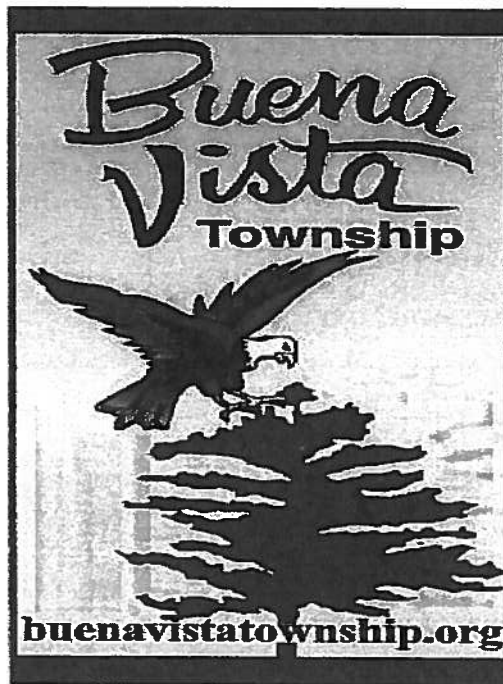


2006 MASTER PLAN RE-EXAMINATION REPORT



**BUENA VISTA TOWNSHIP
ATLANTIC COUNTY, NEW JERSEY**

ADOPTED MAY 2007

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Prepared by:



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(The original of this document has been signed and sealed in accordance with the law)

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**2006 MASTER PLAN RE-EXAMINATION REPORT
 BUENA VISTA TOWNSHIP
 Adopted May 2007**

TABLE OF CONTENTS

| <u>Section</u> | <u>Page No.</u> |
|--|-----------------|
| I. 2006 Master Plan Re-Examination Report Introduction..... | 1 |
| A. Introduction..... | 1 |
| B. Summary of Recommendations of the 2006 Re-Examination Report..... | 1 |
| C. 2006 Re-Examination Report Goals and Objectives | 2 |
| D. Land Use Element Overview..... | 2 |
| E. Housing Element Overview | 2 |
| F. Stormwater Management Plan..... | 3 |
| G. Comparison to Adjacent Municipalities | 3 |
| H. Appendix A..... | 3 |
| II. Master Plan Re-Examination Goals and Objectives | 4 |
| A. Municipal Land Use Law Planning Principles | 4 |
| Planning Principle #1..... | 4 |
| Planning Principle #2..... | 4 |
| Planning Principle #3..... | 4 |
| Planning Principle #4..... | 5 |
| Planning Principle #5..... | 5 |
| B. General Master Plan Goals and Objectives..... | 5 |
| C. Pinelands Management Area Goals and Objectives | 7 |
| 1. Forest Area Section 7:50-5.13(b)..... | 7 |
| 2. Agricultural Production Area, Section 7:50-5.13(c)..... | 8 |
| 3. Rural Development Areas, Section 7:50-5.13(e) | 8 |
| 4. Pinelands Villages and Towns, Section 78:50-5.13(f)..... | 8 |
| III. Land Use Element..... | 9 |
| A. Introduction..... | 9 |
| B. Recommendations for Zoning District Boundary Changes | 9 |
| C. Recommendations for Chapter 49, Development Regulations, Modifications and Amendments..... | 11 |
| D. Areas in Need of Redevelopment and Rehabilitation | 14 |

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

| <u>Section</u> | <u>Page No.</u> |
|--|-----------------|
| 1. Approved Redevelopment Areas | 14 |
| a. Richland Village Redevelopment Area | 15 |
| b. Lincoln Avenue Redevelopment Area | 15 |
| 2. Potential Redevelopment Areas | 16 |
| a. Comar Place / Pine Road Redevelopment Study Area | 16 |
| E. Recommendation | 17 |
| IV. Housing Element | 18 |
| A. Background | 18 |
| 1. Age of Housing | 18 |
| 2. Housing Condition | 19 |
| 3. Purchase or Rental Value | 20 |
| 4. Occupancy Characteristics | 22 |
| 5. Unit Types | 23 |
| 6. Analysis of Demographic Characteristics | 24 |
| 7. Income Level | 26 |
| 8. Age Characteristics | 26 |
| 9. Existing Employment | 27 |
| 10. Probably Future Employment Characteristics | 28 |
| B. Council on Affordable Housing | 30 |
| 1. Rehabilitation Share | 30 |
| 2. Prior Round Obligation for the period 1987-1999 | 30 |
| 3. Fair Share Growth Obligation | 31 |
| 4. Fair Share Plan | 31 |
| C. Consideration of Lands Most Appropriate for Construction of Affordable Housing | 31 |
| D. Recommendations | 32 |
| V. Stormwater Management Plan | 34 |
| VI. Comparison to Adjacent Municipalities, the Atlantic County Master Plan, The Pinelands Comprehensive Management Plan and the State of New Jersey Development and Redevelopment Plan | 35 |
| A. Borough of Buena | 35 |
| B. Borough of Folsom | 35 |
| C. Township of Hamilton | 36 |
| D. Township of Weymouth | 36 |
| E. City of Vineland | 36 |

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

| <u>Section</u> | <u>Page No.</u> |
|---|-----------------|
| F. Township of Maurice River..... | 37 |
| G. Township of Franklin..... | 37 |
| H. Township of Monroe..... | 37 |
| I. Atlantic County Master Plan..... | 37 |
| J. Pinelands Comprehensive Management Plan..... | 38 |
| K. New Jersey Development and Redevelopment Plan..... | 38 |
| VI. Appendix A | 39 |

FIGURES

| <u>Figure</u> | <u>Page No.</u> |
|---|-----------------|
| Figure 1 Age of Housing Stock..... | 18 |
| Figure 2 2000 Age of Housing Stock..... | 19 |
| Figure 3 Substandard Housing Conditions..... | 20 |
| Figure 4 Renter Occupied Rental Ranges | 22 |
| Figure 5 Housing Types | 23 |
| Figure 6 Race and Ethnic Characteristics 1990..... | 24 |
| Figure 7 Race and Ethnic Characteristics 2000..... | 24 |
| Figure 8 Population 1990 | 25 |
| Figure 9 Population 2000 | 25 |
| Figure 10 Household Income and Percentages..... | 26 |
| Figure 11 Age Categories Percentages | 27 |
| Figure 12 Existing Employment..... | 27 |
| Figure 13 Industries in Atlantic County with Highest Growth Projections | 29 |

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

I. 2006 MASTER PLAN RE-EXAMINATION REPORT INTRODUCTION

A. INTRODUCTION

1. The 2006 Master Plan Re-Examination Report (Re-Examination Report) has been formatted into four (4) main components. The first deals with the Master Plan Re-Examination goals and objectives including a review of the 1997 Master Plan Re-Examination Report Goals and Objectives. The second portion is the Land Use Element evaluating the existing zoning and land use while providing suggestions for future zoning changes. The Land Use Element also includes the areas identified as potential future redevelopment areas. The third portion of the report is the Housing Element which has been updated using 2000 Census data and appropriate comparisons have been made with the original information. The fourth portion of the report is the Stormwater Management Plan and the fifth portion provides a comparison to adjacent jurisdictions of Buena Vista Township, as well as the 2000 Atlantic County Master Plan, the Pinelands Comprehensive Management Plan and the State of New Jersey Development and Redevelopment Plan. The final section is an appendix which provides Buena Vista Township the opportunity to include amendments and modifications as necessary. All of the components are contained herein as part of this Re-Examination Report and collectively they update the status of the 1997 Master Plan Re-Examination Report.

B. SUMMARY OF RECOMMENDATIONS OF THE 2006 RE-EXAMINATION REPORT

1. The following is a summary of recommendations being made as part of the Re-Examination Report for Buena Vista Township. Although covered in greater detail in the body of this report, the summary of recommendations is intended to give an overview of the variety of subjects and issues, which warrant further investigation. The Re-Examination Report should be treated as an active document that enables the members of the Planning Board, in cooperation with the members of the Governing Body to budget, program and initiate improvements throughout the Township as part of a planned and comprehensive effort. The Re-Examination Report is intended to serve as a tool by which the implementation schedule and progress of accomplished tasks can be measured. The Re-Examination Report also provides for the management of

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

future planning of Buena Vista Township, which can be accomplished through efficient cooperation between the Planning Board and the Governing Body.

C. 2006 RE-EXAMINATION REPORT GOALS AND OBJECTIVES

1. Evaluation of previous Master Plan documents and Municipal Planning Goals contained within the 1997 Master Plan Re-Examination Report and a brief commentary summarizing the goals listed with considerations given as part of the 2006 Re-Examination Report are included herein.
2. The General Master Plan Goals and the Municipal Planning Goals are included from the 1993 and 1990 Re-Examination Report of the Master Plan.
3. The Pinelands Management Areas goals and objectives are included from the Pinelands Comprehensive Management Plan.

D. LAND USE ELEMENT OVERVIEW

1. Introduction and summary of objectives regarding the Pinelands Management Area classifications of Buena Vista Township.
2. The inclusion of adopted amendments to Chapter 49, Development Regulations since the acceptance of the 1997 Re-Examination Report of the Master Plan.
3. Recommendations for future modifications to Chapter 49, the Development Regulations for Buena Vista Township.
4. Identification of those areas to be considered for investigation as adopted or potential Redevelopment Areas under the State of New Jersey, Local Redevelopment and Housing Law.

E. HOUSING ELEMENT OVERVIEW

1. A detailed inventory of the existing housing stock of Buena Vista Township using Census 2000 data.
2. Projections of current housing development trends and probable future construction trends.
3. Analysis of demographic characteristics of Buena Vista Township.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

4. Analysis of existing and probable future employment characteristics.
5. Recommendation that Buena Vista Township prepare and pursue certification of a Fair Share Growth Obligation Plan under the Third Round Rules of the Council on Affordable Housing.

F. STORMWATER MANAGEMENT PLAN

1. The Municipal Land Use Law under Article 13 requires that a Storm Water Management Plan be prepared and such plan shall be an integral part of any master plan. This section includes the recently adopted stormwater control ordinance mandated by The Pinelands Commission and New Jersey Department of Environmental Protection.

G. COMPARISION TO ADJACENT MUNICIPALITIES

1. The commentary found within this section pertains to the land uses and activities which take place within Buena Vista Township directly adjacent to municipal boundary lines. The municipal borders are shared with the Borough of Buena, the Borough of Folsom, Hamilton Township, and Weymouth Township, all located within Atlantic County; Maurice River Township and the City of Vineland within Cumberland County; and Franklin Township and Monroe Township within Gloucester County.
2. Consistency of the Re-Examination Report with the 2000 Atlantic County Master Plan.
3. Consistency of the Re-Examination Report with the Pinelands Commission, Comprehensive Management Plan.
4. Consistency of the Re-Examination Report with the New Jersey State Development and Redevelopment Plan.

H. APPENDIX A

1. As the 2006 Master Plan Re-Examination Report is intended to be a working document for the community, the Appendix area is reserved for future additions as the Planning Board or the Governing Body sees fit to include.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

II. MASTER PLAN RE-EXAMINATION GOALS AND OBJECTIVES

A. MUNICIPAL LAND USE LAW PLANNING PRINCIPLES

The State of New Jersey, Municipal Land Use Law (M.L.U.L.), Chapter 291, Laws of N.J. 1975, Article 11, Periodic Re-Examination of Municipal Plans and Regulations, (C.40:55D-89), which states that the governing body shall conduct a review of the Master Plan and Development Regulations and Ordinances at a minimum every six years. The Planning Board is responsible for the preparation and adoption by Resolution of the report of findings of the Re-Examination of the Master Plan. There are five (5) basic planning principles which are outlined within this section of the M.L.U.L. and are provided herein.

The commentary provided as part of the Re-Examination Report reflects the issues as contained within the 1997 Master Plan Re-Examination Report prepared by Churchill, P.C., which included a review of the 1990 Master Plan Re-Examination Report prepared by John J. Holland, PP, and the 1993 Master Plan Land Use Element Plan Amendment completed by Randall E. Schule, PP, AICP from Adams, Rehmann and Heggan, Associates, Incorporated.

Planning Principle #1

The major problems and objectives relating to land development in the municipality at the time of the adoption of the last Re-Examination report.

Planning Principle #2

The extent to which such problems and objectives have been reduced or have increased subsequent to such date.

Planning Principle #3

The extent to which there have been significant changes in the assumptions, policies and objectives forming the basis for the master plan or development regulations as last revised, with particular regard to the density and distribution of population and land uses, housing conditions, circulation, conservation of natural resources, energy conservation, collection, disposition and recycling of designated recyclable materials, and changes in State, county and municipal policies and objectives.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

Planning Principle #4

The specific changes recommended for the master plan or development regulations, if any, including underlying objectives, policies and standards, or whether a new plan or regulations should be prepared.

Planning Principle #5

The recommendations of the planning board concerning the incorporation of redevelopment plans adopted pursuant to the "Local Redevelopment and Housing Law," P.L. 1992, c. 79 (C.40A:12A-1 et al.) into the land use plan element of the municipal master plan, and recommend changes, if any, in the local development regulations necessary to effectuate the redevelopment plans of the municipality.

- Included in the Land Use Element of the Re-Examination Report is the reference to two (2) Redevelopment Areas which have been identified and investigated by the Planning Board and approved by Buena Vista Township as viable Areas in Need of Rehabilitation and Redevelopment through the New Jersey Local Redevelopment and Housing Law requirements. Through the approval of the Richland Village and Lincoln Avenue Redevelopment Areas, Buena Vista Township has taken the first step in moving forward with the effectuation of the Redevelopment Plans.
- Also included in the Land Use Element of the Re-Examination Report is the reference of Potential Redevelopment Areas which includes one (1) area referred to as the Comar Place / Pine Road Study Area. The Township of Buena Vista has been awarded a Smart Future Planning Grant from the New Jersey Office of Smart Growth to investigate the Area in Need of Redevelopment Analysis for the Comar Place / Pine Avenue Study Area.

B. GENERAL MASTER PLAN GOALS AND OBJECTIVES

The 1997 Master Plan Re-Examination Report reviewed the five (5) basic planning principles of the MLUL and the following goals and objectives were identified. The goals and objectives are general enough that they are still relevant today and are being included herein.

Goals

1. Maintain quality of natural resources and protection of environmentally sensitive areas.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

2. Protection of high-value farmland.
3. The preservation of rural-type community attributes.
4. Facilitation of the development approval process, especially in the Pinelands Area.
5. Minimizing public expenditures for new development.
6. Increase the tax base in an orderly manner and provide more job opportunities.
7. The continued compliance of the Pinelands Area with the Pinelands Commission, Comprehensive Management Plan.
8. Lack of public infrastructure capable of supporting larger-scale development.
9. Expand existing recreational facilities and create new recreational opportunities within the community as a response to increased new residential development as well as enhancing the overall quality of life within Buena Vista Township.

Objectives

1. Create more flexible development standards, such as development transfer credit and deed restriction programs.
2. Maintain an efficient development review process.
3. Encourage development in upland areas which are already serviced by existing infrastructure.
4. Minimize public expenditures associated with new development.
5. Protect residential neighborhoods from unnecessary traffic, noises and other nuisances emanating from industrial and commercial activities.
6. Locate commercial and industrial areas away from residential neighborhoods.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

7. Maintain commercial zoning areas with a scale comparable to expected residential development.
8. Avoid excessive highway commercial uses, "strip zoning".
9. Increase the amount of the per lot, in-lieu recreation fee for subdivision projects where on-site recreational amenities are not contemplated as part of the subdivision project.

C. PINELANDS MANAGEMENT AREA GOALS AND OBJECTIVES

The majority of Buena Vista Township is located within the Pinelands Management Area of the State of New Jersey and as such is subject to the rules and regulations of the Pinelands Comprehensive Management Plan (CMP). The CMP has been in effect for over twenty years and Buena Vista Township is required to model all Ordinances and ensure all development is in conformance with the CMP. The main goal and purpose of the CMP is to uphold the Pinelands Protection Act which is a legislative determination that manages and protects of the essential character and ecological values of the Pinelands. The way the CMP sets out to accomplish this main task is by establishing management areas surrounding the identified area of preservation. Buena Vista Township is located within the identified preservation area and as such serves as a Pinelands Management Area. Within the Management Area, classifications of land use have been identified and Buena Vista Township Development Regulations and Zone Plan have been developed in accordance with the CMP. The following goals and objectives of the Pineland Management Areas as taken from the Pinelands Comprehensive Management Plan Section 7:50-5.13.

1. FOREST AREA, SECTION 7:50-5.13(b)

The Forest Areas are similar to the Preservation Areas in terms of their ecological value and, along with the Preservation Area, serve to provide a suitable ecological reserve for the maintenance of the Pinelands environment. These undisturbed, forested portions of the Protection Area support characteristic Pinelands plant and animal species and provide suitable habitat for many threatened and endangered species. These largely undeveloped areas are an essential element of the Pinelands environment, contain high quality water resources and wetlands, and are very sensitive to random and uncontrolled development. Although the overall types and level of development must be strictly limited, some parts of the

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

Forest Areas are more suitable for development than others provided that such development is subject to strict environmental performance standards.

2. AGRICULTURAL PRODUCTION AREA, SECTION 7:50-5.13(c)

Agricultural Production Areas are areas of active agricultural use, together with adjacent areas of prime and unique agricultural soils or soils of statewide significance, which are suitable for expansion of agricultural operations. In order to maintain agriculture as an essential element of the Pinelands region, the level and type of development must be controlled to prevent incompatible land uses from infringing upon these important land resources.

3. RURAL DEVELOPMENT AREAS, SECTION 7:50-5.13(e)

Rural Development Areas are areas which are, on an overall basis, slightly modified and may be suitable for limited future development subject to strict adherence to the environmental performance standards of N.J.A.C. 7:50-6. They represent a balance of environmental and development values that is intermediate between the pristine Forest Areas and existing growth areas; however, some parts are more suitable for development than others due to existing development and an absence of critical ecological resources.

