impervious surface? Will nutrient loading increase with an increase of impervious surfaces? How will an increase in wells affect groundwater levels? There needs to be coherent legal, planning, and environmental analysis on the growth implications of such a proposed system.*

We agree with the Land Council in that the proposed CWMP requires significant legal, planning and analysis. There are multiple options that are currently being analyzed and reviewed by the Town in order to address these and other questions. Recommendations to control sprawl include a low-pressure sewer system in the Madaket area as well as

delineating "septic and sewer overlay districts". Identifying and establishing "sewer overlay districts", by local bylaw changes or with the filing of special legislation, such as the "checkerboard systems' approved in Provincetown, MA, are options currently being reviewed. Town officials have pledged to have the necessary rules and regulations in place before implementation of the CWMP.

- *What will the contingency plan be if erosion occurs to a level that will impact the sewer beds and eventually the facility itself?*

  The Town Department of Public Works currently has an emergency erosion plan in effect that has been approved by the DEP. The DPW has established three new erosion monitoring points located to the south of the Surfside Wastewater Treatment Facility. There are primary and secondary trigger points established that determine when and how the emergency plan is activated. A copy of the emergency plan is included in Appendix N.

Completed for and attached as part of the Nantucket Land Council Comment and included herein: November 6, 2003, Horsley & Witten, Inc. The following bullets outline the issues addressed in Horsely & Witten's letter attached to the Nantucket Land Council's letter:

- *Impacts of Recharge Within Sub-basins*

  While the water balance completed for the Phase II CWMP/EIR document demonstrates the potential stress of five sub-basins, the overall recharge will be for the major basin of Nantucket. The finite goal of the CWMP is to manage recharge within each sub-basins if feasible. Due to the unique circumstances on Nantucket, land available for recharge could not be located within all five sub-basins in order to direct discharge there for recharge.

  For example, Nantucket Harbor is an area of dense development and within the Nantucket Harbor Watershed. Suitable land could not be located within this sub-basin in order to design and construct an area of discharge large enough and outside of wetland or coastal areas. This was the same for the other four sub-basins. The CWMP goal of recharge within the major basin is accomplished with the Phase II CWMP/EIR document recommendation. Water conservation education is included as part of the Phase II CWMP/EIR Document recommendations Island-wide.

- *Impacts on Zone IIs*

The CWMP has coordinated hydrogeologic efforts with the Wannacomet Water Company. The Wannacomet Water Company has indicated that no impact to the currently delineated Zone II appears affected by the recommendations contained in the Phase II CWMP/EIR document document. In Section 2 of the Phase I CWMP/EIR document, the source of groundwater on Nantucket is identified as precipitation. Average annual precipitation is estimated at 43.7 inches of which 24.6 inches on average is returned to the atmosphere through evapotranspiration. With the estimated average annual surface runoff at approximately 1 inch or less, that leaves an annual recharge of 18.1 inches per year. The groundwater reservoir forms a freshwater lens approximately 500 feet thick at the center of the island and thins out towards the shores. The Zone II that relates to the CWMP is located directly in the center of the Island and would serve as the major area of recharge benefits from precipitation. Therefore, the major recharge on Island is a natural process.

The delineation of the Zone IIs on Island serve more to regulate land use and limit lot coverage in order to protect the Town's wells in the contribution area. In May of 1990, Horsely & Witten described the Zone IIs sizes and shapes as directly related to the pumping rates of the Town's wells.

- *Madaket Sewer Area*

The issue presented here is the potential result from transferring water from the Madaket watershed to the long Pond watershed. As we stated above, the finite goal of the CWMP of recharging individual stressed sub-basins was not always feasible for a variety of environmental reasons. The recommended plan for the Madaket area will have water leaving the Madaket Harbor sub-basin and recharging the Long Pond sub-basin. Section 2 of the Phase II CWMP/EIR document on page 2-140 shows the sub-basin delineation. Approximately one-half of the Long Pond Watershed is included in the Needs Areas and less than one-half is coming from the Madaket Harbor sub-basin.

The hydrogeological work completed for this area identifies approximately 26 percent of recharge traveling towards Long Pond. The water that will be traveling towards Long Pond will be considerably cleaner (approaching drinking water quality) than the recharge from on-site wastewater systems and thereby a positive affect on the environment. The Madaket Harbor watershed will also benefit from the removal of the current recharge from failing and improperly operating on-site wastewater systems.

The CWMP efforts are being coordinated with the on-going Massachusetts Estuaries Project in this area. Recent information developed as part of the Massachusetts Estuaries Program and presented at the January 29, 2004 Madaket Water Quality Workshop clearly shows that on-site wastewater disposal systems are causing degradation and pollution in the water bodies in and around Madaket further, including Madaket Harbor and Hither Creek, and therefore confirms the recommendations contained in the CWMP/EIR.

- *Madaket Sewer Needs Analysis and Options*

The approved Phase I CWMP/EIR document and Phase II CWMP/EIR document clearly shows that the Madaket Study Area requires off-site solutions to the current environmentally damaging on-site wastewater disposal systems. The documents reviewed various long-term solutions including Innovative/Alternative (I/A) systems and determined that the most cost effective, feasible, implementable and environmentally friendly solution was a low-pressure sewer system with a WWTF constructed at the FAA property. As noted above, the CWMP efforts are being coordinated with the on-going Massachusetts Estuaries Project who have indicated that they have not endorsed any systems for use in nitrogen sensitive areas. Recent information developed as part of the Massachusetts Estuaries Program and presented at the January 29, 2004 Madaket Water Quality Workshop indicates that the Madaket Area will be determined by the Massachusetts Estuaries Program to be a nitrogen sensitive area.

6. November 5, 2003 Letter from Christine B. Silverstein, Nantucket Sustainable Development Corporation.

- *Groundwater Balance and Sustainability*

  We offer the same explanation that was responded to in the Nantucket Land Council's comments:

  While the water balance completed for the Phase II CWMP/EIR document demonstrates the potential stress of five sub-basins, the overall recharge will be for the major basin of Nantucket. The finite goal of the CWMP is to manage recharge within each sub-basins if feasible. Due to the unique circumstances on Nantucket, land available for recharge could not be located within all five sub-basins in order to direct discharge there for recharge.

  For example, Nantucket Harbor is an area of dense development and within the Nantucket Harbor Watershed. Suitable land could not be located within this sub-basin in order to design and construct an area of discharge large enough and outside of wetland or coastal areas. This was the same for the other four sub-basins. The CWMP goal of recharge within the major basin is accomplished with the Phase II CWMP/EIR document recommendation. Water conservation education is included as part of the Phase II CWMP/EIR document recommendations Island-wide.

- *Compliance with Nantucket's Comprehensive Community Plan*

  The Town and Country Overlay delineation has been included in mapping being completed for the Phase III CWMP/EIR document. This Overlay was accepted by the Town after the CWMP was initiated and the Phase I CWMP/EIR document Needs Analysis, which delineated the areas of study, was approved and accepted by the State. The CWMP is coordinating efforts with growth management with the NP&EDC.

- *Overwhelming Costs and Unidentified Costs*

  At the time the Phase II CWMP/EIR document was filed, the Town had not determined how to fund the recommendations contained in the document. The Phase III CWMP/EIR document will provide additional cost information as determined by the Town.