4. PINELANDS VILLAGES AND TOWNS, SECTION 7:50-5.13(f)

Pinelands Towns are existing spatially discrete settlements in the Pinelands. These traditional communities are appropriate for infill residential, commercial and industrial development that is compatible with their existing character.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

III. LAND USE ELEMENT

A. INTRODUCTION

The 1997 Master Plan Re-Examination Land Use Element identified the various Land Use Designation Areas of the Pinelands Management Area and provided commentary as well as recommendations for future actions to be undertaken by Buena Vista Township. This report will expand upon and update the Land Use Designation Areas of the Pinelands Management Area in accordance to the current recommendations of the 2006 Master Plan Re-Examination Report.

B. RECOMMENDATIONS FOR ZONING DISTRICT BOUNDARY CHANGES

1. FOREST AREA

- a. Possible consideration of expanding portions of the existing Forest Area (FA) Zoning District to off-set a possible rezoning of existing Rural Development Residence/Commerce (RDR1C) Zoning District and the Rural Development Residence/Industry (RDR1I) Zoning District to Pinelands Town (PT) Zoning District in order to facilitate the Comar Place / Pine Road Redevelopment Study Area.

2. AGRICULTURAL PRODUCTION

- a. Extending the Agriculture Commerce (APC) Zoning District along Union Road (C.R. 671) in a southerly direction along Union Road to the intersection of Chestnut Avenue.
- b. The reduction of the Pinelands Village Exclusive Industry Zoning District on the northeast side of the railroad tracks adjacent to Tuckahoe Road near the intersection of South Boundary Avenue in Milmay, due to the limited access in this area.

3. RURAL DEVELOPMENT AREAS

- a. The rezoning of the Rural Development Residence-1 (RDR1) Zoning District in the Lake Anne section, specifically around the Unexpected Wildlife Refuge, to a less dense residential or a recreational purpose zone.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

- b. The rezoning of portions of the Rural Development Residence/Commerce (RDR1C) Zoning District and the Rural Development Residence/Industry (RDR1I) Zoning District to Pinelands Town (PT) Zoning District in the area of U.S. Route 40, Oak Road and Tuckahoe Road, along existing Comar Place/Pine Road for purposes of advancing the Comar Place/Pine Road Redevelopment Study Area.

4. PINELANDS VILLAGES AND TOWN AREAS

- a. The changes recommended for the Pinelands Village areas pertain specifically to the Village of Richland and the approved Richland Village Redevelopment Plan. The designation of a redevelopment area is to encourage additional economic development opportunities within the Village area while encouraging that growth to maintain a consistency with the overall character of the area. No changes are recommended for the remainder of the Pinelands Village areas within Buena Vista Township.
- b. The Pinelands Town area of Buena Vista Township is limited to a portion along U.S. Route 40 as it bisects the western edge of the municipality towards the Borough of Buena boundary and the intersection with N.J.S.H. Route 54. The recommendation within this area is for the expansion of public sewer infrastructure to better enable the continued economic development growth opportunities within the limited the Pinelands Town area. The recommendation to pursue the possible expansion of the Pinelands Town area, in a northeasterly direction and along the Route 54 corridor to Plymouth Road, to further provide for additional economic development opportunities. Plymouth Road currently features public water and sewer as provided by the Borough of Buena and would further encourage the type of land uses and development as consistent with the Pinelands Town. A second area of Pinelands Town expansion is contemplated as part of the Comar Place / Pine Road Redevelopment Study Area where the Pinelands Town currently extends to the southeast corner of U.S. Route 40 and Oak Road. The potential expansion of the Pinelands Town would include portions of the existing RDR1C and RDR1I Zoning Districts in the area between U.S. Route 40 and Tuckahoe Road. This would provide the potential for expansion of sewer

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

within this area to provide for the expansion of Comar Glass and the creation of new commercial / light industrial uses within the redevelopment study area.

5. NON-PINELANDS AREAS

- a. Extending the Business (B1) Zoning District along Union Road (C.R. 671) in a southerly direction along Union Road to the intersection with Chestnut Avenue.
- b. The implementation of the Lincoln Avenue Redevelopment Plan within the Office Campus Overlay Zone (OC) along Lincoln Avenue for the purpose of encourage age-restricted, single-family residential development.

C. RECOMMENDATIONS FOR CHAPTER 49, DEVELOPMENT REGULATIONS MODIFICATIONS AND AMENDMENTS

- 1. Definitions for the following uses shall be added to the Development Regulations: used car sales, flea markets, dredge spoils, cleared area as relating to requirements for one acre per horse, abandonment of use, destruction of a non-conforming use or structure and ability to reconstruct. Additionally, the entire Definitions section shall be reviewed for possible updates and additional amendments to maintain consistency with current trends.
- 2. Adopt the definitions of Minor Subdivision Plan and Minor Site Plan as provided within the Municipalities Land Use Law document so as provide for a cleaner review process.
- 3. Establish the requirement that escrow fees must be provided by any individual pursuing the development of an unpaved road in order to gain access and create a buildable private property. The escrow fee would be utilized by Buena Vista Township through the Local Road Program to improve the roadway for the private property owner to enable the vehicular access.
- 4. Establish mandatory contribution for roadway improvements for all minor or major subdivision projects before the Planning Board. The fee would be based upon an established unit price for the width of the roadway frontage to the centerline of the effected roadway. The fee would be calculated by the Township Engineer and the fee would be placed in the General Fund account for Buena Vista

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

Township to utilize in the future repaving of municipal roadways as the Township deems necessary.

5. Establish the requirement of Recreation Fees to be required of all subdivision projects before the Planning Board. The required fee will be based on the number of lots being created by the subdivision and the type of subdivision application. The recommendation is to increase the per lot contribution to \$1,500.00 per lot for minor subdivision applications and \$2,500.00 per lot for major subdivision applications. For subdivisions approved under the cultural housing provisions of Section 49-107 the amount of \$1,000.00 per lot will remain. The payment in lieu of providing recreation will be made prior to Buena Vista Township issuing the first building permit or prior to the signing of the final plats for the proposed development. The Township Recreation Fee may be waived when active recreational amenities are to be provided by the Developer, this will be reviewed and approved on a case by case basis by the Planning Board.
6. Reevaluation of the current escrow fees collected by Buena Vista Township for all proposed projects going before the Planning Board. The Minor Subdivision escrow fee shall be raised to a minimum of \$1,000.00 and when projects require additional review, additional escrow will be required on a case by case basis. Develop a mechanism for the periodic review of other escrow fees collected for Major Subdivisions, both at Preliminary and Final as well as Minor Site Plans and Major Site Plans, both at Preliminary and Final. Although, no recommended increases are currently being offered, Buena Vista Township reserves the right to increase escrow and application fees in the future and based on numbers of applications submitted and the level of complexity involved.
7. The creation of a business registration / mercantile license program within Buena Vista Township to better enable the identification of existing businesses, identify abandoned uses and track businesses within the municipality.
8. Require builders and developers to install temporary construction aprons to construction sites prior to the start of construction.
9. Adopt all Checklists for development by Ordinance and prepare a new Checklist for the Use Variance application.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

10. Review and possibly revise Section 93 as it relates to permitted heights of fences. Clarification regarding the permitted height along a front yard and a rear yard needs to be provided, the recommended height is not greater than four feet along a front yard area and not greater than six feet along a rear yard area.
11. Review and clarify the section relating to the establishment, parameters and monitoring of Home Occupations.
12. Review and possibly revise the section pertaining to Greenhouses and the limit of greenhouse building coverage of fifty percent. Possible revision may include requiring Site Plan review by the Planning Board for any greenhouse which would exceed thirty percent. Additionally, requirements for stormwater management, traffic circulation issues, and installation of driveway aprons may be required for greenhouse operations with an intensity with a greater than thirty percent coverage.
13. The New Jersey State Department of Environmental Protection has enacted the New Jersey Stormwater Best Management Practices which requires that all municipalities incorporate into their codified Ordinances.
14. Revise and enact by Ordinance the minimum required spacing for street lights. Additionally, the street light type and wattage shall be specified. Special considerations shall be made for historic areas of Buena Vista Township, specifically for the Richland Village area and the adopted Redevelopment Plan for that area.
15. Establish in the Ordinance a clear process for any earth material removal from a proposed development site. The Ordinance shall specifically delineate the type, amount and method of earth material removal which will be permitted and the process of review for such removal. Additionally, issues pertaining to dredged spoils materials and the handling or distribution of such shall be further clarified in the Ordinance.
16. Adopt the review timeframe for Completeness, Preliminary and Final as provided within the Municipalities Land Use Law. Require that all projects scheduled for review by the Planning Board receive determination of Completeness by the Planning Board prior to the scheduling of a preliminary or final hearing on an application.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

17. Establish and pursue a formal Urban Enterprise Zone within Buena Vista Township to further promote economic development opportunities.
18. Provide language regarding Accessory Uses being permitted within existing zoning districts and providing for parameters of such uses and related area and bulk standards.
19. Adopt The Pinelands Commission / New Jersey Department of Environmental Protection, Model Stormwater Control Ordinance for Pinelands Area Municipalities, issued October 19, 2005 and updated July 19, 2006.

D. AREAS IN NEED OF REDEVELOPMENT AND REHABILITATION

As part of the a Master Plan Re-Examination Report any areas being considered by the Township of Buena Vista as Areas in Need of Redevelopment or as areas already determined as Redevelopment Areas with coinciding Redevelopment Plans shall be included. The Township of Buena Vista has taken a pro-active roll in pursuing options under the State of New Jersey Local Redevelopment and Housing Law (N.J.S.A. 40A:12A-5). There has been a concerted effort between the Governing Body, the Planning Board and related professionals in focusing on redevelopment initiatives.

1. APPROVED REDEVELOPMENT AREAS

The following Approved Redevelopment Areas reflects those areas that Buena Vista Township Committee determined were initially areas which warranted investigation as Areas in Need of Redevelopment or Rehabilitation. The Richland Village Redevelopment Area and the Lincoln Avenue Redevelopment Area were each studied and determined by the Buena Vista Township Planning Board and the Township Committee as Areas in Need of Redevelopment. Subsequent to the determination a Redevelopment Plan was prepared for each of the areas and after as were identified and with approved Redevelopment Plans. The section for Potential Redevelopment Areas is included for this purpose as well as affording Buena Vista Township to identify other areas which have not already been identified for the investigation as future Redevelopment Study Areas.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

a. Richland Village Redevelopment Area

- i. The area boundaries are Llewellyn Avenue to the northeast, Moody Avenue to the southwest, Cedar Avenue to the west, Park Place to the northwest and Sewell Avenue to the north.
- ii. Buena Vista Township received a Smart Future Planning Grant through the State of New Jersey, Office of Smart Growth for the purposes of investigating this area as a potential redevelopment area.
- iii. An Area in Need of Redevelopment report and findings was prepared, reviewed by the Planning Board and accepted by the Township Committee.
- iv. A Redevelopment Plan was prepared, reviewed and approved by the Planning Board, Governing Body and the Pinelands Commission.
- v. The Redevelopment Plan calls for the development patterns consistent with a Pinelands Village to occur within the Redevelopment Area and allow for transfer of density within the area to produce a clustered area for development along U.S. Route 40 as it bisects the Village of Richland.
- vi. The Redevelopment Plan incorporates Smart Planning principles as consistent with the Smart Future Planning Grant of the State of New Jersey, Office of Smart Growth and furthers the goals and objectives of the 2006 Master Plan Re-Examination Report through such consistency.
- vii. The Richland Village Redevelopment Plan was adopted by Buena Vista Township under Ordinance #4-2006 and Ordinance #9-2006.

b. Lincoln Avenue Redevelopment Area

- i. The area includes Block 5501, Lots 21 and 22 which is bounded by Lincoln Avenue to the west, Tax Lot 22.02 to the north, Tax Lot 6 to the east, Tax Lot 14 to the southeast and Tax Lot 20 to the southwest.
- ii. An Area in Need of Redevelopment report and findings was prepared, reviewed by the Planning Board and accepted by the Township Committee.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

- iii. A Redevelopment Plan was prepared, reviewed and approved by the Planning Board and the Governing Body.
- iv. The Redevelopment Plan calls for the development of the area to include a planned age-restricted, single-family dwelling unit complex with recreational amenities, open space, all related and required infrastructure, stormwater management facilities and compliance with all required Local, State and Federal regulations and guidelines.
- v. The Redevelopment Plan incorporates Smart Planning principles as consistent with the Smart Future Planning Grant of the State of New Jersey, Office of Smart Growth and furthers the goals and objectives of the 2006 Master Plan Re-Examination Report through such consistency.
- vi. The Lincoln Avenue Redevelopment Plan was adopted by Buena Vista Township under Ordinance #12-2006.

2. POTENTIAL REDEVELOPMENT AREAS

This section for the Potential Redevelopment Areas is included for the purpose of listing any area which Buena Vista Township deems necessary of further investigation as an Area in Need of Redevelopment or Rehabilitation. The listed potential redevelopment area of Comar Place / Pine Road Redevelopment Study Area is being pursued through a Smart Future Planning Grant which was awarded to Buena Vista Township under the Fiscal Year 2006 grant awards of the State of New Jersey Office of Smart Growth. Additionally, this section affords Buena Vista Township the ability to identify other future areas for investigation of possible additional Redevelopment Areas as consistent with the State of New Jersey Local Redevelopment and Housing Law.

a. Comar Place / Pine Road Redevelopment Study Area

- i. The study area is generally located along Pine Road between U.S. Route 40 and Tuckahoe Road and extending from Park Avenue to Oak Road and encompassing the currently zoned areas of the Pinelands Town (PT), Rural Development Residence/Commerce (RDR1C) and the Rural

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

- Development Residence/Industry (RDR1I) Zoning Districts.
- ii. Investigate the possible expansion of the PT Zoning District to extend to the full boundary of the redevelopment study area in an attempt to expand sewer to this area for the expansion of the existing businesses as well as the create the ability to attract additional commercial/light industrial businesses to the area.
 - iii. Evaluate existing land uses within the redevelopment study area and consider the exclusion of those parcels containing existing single family dwelling units.
 - iv. Upon investigation and determination as an Area in Need of Redevelopment a public hearing before the Planning Board will be conducted to encourage citizens of the community to provide input.
 - v. The Area in Need of Redevelopment report and findings must then be accepted by the Governing Body of the Township of Buena Vista.
 - vi. Upon successful completion of the Area in Need of Analysis, the Redevelopment Plan will be developed.
 - vii. The Redevelopment Plan will also be presented to the Planning Board through a public hearing to gain community input.
 - viii. Final acceptance of the Redevelopment Plan by the Governing Body is required prior to implementation of such plan.

E. RECOMMENDATION

The 2006 Master Plan Re-Examination Report includes the review of the previous 1997, 1993 and 1990 Master Plan Re-Examination Reports. Although, many of the goals and objectives of the previous reports are still pertinent today it would be most beneficial for the community to have a full and complete, Comprehensive Master Plan document be pursued during the year of 2011 for adoption in 2012. Additionally, prior to the commencement of a full and comprehensive Master Plan process a thorough review of Chapter 49, Development Regulations shall take place to ensure that all potential amendments and modification are contemplated and included in the Master Plan process. The Master Plan process should include community involvement through a combination of citizen input through the form of a survey, input from the Planning Board and Township Committee.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

IV. HOUSING ELEMENT

A. Background

The following information provides an inventory of the municipal housing stock.

1. Age of Housing

The age of the housing stock in a municipality is an important indicator of the health and vitality of the overall community. As the percentage of older housing in relation to all housing increases this may indicate a lack of economic opportunity since very little new housing is being built to balance out the percentage over a broader time period.

Figures 1 and 2 below indicate that only than 36.8 percent of all housing in Buena Vista Township pre-dates 1960. And 724 units have been built since 1980, which is an average of approximately 28 new housing units per year.

**Figure 1
Age of Housing Stock**

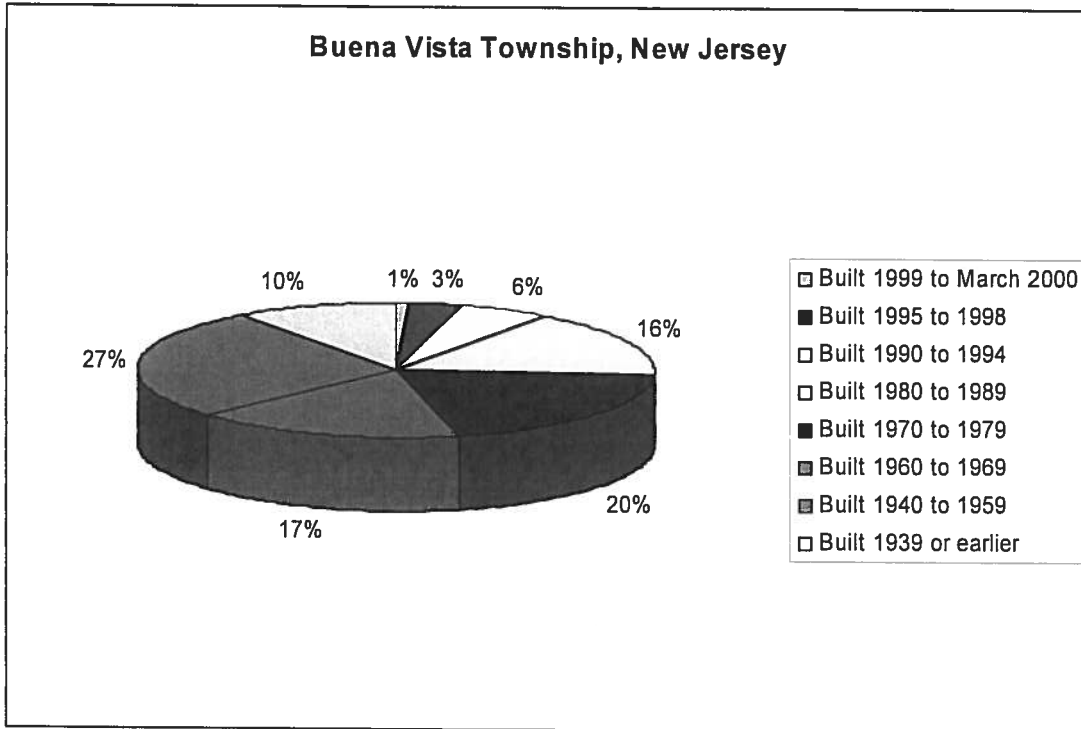
| | Number of Units | Percent |
|-----------------------|--------------------|---------|
| Built 1999 to 2000 | 27 | 0.96 |
| Built 1995 to 1998 | 90 | 3.18 |
| Built 1990 to 1994 | 156 | 5.52 |
| Built 1980 to 1989 | 451 | 15.95 |
| Built 1970 to 1979 | 579 | 20.48 |
| Built 1960 to 1969 | 483 | 17.09 |
| Built 1940 to 1959 | 749 | 26.49 |
| Built 1939 or earlier | 292 | 10.33 |
| Total | 2,827 | 100% |

The majority of the housing stock, 90.3 percent, was constructed pre-1989. With only 36.8 percent of the housing stock being constructed prior to 1960, this indicates a need for limited, focused code enforcement. Figure 2 better illustrates this concentration of older housing.

Source: Census Data 2000
Compiled by KEPG, LLC, September 2006

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

**Figure 2
2000 Age of Housing Stock**



Source: Census Data 2000
Compiled by KEPG, LLC, September 2006

2. Housing Condition

The determinants used by the New Jersey Council on Affordable housing (COAH) to establish indigenous housing need are:

- Age of housing stock (over 50 years old)
- Persons per room (overcrowding)
- Plumbing facilities (lack of complete facilities)
- Heating Fuel (nonstandard fuel or no fuel)
- Sewer (absence of sewer, septic or cesspool)
- Water (absence of water connection or well)
- No telephone

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

At least two (2) of these indicators are needed in order for a unit to be classified as deficient. Figure 3 below for the housing conditions of units in Buena Vista Township according to the 2000 Census.

**Figure 3
Substandard Housing Conditions**

| | Number of Units | Percent of Total |
|--|-----------------|------------------|
| Age of Housing Stock (over 50 year old) | 1,041 | 36.82% |
| Persons per room (overcrowding - 1.01 or more persons) | 111 | 3.93% |
| Plumbing Facilities (lack of complete facilities) | 0 | 0 |
| Heating Fuel (nonstandard fuel or no fuel) | 20 | 0.70% |
| Sewer (absence of sewer, septic or cesspool) | NA± | NA± |
| Water (absence of water connection or well) | NA± | NA± |
| No Telephone | 44 | 1.56% |

*Fifty (50) years from the year 2006 is 1956. Census 2000 reports a period from 1950 to 59. Therefore, some of the units reported above may fall in the 1950 to 1959 range, but this is unable to be determined due to the aforementioned discrepancy.

± These variables are not available in Census 2000.

Approximately one third of the housing stock is 50 years old or older and some units are overcrowded. This combination requires an effort to identify numbers of individuals living in overcrowded units, increased local code enforcement, and the upgrading of public infrastructure and other facilities to meet current code requirements.

Source: Census 2000

Compiled by KEPG, LLC, September 2006

3. Purchase or Rental Value

The 2000 Census reports that 2,313 or 87.34 percent, of the 2,648 occupied units in Buena Vista Township are owner occupied. On average 30% of housing stock County wide are rental units. The approximate 12.7 percent of rental units in Buena Vista Township is well below the County average. The majority of the owner occupied housing units are valued in the \$50,000 to \$99,999 range with 57.3% of the total occupied units. The median household value is \$96,100.

Approximately 468 units or 17.67% of the owner-occupied housing units do not have a mortgage. Almost one third of the housing stock is fifty years or older and coupled with the

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

fact that a little more than seventy percent of the owner occupied units have a mortgage points towards a community that features a higher percentage of younger families. Typically, communities with a higher percentage of fifty years or older housing stock and lower percentages of mortgaged owner occupied units results in a higher percentage of an older population. This typically results in a larger number of homes that will come on the market as the older population ages and seeks alternative forms of housing. Based on the Census information it appears that the Township is not currently faced with the dilemma of a large percentage of older housing stock going onto the market at a similar time frame, however, we offer the following recommendations regarding the subject for future reference.

Older housing stock coming onto the market will usually be preferred by younger families which:

- Generates a demand for schools
- Requires inspection upon sale, possible renovation, etc.
- Increases the percentage of renter occupied rather than owner occupied units; and
- Provides an opportunity to reduce the number of single family multi-unit conversions and encourage homeownership where new owners are given incentives to de-convert.

In order to lessen the impact of a younger population occupying these older units and having them become rental units the municipality should:

- Encourage homeownership through educational programs on the benefits of homeownership and provide financial incentive;
- Create requirements for management companies to be largely responsible for the maintenance of rental units;
- Determine that absentee owners have local real estate representation to manage local properties; and
- Require that rental properties be listed with city code enforcement officials.

The median monthly costs for owners without a mortgage compared to those with a mortgage are less. Owners with a

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

mortgage have a median monthly cost of \$1,050, while those without a mortgage have a median monthly cost of \$361.

There are 335 rental units of which 316 units are occupied in Buena Vista Township. Approximately 43.7 percent of these renters pay \$750-\$999 a month. The next largest percentage is 30.1 percent paying \$500-\$749 a month. The remaining 16.8 percent of renters pay \$499 a month or less (See Figure 4).

Approximately 316 rental units are occupied in Buena Vista Township with approximately 44 percent of households renting in the \$750 to \$999 range, while 20 percent of households renting are represented in this range at the Atlantic County level. Both of these demographic levels show their highest percentage range for renting in the \$500 to \$749 range. These numbers indicate a lower than average percentage number of renters in Buena Vista Township are paying low levels of rent per month, and a larger than average percentage of renters paying high levels of rent. This could mean that a number of people in Buena Vista Township are contributing a large proportion of their income to rent.

**Figure 4
Renter Occupied Rental Ranges**

| | Buena Vista Township | Atlantic County |
|------------------------------------|----------------------|-----------------|
| Renter Occupied Units | | |
| Total | 316 | 31,970 |
| Percentage | 11.9% | 34% |
| Rental Ranges (Percentages) | | |
| <\$300 | 0% | 7.4% |
| \$300 to \$499 | 16.8% | 16.10% |
| \$500 to \$749 | 30.1% | 52.40% |
| \$750 + | 43.7% | 20.30% |

Source: Census 2000
Compiled by KEPG, LLC, September 2006

4. Occupancy Characteristics

Buena Vista Township has 179, or 6.33 percent, of its 2,827 housing units vacant as reported by the 2000 Census.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

Comparably, Atlantic County as a whole has 16.7 percent of its 114,090 units classified as vacant according to Census 2000. Approximately 61 percent of these vacant housing units are for seasonal, recreational, or occasional use. Approximately 0.67 percent of the housing in Buena Vista Township is used for seasonal or recreational use, which is not significant and suggests that the Township has a strong, year round resident population.

5. Unit Types

Buena Vista Township continues to consist of primary single-family detached housing units and according to the 2000 Census, 2,230 units are detached, single-family units which consist of 78.9 percent of the total housing.

While single-family homes remain the predominant housing type, there has been an increase in the number and percentages of some of the multi-family housing types. According to Census 2000 there are 100 multi-family dwellings, which make up about 3.5 percent of the housing stock for Buena Vista Township.

**Figure 5
Housing Types**

| Housing Type | Number | Percent |
|----------------------|--------|---------|
| Single Family | | |
| Detached | 2,230 | 78.9 |
| Attached | 36 | 1.3 |
| Multi-Family | | |
| 2 units | 31 | 1.1 |
| 3 or 4 units | 68 | 2.4 |
| 5 or more units | 10 | 0.4 |
| Mobile home | 452 | 16.0 |

Buena Vista Township remains a predominantly single-family detached community, but the rise in more dense housing along with changing demographics, seems to represent a shift in the character and identity of the community, meaning that different demands will likely be placed on the municipality in terms of social services, stepped up code enforcement, and strict management of all rental properties.

Source: Census 2000
Compiled by KEPG, LLC, September 2006

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

6. Analysis of Demographic Characteristics

Race and ethnic characteristics of 1990 and 2000 are represented in Figure 6 and Figure 7, which represents an overall population decrease by 219 individuals over the ten year period. It shall also be noted that the Census Bureau modified the race and ethnic characteristics which reflects the differences between the 1990 and 2000 categories reported.

**Figure 6
Race and Ethnic Characteristics**

| 1990 | Population |
|-----------------------------------|------------|
| Total | 7,655 |
| White | 6,068 |
| Black | 1,236 |
| American Indian and Alaska Native | 20 |
| Asian or Pacific Islander | 15 |
| Other | 316 |

Source: Census 1990
Compiled by KEPG, LLC, September 2006

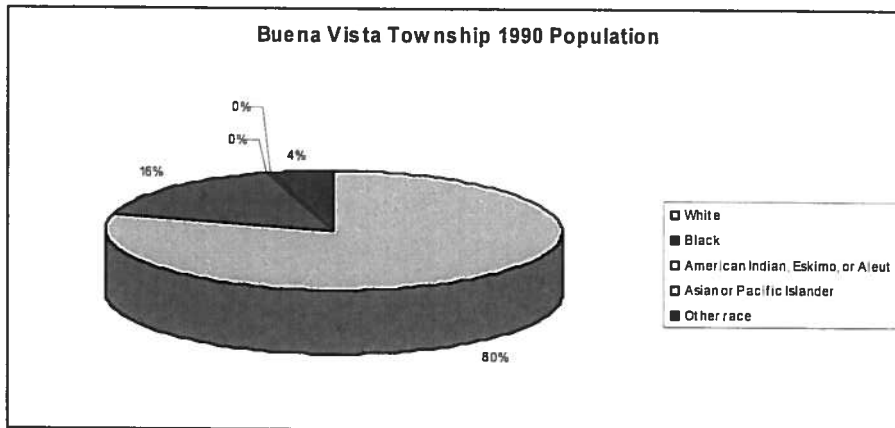
**Figure 7
Race and Ethnic Characteristics**

| 2000 | Population |
|--|------------|
| Total | 7,436 |
| White | 5,751 |
| Black | 1,167 |
| American Indian Alaska Native | 16 |
| Asian | 17 |
| Native Hawaiian and Other Pacific Islander | 1 |
| Some Other Race | 303 |
| Two or More Races | 181 |

Source: Census 2000
Compiled by KEPG, LLC, September 2006

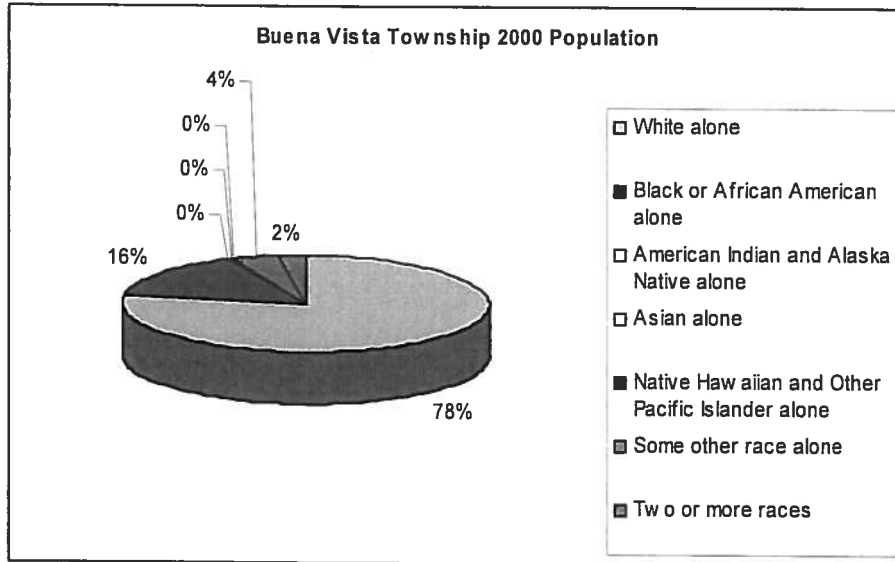
**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

**Figure 8
Population 1990**



Source: Census 1990, Compiled by KEPG, LLC, September 2006

**Figure 9
Population 2000**



Source: Census 2000, Compiled by KEPG, LLC, September 2006

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

7. Income level

The median household family income was \$43,770 in 2000 according to the Census Bureau, which is not adjusted for inflation.

**Figure 10
Household Income and Percentages**

| Income Amount | Households | Percent |
|------------------------|--------------|------------|
| Total | 2,641 | 100 |
| Less than \$10,000 | 100 | 3.8 |
| \$10,000 to \$14,999 | 223 | 8.4 |
| \$15,000 to \$24,999 | 410 | 15.5 |
| \$25,000 to \$34,999 | 346 | 13.1 |
| \$35,000 to \$49,999 | 424 | 16.1 |
| \$50,000 to \$74,999 | 683 | 25.9 |
| \$75,000 to \$99,999 | 317 | 12.0 |
| \$100,000 to \$149,999 | 84 | 3.2 |
| \$150,000 to \$199,999 | 27 | 1.0 |
| \$200,000 or more | 27 | 1.0 |

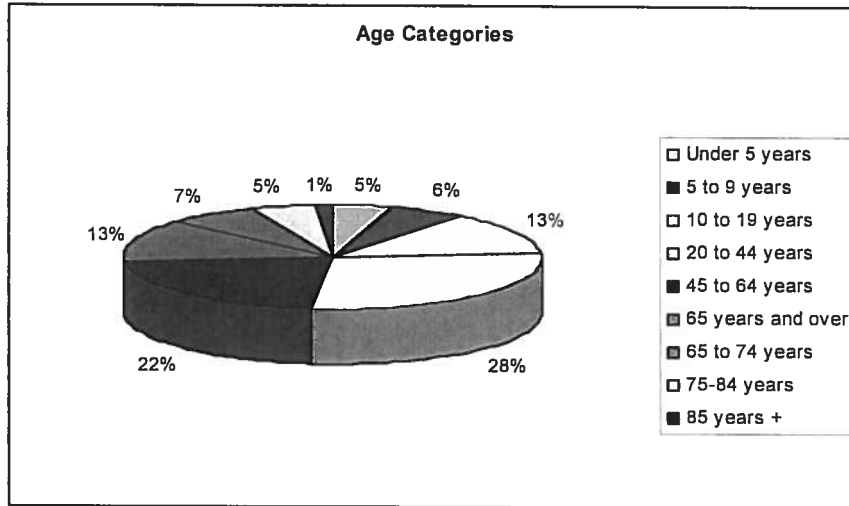
Source: Census 2000
Compiled by KEPG, LLC, September 2006

8. Age Characteristics

The majority of the population of Buena Vista Township, 57.4 percent, is in the 20 to 64 year old range, which is slightly less than the same population group as compared to Atlantic County with 58.7 percent and the State of New Jersey with 59.30 percent. The second largest population group is school age children of 19 years and younger at 27 percent which is consistent with Atlantic County and the State of New Jersey which are both at 27 percent for this age group. The minority of the population at 15.3 percent is the age group of 65 and older, which is slightly higher than the Atlantic County percentage of 13.6 and the State of New Jersey percentage of 13.2.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

**Figure 11
Age Categories Percentages**



Source: Census 2000
Compiled by KEPG, LLC, September 2006

9. Existing Employment

Census 2000 reports that 3,468 persons 16 years old or older are employed in Buena Vista Township. The largest occupation group of local residents is sales and office occupations with 27 percent. The second largest occupation group is a tie between management, professional and related occupations at 19.7 percent with production, transportation, and material moving occupations at 19 percent. The smallest occupation group is the farming, fishing, and forestry occupation group with only 1.2 percent of the total.

**Figure 12
Existing Employment**

| Employment Classification | Number | Percent |
|---|---------------|----------------|
| Management, professional, and related occupations | 683 | 19.7 |
| Service occupations | 599 | 17.3 |
| Sales and office occupations | 938 | 27.0 |
| Farming, fishing, and forestry occupations | 40 | 1.2 |
| Construction, extraction, and maintenance occupations | 550 | 15.9 |
| Production, transportation, and material moving occupations | 658 | 19.0 |
| Total | 3,468 | 100 |

Source: Census 2000
Compiled by KEPG, LLC, September 2006

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

Out of the 3,468 persons over the age of 16 employed and living within Buena Vista Township, 3,382 of them are commuting to work with the mean travel time to work as reported by the Census Bureau being 29.2 minutes per person. This time period is an indication that many workers are commuting to areas outside of Buena Vista Township for their place of work and on the alternative, it could mean that for every resident employed within the Township there is another resident commuting to work for up to an hour to the Philadelphia-Camden Metropolitan Statistical Area (MSA).

10. Probable future employment characteristics

The New Jersey Department of Labor reports that between 2002 and 2012 that the private sector industries with the greatest employment growth in Atlantic County will be the administrative and waste services industry at 45.8 percent along with the arts, entertainment, and recreation industry with a 41.8 percent growth. The third highest increase will be in the health care and social assistance industry with an anticipated 38 percent growth rate. Wholesale and Retail Trade industries are similar with an approximate 21 percent growth rate expected over the next six years. The Real Estate, Rental and Leasing industry is tie with the Educational Services industry at an expected growth rate of 20.6 percent each. The Accommodations and Food Service industry, the largest Atlantic County employer, will witness the lowest amount of growth at 2.7 percent. Figure 13, on the following page details the various Atlantic County industries and the correlating growth numbers for 2002 and 2012, the actual number of employee increase along with the percentage of change and the overall annual percentage of change.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

**Figure 13
Industries in Atlantic County with Highest Growth Projections**

| Industry | 2002 Number | 2012 Number | Absolute Change | Percent Change | Annual % Change |
|---|------------------------|------------------------|----------------------------|---------------------------|----------------------------|
| Administrative and Waste Services | 4,250 | 6,200 | 1,950 | 45.8 | 3.7 |
| Arts, Entertainment, and Recreation | 1,800 | 2,550 | 750 | 41.8 | 3.4 |
| Health Care and Social Assistance | 15,100 | 20,850 | 5,750 | 38 | 3.2 |
| Wholesale Trade | 2,750 | 3,359 | 600 | 21.6 | 1.9 |
| Retail Trade | 15,000 | 18,200 | 3,200 | 21.4 | 1.9 |
| Real Estate and Rental and Leasing | 1,550 | 1,850 | 300 | 20.6 | 1.9 |
| Educational Services | 1,600 | 1,900 | 350 | 20.6 | 1.9 |
| Other Services (Except Government) | 3,650 | 4,350 | 700 | 18.7 | 1.7 |
| Professional and Technical Services | 4,950 | 5,800 | 850 | 17.6 | 1.6 |
| Management of Companies and Enterprises | 600 | 700 | 100 | 15.4 | 1.4 |
| Transportation and Warehousing | 2,350 | 2,550 | 200 | 9.3 | 0.9 |
| Government (Federal, State and Local) | 21,450 | 22,550 | 1,100 | 5.1 | 0.5 |
| Accommodations and Food Services | 56,100 | 57,600 | 1,500 | 2.7 | 0.3 |

Source: New Jersey Department of Labor, 2006
Compiled by KEPG, LLC, September 2006

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

B. Council on Affordable Housing

In December of 2004, the Council on Affordable Housing (COAH) adopted the Chapter 5:94, the Third Round Substantive Rules for the period beginning January 1, 2004 and extending until January 1, 2014. The intent of the Third Round is to permit municipalities the ability to plan ahead for their Fair Share Growth Obligation to plan for and provide affordable housing opportunities. The Growth Share under the prior Round One Rules and Round Two Rules was based on residential development only and the Third Round Rules now require the Growth Share to be based on residential and non-residential development. The Growth Share is generated by statewide residential and non-residential growth during the period from 1999 through 2104. There are three main components to determining the Fair Share Growth Obligation for a municipality and they include the following:

1. Rehabilitation Share

The Rehabilitation Share for affordable housing is the number of existing housing units as of April 1, 2000, that are both deficient and occupied by households of low or moderate income as determined through the methodology provided in the COAH Third Round Rules Handbook or through a survey of the municipal housing stock conducted in accordance with the provisions of N.J.A.C. 5:93. COAH has calculated and provided this information for all communities statewide and the Rehabilitation Share for Buena Vista Township for the time period of 2004 – 2014 is zero (0) units.