- *The Shellfishery*

  The CWMP is working closely with the Massachusetts Estuaries Project and coordinating the planning efforts with the Department of Marine Fisheries.

7. November 5, 2003, Letter from Nantucket Community Association

- *Cost Components*

  At the time the Phase II CWMP/EIR document was filed, the Town had not determined how to fund the recommendations contained in the document. The Phase III CWMP/EIR document will provide additional cost information as determined by the Town.

- *Growth Assumptions*

  The future flow estimates included as part of the Phase II CWMP/EIR document were based on a number of factors. Assessor data, based on the State land use codes for each parcel was utilized. Land use descriptions of vacant residential, commercial and industrial developable, potentially developable and undevelopable were used in determining the future build-out in each of the Needs Areas. With respect to the potential for multiple dwellings, no Town Department and/or Agency could provide definitive information with which to base future wastewater projections. However, the NP&EDC indicated that they have estimated that about 25 percent of the existing developed properties that could have a second dwelling actually added a second dwelling. Since no definitive information existed, the Town and Earth Tech agreed to assume the estimate of 67 percent.

Since the publication of the Phase II CWMP/EIR document, Earth Tech has provided the Town with a series of maps based on GIS data and Town Assessor data. The NP&EDC worked with these maps and datasets to more clearly define the build-out number. Based on this information, the NP&EDC 2004 Buildout Scenarios confirmed the assumption of 67 percent as a reasonable average for second dwelling buildout. Refer to the NP&EDC buildout analysis contained in Appendix O completed in 2004, which confirms our estimates.

Although there are areas where the covenants forbid second dwellings, such as Tristam's Landing and Long Pond, the analysis was completed due to the fact that if sewer infrastructure were implemented in the Madaket area, the septic and drinking well separation of Title 5 would no longer hold true. Since the CWMP/EIR is a long-term planning document, the Town has the opportunity to incorporate any additional information that is developed by Federal, State and/or Local authorities and/or private entities prior to the implementation of the recommendations, if appropriate.

- *Institutional Arrangements*

We are in full agreement with this comment and are working to get all necessary rules and regulations in affect before any implementation. Secondary growth impacts are also being more finitely defined, working with the NP&EDC. The 2004 Buildout Scenario competed by the NP&EDC confirmed the 67 percent estimate of future buildout within the Needs Areas going forward.

- *Development and Land Use Patterns-FAA Site*

Efforts are underway to secure the FAA site from the United States Government to the Town. If successful, the Town will own the entire parcel and therefore its future use will be at the discretion of the Town.

- *Socioeconomic Pressures for Expansion*

  The goal of the CWMP is to address issues with current on-site wastewater disposal systems and any in-building (vacant land currently designated a developable) within the identified Needs Areas. There is no pressure to increase new development as a result of the CWMP, as a matter of fact the State does not permit it. Rules and regulations will be in force to address any and all issues before any recommendation implementation.

- *Costs*

  At the time the Phase II CWMP/EIR document was filed, the Town had not determined how to fund the recommendations contained in the document. The Phase III CWMP/EIR document will provide additional cost information as determined by the Town.

- *Land Costs/Town Debt*

  At the time the Phase II CWMP/EIR document was filed, the Town had not determined how to fund the recommendations contained in the document. The Phase III CWMP/EIR document will provide additional cost information as determined by the Town. No land costs were included or are expected to be included in the Phase III CWMP/EIR document since all the proposed infrastructure is located within existing right-of-ways and/or current Town owed property with the exception of the FAA property. Given the positive benefits to obtaining this property, the Town has proactively entered into the property transfer discussions with the FAA on a legal level in order to have this property deeded to the Town at no cost.

8. November 6, 2003 (received), Letter from Marjorie B. Colley, resident Nantucket (Comments relate only to Madaket and Warrens Landing)

- *Cost Issues/Assumptions*

  The writer has made a number of cost assumptions. At the time the Phase II CWMP/EIR document was filed, the Town had not determined how to fund the recommendations contained in the document. The Phase III CWMP/EIR document will provide additional cost information as determined by the Town.

- *The failure rate of 44% since March 31, 1995, refers to non-compliance with Title V NOT actual failure to function but having a higher than acceptable level of sludge in the bottom of the tank.*

  This statement is completely erroneous. The failure rate for each of the Study Areas was established using Board of Health records. Records for Madaket and Warrens Landing were reviewed starting in 1972. Failure rates were established for four years using records from March 31, 1995 (Title 5) to 1999. These records included actual Title 5 Inspection reports as well as MAJOR repairs and upgrades of systems that would have been deemed a failure had an official inspection take place. At no time was sludge ever measured in a tank for determination of failures.

- *If the study area has severe groundwater limitations (seasonally high water table at the surface to 2 feet below grade) why have we not had human coliform bacteria in the waters in these areas?*

  Testing completed by the Department of Marine Fisheries for the Massachusetts Estuaries Project has confirmed human DNA in the waters in Madaket Harbor and Hither Creek.

- *Based on incomplete data, note Page ES-1 "Madaket Harbor is also being studied but at a later target date that the above mentioned areas." And on the same page "A recommended solution will be made for Madaket in this report, which is based on multiple criteria in addition to MEP" it seem unwise to base a solution on an unidentified source of pollution in the Madaket area.*

  This statement is erroneous. The Madaket Study Area rated as a Need Area based on the criteria established and outlined in the Phase I CWMP/EIR document Needs Analysis and repeated in the Phase II CWMP/EIR document Alternatives and Site Identification, Section 1. With a rating of 8.40, it is well above the established threshold of 7.33. Even without the data that will be coming from the Massachusetts Estuaries Project, this area is not recommended for long-term sustainability with on-site wastewater disposal systems based on data provided by Town agencies and the physical characteristics of the area itself. Previous Facility reports dating back to 1973 have recommended this same area for removal of on-site wastewater systems. There are numerous reports and data existing to support this recommendation.

- *For both Madaket and Warrens Landing on Page 1-12 the conventional Title V systems are NOT recommended and on-site innovative alternative systems, local, or satellite systems are all viable alternatives. Actually Title V systems are NOT recommended for Somerset, Miacomet, Surfside, Tom Nevers-high density, Siasconset, Quidnet, Wauwinet, Pocomo, Polpis, Town, Shimmo, and Monomoy. They are only recommended for town-WPZ with on-sites in existence and Tom Nevers-Low Density. Apparently the state regulations for Title V systems are not acceptable (stringent enough) for this report.*

  This statement is erroneous. The Phase II CWMP/EIR document, Section 1, beginning on Page 1-12 outlines each Study Area results. Miacomet, Surfside, Tom Nevers, both high and low density and Town-WPZ are ALL recommended for long-term sustainability with on-site wastewater disposal systems.

Additional Comments/Observations

- *Lot-by-Lot Analysis*

  The CWMP was not contracted to be a lot-by-lot analysis with individual inspections of on-site wastewater disposal systems. It would be a Town decision to go this in-depth.

- *Innovative/Alternative System Cost*

  There are a number of I/A systems evaluated in the CWMP. At this time, the Massachusetts Estuaries project has not recommended the use of any I/A in this area.