2. Prior Round Obligation for the period 1987-1999

The Prior Round Obligation is a municipality's remaining balance of the prior rounds portion of any affordable housing obligation previously assigned by COAH for the 1987 through 1999 cumulative period and shall be governed by the provisions of N.J.A.C. 5:93. COAH has calculated and provided this information for all communities statewide and the Prior Round Obligation for Buena Vista Township for the time period 1987-1999 is twenty-two (22) units.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

3. Fair Share Growth Obligation

The Fair Share Growth Obligation is determined by utilizing the growth share methodology adopted by COAH, which bases the need for affordable housing upon growth projected by a municipality and assigns an affordable housing responsibility as a proportion of that growth. The Third Round Rules subject both residential and non-residential development in a municipality to impact the growth obligation. Residential development requires that for every eight (8) market-rate units constructed one (1) affordable housing unit must be provided. Non-Residential development requires that one (1) affordable housing unit must be provided for every twenty-five (25) jobs created, as measured by both new and expanded non-residential construction. COAH does not provide this information for communities statewide and each individual municipality must analyze previous development patterns and utilize the COAH Handbook and related calculations to predict the future Fair Share Growth Obligation to the year 2014.

4. Fair Share Plan

Once the Third Round Fair Share Obligation is determined the municipality must then prepare a Fair Share Plan which will delineate the method in which the community proposes to satisfy the affordable housing obligation. The Third Round Rules have tightened the definition of realistic opportunity by requiring all participating municipalities to actually construct or otherwise realistically provide for affordable housing, not just zone for it. Additionally, the Third Round Rules provide for more flexibility for the way in which a municipality meets its affordable housing obligation. And finally, the Third Round Rules encourage municipalities to plan for future growth and ensure that sound planning methods are utilized at the local level with respect to the provision of affordable housing opportunities within the community.

C. Consideration of Lands most appropriate for construction of Affordable Housing

1. The Third Round Rules are consistent with the New Jersey State Development and Redevelopment Plan (State Plan). Under the growth share methodology, municipalities that experience growth are required to provide affordable housing in

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

proportion to their overall residential and non-residential growth, ensuring that the provision of affordable housing is tied to actual growth in the appropriate locations.

2. The COAH Third Round Rules growth share approach will minimize the impact on environmentally sensitive and rural areas in the municipalities, while facilitating the provisions of affordable housing in areas that the State Plan and Buena Vista Township have designated for growth.
3. As part of preparation of a Fair Share Plan under the COAH Third Round Rules, areas of Buena Vista Township shall be investigated for possible inclusion of future affordable housing units and meeting the municipalities Fair Share Growth Obligation. Although thorough evaluation of existing land use development patterns and existing zoning shall be analyzed the following criteria shall be used as a starting point when determining potential areas for affordable housing units:
 - Availability of vacant, underutilized land
 - Vacant Township-owned land
 - Vacant privately owned land
 - Minimal environmental restrictions
 - No constraints due to soil types
 - Utilities availability
 - Water and sewer connections available in close proximity to the site

D. Recommendations

As Buena Vista Township experiences changes in demographics, age of housing stock, and employment, a number of recommendations are given to better accommodate these changes:

- Preparation of a COAH Third Round, Fair Share Growth Plan and pursue the Certification process with COAH in order to effectuate the plan.
- Targeted code enforcement by local officials:
 - Focus on older housing and compliance with current building codes; and,

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

- Initiate two-for-one conversions in housing units that have been converted to apartments and are overcrowded.
- Development of age-restricted, single-family housing for the aging population of Buena Vista Township.
- Continue to develop in the established traditional (i.e. grid street pattern) manner rather than in a "cookie cutter" subdivision pattern.
- Support local industries, such as warehousing and light industry.
- Conduct a community inventory survey to obtain the thoughts, concerns and suggestions of the citizens of the community.
- Anticipate housing that may come on the market that may attract younger families which:
 - Generate a demand for schools; and,
 - Require inspection upon sale and/or renovation.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

V. STORMWATER MANAGEMENT PLAN

1. The Municipal Land Use Law under Article 13 requires that a Storm Water Management Plan be prepared and such plan shall be an integral part of any master plan. This section includes the recently adopted stormwater control ordinance mandated by The Pinelands Commission and New Jersey Department of Environmental Protection.

2. The Pinelands Commission / New Jersey Department of Environmental Protection, Model Stormwater Control Ordinance for Pinelands Area Municipalities, issued October 19, 2005 and updated July 19, 2006, is attached herein.

**MODEL STORMWATER
CONTROL ORDINANCE
FOR PINELANDS AREA MUNICIPALITIES**

New Jersey Pinelands Commission
PO Box 7
New Lisbon, NJ 08064

and

New Jersey Department of Environmental Protection
Division of Watershed Management
PO Box 418
Trenton, NJ 08625

October 19, 2005
Updated July 19, 2006

Model Stormwater Control Ordinance for Pinelands Portions of Municipalities

Important note: *This sample ordinance is provided to assist Pinelands municipalities in the development of municipal stormwater control ordinances and the incorporation of design and performance standards into municipal stormwater management plans. It is provided for information purposes only. It is important that current regulations are carefully reviewed before any portion of this draft ordinance is adopted.*

This model ordinance does not include a section on fees. The Department expects that the review of development applications under this ordinance would be an integral part of the municipal review of subdivisions and site plans. As a result, the costs to municipalities of reviewing development applications under this ordinance can be defrayed by fees charged for review of subdivisions and site plans under N.J.S.A. 40:55D-8.b.

Notes are provided in italics throughout this model stormwater control ordinance, and are not intended to be adopted as part of the ordinance.

An editable Word version of this model ordinance is available at www.njstormwater.org.

TABLE OF CONTENTS

| | |
|----------------------------|---|
| <u>Section I</u> | <u>Scope and Purpose</u> |
| <u>Section II</u> | <u>Requirements for a Site Development Stormwater Plan</u> |
| <u>Section III</u> | <u>Methodologies for the Calculation of Stormwater Runoff Rate and Volume, Stormwater Runoff Quality, and Groundwater Recharge</u> |
| <u>Section IV</u> | <u>Stormwater Management Performance Standards for Major Development</u> |
| <u>Section V</u> | <u>Design, Construction, and Safety Standards for Structural Stormwater Management Measures</u> |
| <u>Section VI</u> | <u>Inspection, Maintenance and Repair of Stormwater Management Measures</u> |
| <u>Section VII</u> | <u>Definitions</u> |
| <u>Section VIII</u> | <u>Penalties</u> |
| <u>Section IX</u> | <u>Effective Date</u> |
| <u>Section X</u> | <u>Severability</u> |
| <u>Section XI</u> | <u>Appendices</u> |
| <u>Section XII</u> | <u>Additional Sources for Technical Guidance</u> |

Section I. Scope and Purpose.

A. Purpose.

1. It is hereby determined that:
 - a) Land development projects and associated disturbance of vegetation and soil and changes in land cover, including increases in impervious cover, alter the hydrologic response of local watersheds and increase stormwater runoff rates and volumes. If inadequately or improperly managed, this stormwater runoff can deplete groundwater resources and increase flooding, stream channel erosion, and sediment transport and deposition.
 - b) This stormwater runoff contributes to increased quantities of waterborne pollutants.
 - c) Increases of stormwater runoff, soil erosion and nonpoint source pollutants have occurred in the past as a result of land development, and contribute to the degradation of the water resources of TOWNSHIP OF BUENA VISTA [and downstream municipalities IF APPROPRIATE].
 - d) Certain lands of TOWNSHIP OF BUENA VISTA lie within the Pinelands Area, and therefore, development in this portion of TOWNSHIP OF BUENA VISTA is subject to the requirements of the Pinelands Protection Act (N.J.S.A. 13:18A-1 et seq.) and the implementing regulations and minimum standards contained in the Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-1.1 et seq.) (CMP). The purpose and intent of these regulations and standards is to promote orderly development of the Pinelands so as to preserve and protect the significant and unique natural, ecological, agricultural, archaeological, historical, scenic, cultural and recreational resources of the Pinelands.
 - e) Pinelands Area resources are to be protected in accordance with Pinelands Comprehensive Management Plan at N.J.A.C. 7:50 et seq., New Jersey's Stormwater Management Rules at N.J.A.C. 7:8-1.1 et seq. and New Jersey's surface water quality antidegradation policies contained in the New Jersey Surface Water Quality Standards at N.J.A.C. 7:9B-1.1 et seq. Permitted uses shall maintain the ecological character and quality of the Pinelands, including good water quality and natural rates and volumes of flow.
 - f) Increased stormwater rates and volumes and the sediments and pollutants associated with stormwater runoff from future development projects within the Pinelands Area have the potential to adversely affect TOWNSHIP OF BUENA VISTA's streams and water resources and the streams and water resources of downstream municipalities.
 - g) Stormwater runoff, soil erosion and nonpoint source pollution can be controlled and minimized through the regulation of stormwater runoff from development sites.
 - h) It is in the public interest to regulate the discharge of stormwater runoff from "major development" projects, as defined in Section VII of this ordinance, conducted within the Pinelands Area, as provided in this ordinance, in order to control and minimize increases in stormwater runoff rates and volumes, to maintain groundwater recharge, and to control and minimize soil erosion, stream channel erosion and nonpoint source pollution associated with stormwater runoff.

2. Therefore, it is the purpose of this ordinance to establish minimum stormwater management requirements and controls for major development, consistent with the statewide stormwater requirements at N.J.A.C. 7:8, the regulations and standards contained in the Pinelands CMP, and the provisions of the adopted master plan and land use ordinances of TOWNSHIP OF BUENA VISTA.

B. Goals and Techniques.

1. Through this ordinance, TOWNSHIP OF BUENA VISTA has established the following goals for stormwater control:
 - a) To reduce flood damage, including damage to life and property;
 - b) To minimize any increase in stormwater runoff from new development;
 - c) To reduce soil erosion from any development or construction project;
 - d) To assure the adequacy of existing and proposed culverts and bridges, and other in-stream structures;
 - e) To maintain groundwater recharge;
 - f) To minimize any increase in nonpoint pollution;
 - g) To maintain the integrity of stream channels for their biological functions, as well as for drainage;
 - h) To restore, protect, maintain and enhance the quality of the streams and water resources of TOWNSHIP OF BUENA VISTA and the ecological character and quality of the Pinelands Area;
 - i) To minimize pollutants in stormwater runoff from new and existing development in order to restore, protect, enhance and maintain the chemical, physical and biological integrity of the surface and groundwaters of TOWNSHIP OF BUENA VISTA, to protect public health and to enhance the domestic, municipal, recreational, industrial and other uses of water; and
 - j) To protect public safety through the proper design and operation of stormwater management basins.
2. In order to achieve the goals for stormwater control set forth in this ordinance, TOWNSHIP OF BUENA VISTA has identified the following management techniques:
 - a) Implementation of multiple stormwater management Best Management Practices (BMPs) may be necessary to achieve the performance standards for stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality established through this ordinance.
 - b) Compliance with the stormwater runoff quantity and rate, groundwater recharge, erosion control, and stormwater runoff quality standards established through N.J.A.C. 7:8-1.1 et seq., and this ordinance, shall be accomplished to the maximum extent practicable through the use of nonstructural BMPs, before relying on structural BMPs. Nonstructural BMPs are also known as Low Impact Development (LID) techniques.
 - c) Nonstructural BMPs shall include both environmentally sensitive site design and source controls that prevent pollutants from being placed on the site or from being exposed to stormwater.

- d) Source control plans shall be developed based upon physical site conditions and the origin, nature and the anticipated quantity or amount of potential pollutants.
- e) Structural BMPs, where necessary shall be integrated with nonstructural stormwater management strategies and proper maintenance plans.
- f) When using structural BMPs, multiple stormwater management measures, smaller in size and distributed spatially throughout the land development site, shall be used wherever possible to achieve the performance standards for water quality, quantity and groundwater recharge established through this ordinance before relying on a single, larger stormwater management measure to achieve these performance standards.

C. Applicability.

1. This ordinance shall apply to:

- a) All site plans and subdivisions for major developments occurring within the Pinelands Area that require preliminary or final site plan or subdivision review; and
- b) All major development projects undertaken by TOWNSHIP OF BUENA VISTA shall comply with this ordinance.¹

D. Procedures. In addition to other development review procedures set forth in the Code of TOWNSHIP OF BUENA VISTA, major developments located within the Pinelands Area shall comply with the stormwater management requirements and specifications set forth in this ordinance. New agricultural development that meets the definition of major development in Section VII of this ordinance shall be submitted to the appropriate Soil Conservation District for review and approval in accordance with the requirements of N.J.A.C. 5.4(b) 7:8.

E. Compatibility with Other Permit and Ordinance Requirements.

- 1. Development approvals issued for subdivisions and site plans pursuant to this ordinance are to be considered an integral part of development approvals under the subdivision and site plan review process and do not relieve the applicant of the responsibility to secure required permits or approvals for activities regulated by any other applicable ordinance, code, rule, regulation, statute, act or other provision of law.
- 2. In their interpretation and application, the provisions of this ordinance shall be held to be the minimum requirements for the promotion of the public health, safety, and general welfare. This ordinance is not intended to interfere with, abrogate, or annul any other ordinances, rule or regulation, statute, or other provision of law except that, where any provision of this ordinance imposes restrictions different from those imposed by any other ordinance, rule or regulation, or other provision of law, the more restrictive or stringent provisions or higher standards shall control.
- 3. In the event that a regional stormwater management plan(s) is prepared and formally adopted pursuant to N.J.A.C. 7:8-1.1 et seq. for any drainage area(s) or watershed(s) of

¹ This clause is intended to provide consistency with DEP's stormwater management requirements. As per normal practice, all development within the Pinelands Area which is undertaken by a Pinelands Area Municipality shall comply with all of the requirements of the CMP.

Updated July 19, 2006

which TOWNSHIP OF BUENA VISTA is a part, the stormwater provisions of such a plan(s) shall be adopted by TOWNSHIP OF BUENA VISTA within one year of the adoption of a Regional Stormwater Management Plan (RSWMP) as an amendment to an Areawide Water Quality Management Plan. Local ordinances proposed to implement the RSWMP shall be submitted to the Commission for certification within six months of the adoption of the RSWMP per N.J.A.C. 7:8 and the Pinelands CMP (N.J.A.C. 7:50.)

Section II. Requirements for a Site Development Stormwater Plan.

A. Submission of Site Development Stormwater Plan.

1. Whenever an applicant seeks municipal approval of a site development that is subject to this ordinance, the applicant shall submit all of the required components of the Checklist for the Site Development Stormwater Plan at Section II.C below as part of the applicant's application for subdivision or site plan approval. These required components are in addition to any other information required under any provisions of TOWNSHIP OF BUENA VISTA's land use ordinance or by the Pinelands Commission pursuant to N.J.A.C. 7:50-1.1 et seq.
2. The applicant shall demonstrate that the site development project meets the standards set forth in this ordinance.
3. The applicant shall submit three (3) copies² of the materials listed in the checklist for site development stormwater plans in accordance with Section III.C of this ordinance.

B. Site Development Stormwater Plan Approval.

1. The applicant's site development stormwater plan shall be reviewed as a part of the subdivision or site plan review process by the municipal board or official from whom municipal approval is sought. That municipal board or official shall consult the engineer retained by the Planning and/or Zoning Board (as appropriate) to determine if all of the checklist requirements have been satisfied and to determine if the project meets the standards set forth in this ordinance.

C. Checklist Requirements. Any application for approval of a major development shall include at least the following information. All required engineering plans shall be submitted to the TOWNSHIP OF BUENA VISTA and the Pinelands Commission in CAD Format 15 or higher, registered and rectified to NJ State Plane Feet NAD 83 or Shape Format NJ State Plan Feet NAD 83, and all other documents shall be submitted in both paper and commonly used electronic file formats such as pdf., word processing, database or spreadsheet files. Three (3) copies² of each item shall be submitted. *The municipality may choose to revise these criteria for consistency with their own software requirements.*

1. Topographic Base Map. The applicant shall submit a topographic base map of the site which extends a minimum of three hundred (300) feet beyond the limits of the proposed development, at a scale of one (1) inch = two hundred (200) feet or greater, showing one (1) foot contour intervals. The map shall indicate the following: existing surface water drainage, shorelines, steep slopes, soils, highly erodible soils, perennial or intermittent streams that drain into or upstream of any Category One or Pinelands Waters, wetlands and floodplains along with their appropriate buffer strips, marshlands and other wetlands, pervious or vegetative surfaces, existing surface and subsurface human-made structures, roads, bearing and distances of property lines, and significant natural and manmade features not otherwise shown. TOWNSHIP OF BUENA VISTA or the Pinelands Commission may require upstream tributary drainage system information as necessary.