- *Negative Recharge in Madaket Harbor Sub-basin*

  The goal of the CWMP is to maintain recharge in the major basin, which has been accomplished.

- *Land Size Calculations*

  Calculations were based on the land area documented in the Town Assessor database.

- *Additional Reports about I/A Systems*

  The Phase II CWMP/EIR document discussed many types of I/A systems. Earth Tech is very familiar with the design and operational function of these systems. The EPA and DEP, along with many I/A manufacturers, are continuing to review and improve the performance of I/A systems.

- *Septage Management Plan*

  It will be recommended that all areas be managed under the Septage Management Plan (SMP) until such time as an off-site solution becomes available. This includes Madaket.

9. November 4, 2003, Letter from Nantucket Civic League

The following represents a series of questions/comments following a public informational meeting.

- *If all the septic systems in Madaket and Warrens Landing study areas met Title 5 requirements, would a wastewater treatment plant be necessary?*

  Town information indicates that not all of the septic systems in Madaket and Warrens Landing study areas met Title 5 requirements. Assuming this was the case, including that all of the on-site wastewater systems were septic systems, it would depend on if the level of treatment provided by properly operating systems is sufficient to not cause a negative impact on the water bodies in and around Madaket and Warren's Landing keeping in mind that the entire Study Areas of both Madaket and Warrens Landing are within the Madaket Harbor Watershed. In addition, the final report from the Massachusetts Estuaries Project may determine that even properly operating Title 5 systems, in the Madaket and Warren's Landing study areas, will not provide the necessary level of treatment required to protect the environment.

- *If all the septic systems in Monomoy and Shimmo met Title 5 requirements, would connection to the existing sewer be necessary?*

  Town information indicates that not all of the septic systems in Monomoy and Shimmo study areas met Title 5 requirements. Assuming this was the case, including that all of the on-site wastewater systems were septic systems, it would depend on if the level of treatment provided by properly operating systems is sufficient to not cause a negative impact on the water bodies in and around Monomoy and Shimmo keeping in mind that the entire Study Areas of both Monomoy and Shimmo are within the Nantucket Harbor Watershed. In addition, the final report from the Massachusetts Estuaries Project may determine that even properly operating Title 5 systems, in the Monomoy and Shimmo study areas, will not provide the necessary level of treatment required to protect the environment.

- *Has the Town and/or the consultants completed mapping the existing sewer system in Town?*

  The first phase of the evaluation and mapping project has been recently completed after review and comment by the Department of Public Works. The second phase of the project will involve creating a database with specific infrastructure information that is linked to the GIS maps.

- *Refer to page 2-34: "…it is anticipated that some of the identified needs areas will not be able to meet Title 5 regulations."*

  - *Specifically how many properties will not meet standards?*

    The above-statement should read in its entirety as: "Without conducting site specific field investigations for each property in each of the Needs Areas, and based solely on the subsurface soil and groundwater information gathered from Board of Health data, it …". The CWMP is being completed on a "Study Area" basis and not a lot-by-lot analysis. Therefore, individual systems were not inspected for performance rating. The data was completed as a whole Study Area. There are certain criteria, however, that can be applied to individual systems particularly in Madaket relative to Title 5 siting requirements. This includes the minimum land area required (10,000 s.f. per bedroom) to site a system along with a private drinking water supply. Of the 260 Board of Health files reviewed, none would be in compliance of the above rule. The analysis shows that for each study area identified as a need area, that a majority of the lots require an off-site solution for long-term wastewater disposal.

  - *What sensitivity analysis has been applied to the data?*

    In addition to using the United States Department of Agriculture Soil Conservation. Other local records, including individual Board of Health records were reviewed for actual data record sets. The two-stage matrix was developed to provide an objective and not a subjective analysis of the data. Data that was determined to be questionable was not used in the analysis. Various meetings and discussions with local officials, including the Board of health and Department of Public Works confirmed the results of the analysis.

- *When will more current or more complete data become available?*

  The data used for the CWMP was the most complete at that time the document was completed. Additional information will become available from the Massachusetts Estuaries Project when completed. Since the CWMP/EIR is a long-term planning document, the Town has the opportunity to incorporate any additional information that is developed by Federal, State and/or Local authorities and/or private entities prior to the implementation of the recommendations, if appropriate.

  Recent information developed as part of the Massachusetts Estuaries Program and presented at the January 29, 2004 Madaket Water Quality Workshop clearly shows that on-site wastewater disposal systems are causing degradation and pollution in the water bodies in and around Madaket and therefore confirms the process used in the CWMP/EIR.

  Since the publication of the Phase II CWMP/EIR document, Earth Tech has provided the Town with a series of maps based on GIS data and Town Assessor data. The NP&EDC worked with these maps and datasets to more clearly define the build-out number. Based on this information, the NP&EDC 2004 Buildout Scenarios confirmed the assumption of 67 percent as a reasonable average for second dwelling buildout. Refer to the NP&EDC buildout analysis contained in Appendix O, completed in 2004, which confirms our estimates.

- *Refer to page 2-36: "…an I/A system can potentially overcome site and environmental constraints but at a premium cost to the property owner."*

  - *What is the incremental cost (the difference between the cost of a new Title 5 compliant system and the cost of the alternative) for each of the six I/A listed? (Recirculating Sand Filter; Amphidrome Process; Bioclere; Cromaglass; RUCK and Single Home Fast)*

    Chapter 4, beginning on page 4-11 details I/A costs. The cost of a Title 5 system is site specific. Soils, groundwater, landscape and presence of ledge are but a few of the issues that will dictate cost to repair/replace a Title 5.

- *Refer to page 2-128 "Do suitable soils exist for more than 70% of the Study Area? Do suitable groundwater conditions exist for more than 80% of the Study Area?*

  These parameters are specific to the siting of I/A systems and are based on the technical considerations required for each individual system. Chapter 2, beginning on page 2-127 details all the necessary conditions for the siting of I/A systems.

- *The various additional questions relating to page 2-128 can, also be answered with the above response.*

  - *For the "Sconset Wastewater Treatment Facility to replace the present facility, what is the projected cost to build the plant, and what is the estimated further cost for debt service of bonds issued in support of the project?*

    Presently, there is NO facility in Siasconset – currently untreated wastewater is being discharging to open sand beds, which is in violation of the Town's Administrative Consent Order, Docket No. 782 dated September 8, 1989. Over the last 15 years the Town has been in the planning, design and currently the construction phase of the project. The project is being funded under the State's Revolving Fund Loan Program at 0 percent interest with a total project cost of about $15.0 million. No additional improvements nor costs are proposed nor included in the CWMP/EIR documents.

    The Siasconset WWTF is sized for an average daily flow of 220,000 gallons per day. This flow was estimated based on the following Town requirements: (1) use only 75 percent of the buildout within the existing service area; (2) assume no second dwellings within the existing service area; and (3) assume that no expansion of the wastewater infrastructure. The current flows in the summer average about 120,000 gallons per day resulting in approximately 100,000 gallons per day of remaining capacity for future buildout.