² Municipality may select a different number if appropriate.

2. Environmental Site Analysis. The applicant shall submit a written description along with the drawings of the natural and human-made features of the site and its environs. This description should include:
 - a) A discussion of environmentally critical areas, soil conditions, slopes, wetlands, waterways and vegetation on the site. Particular attention should be given to unique, unusual or environmentally sensitive features and to those that provide particular opportunities for or constraints on development; and
 - b) Detailed soil and other environmental conditions on the portion of the site proposed for installation of any stormwater BMPs, including, at a minimum: soils report based on onsite soil tests; locations and spot elevations in plan view of test pits and permeability tests; permeability test data and calculations; and any other required soil data (e.g., mounding analyses results) correlated with location and elevation of each test site; cross-section of proposed stormwater BMP with side-by-side depiction of soil profile drawn to scale and seasonal high water table elevation identified; and any other information necessary to demonstrate the suitability of the specific proposed structural and nonstructural stormwater management measures relative to the environmental conditions on the portion(s) of the site proposed for implementation of those measures.
3. Project description and site plan(s). The applicant shall submit a map (or maps) at the scale of the topographical base map indicating the location of existing and proposed buildings, roads, parking areas, utilities, structural facilities for stormwater management and sediment control, and other permanent structures. The map(s) shall also clearly show areas where alterations will occur in the natural terrain and cover, including lawns and other landscaping, and seasonal high groundwater elevations. A written description of the site plan and justification for proposed changes in natural conditions shall also be provided.
4. Land Use Planning and Source Control Plan.
 - a) The applicant shall submit a detailed Land Use Planning and Source Control Plan which provides a description of how the site will be developed to meet the erosion control, groundwater recharge and stormwater runoff quantity and quality standards at Section IV through use of nonstructural or low impact development techniques and source controls to the maximum extent practicable before relying on structural BMPs. The Land Use Planning and Source Control Plan shall include a detailed narrative and associated illustrative maps and/or plans that specifically address how each of the following nine (9) nonstructural strategies identified in Subchapter 5 of the NJDEP Stormwater Management Rules (N.J.A.C. 7:8-5) and set forth below (4.a. i. through ix.) will be implemented to the maximum extent practicable to meet the standards at Section IV of this ordinance on the site. If one or more of the nine (9) nonstructural strategies will not be implemented on the site, the applicant shall provide a detailed rationale establishing a basis for the contention that use of the strategy is not practicable on the site.
 - i. Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment loss;

- ii. Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces;
- iii. Maximize the protection of natural drainage features and vegetation;
- iv. Minimize the decrease in the pre-development "time of concentration";
- v. Minimize land disturbance including clearing and grading;
- vi. Minimize soil compaction and all other soil disturbance;
- vii. Provide low-maintenance landscaping that provides for the retention and planting of native plants and minimizes the use of lawns, fertilizers and pesticides, in accordance with N.J.A.C. 7:50-6.24;
- viii. Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas; and
- ix. Provide other source controls to prevent or minimize the use or exposure of pollutants at the site in order to prevent or minimize the release of those pollutants into stormwater runoff. These source controls shall include, but are not limited to:
 - (1) Site design features that help to prevent accumulation of trash and debris in drainage systems;
 - (2) Site design features that help to prevent discharge of trash and debris from drainage systems;
 - (3) Site design features that help to prevent and/or contain spills or other harmful accumulations of pollutants at industrial or commercial developments; and
 - (4) Applying fertilizer in accordance with the requirements established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and implementing rules, when establishing vegetation after land disturbance.
- b) For sites where stormwater will be generated from "high pollutant loading areas" or where stormwater will be exposed to "source material," as defined in Section VII of this ordinance, the applicant shall also demonstrate in the Land Use Planning and Source Control Plan that the requirements of Section IV have been met.
- c) The use of nonstructural strategies to meet the performance standards in Section IV of this ordinance is not required for development sites creating less than one (1) acre of disturbance. However, each application for major development and any other application where TOWNSHIP OF BUENA VISTA otherwise requires a landscaping plan shall contain a landscaping or revegetation plan in accordance with the CMP standards at N.J.A.C. 7:50-6.24(c). In addition, the applicant shall demonstrate that, at a minimum, existing trees and vegetation on the development site will be preserved and protected according to the minimum standards established by provisions of the TOWNSHIP OF BUENA VISTA Land Use Ordinance, Zoning Ordinance or by conditions of zoning or variance approval.

5. Stormwater Management Facilities Map. The applicant shall submit a map, at the same scale as the topographic base map, depicting the following information:
 - i. The total area to be disturbed, paved and/or built upon, proposed surface contours, land area to be occupied by the stormwater management facilities and the type of vegetation thereon, and details of the proposed plan to manage and dispose of stormwater; and
 - ii. Details of all stormwater management facility designs, during and after construction, including discharge provisions, discharge capacity for each outlet at different levels of detention (if applicable) and emergency spillway provisions with maximum discharge capacity of each spillway.
6. Calculations (groundwater recharge and stormwater runoff rate, volume and quality). The applicant shall submit comprehensive hydrologic and hydraulic design calculations for the pre-development and post-development conditions for the design storms specified in Section III. The standards for groundwater recharge and stormwater runoff rate, volume and quality required by Section IV shall be met using the methods, calculations and assumptions provided in Section III.
7. Inspection, Maintenance and Repair Plan. The applicant shall submit a detailed plan describing how the proposed stormwater management measure(s) shall meet the maintenance and repair requirements of Section VI of this ordinance. Said plan shall include, at a minimum, the following elements:
 - a) The frequency with which inspections will be made;
 - b) The specific maintenance tasks and requirements for each proposed structural and nonstructural BMP;
 - c) The name, address and telephone number for the entity responsible for implementation of the maintenance plan;
 - d) The reporting requirements; and
 - e) Copies of the inspection and maintenance reporting sheets.
8. Exception from submission requirements. An exception may be granted from submission of any of these required components (except 7. above, Inspection, Maintenance, and Repair Plan) if its absence will not materially affect the review process. However, items required pursuant to the application requirements in the Pinelands CMP (N.J.A.C. 7:50-4.2(b))³ shall be submitted to the NJ Pinelands Commission unless the Executive Director waives or modifies the application requirements.

³ In the final ordinance adopted by TOWNSHIP OF BUENA VISTA, this CMP citation should be replaced with the specific citation of the [Municipal] ordinance that is correlated to this CMP requirement.

Section III. Methodologies for the Calculation of Stormwater Runoff Rate and Volume, Stormwater Runoff Quality, and Groundwater Recharge.

A. Method of Calculating Stormwater Runoff Rate and Volume.

1. In complying with the Stormwater Runoff Quantity and Rate Standards in Section IV.B, the design engineer shall calculate the stormwater runoff rate and volume using the USDA Natural Resources Conservation Service (NRCS) Runoff Equation, Runoff Curve Numbers, and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Part 630 – Hydrology and Technical Release 55 – Urban Hydrology for Small Watersheds, incorporated herein by reference, as amended and supplemented. Alternative methods of calculation may be utilized, provided such alternative methods are at least as protective as the NRCS methodology when considered on a regional stormwater management basis.
2. In calculating stormwater runoff using the NRCS methodology, the design engineer shall separately calculate and then combine the runoff volumes from pervious and directly connected impervious surfaces within each drainage area within the parcel.
3. Calculation of stormwater runoff from unconnected impervious surfaces shall be based, as applicable, upon the Two-Step method described in the current New Jersey Stormwater Best Management Practices Manual or the NRCS methodology.
4. In calculating stormwater runoff using the NRCS methodology, the design engineer shall use appropriate 24-hour rainfall depths as developed for the project site by the National Oceanic and Atmospheric Administration, available online at <http://hdsc.nws.noaa.gov/hdsc/pfds/index.html>.
5. When calculating stormwater runoff for pre-developed site conditions, the design engineer shall use the following criteria:
 - a) When selecting or calculating Runoff Curve Numbers (CNs) for pre-developed project site conditions, the project site's land cover shall be assumed to be woods in good condition. However, another land cover may be used to calculate runoff coefficients if:
 - i. Such land cover has existed at the site or portion thereof without interruption for at least five (5) years immediately prior to the time of application; and
 - ii. The design engineer can document the character and extent of such land cover through the use of photographs, affidavits, and/or other acceptable land use records.
 - b) If more than one land cover has existed on the site during the five (5) years immediately prior to the time of application, the land cover with the lowest runoff potential shall be used for the computations.
 - c) All pre-developed land covers shall be assumed to be in good hydrologic condition and, if cultivated, shall be assumed to have conservation treatment.
 - d) In calculating pre-developed site stormwater runoff, the design engineer shall include the effects of all land features and structures, such as ponds, wetlands, depressions, hedgerows, and culverts, that affect pre-developed site stormwater runoff rates and/or volumes.

- e) Where tailwater will affect the hydraulic performance of a stormwater management measure, the design engineer shall include such effects in the measure's design.

B. Method of Calculating Stormwater Runoff Quality.

1. In complying with the Stormwater Runoff Quality Standards in Section IV.F.1, the design engineer shall calculate the stormwater runoff rate and volume using the USDA Natural Resources Conservation Service (NRCS) Runoff Equation, Runoff Curve Numbers, and Dimensionless Unit Hydrograph, as described in the NRCS National Engineering Handbook Part 630 – Hydrology and Technical Release 55 – Urban Hydrology for Small Watersheds, as amended and supplemented.
2. The design engineer shall also use the NJDEP Water Quality Design Storm, which is one and one-quarter (1.25) inches of rainfall falling in a nonlinear pattern in two (2) hours. Details of the Water Quality Design Storm are shown in Table 1.
3. Calculation of runoff volumes, peak rates, and hydrographs for the Water Quality Design Storm may take into account the implementation of nonstructural and structural stormwater management measures.

Table 1: Water Quality Design Storm Distribution⁴

| Time (minutes) | Cumulative Rainfall (inches) | Time (minutes) | Cumulative Rainfall (inches) |
|----------------|------------------------------|----------------|------------------------------|
| 0 | 0.0000 | 65 | 0.8917 |
| 5 | 0.0083 | 70 | 0.9917 |
| 10 | 0.0166 | 75 | 1.0500 |
| 15 | 0.0250 | 80 | 1.0840 |
| 20 | 0.0500 | 85 | 1.1170 |
| 25 | 0.0750 | 90 | 1.1500 |
| 30 | 0.1000 | 95 | 1.1750 |
| 35 | 0.1330 | 100 | 1.2000 |
| 40 | 0.1660 | 105 | 1.2250 |
| 45 | 0.2000 | 110 | 1.2334 |
| 50 | 0.2583 | 115 | 1.2417 |
| 55 | 0.3583 | 120 | 1.2500 |
| 60 | 0.6250 | | |

4. Total Suspended Solids (TSS) reduction calculations.

⁴ Source: N.J.A.C. 7:8-5.5(a).

- i. If more than one stormwater BMP in series is necessary to achieve the required eighty percent (80%) TSS reduction for a site, the applicant shall utilize the following formula to calculate TSS reduction:

$$R = A + B - (A \times B) / 100, \text{ where:}$$

R = total TSS percent load removal from application of both BMPs;

A = the TSS percent removal rate applicable to the first BMP; and

B = the TSS percent removal rate applicable to the second BMP.

- ii. If there is more than one onsite drainage area, the eighty percent (80%) TSS removal rate shall apply to each drainage area, unless the runoff from the subareas converge on site, in which case the removal rate can be demonstrated through a calculation using a weighted average.

5. TSS removal rates for stormwater BMPs.

- a) For purposes of TSS reduction calculations, Table 2 presents the presumed removal rates for certain BMPs designed in accordance with the New Jersey BMP Manual. The BMP Manual may be obtained from the address identified in Section XII.A or found on the NJDEP's website at www.njstormwater.org. TSS reduction shall be calculated based on the removal rates for the BMPs in Table 2
- b) Alternative stormwater management measures, removal rates and methods of calculating removal rates may be used if the design engineer provides documentation demonstrating the capability of these alternative rates and methods to TOWNSHIP OF BUENA VISTA. Any alternative stormwater management measure, removal rate or method of calculating the removal rate shall be subject to approval by TOWNSHIP OF BUENA VISTA and a copy shall be provided to the following:
 - i. The Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418 Trenton, NJ, 08625-0418; and
 - ii. The New Jersey Pinelands Commission, PO Box 7, New Lisbon, NJ, 08064.

| Table 2: Pollutant Removal Rates for BMPs⁵ | | | |
|---|--|--|--|
| Best Management Practice | TSS Percent Removal Rate | Total Phosphorus Percent Removal Rate | Total Nitrogen Percent Removal Rate |
| Bioretention Systems | 90 | 60 | 30 |
| Constructed Stormwater Wetland | 90 | 50 | 30 |
| Extended Detention Basin | 40-60 (final rate based upon detention time; see New Jersey BMP Manual, Chap. 9) | 20 | 20 |
| Infiltration basin | 80 | 60 | 50 |
| Manufactured Treatment Device | Pollutant removal rates as certified by NJDEP; see Section III. | Pollutant removal rates as certified by NJDEP; see Section III. | Pollutant removal rates as certified by NJDEP; see Section III. |
| Pervious Paving Systems | 80 (porous paving) | 60 | 50 |
| | 80 (permeable pavers with storage bed) | | |
| | 0 - volume reduction only (permeable pavers without storage bed) | 0 - volume reduction only (permeable pavers without storage bed) | 0 - volume reduction only (permeable pavers without storage bed) |
| Sand Filter | 80 | 50 | 35 |
| Vegetative Filter Strip (For filter strips with multiple vegetated covers, the final TSS removal rate should be based upon a weighted average of the adopted rates shown in Table 2, based upon the relative flow lengths through each cover type.) | 60 (turf grass) | 30 | 30 |
| | 70 (native grasses, meadow and planted woods) | | |
| | 80 (indigenous woods) | | |
| Wet Pond / Retention Basin | 50-90 (final rate based upon pool volume and detention time; see NJ BMP Manual) | 50 | 30 |

6. Nutrient removal rates for stormwater BMPs. For purposes of post-development nutrient load reduction calculations, Table 2 presents the presumed removal rates for certain

⁵ Source: 7:8-5.5(c) and New Jersey BMP Manual Chapter 4.

BMPs designed in accordance with the New Jersey BMP Manual. If alternative stormwater BMPs are proposed, the applicant shall demonstrate that the selected BMPs will achieve the nutrient removal standard required in Section IV.F.

C. Methods of Calculating Groundwater Recharge.

1. In complying with the groundwater recharge requirements in Section IV.C.1.a, the design engineer may calculate groundwater recharge in accordance with the New Jersey Groundwater Recharge Spreadsheet (NJGRS) computer program incorporated herein by reference as amended and supplemented. Information regarding the methodology is available in Section XI.A or from the New Jersey BMP Manual.
2. Alternative groundwater recharge calculation methods to meet these requirements may be used upon approval by the municipal engineer.
3. In complying with the groundwater recharge requirements in Section IV.C.1.b, the design engineer shall:
 - a) Calculate stormwater runoff volumes in accordance with the USDA Natural Resources Conservation Service (NRCS) methodology, including the NRCS Runoff Equation and Runoff Curve Numbers, as described in the NRCS National Engineering Handbook Part 630 – Hydrology and Technical Release 55 – Urban Hydrology for Small Watersheds as amended and supplemented; and
 - b) Use appropriate 2-year, 24-hour rainfall depths as developed for the project site by the National Oceanic and Atmospheric Administration, available online at <http://hdsc.nws.noaa.gov/hdsc/pfds/index.html>.
4. When calculating groundwater recharge or stormwater runoff for pre-developed site conditions, the design engineer shall use the following criteria:
 - a) When selecting land covers or calculating Runoff Curve Numbers (CNs) for pre-developed project site conditions, the project site's land cover shall be assumed to be woods. However, another land cover may be used to calculate runoff coefficients if:
 - i. Such land cover has existed at the site or portion thereof without interruption for at least five (5) years immediately prior to the time of application; and
 - ii. The design engineer can document the character and extent of such land cover through the use of photographs, affidavits, and/or other acceptable land use records.
 - b) If more than one land cover, other than woods, has existed on the site during the five (5) years immediately prior to the time of application, the land cover with the lowest runoff potential (including woods) shall be used for the computations.
 - c) All pre-developed land covers shall be assumed to be in good hydrologic condition and, if cultivated, shall be assumed to have conservation treatment.

Section IV. Stormwater Management Performance Standards for Major Development.

A. Nonstructural Stormwater Management Strategies.

1. To the maximum extent practicable, the performance standards in Section IV for major development shall be met by incorporating the nine (9) nonstructural strategies identified in Subchapter 5 of the NJ Stormwater Management Rules (N.J.A.C. 7:8-5), and set forth in Section II.C.4.a, into the design. The applicant shall identify within the Land Use Planning and Source Control Plan required by Section II.C.4 of this ordinance how each of the nine (9) nonstructural measures will be incorporated into the design of the project to the maximum extent practicable.
2. If the applicant contends that it is not practical for engineering, environmental or safety reasons to incorporate any of the nine (9) nonstructural strategies into the design of a particular project, the applicant shall provide a detailed rationale establishing a basis for the contention that use of the strategy is not practical on the site. This rationale shall be submitted in accordance with the Checklist Requirements established by Section II to TOWNSHIP OF BUENA VISTA. A determination by TOWNSHIP OF BUENA VISTA that this rationale is inadequate or without merit shall result in a denial of the application unless one of the following conditions are met:
 - a) The Land Use Planning and Source Control Plan is amended to include a description of how all nine (9) nonstructural measures will be implemented on the development site, and the amended Plan is approved by TOWNSHIP OF BUENA VISTA;
 - b) The Land Use Planning and Source Control Plan is amended to provide an alternative nonstructural strategy or measure that is not included in the list of nine (9) nonstructural measures, but still meets the performance standards in Section IV, and the amended Plan is approved by TOWNSHIP OF BUENA VISTA; or
 - c) The Land Use Planning and Source Control Plan is amended to provide an adequate rationale for the contention that use of the particular strategy is not practical on the site, and the amended Plan is approved by TOWNSHIP OF BUENA VISTA.
3. In addition to all other requirements of this section, each applicant shall demonstrate that, at a minimum, existing trees and vegetation on the development site will be preserved, protected and maintained according to the minimum standards established by provisions of the TOWNSHIP OF BUENA VISTA Land Use Ordinance, Zoning Ordinance or by conditions of zoning or variance approval. Existing trees and vegetation shall be protected during construction activities in accordance with the "Standard for Tree Protection During Construction" provided in the NJ State Soil Conservation Committee Standards for Soil Erosion and Sediment Control in New Jersey, which is incorporated herein by reference as amended and supplemented.
4. In addition to all other requirements of this section, each application for major development, and any other application where TOWNSHIP OF BUENA VISTA otherwise requires a landscaping plan, shall contain a landscaping or revegetation plan in accordance with the Pinelands CMP standards at N.J.A.C. 7:50-6.24(c).
5. Any land area used as a nonstructural stormwater management measure to meet the performance standards in Section IV shall be dedicated to a government entity; shall be subjected to a conservation easement filed with the appropriate County Clerk's office; or

shall be subjected to an equivalent form of restriction approved by TOWNSHIP OF BUENA VISTA that ensures that that measure, or equivalent stormwater management measure is maintained in perpetuity, as detailed in Section VI of this ordinance.

6. Guidance for nonstructural stormwater management strategies is available in the New Jersey BMP Manual, which may be obtained from the address identified in Section XII.A or found on the NJDEP's website at www.njstormwater.org.
7. Exception for major development sites creating less than one (1) acre of disturbance. The use of nonstructural strategies to meet the performance standards in Section IV of this ordinance is not required for major development creating less than one (1) acre of disturbance. However, the following requirements shall be met:
 - a) Each application for major development and any other application where TOWNSHIP OF BUENA VISTA otherwise requires a landscaping plan shall contain a landscaping or revegetation plan prepared in accordance with the Pinelands CMP standards (N.J.A.C. 7:50-6.24(c));
 - b) Each applicant shall demonstrate that, at a minimum, existing trees and vegetation on the development site will be preserved and protected according to the minimum standards established by provisions of the TOWNSHIP OF BUENA VISTA Land Use Ordinance, Zoning Ordinance or by conditions of zoning or variance approval; and
 - c) Existing trees and vegetation shall be protected during construction activities in accordance with the "Standard for Tree Protection During Construction" provided in the NJ State Soil Conservation Committee Standards for Soil Erosion and Sediment Control in New Jersey, which is incorporated herein by reference as amended and supplemented.

B. Stormwater Runoff Quantity and Rate Standards.

1. There shall be no direct discharge of stormwater runoff from any point or nonpoint source to any wetland, wetlands transition area or surface waterbody. In addition, stormwater runoff shall not be directed in such a way as to increase the volume and/or rate of discharge into any surface water body from that which existed prior to development of the site.
2. To the maximum extent practical, there shall be no direct discharge of stormwater runoff onto farm fields so as to protect farm crops from damage due to flooding, erosion and long-term saturation of cultivated crops and cropland.
3. For all major developments, the total runoff volume generated from the net increase in impervious surfaces by a ten (10) year, twenty-four (24) hour storm shall be retained and infiltrated onsite.
4. In addition, the design engineer, using the assumptions and factors for stormwater runoff and groundwater recharge calculations contained in Section III, shall either:
 - a) Demonstrate through hydrologic and hydraulic analysis that the post-developed stormwater runoff hydrographs from the project site for the 2, 10, and 100-Year storms do not exceed, at any point in time, the site's pre-developed runoff hydrographs for the same storms;

- b) Demonstrate through hydrologic and hydraulic analysis that under post-developed site conditions:
 - i. There is no increase in pre-developed stormwater runoff rates from the project site for the two (2), ten (10), and one hundred (100)-year storms; and
 - ii. Any increased stormwater runoff volume or change in stormwater runoff timing for the two (2), ten (10), and one hundred (100)-year storms will not increase flood damage at or downstream of the project site. When performing this analysis for pre-developed site conditions, all off-site development levels shall reflect existing conditions. When performing this analysis for post-developed site conditions, all off-site development levels shall reflect full development in accordance with current zoning and land use ordinances; or
 - c) Demonstrate that the peak post-developed stormwater runoff rates from the project site for the two (2), ten (10) and one hundred (100) year storms are fifty, seventy-five and eighty percent (50%, 75% and 80%), respectively, of the site's peak pre-developed stormwater runoff rates for the same storms. Peak outflow rates from onsite stormwater measures for these storms shall be adjusted where necessary to account for the discharge of increased stormwater runoff rates and/or volumes from project site areas not controlled by the onsite measures. These percentages do not have to be applied to those portions of the project site that are not proposed for development at the time of application, provided that such areas are:
 - i. Protected from future development by imposition of a conservation easement, deed restriction, or other acceptable legal measures; or
 - ii. Would be subject to review under these standards if they are proposed for any degree of development in the future.
5. In tidal flood hazard areas, a stormwater runoff quantity analysis in accordance with a, b, and c above shall only be applied if the increased volume of stormwater runoff could increase flood damages below the point of discharge.
6. The standards for stormwater runoff quantity and rate required by this section shall be met using the methods, calculations and assumptions provided in Section III.

C. Groundwater Recharge Standards.

- 1. For all major developments, with the exception of those described in Section IV.C.4, below, the design engineer, using the assumptions and factors for stormwater runoff and groundwater recharge calculations contained in Section III, shall either:
 - a) Demonstrate through hydrologic and hydraulic analysis that the post-developed project site maintains 100 percent of the site's pre-developed average annual groundwater recharge volume; or
 - b) Demonstrate through hydrologic and hydraulic analysis that any increase in the project site's stormwater runoff volume for the two (2) year, twenty four (24) hour storm from pre-developed to post-developed conditions is infiltrated on-site.
- 2. The design engineer shall assess the hydraulic impact on the groundwater table and design the project site and all site groundwater recharge measures so as to avoid adverse

hydraulic impacts. Adverse hydraulic impacts include, but are not limited to: raising the groundwater table so as to cause surface ponding; flooding of basements and other subsurface structures and areas; preventing a stormwater infiltration basin from completely draining via infiltration within seventy-two (72) hours of a design storm event; and interference with the proper operation of subsurface sewage disposal systems and other surface and subsurface facilities in the vicinity of the groundwater recharge measure.

3. The standards for groundwater recharge required by this section shall be met using the methods, calculations and assumptions provided in Section III.
 4. Exceptions. *The municipality may choose to remove this exception in their adoption of this ordinance.*
 - a) The preceding groundwater recharge standards shall not apply to sites that create less than one (1) acre of disturbance.
- D. Erosion Control Standards. The minimum design and performance standards for erosion control are those established under the Soil Erosion and Sediment Control Act, N.J.S.A. 4:24-39 et seq., and its implementing regulations, N.J.A.C 2:90-1.1 through 1.4.
- E. Stormwater Runoff Quality Standards.
1. There shall be no direct discharge of stormwater runoff from any point or nonpoint source to any wetland, wetland transition area or surface waterbody.
 2. Stormwater management measures shall be designed to reduce the total suspended solids (TSS) load in the stormwater runoff from the post-developed site by eighty percent (80%) expressed as an annual average.
 3. Stormwater management measures shall also be designed to reduce the nutrient load in the stormwater runoff from the post-developed site by the maximum extent practicable. In achieving this reduction, the design of the development site shall include nonstructural and structural stormwater management measures that optimize nutrient removal while still achieving the groundwater recharge, runoff quantity and rate, and TSS removal standards in this section.
 4. The standards for stormwater runoff quality required by this section shall be met using the methods, calculations, assumptions and pollutant removal rates provided in Section III.
 5. Exceptions.
 - a) The preceding stormwater runoff quality standards shall not apply to the following major development sites:
 - i. Major development sites where less than one quarter (0.25) acre of additional impervious surface is proposed; or
 - ii. Major residential development sites that create less than one (1) acre of disturbance.
 - b) The TSS reduction requirement in Section IV.F.2 shall not apply to any stormwater runoff in a discharge regulated under a numeric effluent limitation for TSS imposed

under the NJPDES rules (N.J.A.C. 7:14A) or in a discharge specifically exempt under a NJPDES permit from this requirement.

- c) The stormwater runoff quantity and rate standards in Section IV.B shall still be met for all major development sites.

F. Additional stormwater quality standards for high pollutant loading areas and areas where stormwater runoff is exposed to source material.

1. This subsection applies to the following areas of a major development as defined in Section VII of this ordinance:
 - a) High pollutant loading areas (HPLAs); and
 - b) Areas where stormwater is exposed to “source material.”
2. For a major development in areas described in 1.a or 1.b above, in addition to the infiltration requirements specified in Section IV.B.2 and the groundwater recharge requirements specified in Section IV.C, the applicant shall demonstrate in the Land Use Planning and Source Control Plan required in Section II.C.4 that the following requirements have been met:
 - a) The extent of the areas described in 1.a. and 1.b. above have been minimized on the development site to the maximum extent practicable;
 - b) The stormwater runoff from the areas described in 1.a and 1.b above is segregated to the maximum extent practicable from the stormwater runoff generated from the remainder of the site such that co-mingling of the stormwater runoff from the areas described in 1.a and 1.b above and the remainder of the site will be minimized;
 - c) The amount of precipitation falling directly on the areas described in 1.a and 1.b above is minimized to the maximum extent practicable by means of a canopy, roof or other similar structure that reduces the generation of stormwater runoff; and
 - d) The stormwater runoff from or co-mingled with the areas described in 1.a and 1.b above for the Water Quality Design Storm, defined in Section III.B.Table 1 shall be subject to pretreatment by one or more of the following stormwater BMPs, designed in accordance with the New Jersey BMP Manual to provide 90 % TSS removal:
 - i. Bioretention system;
 - ii. Sand filter;
 - iii. Wet ponds which shall be hydraulically disconnected by a minimum of 2 feet of vertical separation from the seasonal high water table and shall be designed to achieve a minimum 80% TSS removal rate;
 - iv. Constructed stormwater wetlands; and/or
 - v. Media filtration system manufactured treatment device with a minimum 80% TSS removal as verified by the New Jersey Corporation for Advanced Technology and as certified by NJDEP.

- e) If the potential for contamination of stormwater runoff by petroleum products exists onsite, prior to being conveyed to the pretreatment BMP required in Section IV.D.2.d above, the stormwater runoff from the areas described in 1.a and 1.b above shall be conveyed through an oil/grease separator or other equivalent manufactured filtering device to remove the petroleum hydrocarbons. The applicant shall provide the reviewing agency with sufficient data to demonstrate acceptable performance of the device.

G. Threatened and Endangered Species and Associated Habitat Standards. Stormwater management measures shall address the impacts of the development on habitat for threatened and endangered species, in accordance with N.J.A.C. 7:8-5.2(c), N.J.A.C. 7:50-6.27, and 7:50-6.33 and 34.

H. Exceptions and Mitigation Requirements.

- 1. Exceptions from strict compliance from the groundwater recharge, stormwater runoff quantity, and stormwater runoff quality requirements established by this ordinance may be granted, at the discretion of the TOWNSHIP OF BUENA VISTA, and subject to approval by the Pinelands Commission, provided that all of the following conditions are met:
 - a) The exception is consistent with that allowed by TOWNSHIP OF BUENA VISTA;
 - b) TOWNSHIP OF BUENA VISTA has an adopted and effective municipal stormwater management plan in accordance with N.J.A.C. 7:8-4.4, which includes a mitigation plan in accordance with N.J.A.C. 7:8-4.2(c) 11, and is also certified by the Pinelands Commission. The mitigation plan shall identify what measures are necessary to offset the deficit created by granting the exception and the municipality shall submit a written report to the county review agency and the NJDEP describing the exception and the required mitigation. Guidance for developing municipal stormwater management plans, including mitigation plans, is available from the NJDEP, Division of Watershed Management and the New Jersey BMP Manual.
 - c) The applicant demonstrates that mitigation, in addition to the requirements of mitigation plan discussed in b) above, will be provided consistent with one of the following options:
 - i. Mitigation may be provided off-site, but within the Pinelands Area and within the same drainage area as the development site, and shall meet or exceed the equivalent recharge, quality or quantity performance standard which is lacking on the development site due to the exception; or
 - ii. In lieu of the required mitigation, a monetary "in lieu contribution" may be provided by the applicant to TOWNSHIP OF BUENA VISTA in accordance with the following:
 - (a) The amount of the in lieu contribution shall be determined by TOWNSHIP OF BUENA VISTA, but the maximum in lieu contribution required shall be equivalent to the cost of implementing and maintaining the stormwater management measure(s) for which the exception is granted;

- (b) The in lieu contribution shall be used to fund an off-site stormwater control mitigation project(s) located within the Pinelands Area, within the same drainage area as the development site, and shall meet or exceed the equivalent recharge, quality or quantity performance standards which is lacking on the development site. Such mitigation project shall be identified by TOWNSHIP OF BUENA VISTA in TOWNSHIP OF BUENA VISTA's adopted municipal stormwater management plan. The stormwater control project to which the monetary contribution will be applied shall be identified by TOWNSHIP OF BUENA VISTA at the time the exception is granted. The applicant shall amend the project description and site plan required in Section II.C.3 to incorporate a description of both the standards for which an on-site exception is being granted and of the selected off-site mitigation project.
 - (c) TOWNSHIP OF BUENA VISTA shall expend the in lieu contribution to implement the selected off-site mitigation project within five (5) years from the date that payment is received. Should TOWNSHIP OF BUENA VISTA fail to expend the in lieu contribution within the required timeframe, the mitigation option provided in Section IV.H.1.c.iii of this ordinance shall be void and TOWNSHIP OF BUENA VISTA shall be prohibited from collecting in lieu contributions.
2. An exception from strict compliance granted in accordance with H.1. above shall not constitute a waiver of strict compliance from the requirements of the Pinelands Comprehensive Management Plan at N.J.A.C. 7:50. An applicant should contact the Pinelands Commission to determine whether a waiver of strict compliance is also required in accordance with N.J.A.C. 7:50, Subchapter 4, Part V.

Section V. Design, Construction, and Safety Standards for Structural Stormwater Management Measures

A. General Design and Construction Standards

1. Structural stormwater management measures shall be designed to meet the standards established in this section. These standards have been developed to protect public safety, conserve natural features, create an aesthetically pleasing site and promote proper onsite stormwater management.⁶
2. The following structural stormwater management measures may be utilized as part of a stormwater management system at a major land development in the Pinelands, provided that the applicant demonstrates that they are designed, constructed and maintained so as to meet the standards and requirements established by this ordinance. If alternative stormwater management measures are proposed, the applicant shall demonstrate that the selected measures will achieve the standards established by this ordinance.
 - a) Bioretention systems;
 - b) Constructed stormwater wetlands;
 - c) Extended detention basins;
 - d) Infiltration basins;
 - e) Vegetated filter strips;
 - f) Infiltration basins and trenches;
 - g) Wet ponds with suitable liners;
 - h) Pervious paving systems; and
 - i) Manufactured treatment devices, provided their pollutant removal rates are verified by the New Jersey Corporation for Advanced Technology and certified by the NJDEP.
3. Structural stormwater management measures shall be designed to take into account the existing site conditions, including environmentally critical areas, wetlands, flood-prone areas, slopes, depth to seasonal high water table, soil type, permeability and texture, and drainage area and drainage patterns.
4. Structural stormwater management measures shall be designed and constructed to be strong, durable, and corrosion resistant (measures that are consistent with the relevant portions of the Residential Site Improvement Standards at N.J.A.C. 5:21-7.3, 7.4, and 7.8 shall be deemed to meet this requirement); to minimize and facilitate maintenance and repairs; and to ensure proper functioning.

⁶ Though not required by N.J.A.C. 7:8, pursuant to their authority, municipalities may have the option to require existing basins that pose a public health or safety hazard to be retrofitted to comply with the standards in this subsection.

5. For all stormwater management measures at a development site, each applicant shall submit a detailed Inspection, Maintenance and Repair Plan consistent with the requirements of Section V of this ordinance.
 6. To the maximum extent practicable, the design engineer shall design structural stormwater management measures on the development site in a manner that:
 - a) Limits site disturbance, maximizes stormwater management efficiencies, and maintains or improves aesthetic conditions;
 - b) Utilizes multiple stormwater management measures, smaller in size and distributed spatially throughout the land development site, instead of a single larger structural stormwater management measure;
 - c) Incorporates pretreatment measures. Pretreatment can extend the functional life and increase the pollutant removal capability of a structural stormwater management measure. Pretreatment measures may be designed in accordance with the New Jersey BMP Manual or other sources approved by the municipal engineer.
 7. Stormwater management basins shall be designed in a manner that complements and mimics the existing natural landscape, including but not limited to the following design strategies:
 - a) Use of natural, non-wetland wooded depressions for stormwater runoff storage; and
 - b) Establishment of attractive landscaping in and around the basin that mimics the existing vegetation and incorporates native Pinelands plants, including, but not limited to, the species listed in N.J.A.C. 7:50-6.25 and 6.26.
 8. Stormwater management basins shall be designed with gently sloping sides. The maximum allowable basin side slope shall be three (3) horizontal to one (1) vertical (3:1).
 9. Guidance on the design and construction of structural stormwater management measures may be found in the New Jersey BMP Manual. Other guidance sources may also be used upon approval by the municipal engineer.
 10. After all construction activities and required field testing have been completed on the development site, as-built plans depicting design and as-built elevations of all stormwater management measures shall be prepared by a Licensed Land Surveyor and submitted to the municipal engineer. Based upon the municipal engineer's review of the as-built plans, all corrections or remedial actions deemed by the municipal engineer to be necessary due to the failure to comply with the standards established by this ordinance and/or any reasons of public health or safety shall be completed by the applicant. In lieu of review by the municipal engineer, TOWNSHIP OF BUENA VISTA reserves the right to engage a Professional Engineer to review the as-built plans. The applicant shall pay all costs associated with such review.
- B. Design and Construction Standards for Stormwater Infiltration BMP's.
1. Stormwater infiltration BMP's, such as bioretention systems with infiltration, dry wells, infiltration basins, pervious paving systems with storage beds, and sand filters with infiltration, shall be designed, constructed and maintained to completely drain the total runoff volume generated by the basin's maximum design storm within seventy-two (72)

hours after a storm event. Runoff storage for greater times can render the BMP ineffective and may result in anaerobic conditions, odor and both water quality and mosquito breeding problems.