- *What are the presently authorized expenditures for upgrading the sewer wastewater collection system and for upgrading the storm water collection system?*

  As part of the Evaluation and Mapping Project, various recommendations have been presented to the Town for improvements to the existing wastewater and drainage infrastructures. A proposed Capital Improvement Program was presented to the Town in the Fall of 2003 including a proposed implementation schedule. As of March 2004, the Town had not authorized any expenditures for wastewater or drainage infrastructure improvements.

- *How many additional households will be served respectively by the proposed new wastewater treatment facilities-both estimated and within rated capacities?*

  Additional information will be added to the Phase III CWMP/EIR document regarding the number of additional households to be served by the proposed wastewater treatment facilities.

- *If the Town has a binding commitment with the State to complete the new Surfside plant, what are the details of the commitment and what new tie-ins to the existing plant are now allowed?*

  The Town signed an Administrative Consent Order entitled "Surfside Wastewater Treatment Facility ACOP-BO-03-1G002, Groundwater Discharge Permit SE#1-200". This document, including its requirements, can be can be viewed at any of the Depositories located on Island including at the Board of Selectmen's Office and Department of Public Works. A copy of the Administrative Consent Order is contained in Appendix A.

- *What is proposed to be done with wastewater during the time prior to completion of the respective new facilities?*

  Under the conditions set forth in the Administrative Consent Order, Surfside Wastewater Treatment Facility ACOP-BO-03-1G002, Groundwater Discharge Permit SE#1-200, the Surfside WWTF will continue to operated under its existing groundwater discharge

permit. The design of the Surfside WWTF Upgrade will be developed to maintain current facility operations while the modifications are being completed. In addition, the Contract Documents (plans and specifications) will require the Contractor to not disrupt the existing facility operations.

- *What assumptions were made to support the 20-year growth projections?*

  Growth projections were base on existing projections made by various State planning agencies as well as information from the NP&EDC.

- *What legal and practical actions will assure that unbuildable lots will not be made buildable by availability of public wastewater sewer tie-ins?*

  Precedents have been set in many other Massachusetts communities with regards to setting parameters for municipal infrastructure. The Town is working with Town Counsel to make sure all necessary by-laws are in place before implementation of the recommended project that include infrastructure expansion.

- *What further costs-not identified in the Phase II Report-are entailed if the Town acts upon Earth Tech recommendations, such as debt-service, etc.?*

  At the time the Phase II CWMP/EIR document was filed, the Town had not determined how to fund the recommendations contained in the document. The Phase III CWMP/EIR document will provide additional cost information as determined by the Town.

- *How is septic-tank failure defined? This is heavily weighted in the report.*

  To clarify, it is not *septic tank* failure but on-site wastewater disposal system failure. Not all wastewater systems are "septic", as there are a variety of types including cesspools. The failure rate is defined in the Phase I CWMP/EIR document, Chapter 3, Section B titled "On-site Wastewater Disposal Problems" as follows:

"The Town of Nantucket is about 47.8 square miles (30,580 acres) in geographic area with 11,393 residential, commercial and industrial parcels of which 8,194 have been developed (1998 Assessor's data). The Soil Survey Report by the U.S. Department of Agriculture states that about 14.2 percent (4,350 acres) of the Town has severe soil conditions and 18.3 percent (5,590 acres) of the Town has severe groundwater conditions that are not optimal for installation and use of conventional Title 5 wastewater disposal systems.

The current Title 5 failure rate for the Town of Nantucket is approximately 45 percent. There have been 289 reported failures and/or repairs of the 638 property re-sales between March 31, 1995 and January 1999. This failure rate is based on the number of system failures or upgrades for re-sales compared to the total number of re-sales in Nantucket since the implementation of the Title 5 regulations on March 31, 1995. The data used to develop this failure rate was compiled from Board of Health records and included information from disposal works construction permit applications and certificates, official Title 5 inspection reports and the actual property record files. This data documents actual on-site wastewater disposal system failures from Title 5 inspection reports, as well as, upgraded systems that would have received a certificate of compliance upon upgrade completion.

On-site wastewater disposal system upgrades and/or repairs dating from 1972 through March 31, 1995 were also compiled. These upgrades exclude simple repairs such as a septic tank or distribution-box replacement. This research documents 482 failures during the 23-year study period and represents about 12.2 percent of the approximately 3,953 unsewered developed properties in Nantucket (1998 Assessor's data). These consist of several types of failure modes that include: (1) sewage breakout; (2) high groundwater; (3) poor soils; (4) continuous back-ups; (5) excessive pumping; and (6) failed inspections. Approximately 22 percent of the developed lots on the Island were developed prior to 1978, the year that Title 5 first went into effect. Refer to Table 3B-1."

- *Do not average conditions for lot size, soil conditions and number of bedrooms overstate the septic requirements?*

  There was information available for each lot within the Study Areas from the Town Assessor data that enabled some of the projections. For example, the matrix used to compile data for each Study Area (Phase II CWMP/EIR document, Section 1.0), compiles data for each individual lot-, particularly in the highest rated areas of "Actual Failure" and "Imminent Failure". Lot size and number of bedrooms for each lot was available and utilized through Assessor records. Soils and groundwater conditions were determined from the very reliable United States Department of Agriculture Soil Conservation Service as well as individual records from Board of Health data. So based on the actual data used, no, average conditions did NOT overstate septic requirements.

- *Did the study of secondary dwellings consider existing covenants, the fact that severe soil conditions will have no septic and that lot size currently restricts the number of bedrooms?*

  The secondary dwelling estimate was based on historical building to date Town-wide. Discussions were held with the Building Department, Board of Health, Zoning and Planning to attempt to get a more precise formula for estimating the secondary dwelling build-out analysis. No Town Department and/or Agency could provide definitive information with which to base future wastewater projections. However, the NP&EDC indicated that they have estimated that about 25 percent of the existing developed properties that could have a second dwelling actually added a second dwelling. Since no definitive information existed, the Town and Earth Tech agreed to assume the estimate of 67 percent.

  Since the publication of the Phase II CWMP/EIR document, Earth Tech has provided the Town with a series of maps based on GIS data and Town Assessor data. The NP&EDC worked with these maps and datasets to more clearly define the build-out number. Based on this information, the NP&EDC 2004 Buildout Scenarios confirmed the assumption of 67 percent as a reasonable average for second dwelling buildout. Refer to the NP&EDC buildout analysis contained in Appendix O, completed in 2004, which confirms our estimates.

While there are areas, for example the Warrens Landing Study Area, that restricts the secondary dwellings, there are other areas (Town Study Area) that have the potential for future dwellings. It is assumed that the 67 percent second dwelling estimated is an reasonable conservative assumption for the determination of projections of wastewater flows.

- *Is the sole source aquifer at risk? Where is the data showing this?*

With the documented soil and groundwater conditions present on the Island as well as the documented on-site wastewater disposal system failures, the sole source aquifer could most definitely be at risk. But, you NEVER want to really be able to answer this question affirmatively because at that point it is too late. The data is throughout this report and historically in all previous reports.

Recent information developed as part of the Massachusetts Estuaries Program and presented at the January 29, 2004 Madaket Water Quality Workshop clearly shows that on-site wastewater disposal systems are causing degradation and pollution in the water bodies in and around Madaket.

- *To what extent is nitrogen a pollutant, and where does it come from?*

First, nitrogen is found among other sources in wastewater. Title 5 wastewater systems do not treat for nitrogen, so any nitrogen that exists in the wastewater will percolate into the groundwater. In any nutrient balance with the disposal of wastewater or treated wastewater (effluent), the considerations of preventing nitrogen from contaminating groundwater are a priority over the potential impact of other wastewater contaminants such as sodium. From an environmental perspective, nitrate is the most critical form of nitrogen. Its solubility, mobility and stability mean that it is readily leached to groundwaters, it has an active role in the eutrophication process and, in drinking water, it poses a threat to human and animal health. Section 5.0 of the Phase I CWMP/EIR document discusses systems and treatment technologies.

In general, the most important source of nitrogen to the estuaries of is human waste. These wastes are processed by on-site wastewater disposal systems, mainly septic tanks and their leaching fields. With the typical on-site wastewater disposal system, raw wastewater first enters a holding, or septic, tank where sedimentation and microbial breakdown of organic matter occurs. Ammonium (NH_4^+) is the major nitrogenous breakdown product, and is carried off in the effluent that enters the unsaturated sub-surface soil layer of the leaching field. Ideally, the ammonium would be removed by adsorption to soil particles, or converted to nitrate, then to nitrogen gas by bacteria, and escape to the atmosphere before entering the groundwater. These removal processes are not very efficient, and 50 to 60 percent of the nitrogen (mostly as nitrate) is percolates into the groundwater. With the density of development and small lot sizes, particularly in Madaket, and with the housing density comes a proliferation of septic tank disposal systems, there comes a large increase in groundwater nitrogen concentration. The problem is exacerbated by housing developments sited immediately adjacent to the water, where the short travel distance to the water's edge further limits the effectiveness of nitrogen removal processes. This is so prevalent in Nantucket due to the fact that it is an Island. The properties near the shoreline will contribute disproportionately to the nitrogen load entering the water.

Waste from some houses flows into cesspools, which are basically holding pits without the benefit of a leach field. This older technology results in higher amounts of nitrogen entering the groundwater. A municipal sewer system offers one solution to diffuse the nitrogen loading in groundwater caused by on-site wastewater systems.

Recent information developed as part of the Massachusetts Estuaries Program and presented at the January 29, 2004 Madaket Water Quality Workshop clearly shows that on-site wastewater disposal systems are causing degradation and pollution in the water bodies in and around Madaket caused by nutrients, including nitrogen.

- *What is the specific reason for spending this money?*

The recommendations in the CWMP detail the reasons but overall, it is to maintain and/or improve environmental conditions while determining costs, benefits for long-term sustainability, protection of the single source aquifer and public health, and preservation of Madaket Harbor, Polpis Harbor, Sesachacha Pond, and all surrounding coastal waters.

With regards to the Surfside WWTF, the Town entered into an Administrative Consent Order issued by the Massachusetts Department of Environmental Protection dated October 30, 2003, requires that the WWTF be upgraded to secondary treatment. Understanding the various Federal and State rules and regulations that the Town of Nantucket must operate under with regard to wastewater treatment issues can be complex and misunderstood. The major regulations are the Federal Clean Water Act, the Massachusetts Groundwater Discharge Regulations, and the Massachusetts Ocean Sanctuaries Act.

The Federal Clean Water Act was created in 1972 and is administered under the United States Environmental Protection Agency under Title 33, Chapter 26. The Act addresses reducing direct pollutant discharge, financing wastewater treatment projects and managing polluted runoff. The Act strives to achieve chemical, physical and biological integrity of the nation's waters and to support protection and propagation of fish, shellfish, wildlife and recreation in and on the water. The Act provides the authority for the applicable Federal and State agencies to regulate water quality by requiring effluent quality limits for all wastewater treatment facilities.

The Massachusetts Groundwater Discharge Regulations are administered under the Department of Environmental Protection under 314 CMR 5.00 and 314 CMR 6.00 by setting Class I groundwater standards. It follows the goals of the Federal Clean Water Act and requires all treatment facilities with flows in excess of 15,000 gallons per day to provide a minimum of secondary level treatment with effluent disinfection. In addition, all treatment facilities with flows in excess of 150,000 gallons per day are limited to total nitrogen discharges to less than 10 mg/L. The Act does not allow for only a portion of the wastewater flow to be treated to a higher level of treatment.

The Massachusetts Ocean Sanctuaries Act is administered by the Department of Conservation and Recreation under M.G.L. c. 132A, 12A-16F, 18, and 302 CMR 5.00. The Act prohibits activities that may significantly alter or endanger the ecology or appearance of the ocean, seabed, or subsoil of sanctuaries or the Cape Cod National Seashore. To accomplish this goal, the Act prohibits the "dumping or discharge of commercial, municipal, domestic or industrial wastes" in these areas.

In summary, (1) direct discharges to the Atlantic Ocean in Nantucket, either by surface or subsurface, are prohibited; (2) failed and/or on-site wastewater disposal systems that are not properly operating and maintained must be addressed; and (3) the existing Surfside primary wastewater treatment facility must be upgraded to achieve a minimum secondary level of treatment.

10. November 5, 2003, Letter from NP&EDC

Comments on Priority Area Assumptions and Solutions

- *Specifically lacking (in the CWMP) is any reference to both the Town and Country (Zoning) Overlay Districts approved as Article 37 of the 2002 Nantucket Annual Town Meeting.*

  The Phase I CWMP/EIR document, Needs Analysis was filed in August 2001. This Phase delineated the Study Areas on Island that are the basis for the entire CWMP/EIR. At the time of the Phase I CWMP/EIR document filing, the Town and Country Overlays did not exist.

- *The NP&EDC is disappointed that the CWMP did not include a separate growth analysis, prepared by an independent consultant with no vested interest in any one solution, which paralleled the development of the CWMP.*

  The approved scope of work for the development of the three phase CWMP/EIR was based on using existing zone and information available at the time the documents are developed. It is not part of the scope of work to perform planning functions. Therefore, all present and future flows are based on information provided by the Town. With respect to the potential for multiple dwellings, no Town Department and/or Agency could provide definitive information with which to base future wastewater projections.

However, the NP&EDC indicated that they have estimated that about 25 percent of the existing developed properties that could have a second dwelling actually added a second dwelling. Since no definitive information existed, the Town and Earth Tech agreed to assume the estimate of 67 percent.

Since the publication of the Phase II CWMP/EIR document, Earth Tech has provided the Town with a series of maps based on GIS data and Town Assessor data. The NP&EDC worked with these maps and datasets to more clearly define the build-out number. Based on this information, the NP&EDC 2004 Buildout Scenarios confirmed the assumption of 67 percent as a reasonable average for second dwelling buildout.