2. Stormwater infiltration BMPs shall be designed, constructed and maintained to provide a minimum separation of at least two (2) feet between the elevation of the lowest point of the bottom of the infiltration BMP and the seasonal high water table.
3. A stormwater infiltration BMP shall be sited in suitable soils verified by field testing to have permeability rates between one (1) and twenty (20) inches per hour. If such site soils do not exist or if the design engineer demonstrates that it is not practical for engineering, environmental or safety reasons to site the stormwater infiltration BMP(s) in such soils, then the stormwater infiltration BMP(s) may be sited in soils verified by field testing to have permeability rates in excess of twenty (20) inches per hour, provided that a bioretention system, designed, installed and maintained in accordance with the New Jersey BMP Manual, is installed to meet one of the following conditions:
 - a) The bioretention system is constructed as a separate measure designed to provide pretreatment of stormwater and to convey the pretreated stormwater into the infiltration BMP; or
 - b) The bioretention system is integrated into and made part of the infiltration BMP and, as such, does not require an underdrain system. If this option is selected, the infiltration BMP shall be designed and constructed so that the maximum water depth in the bioretention system portion of the BMP during treatment of the stormwater quality design storm is twelve (12) inches in accordance with the New Jersey BMP Manual.
4. The minimum design permeability rate for the soil within a BMP that relies on infiltration shall be one-half (0.5) inch per hour. A factor of safety of two (2) shall be applied to the soil's field-tested permeability rate to determine the soil's design permeability rate. For example, if the field-tested permeability rate of the soil is four (4) inches per hour, its design permeability rate would be two (2) inches per hour. The minimum design permeability rate for the soil within a stormwater infiltration basin shall also be sufficient to achieve the minimum seventy-two (72) hour drain time described in 1. above. The maximum design permeability shall be ten (10) inches per hour.
5. A soil's field tested permeability rate shall be determined in accordance with the following:
 - a) The pre-development field test permeability rate shall be determined according to the methodologies provided in Section XI.C.3 of this ordinance;
 - b) The results of the required field permeability tests shall demonstrate a minimum tested infiltration rate of one (1) inch per hour;
 - c) After all construction activities have been completed on the site and the finished grade has been established in the infiltration BMP, post-development field permeability tests shall also be conducted according to the methodologies provided in Section XI.C.3 of this ordinance;

- d) If the results of the post-development field permeability tests fail to achieve the minimum required design permeability rates in 5 above utilizing a factor of safety of two (2), the stormwater infiltration BMP shall be renovated and re-tested until such minimum required design permeability rates are achieved; and
 - e) The results of all field permeability tests shall be certified by a Professional Engineer and transmitted to the municipal engineer.
6. To help ensure maintenance of the design permeability rate over time, a six (6) inch layer of K5 soil shall be placed on the bottom of a stormwater infiltration BMP. This soil layer shall meet the textural and permeability specifications of a K5 soil as provided at N.J.A.C. 7:9A, Appendix A, Figure 6, and be certified to meet these specifications by a Professional Engineer licensed in the State of New Jersey. The depth to the seasonal high water table shall be measured from the bottom of the K5 sand layer.
 7. The design engineer shall assess the hydraulic impact on the groundwater table and design the project site and all stormwater infiltration basins so as to avoid adverse hydraulic impacts. Adverse hydraulic impacts include, but are not limited to: raising the groundwater table so as to cause surface ponding; flooding of basements and other subsurface structures and areas; preventing a stormwater infiltration basin from completely draining via infiltration within seventy-two (72) hours of a design storm event; and interference with the proper operation of subsurface sewage disposal systems and other surface and subsurface structures in the vicinity of the stormwater infiltration basin.
 8. The design engineer shall conduct a mounding analysis, as defined in Section VII, of all stormwater infiltration BMPs. The mounding analysis shall be conducted in accordance with the requirements in Section XI.C.3.1. Where the mounding analysis identifies adverse impacts, the stormwater infiltration BMP shall be redesigned or relocated, as appropriate.
 9. Stormwater infiltration BMPs shall be constructed in accordance with the following:
 - a) To avoid sedimentation that may result in clogging and reduce the basin's permeability rate, stormwater infiltration basins shall be constructed according to the following:
 - i. Unless the conditions in (ii) below are met, a stormwater infiltration basin shall not be placed into operation until its drainage area is completely stabilized. Instead, upstream runoff shall be diverted around the basin and into separate, temporary stormwater management facilities and sediment basins. Such temporary facilities and basins shall be installed and utilized for stormwater management and sediment control until stabilization is achieved in accordance with the Standards for Soil Erosion and Sediment Control in New Jersey, which is incorporated herein by reference as amended and supplemented.
 - ii. If the design engineer determines that, for engineering, environmental or safety reasons, temporary stormwater management facilities and sediment basins cannot be constructed on the site, the stormwater infiltration basin may be placed into operation prior to the complete stabilization of its drainage area provided that the basin's bottom during this period is constructed at a depth at least two (2) feet

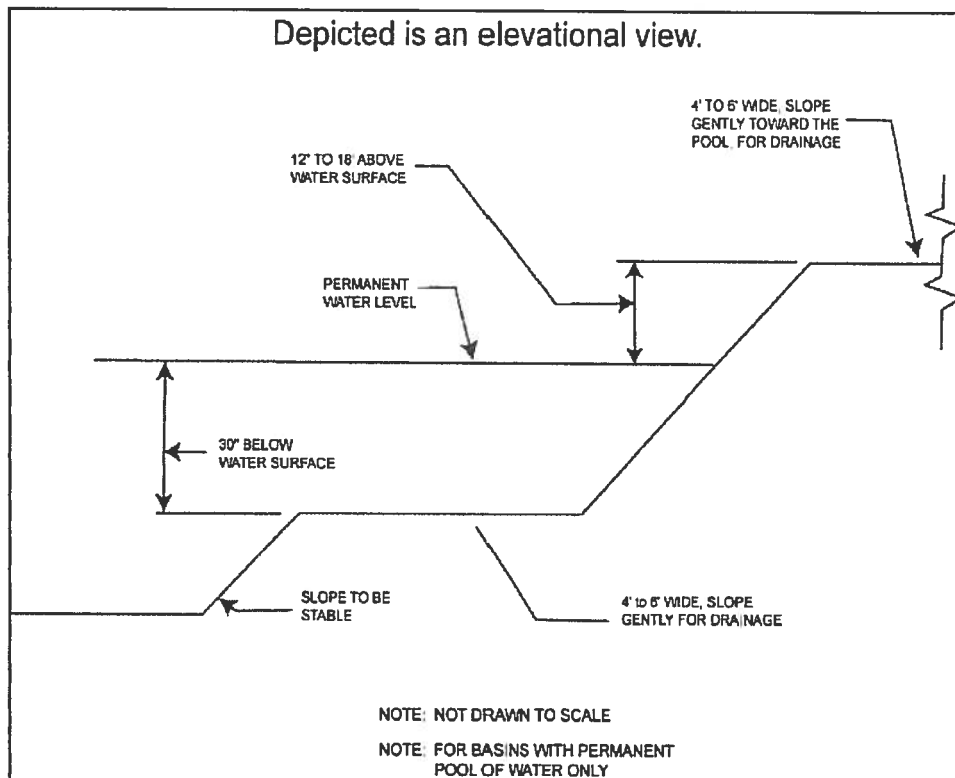
higher than its final design elevation. All other infiltration BMP construction requirements in this section shall be followed. When the drainage area is completely stabilized, all accumulated sediment shall be removed from the infiltration BMP, which shall then be excavated to its final design elevation in accordance with the construction requirements of this section and the performance standards in Section IV.

- b) To avoid compaction of subgrade soils of BMP's that rely on infiltration, no heavy equipment such as backhoes, dump trucks or bulldozers shall be permitted to operate within the footprint of the BMP. All excavation required to construct a stormwater infiltration BMP shall be performed by equipment placed outside the BMP. If this is not possible, the soils within the excavated area shall be renovated and tilled after construction is completed to reverse the effects of compaction. In addition, post-development soil permeability testing shall be performed in accordance with B.5 of this section.
- c) Earthwork associated with stormwater infiltration BMP construction, including excavation, grading, cutting or filling, shall not be performed when soil moisture content is above the lower plastic limit.

C. Safety Standards for Structural Stormwater Management Measures

- 1. If a structural stormwater management measure has an outlet structure, escape provisions shall be incorporated in or on the structure. Escape provisions means the permanent installation of ladders, steps, rungs, or other features that provide readily accessible means of ingress and egress from the outlet structure.
- 2. A trash rack is a device intended to intercept runoff-borne trash and debris that might otherwise block the hydraulic openings in an outlet structure of a structural stormwater management measure. Trash racks shall be installed upstream of such outlet structure openings as necessary to ensure proper functioning of the structural stormwater management measure in accordance with the following:
 - a) The trash rack should be constructed primarily of bars aligned in the direction of flow with one (1) inch spacing between the bars to the elevation of the water quality design storm. For elevations higher than the water quality design storm, the bars shall be spaced no greater than one-third (1/3) the width of the hydraulic opening it is protecting or six inches, whichever is less. Transverse bars aligned perpendicular to flow should be sized and spaced as necessary for rack stability and strength.
 - b) The trash rack shall not adversely affect the hydraulic performance of either the outlet structure opening it is protecting or the overall outlet structure.
 - c) The trash rack shall have sufficient net open area under clean conditions to limit the peak design storm velocity through it to a maximum of 2.5 feet per second.
 - d) The trash rack shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of 300 pounds per square foot.

3. An overflow grate is a device intended to protect the opening in the top of a stormwater management measure outlet structure. If an outlet structure has an overflow grate, such grate shall meet the following requirements:
 - a) The overflow grate shall be secured to the outlet structure but removable for emergencies and maintenance;
 - b) The overflow grate spacing shall be no more than two (2) inches across the smallest dimension; and
 - c) The overflow grate shall be constructed and installed to be rigid, durable, and corrosion resistant, and shall be designed to withstand a perpendicular live loading of three hundred (300) pounds per square foot.
4. The maximum side slope for an earthen dam, embankment, or berm shall not be steeper than three (3) horizontal to one (1) vertical (3:1).
5. Safety ledges shall be constructed on the slopes of all new structural stormwater management measures having a permanent pool of water deeper than two and one-half feet. Such safety ledges shall be comprised of two steps. Each step shall be four (4) to six (6) feet in width. One step shall be located approximately two and one-half (2½) feet below the permanent water surface, and the second step shall be located one (1) to one and one-half (1½) feet above the permanent water surface. See a) below, for an illustration of safety ledges in a stormwater management basin.
 - a) Illustration of safety ledges.



Source: N.J.A.C. 7:8-6 Appendix A.

Section VI. Inspection, Maintenance and Repair of Stormwater Management Measures.

A. Applicability. Projects subject to review pursuant to Section I.C of this ordinance shall comply with the requirements of Sections VI.B and VI.C below.

B. General Inspection, Maintenance and Repair Plan.

1. The design engineer shall prepare an Inspection, Maintenance and Repair Plan for the stormwater management measures, including both structural and nonstructural measures incorporated into the design of a major development. This plan shall be submitted as part of the Checklist Requirements established in Section II.C. Inspection and maintenance guidelines for stormwater management measures are available in the New Jersey BMP Manual.
2. The Inspection, Maintenance and Repair Plan shall contain the following:
 - a) Accurate and comprehensive drawings of the site's stormwater management measures;
 - b) Specific locations of each stormwater management measure identified by means of longitude and latitude as well as block and lot number;
 - c) Specific preventative and corrective maintenance tasks and schedules for such tasks for each stormwater BMP;
 - d) Cost estimates, including estimated cost of sediment, debris or trash removal; and
 - e) The name, address and telephone number of the person or persons responsible for regular inspections and preventative and corrective maintenance (including repair and replacement). If the responsible person or persons is a corporation, company, partnership, firm, association, municipality or political subdivision of this State, the name and telephone number of an appropriate contact person shall also be included.
3. The person responsible for inspection, maintenance and repair identified under Section VI.B.2 above shall maintain a detailed log of all preventative and corrective maintenance performed for the site's stormwater management measures, including a record of all inspections and copies of all maintenance-related work orders in the Inspection, Maintenance and Repair Plan. Said records and inspection reports shall be retained for a minimum of five (5) years.
4. If the Inspection, Maintenance and Repair Plan identifies a person other than the developer (for example, a public agency or homeowners' association) as having the responsibility for inspection and maintenance, the plan shall include documentation of such person's agreement to assume this responsibility, or of the developer's obligation to dedicate a stormwater management measure to such person under an applicable ordinance or regulation.
5. If the person responsible for inspection, maintenance and repair identified under Section VI.B.3 above is not a public agency, the maintenance plan and any future revisions based on Section VI.B.6 below shall be recorded upon the deed of record for each property on which the maintenance described in the maintenance plan shall be undertaken.

6. The person responsible for inspection, maintenance and repair identified under Section VI.B.2 above shall evaluate the effectiveness of the Inspection, Maintenance and Repair Plan at least once per year and update the plan and the deed as needed.
 7. The person responsible for inspection, maintenance and repair identified under Section VI.B.2 above shall submit the updated Inspection, Maintenance and Repair Plan and the documentation required by Sections VI.B.2 and VI.B.3 above to TOWNSHIP OF BUENA VISTA once per year.
 8. The person responsible for inspection, maintenance and repair identified under Section VI.B.2 above shall retain and make available, upon request by any public entity with administrative, health, environmental or safety authority over the site the Inspection, Maintenance and Repair Plan and the documentation required by Sections VI.B.2 and VI.B.3 above.
- C. Responsibility for inspection, repair and maintenance shall not be assigned or transferred to the owner or tenant of an individual property in a residential development or project, unless such owner or tenant owns or leases the entire residential development or project.
- D. Preventative and corrective maintenance shall be performed to maintain the function of the stormwater management measure, including, but not limited to: repairs or replacement to any associated appurtenance of the measure; removal of sediment, debris, or trash; restoration of eroded areas; snow and ice removal; fence repair or replacement; restoration of vegetation; repair or replacement of linings; and restoration of infiltration function.
- E. Stormwater management measure easements shall be provided by the property owner as necessary for facility inspections and maintenance and preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities. The purpose of the easement shall be specified in the maintenance agreement.
- F. In the event that the stormwater management measure becomes a public health nuisance or danger to public safety or public health, or if it is in need of maintenance or repair, TOWNSHIP OF BUENA VISTA shall so notify the responsible person in writing. Upon receipt of that notice, the responsible person shall have fourteen (14) days to effect maintenance and repair of the facility in a manner that is approved by the municipal engineer or the municipal engineer's designee. TOWNSHIP OF BUENA VISTA, at its discretion, may extend the time allowed for effecting maintenance and repair for good cause. If the responsible person fails or refuses to perform such maintenance and repair within the allowable time, TOWNSHIP OF BUENA VISTA may immediately proceed to do so with its own forces and equipment and/or through contractors. The costs and expenses of such maintenance and repair by TOWNSHIP OF BUENA VISTA shall be entered on the tax roll as a special charge against the property and collected with any other taxes levied thereon for the year in which the maintenance and repair was performed.

G. Requirements for Inspection, Maintenance and Repair of Stormwater BMP's that rely on infiltration. If a stormwater infiltration BMP is incorporated into the design of a major development, the applicant shall include the following requirements in its Inspection, Maintenance and Repair Plan:

1. Once per month (if needed): Mow side slopes, remove litter and debris, stabilize eroded banks, repair erosion at inflow structure(s);
2. After every storm exceeding one (1) inch of rainfall: Ensure that infiltration BMPs drain completely within seventy-two (72) hours after the storm event. If stored water fails to infiltrate seventy-two (72) hours after the end of the storm, corrective measures shall be taken. Raking or tilling by light equipment can assist in maintaining infiltration capacity and break up clogged surfaces;
3. Four times per year (quarterly): Inspect stormwater infiltration BMPs for clogging and excessive debris and sediment accumulation within the BMP, remove sediment (if needed) when completely dry;
4. Two times per year: Inspect for signs of damage to structures, repair eroded areas, check for signs of petroleum contamination and remediate;
5. Once per year: Inspect BMPs for unwanted tree growth and remove if necessary, disc or otherwise aerate bottom of infiltration basin to a minimum depth of six (6) inches; and
6. After every storm exceeding one (1) inch of rainfall, inspect and, if necessary, remove and replace K5 sand layer and accumulated sediment, to restore original infiltration rate.
7. Additional guidance for the inspection, maintenance and repair of stormwater infiltration BMPs can be found in the New Jersey BMP Manual.

H. Financing of Inspection, Maintenance and Repair of Stormwater BMPs. An adequate means of ensuring permanent financing of the inspection, maintenance and repair of stormwater BMPs shall be implemented and detailed in the Inspection, Maintenance and Repair Plan. Permanent financing of the inspection, maintenance and repair of stormwater BMPs shall be accomplished by:⁷

- a) The assumption of the inspection and maintenance program by a municipality, county, public utility or homeowner's association.
- b) The required payment of fees to a municipal stormwater fund in an amount equivalent to the cost of both ongoing maintenance activities and necessary structural replacements. The fee schedule is attached.
- c) Other suitable method approved by the municipality.

⁷ The municipality must choose which option, or combination of options, to adopt. For example, the municipality may require dedication of some basins to the municipality, while requiring homeowner's associations to maintain other basins. However the municipality chooses to approach inspection, maintenance and repair, only those chosen options shall be listed in the adopted ordinance. If option B is chosen, the municipality must attach a fee schedule documenting how much developers must pay for each stormwater management measure. The fee schedule may be updated as often as the municipality desires.

Section VII. Definitions. Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application. When used in this ordinance, the following terms shall have the meanings herein ascribed to them.