- *The NP&EDC acknowledges the water quality concerns within the Madaket Area probably exclude Conventional Title 5 systems as solutions. However, the Commission believes that the analytical process leading to the final solution should be based on a lot-by-lot analysis, rather than broad assumptions based on the general characteristics of soils.*

  The solution to the Madaket Area, as well as all other Need Areas, was based on a variety of possible alternatives as defined in the Phase II CWMP/EIR document. The analytical process used developed by Earth Tech and has been the model by the DEP for determining areas of need on many other CWMPs being completed within the Commonwealth of Massachusetts. This analytical process was part of the DEP approved Scope of Work for Phase I CWMP/EIR document. A complete review of the analytical process, included in the MEPA approved Phase I CWMP/EIR document, will clearly show that "general characteristics of soils" was not the only technical consideration used to determine areas of need. Other factors such as groundwater, ability to repair or replace on-site system with given property parameters without the use of variances, ability of lot to support alternative systems, environmental constraints, physical constraints, location of system with regards to harbor watershed protection districts, and others were included in the analysis.

- *The CWMP relies on one technique in an effort to limit the development potential of undeveloped lots-a low pressure sewer.*

  First, to clarify the above statement. The CWMP effort is to keep "undevelopable (state land use code 132) lots from becoming buildable" and not undeveloped lots. Undeveloped lots, by their own classification of 130, are buildable with or without infrastructure. Second, the precedent for limiting development potential with sewers has been set in a number of Massachusetts communities, Provincetown being the most recent. Special legislation was passed that created 'sewer districts" that serves this very purpose. Third, the recommendations in the CWMP/EIR indicates that the Town needs to address local rules and regulation including but not limited to changes to zoning and creation of a septage management plan, in order to manage growth for areas with and without wastewater infrastructure. These concepts are clearly outside the scope of work of the CWMP/EIR and must be address by local department and agencies including the NP&EDC.

- *In connection with the recommended solution, the CWMP targets one parcel to meet the wastewater treatment and disposal needs. The NP&EDC feels that the applicant should demonstrate that there are no other sites that are suitable for this purpose, including those at, or in proximity to the Town's Material Recovery Facility and Landfill.*

  The Phase II CWMP/EIR document, Section 3.0 details the site identification process. The CWMP/EIR document searched the entire property database of Nantucket for properties for the purpose of locating either treatment facilities and/or discharge sites. The process was scaled down to include 14 properties for detailed evaluation, which is identified and evaluated in greater detail in Section 3.0.

  The Town's Material Recovery Facility and Landfill site was eliminated from consideration due to environmental issues. The potential of disturbing unknown materials buried at the site that are now dormant as well as the technical considerations associated with effluent discharge and the resent land use, precluded this site from consideration. Discussions with the DEP indicated that the use Town's Material Recovery Facility and Landfill site for groundwater disposal of wastewater would take considerable time and effort in order to properly evaluate the possible impacts from the unknown materials. Therefore, DEP recommended that no further consideration be given to this site.

- *We agree with the analysis (for Town Study Area), but believe that the boundary of the Town Overlay District should be utilized to delineate the extent of sewer service extension, and as a basis for wastewater calculations.*

  As was noted previously, the Phase I CWMP/EIR document Needs Analysis was completed and filed in August 2001 before the Town Overlay District was passed at Annual Town Meeting in 2002. The Phase I CWMP/EIR document Needs Analysis delineated the areas of study, including the datasets without having the benefit of the Town Overlay District information. This information has been forwarded to the Town and the decision will be made at that level. The extension of the existing sewer collection system needs to be made based upon a determination of needs. In order to be consistence with the prior approved Phase I CWMP/EIR document, wastewater calculations need to be based upon the study area boundaries which were determined years prior to the development of the Town Overlay District. However, since the first priorities fir implementation of the recommendations is the Surfside WWTF upgrade and existing wastewater infrastructure improvements, the Town will have the ability to modify the areas tributary to the Surfside WWTF as new information is developed from various federal, state and local agencies. This includes information generated from the Massachusetts Estuaries Project and NP&EDC.

- *We do not understand why (for the Town WPZ Study Area) the CWMP does not advocate a connection to the nearby sanitary sewer system for those lots now on septic in the vicinity of the Town well site.*

  The CWMP/EIR does not recommend the remainder of the WPZ Study Area for removal of on-site wastewater systems due to the larger lot sizes in this area and the capability to conform to Title 5 Regulations without variances. The majority of developed parcels in this area were built after 1978 with little or no issues with severe groundwater. The soils are generally conducive for on-site wastewater disposal systems. A properly design, constructed and operating on-site wastewater disposal system are not detrimental to the water supply. This Study Area rated 4.60 on the matrix, which is well below the Town's breakpoint or threshold rating of 7.33.

The CWMP/EIR recommendation is to maintain this Study Area under the Septage Management Plan. In addition, the Town could consider monitoring the groundwater and reevaluating the Study Area as part of the Septage Management Plan to determine if the data used in the analysis results in a modification to the CWMP/EIR recommendations.

- *Although we agree with the extension of sewers to Monomoy, because of generally higher densities, and proximity to the existing sewered area, we do not understand why sewers are recommended for the distinctively lower-density area of Shimmo.*

  Shimmo was recommended as a Need Area due to its location within the Nantucket Harbor Watershed, shallow depth to groundwater and poor soils conditions and not just a determination due to the lower density. It was therefore determined that study area was not generally conducive for the continued long-term use of on-site wastewater disposal systems. The recommendation for connection into the existing Surfside WWTF sewer system was based on its relative proximity to the existing infrastructure. With the 20-year planning in place, a final recommendation will be based on the final results of the Massachusetts Estuaries Program, which is due Fall of 2004.

- *Comments on Proposed Sites for Treatment Plant Sitings /Wastewater Disposal*

  The NP&EDC letter listed comments on the following sites. All but one of the sites were eliminated from further evaluation based on a number of environmental constraints as is evidenced in Section 3.0 of the Phase II CWMP/EIR document: (1) FAA Site-recommended site - see previous comment; (2) UMass Site - eliminated from further evaluation; (3) Milestone Road - eliminated from further evaluation; (4) Tom Nevers Site - this site was incorrectly identified-the correct map/parcel is 91-109, Town-owned property; and (5) State Forest Site - eliminated from further evaluation.

Other NP&EDC Comments:

- *On page 112, Warren's Landing, we note that there is reference to 221% of the study area classified as having moderate to severe groundwater levels-an obvious typographical error.*

  This will be corrected in the Phase III CWMP/EIR document.

- *What is the significance of the distance of 3,600 feet used in reference to proximity of septic systems to the Harbor?*

  This was discussed with the Town Departments, including the NP&EDC, before the filing of the Phase I CWMP/EIR document because at the time of the filing, the Town had not accepted any delineation of the Madaket Harbor Watershed. The effort was a proactive choice in protection of the Madaket Harbor Area. Since the filing of the Phase I CWMP/EIR document, however, the Town has accepted and delineated a Madaket Harbor Watershed line as noted on the map in the Executive Summary of the Phase II CWMP/EIR document.

  As is evidenced on the map, both the Madaket and Warren's Landing Study Area are encompassed within the Town delineated Watershed. Madaket's overall matrix rating remained unchanged with the new delineation because the entire Study Area was originally included in the 3,600 foot buffer but Warren's Landing is another story. Using the Town delineated Watershed, the entire Study Area of Warren's Landing is now included within the watershed. This means all the systems within Warren's Landing potentially impact the Watershed. The original matrix rating of 8.09 now becomes 8.59 percent. With the breakpoint or threshold rating in Nantucket at 7.33, Warren's Landing becomes the second highest rated Need Area behind Wauwinet.

- *The analysis of each area is described in terms of total acreage and acreage developed. The reader is led to the implicit conclusion that the difference between the two figures is therefore acreage with development potential.*

  So noted. Although the matrix does in fact contain the acreages noted above, the future flow projections for each Need Area did account for the specific land uses within each area, which included undevelopable parcels, conservation land and open space.

- *Concerning residential water use (p.2-10), advocacy of the use of water saving devices is mentioned, but there is no mention of code modifications to mandate their installation and potential retrofit.*

  This is a recommendation based on the Massachusetts Water Resources Commission and ultimately up to the Town to adopt such measures.

- *On page 4-25, the CWMP erroneously reports that the NP&EDC retained Earth Tech.*

  This should have stated "In early 1997, the Town of Nantucket, Board of Selectmen, retained Earth Tech, Inc. to prepare a Facilities Plan for Wastewater Disposal and Treatment for the Village of Siasconset, in conjunction with the NP&EDC, the local planning entity."

11. November 5, 2003, Letter from Deborah B. Bennett, member at-large of the NP&EDC, Chairman of Madaket Area Plan Work group and resident of Madaket.

Ms. Bennett requests that the U.S. Army Corps of Engineers respond to the following questions. Below are our responses based on the requirements of the MEPA process.

The U.S. Army Corps of Engineers is not involved in and is not required to be involved in this project. Therefore, we have responded to the writer's questions.

- *For Madaket in particular, this study is "putting the cart before. The horse". There are several efforts underway, including the Estuaries Program study, the Madaket Harbor Watershed Advisory Group, DNA testing, etc. that should be complete and analyzed to more accurately define the problems in Madaket. We should not jump to the conclusion that a package treatment plant is the only coarse of action. The results of these various studies need to be looked at in detail, and a lot-by-lot analysis should be conducted to identify specific septic systems that may be failing and determine how much it would cost to upgrade these systems. The cost of this approach should be compared to the projected cost to design, build and maintain a plant in Madaket.*

Continuing to wait until all information is in place will never occur since you can continue to sample and perform analysis of water samples, conduct yearly inspections of on-site systems, rerun analysis and hydrogeological models, etc. and therefore never have all of the information. The Town and Earth Tech are well aware of the other projects that are currently underway and in fact we have provided these projects information obtained during this CWMP/EIR planning effort. For example, waiting for nitrate levels to exceed drinking water standards in private water supplies is not proactive planning.

The solution to the Madaket Area, as well as all other Need Areas, was based on a variety of possible alternatives as defined in the Phase II CWMP/EIR document. The analytical process used developed by Earth Tech and has been the model by the DEP for determining areas of need on many other CWMPs being completed within the Commonwealth of Massachusetts. This analytical process was part of the DEP approved Scope of Work for Phase I CWMP/EIR document. A complete review of the analytical process, included in the MEPA approved Phase I CWMP/EIR document, will clearly show many technical considerations, such as general characteristics of soils, groundwater, ability to repair or replace on-site system with given property parameters without the use of variances, ability of lot to support alternative systems, environmental constraints, physical constraints, location of system with regards to harbor watershed protection districts, and others were included in the analysis. Solutions were investigated for each Study Area as a whole and not a lot-by-lot analysis. The entire Study Area of Madaket, as well as Warren's Landing, is included in the Madaket Harbor Watershed and Long Pond as delineated and approved by the Town. While the writer argues that there are some systems in this area that could pass a Title 5 inspection, each system within this area contributes in some way to the Watershed. As part of the Massachusetts Estuaries Project, these "contributions" are in the form of pollutants to the water quality, specifically nutrients. So while your individual system may pass a Title 5 on that particular day, there could potentially be negative impacts to the harbor, marine fisheries, aquatic life and possibly the drinking water supply in the area.

Given the lack of any State environmental code managing the siting, designing and constructing of on-site wastewater disposal systems prior to 1978, most of the systems built during this time frame would fail to stand up the standards now in place. It needs to be understood that that analysis was based upon not granting variances for upgrading and/or new construction. While some could certainly be replaced or repaired, the analysis was not

completed on a lot-by-lot basis and therefore it was determined that a majoring of the systems could not be replace and/or upgraded to meet current Title 5 rules and regulations without the issuance of variances. The analysis also looks at the overall impact of on-site wastewater disposal systems, such as the Madaket Harbor Watershed in general.

Individual on-site system inspection was not included as part of the CWMP/EIR Scope of Work, however, the Massachusetts Estuaries Program (MEP) has been conducting investigations in the Madaket Harbor Area. Part of the MEP study includes water testing, which recently has DNA results providing proof of human concentrations in Madaket Harbor and Hither Creek.

Recent information developed as part of the Massachusetts Estuaries Program and presented at the January 29, 2004 Madaket Water Quality Workshop clearly shows that on-site wastewater disposal systems are causing degradation and pollution in the water bodies in and around Madaket. The final results of the MEP will be coordinated with the CWMP/EIR in this area. If the TMDL determines that nutriant loadings is causing degradation to the environment, than even properly operating Title 5 systems will not be sufficient. Since the CWMP/EIR is a long-term planning document, the Town has the opportunity to incorporate any additional information that is developed by Federal, State and/or Local authorities and/or private entities prior to the implementation of the recommendations, if appropriate.

- *Please evaluate other potential sites in Madaket, other than the FAA-owner parcel on Red Barn Road. Our house overlooks this land and it is a beautiful stretch of open space, inhabited by numerous unique and exquisite birds and vegetation. Perhaps there is a large enough parcel closer to the Materials Recovery Facility that could serve the same purpose?*

  Phase II CWMP/EIR document, Section 3 specifically addresses this issue. Screenings have been completed by all the required agencies as to the use of this land. The FAA property was determined to have the most opportunity for the WWTF with regards to negative impacts to items such as but not limited to the environment, public health, and drinking water supplies.

  The Town's Material Recovery Facility and Landfill site was eliminated from consideration due to environmental issues. The potential of disturbing unknown materials buried at the site that are now dormant as well as the technical considerations associated with effluent

discharge and the resent land use, precluded this site from consideration. Discussions with the DEP indicated that the use Town's Material Recovery Facility and Landfill site for groundwater disposal of wastewater would take considerable time and effort in order to properly evaluate the possible impacts from the unknown materials. Therefore, DEP recommended that no further consideration be given to this site.

12. November 5, 2003, Letter from Clark M. Whitcomb, resident.

- *Before any further planning or action takes place toward building a wastewater treatment plant in Madaket, there must be a complete, comprehensive program of inspecting and testing existing septic systems to determine if any are causing pollution of our water resources.*

  Individual on-site system inspection was not included as part of the CWMP/EIR Scope of Work, however, the Massachusetts Estuaries Program (MEP) has been conducting investigations in the Madaket Harbor Area. Part of the MEP study includes water testing, which recently has DNA results providing proof of human concentrations in Madaket Harbor and Hither Creek.

  Recent information developed as part of the Massachusetts Estuaries Program and presented at the January 29, 2004 Madaket Water Quality Workshop clearly shows that on-site wastewater disposal systems are causing degradation and pollution in the water bodies in and around Madaket. The final results of the MEP will be coordinated with the CWMP/EIR in this area. Since the CWMP/EIR is a long-term planning document, the Town has the opportunity to incorporate any additional information that is developed by Federal, State and/or Local authorities and/or private entities prior to the implementation of the recommendations, if appropriate.

13. November 18, 2003, Letter from DEP/SERO

- *The recommended plan chapter in the Final CWMP/EIR should clarify this (All wastewater Capital Improvement Plans and associated costs) and more fully explain what the elements of the $83 million plan are, and what the financial and household cost implications will be.*

The Phase III CWMP/EIR document, will provide cost estimates (both capital and operating) for each component of the recommended plan. This includes the Surfside WWTF upgrade, proposed Madaket WWTF, and the recommendation of the Evaluation and Mapping Project that includes the recommendation to aggressively address Infiltration and Inflow.

- *The Final CWMP/EIR should present more detailed wastewater flow tables for the recommended collection and treatment systems for Madaket and Surfside. The flows should be presented in the format of the table attached to these comments.*

  The Phase III CWMP/EIR document will present more detailed flow tables for the recommended collection and treatment systems for Madaket and Surfside presented in the format provided by the DEP.

- *The recommended plan chapter of the Final CWMP/EIR should include a presentation of average household costs (for both capital and O&M) for both the households on the sewer system and those that will continue to remain on on-site systems.*

  At the time the Phase II CWMP/EIR document was filed, the Town had not determined how to fund the recommendations contained in the document. The Phase III CWMP/EIR document will provide additional cost information as determined by the Town.

- *The implementation schedule included in the Final CWMP/EIR should be adjusted to conform with the recently signed Administrative Consent Order (ACO) between the Town and the Department.*

  The Phase III CWMP/EIR document implementation schedule will be adjusted to conform to the ACO.

- *The Final CWMP/EIR should indicate that a ground water monitoring plan for the area down gradient of the Madaket discharge will be developed as part of the ground water discharge permit application, particularly because of the presence of private wells down gradient of the proposed discharge.*

The Phase III CWMP/EIR document will indicate that when the Town prepares a groundwater discharge permit application it will include a groundwater monitoring plan for the area down gradient of the Madaket groundwater discharge site.

- *The recommendations for the discharge beds at the Surfside is to raise the bottom elevations for several beds. How will the operation of the existing beds be affected, and what will be the effects on the hydraulics? Will pumping be needed? How will flow balance between the beds be maintained?*

  The proposed Surfside WWTF upgrade will include effluent pumping to the effluent filters and ultraviolet disinfection system. After disinfection and measurement, the effluent will flow by gravity to the discharge beds. The elevations of the new facilities will be designed to allow gravity flow to any of the 15 discharge basins without additional pumping. The hydrogeological analysis that was completed for the Surfside WWTF site determined the elevations of the discharge beds in order to maintain a four foot separation between the bottom of the discharge bed and mounded groundwater elevation. Flow balance between the beds was not considered since the recommended operation is to utilize only one discharge bed for a day and than switch to another discharge bed. This method of operation has been successfully use at the Surfside WWTF since the facility went into operation in the early 1990s.

- *Will the increased wastewater pumping rates from the Sea Street pumping station have any significant impact on the design of the existing primary clarifiers, and can they handle the increased flows?*

  The existing primary clarifiers will not need to be expended since they have the necessary capacity to handle the future summer design flows based on TR-16 requirements. The primary clarifiers will be covered with flat aluminum plates with access hatches and odor control ducts will be installed to direct odorous air to the odor control system. The existing primary clarifier equipment will be replaced including drives, motors, chains, flights, and sprockets.

- *Will there be any significant seasonal wastewater flow variations at the Madaket Facility that would warrant consideration of the need for more than two SBRs (i.e., a system more like the design of the Siasconset Facility)? If two SBRs are the recommended design configuration, how will the design be able to remain operational and meet permit limits if one of the units is down for either minor repairs or a longer period due to a major problem?*

  The proposed Madaket WWTF design will be very similar to the Siasconset WWTF design since both the Madaket area and Siasconset area have significant seasonal wastewater flow variations. The Siasconset WWTF has five SBR units. Three units are designed to handle the summer design flows while tow smaller unites are sized to handle the winter design flows.

- *The Department emphasizes that a number of former and current disposal sites and release notifications exist at the Bureau of Waste Site Cleanup (BWSC).*

  The CWMP/EIR Phase II CWMP/EIR document reviewed the Bureau of Waste Site Cleanup BWSC site during the site identification and alternatives search. The current list is included in Appendix H.

14. November 3, 2003, Letter from Coastal Zone Management

- *CZM recommends that flood zone boundaries be determined using the paper flood maps. CZM recommends that site-specific topographic information be presented in the FEIR, along with the flood zone boundaries and erosion rate information to facilitate a complete review of which parts of the project will be in or adjacent to the high hazard area. CZM…recommends that prior to the development of the FEIR, the proponents provide additional information to DEP and CZM to address flood zone and high hazard area issues for further review and coordination.*

  Earth Tech has worked closely with the Woods Hole Group with erosion issues in and around the Surfside WWTF. Reports were completed in 1999 and again in 2001 for this area, showing that there are no issues with erosion at this site. The Town has an emergency erosion plan in place for this site. This can be viewed in Appendix N.

With the immediate issue CZM presents above, Earth Tech prepared a set of maps for the proposed project detailing all infrastructure proposed in velocity zones as identified by FEMA paper maps. All proposed infrastructure (roadway pipes, pump stations, etc.) was superimposed on the FEMA paper maps for review and consideration. As requested, these were submitted to CZM and DEO on January 21, 2004.

CZM further requested erosion data for the proposed Madaket area. Erosion data was obtained through the Marine and Coastal Department in Nantucket and forwarded, along with a review, to CZM and DEP on March 10, 2004.

The complete submittals can be viewed in Appendix P.

15. January 14, 2004, Letter from Division of Fisheries & Wildlife

- *Recommendation that rare and/or plant surveys and assessments be conducted by qualified individuals within suitable habitats on and near the sites according to scientifically accepted survey methodologies. A Rare Animal/Plant Observation Form should be submitted for each species encountered. If during the site evaluation rare species are found on or near the site, then site plans and a project description need to be sent to NHESP Environmental review to determine whether a probable "take" under the MA Endangered Species Act would occur.*

  A review of the Massachusetts Natural Heritage Atlas (11th Edition) indicates that the proposed FAA and Surfside expansion sites are within areas designated as Priority and Estimated Habitat for rare wildlife and plant species. Earth Tech requested data on rare, threatened, and endangered species in the project area from the Massachusetts Natural Heritage and Endangered Species Program (MNH&ESP). In January 2004, MNH&ESP responded with a list of plant and animal species know to occur in the vicinity of each site.

  In August of 2003, botanists from Buckley Botanical Consultants completed a preliminary investigation of each site. At that time no rare plants were discovered. Once final site designs are chosen, the Town of Nantucket will work with MNH&ESP to develop a plan to complete an extensive survey of each site to determine the occurrence and likely impact to any rare, threatened, or endangered species.