“TOWNSHIP OF BUENA VISTA” means the Planning Board, Zoning Board of Adjustment or other board, agency or official of TOWNSHIP OF BUENA VISTA with authority to approve or disapprove subdivisions, site plans, construction permits, building permits or other applications for development approval. For the purposes of reviewing development applications and ensuring compliance with the requirements of this ordinance, TOWNSHIP OF BUENA VISTA may designate the municipal engineer or other qualified designee to act on behalf of TOWNSHIP OF BUENA VISTA.

“Aquaculture” means the propagation, rearing and subsequent harvesting of aquatic organisms in controlled or selected environments, and their subsequent processing, packaging and marketing, including but not limited to, activities to intervene in the rearing process to increase production such as stocking, feeding, transplanting and providing for protection from predators.

“Certification” means either a written statement signed and sealed by a licensed New Jersey Professional Engineer attesting that a BMP design or stormwater management system conforms to or meets a particular set of standards or to action taken by the Commission pursuant to N.J.A.C. 7:50-3, Part II or Part IV. Depending upon the context in which the term is use, the terms "certify" and "certified" shall be construed accordingly.

“Compaction” means the increase in soil bulk density caused by subjecting soil to greater-than-normal loading. Compaction can also decrease soil infiltration and permeability rates.

"Construction" means the construction, erection, reconstruction, alteration, conversion, demolition, removal or equipping of buildings, structures or components of a stormwater management system including but not limited to collection inlets, stormwater piping, swales and all other conveyance systems, and stormwater BMPs.

“County review agency” means an agency designated by the County Board of Chosen Freeholders to review municipal stormwater management plans and implementing ordinance(s). The county review agency may either be:

A county planning agency; or

A county water resource association created under N.J.S.A. 58:16A-55.5, if the ordinance or resolution delegates authority to approve, conditionally approve, or disapprove municipal stormwater management plans and implementing ordinances.

“Design engineer” means a person professionally qualified and duly licensed in New Jersey to perform engineering services that may include, but not necessarily be limited to, development of

project requirements, creation and development of project design and preparation of drawings and specifications.

“Design permeability” means the tested permeability rate with a factor of safety of two (2) applied to it (e.g., if the tested permeability rate of the soils is four (4) inches per hour, the design rate would be two (2) inches per hour).

“Development” means the change of or enlargement of any use or disturbance of any land, the performance of any building or mining operation, the division of land into two or more parcels, and the creation or termination of rights of access or riparian rights including, but not limited to:

1. A change in type of use of a structure or land;
2. A reconstruction, alteration of the size, or material change in the external appearance of a structure or land;
3. A material increase in the intensity of use of land, such as an increase in the number of businesses, manufacturing establishments, offices or dwelling units in a structure or on land;
4. Commencement of resource extraction or drilling or excavation on a parcel of land;
5. Demolition of a structure or removal of trees;
6. Commencement of forestry activities;
7. Deposit of refuse, solid or liquid waste or fill on a parcel of land;
8. In connection with the use of land, the making of any material change in noise levels, thermal conditions, or emissions of waste material; and
9. Alteration, either physically or chemically, of a shore, bank, or flood plain, seacoast, river, stream, lake, pond, wetlands or artificial body of water.

In the case of development on agricultural land, i.e. lands used for an agricultural use or purpose as defined at N.J.A.C. 7:50-2.11, development means: any activity that requires a State permit; any activity reviewed by the County Agricultural Boards (CAB) and the State Agricultural Development Committee (SADC), and municipal review of any activity not exempted by the Right to Farm Act, N.J.S.A. 4:1C-1 et seq.

“Development, major” means any division of land into five or more lots; any construction or expansion of any housing development of five or more dwelling units; any construction or expansion of any commercial or industrial use or structure on a site of more than three acres; or any “development,” grading, clearing or disturbance of an area in excess of five thousand square feet (5,000 ft²). Disturbance for the purpose of this ordinance is the placement of impervious surface or exposure and/or movement of soil or bedrock or clearing, cutting or removing of vegetation.

“Development, minor” means all development other than major development.

“Drainage area” means a geographic area within which stormwater, sediments, or dissolved materials drain to a BMP, a stormwater management system, a particular receiving waterbody or a particular point along a receiving waterbody.

“Environmentally critical area” means an area or feature which is of significant environmental value, including but not limited to: stream corridors; natural heritage priority sites; habitat of endangered or threatened animal species; threatened or endangered plants of the Pinelands pursuant to N.J.A.C. 7:5-6.27(a); large areas of contiguous open space or upland forest; steep slopes; and well head protection and groundwater recharge areas. T & E habitat constitutes habitat that is critical for the survival of a local population of threatened and endangered species or habitat that is identified using the Department’s Landscape Project as approved by the Department’s Endangered and Nongame Species Program, whichever is more inclusive. Threatened and endangered wildlife shall be protected in conformance with N.J.A.C. 7:50-6.33.

“Exception” means the approval by the approving authority of a variance or other material departure from strict compliance with any section, part, phrase or provision of this ordinance. An exception may be granted only under certain specific, narrowly-defined conditions described herein and does not constitute a waiver of strict compliance with any section, part, phrase or provision of the Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-1.1 et seq.).

“Extended detention basin” means a facility constructed through filling and/or excavation that provides temporary storage of stormwater runoff. It has an outlet structure that detains and attenuates runoff inflows and promotes the settlement of pollutants. An extended detention basin is normally designed as a multi-stage facility that provides runoff storage and attenuation for both stormwater quality and quantity management. The term “stormwater detention basin” shall have the same meaning as “extended detention basin.”

"Finished grade" means the elevation of the surface of the ground after completion of final grading, either via cutting, filling or a combination thereof.

"Grading" means modification of a land slope by cutting and filling with the native soil or re-distribution of the native soil which is present at the site.

"Groundwater" means water below the land surface in a zone of saturation.

“Groundwater mounding analysis” means a test performed to demonstrate that the groundwater below a stormwater infiltration basin will not “mound up,” encroach on the unsaturated zone, break the surface of the ground at the infiltration area or downslope, and create an overland flow situation.

“Heavy Equipment” means equipment, machinery, or vehicles that exert ground pressure in excess of eight (8) pounds per square inch.

“High Pollutant Loading Area” means an area in an industrial or commercial development site: where solvents and/or petroleum products are loaded/unloaded, stored, or applied; where pesticides are loaded/unloaded or stored; where hazardous materials are expected to be present in greater than “reportable quantities” as defined by the United States Environmental Protection Agency (EPA) at 40 CFR 302.4; where recharge would be inconsistent with NJDEP-approved remedial action work plan or landfill closure plan; and/or where a high risk exists for spills of toxic materials, such as gas stations and vehicle maintenance facilities. The term “HPLA” shall have the same meaning as “High Pollutant Loading Area.”

“Impervious surface” means a surface that has been covered with a layer of material so that it is highly resistant to infiltration by water.

“Infiltration” is the process by which precipitation enters the soil through its surface.

"In lieu contribution" means a monetary fee collected by TOWNSHIP OF BUENA VISTA in lieu of requiring strict on-site compliance with the groundwater recharge, stormwater runoff quantity and/or stormwater runoff quality standards established in this ordinance.

"Install" means to assemble, construct, put in place or connect components of a stormwater management system.

“Mitigation” means acts necessary to prevent, limit, remedy or compensate for conditions that may result from those cases where an applicant has demonstrated the inability or impracticality of strict compliance with the stormwater management requirements set forth in N.J.A.C. 7:8, in an adopted regional stormwater management plan, or in a local ordinance which is as protective as N.J.A.C. 7:8, and an exception from strict compliance is granted by TOWNSHIP OF BUENA VISTA and the Pinelands Commission.

“New Jersey Stormwater Best Management Practices Manual” means guidance developed by the New Jersey Department of Environmental Protection, in coordination with the New Jersey Department of Agriculture, the New Jersey Department of Community Affairs, the New Jersey Department of Transportation, municipal engineers, county engineers, consulting firms, contractors, and environmental organizations to address the standards in the New Jersey Stormwater Management Rules, N.J.A.C. 7:8. The BMP manual provides examples of ways to meet the standards contained in the rule. An applicant may demonstrate that other proposed management practices will also achieve the standards established in the rules. The manual, and notices regarding future versions of the manual, are available from the Division of Watershed Management, NJDEP, PO Box 418, Trenton, New Jersey 08625; and on the NJDEP’s website, www.njstormwater.org. The term “New Jersey BMP Manual” shall have the same meaning as “New Jersey Stormwater Best Management Practices Manual.”

“NJDEP” means the New Jersey Department of Environmental Protection.

"NJPDES" means the New Jersey Pollutant Discharge Elimination System as set forth in N.J.S.A. 58:10A-1 et seq. and in N.J.A.C. 7:14A.

"NJPDES permit" means a permit issued by the NJDEP pursuant to the authority of the Water Pollution Control Act, N.J.S.A. 58:10A-1 et seq., and N.J.A.C. 7:14A for a discharge of pollutants.

"Nonpoint source" means:

1. Any human-made or human-induced activity, factor, or condition, other than a point source, from which pollutants are or may be discharged;
2. Any human-made or human-induced activity, factor, or condition, other than a point source, that may temporarily or permanently change any chemical, physical, biological, or radiological characteristic of waters of the State from what was or is the natural, pristine condition of such waters, or that may increase the degree of such change; or
3. Any activity, factor, or condition, other than a point source, that contributes or may contribute to water pollution.

The term "NPS" shall have the same meaning as "nonpoint source."

"Nonstructural BMP" means a stormwater management measure, strategy or combination of strategies that reduces adverse stormwater runoff impacts through sound site planning and design. Nonstructural BMPs include such practices as minimizing site disturbance, preserving important site features, reducing and disconnecting impervious cover, flattening slopes, utilizing native vegetation, minimizing turf grass lawns, maintaining natural drainage features and characteristics and controlling stormwater runoff and pollutants closer to the source. The term "Low Impact Development technique" shall have the same meaning as "nonstructural BMP."

"Nutrient" means a chemical element or compound, such as nitrogen or phosphorus, which is essential to and promotes the development of organisms.

"Permeability" means the rate at which water moves through a saturated unit area of soil or rock material at hydraulic gradient of one, determined as prescribed in N.J.A.C. 7:9A-6.2 (Tube Permeameter Test), N.J.A.C. 6.5 (Pit Bailing Test) or N.J.A.C. 6.6 (Piezometer Test). Alternative permeability test procedures may be accepted by the approving authority provided the test procedure attains saturation of surrounding soils, accounts for hydraulic head effects on infiltration rates, provides a permeability rate with units expressed in inches per hour and is accompanied by a published source reference. Examples of suitable sources include hydrogeology, geotechnical, or engineering text and design manuals, proceedings of American Society for Testing and Materials (ASTM) symposia, or peer-review journals. Neither a Soil Permeability Class Rating Test, as described in N.J.A.C. 7:9A-6.3, nor a Percolation Test, as described in N.J.A.C. 7:9A-6.4, are acceptable tests for establishing permeability values for the purpose of complying with this ordinance.

"Permeable" means having a permeability of one (1) inch per hour or faster. The terms "permeable soil," "permeable rock" and "permeable fill" shall be construed accordingly.

"Person" means any individual, corporation, company, partnership, firm, association, municipality or political subdivision of this State subject to municipal jurisdiction pursuant to the Municipal Land Use Law, N.J.S.A. 40:55D-1 et seq.

"Pinelands Commission" or "Commission" means the Commission created pursuant Section 5 of the Pinelands Protection Act, N.J.S.A. 13:18A-5.

"Pinelands CMP" means the New Jersey Pinelands Comprehensive Management Plan (N.J.A.C. 7:50 1.1 et seq).

"Point source" means any discernible, confined, and discrete conveyance, including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system, vessel, or other floating craft, from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

"Pollutant" means any dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, refuse, oil, grease, sewage sludge, munitions, chemical wastes, biological materials, medical wastes, radioactive substances (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.), thermal waste, wrecked or discarded equipment, rock, sand, suspended solids, cellar dirt, industrial, municipal, agricultural, and construction waste or runoff, or other residue discharged directly or indirectly to the land, groundwaters or surface waters of the State, or to a domestic treatment works. "Pollutant" includes both hazardous and nonhazardous pollutants.

"Professional Engineer" means a person licensed to practice Professional Engineering in the State of New Jersey pursuant to N.J.S.A. 48:8-27 et seq.

"Recharge" means the amount of water from precipitation that infiltrates into the ground and is not evapotranspired.

"Replicate" means one of two or more soil samples or tests taken at the same location (within five feet of each other) and depth, within the same soil horizon or substratum. In the case of fill material, replicate tests are tests performed on sub-samples of the same bulk sample packed to the same bulk density.

"Sand" means a particle size category consisting of mineral particles which are between 0.05 and 2.0 millimeters in equivalent spherical diameter. Also, a soil textural class having 85 percent or

more of sand and a content of silt and clay such that the percentage of silt plus 1.5 times the percentage of clay does not exceed 15, as shown in Section XI.C.1 (USDA Soil Textural Triangle).

"Seasonally high water table" means the upper limit of the shallowest zone of saturation which occurs in the soil, identified as prescribed in N.J.A.C. 7:9A-5.8.

"Sediment" means solid material, mineral or organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water or gravity as a product of erosion.

"Site" means the lot or lots upon which a major development is to occur or has occurred.

"Soil" means all unconsolidated mineral and organic material of any origin which is not a rock substratum, including sediments below the biologically active and/or weathered zones.

"Source material" means any material(s) or machinery, located at an industrial facility, that is directly or indirectly related to process, manufacturing or other industrial activities, which could be a source of pollutants in any industrial stormwater discharge to groundwater. Source materials include, but are not limited to, raw materials; intermediate products; final products; waste materials; by-products; industrial machinery and fuels, and lubricants, solvents, and detergents that are related to process, manufacturing, or other industrial activities that are exposed to stormwater.

"Stormwater" means water resulting from precipitation (including rain and snow) that runs off the land's surface, is transmitted to the subsurface, or is captured by separate storm sewers or other sewage or drainage facilities, or conveyed by snow removal equipment.

"Stormwater infiltration BMP" means a basin or other facility constructed within permeable soils that provides temporary storage of stormwater runoff. An infiltration BMP does not normally have a structural outlet to discharge runoff from the stormwater quality design storm. Instead, outflow from an infiltration BMP is through the surrounding soil. The terms "infiltration measure" and "infiltration practice" shall have the same meaning as "stormwater infiltration basin."

"Stormwater management measure" means any structural or nonstructural strategy, practice, technology, process, program, or other method intended to control or reduce stormwater runoff and associated pollutants, or to induce or control the infiltration or groundwater recharge of stormwater or to eliminate illicit or illegal non-stormwater discharges into stormwater conveyances. This includes, but is not limited to, structural and nonstructural stormwater Best Management Practices described in the New Jersey BMP Manual and designed to meet the standards for stormwater control contained within this ordinance. The terms "stormwater Best Management Practice" and "stormwater BMP" shall have the same meaning as "stormwater management measure."

"Stormwater runoff" means water flow on the surface of the ground or in storm sewers, resulting from precipitation.

"Suitable soil" means unsaturated soil, above the seasonally high water table, which contains less than fifty percent (50%) by volume of coarse fragments and which has a tested permeability rate of between one (1) and twenty (20) inches per hour.

"Surface water" means any waters of the State which are not groundwater.

"Time of concentration" means the time it takes for runoff to travel from the hydraulically most distant point of the drainage area to the point of interest within a watershed.

"Total Suspended Solids" means the insoluble solid matter suspended in water and stormwater that is separable by laboratory filtration in accordance with the procedure contained in the "Standard Methods for the Examination of Water and Wastewater" prepared and published jointly by the American Public Health Association, American Water Works Association and the Water Pollution Control Federation. The term "TSS" shall have the same meaning as "Total Suspended Solids."

"Tidal Flood Hazard Area" means a flood hazard area, which may be influenced by stormwater runoff from inland areas, but which is primarily caused by the Atlantic Ocean.

"Waters of the State" means the ocean and its estuaries, all springs, streams and bodies of surface and groundwater, whether natural or artificial, within the boundaries of New Jersey or subject to its jurisdiction.

"Water table" means the upper surface of a zone of saturation.

"Well" means a bored, drilled or driven shaft, or a dug hole, which extends below the seasonally high water table and which has a depth which is greater than its largest surface dimension.

"Wetlands" mean those lands which are inundated or saturated by water at a magnitude, duration and frequency sufficient to support the growth of hydrophytes. Wetlands include lands with poorly drained or very poorly drained soils as designated by the National Cooperative Soils Survey of the Soil Conservation Service of the United States Department of Agriculture. Wetlands include coastal wetlands and inland wetlands, including submerged lands. The "New Jersey Pinelands Commission Manual for Identifying and Delineating Pinelands Area Wetlands: A Pinelands Supplement to the Federal Manual for Identifying and Delineating Jurisdictional Wetlands," dated January, 1991, as amended, may be utilized in delineating the extent of wetlands based on the definitions of wetlands and wetlands soils contained in this section, N.J.A.C. 7:50 2.11, 6.4 and 6.5. The term "wetland" shall have the same meaning as "wetlands."

“Wet pond” means a stormwater facility constructed through filling and/or excavation that provides both permanent and temporary storage of stormwater runoff. It has an outlet structure that creates a permanent pool and detains and attenuates runoff inflows and promotes the settling of pollutants. A stormwater retention basin can also be designed as a multi-stage facility that also provides extended detention for enhanced stormwater quality design storm treatment and runoff storage and attenuation for stormwater quantity management. The term “stormwater retention basin” shall have the same meaning as “wet pond.”

Section VIII. Penalties. Any person who erects, constructs, alters, repairs, converts, maintains, or uses any building, structure or land in violation of this ordinance shall be subject to the following penalties:

A. [Municipality to specify].

Section IX. Effective Date. This ordinance shall take effect immediately upon the following:

- A) Certification by the Pinelands Commission in accordance with N.J.A.C. 7:50 Subchapter 3; and
- B) Approval by the county review agency in accordance with _____.

Section X. Severability. If the provisions of any section, subsection, paragraph, subdivision, or clause of this ordinance shall be judged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any section, subsection, paragraph, subdivision or clause of this ordinance.

Section XI. Appendices.

A. Methods for Calculating Groundwater Recharge.

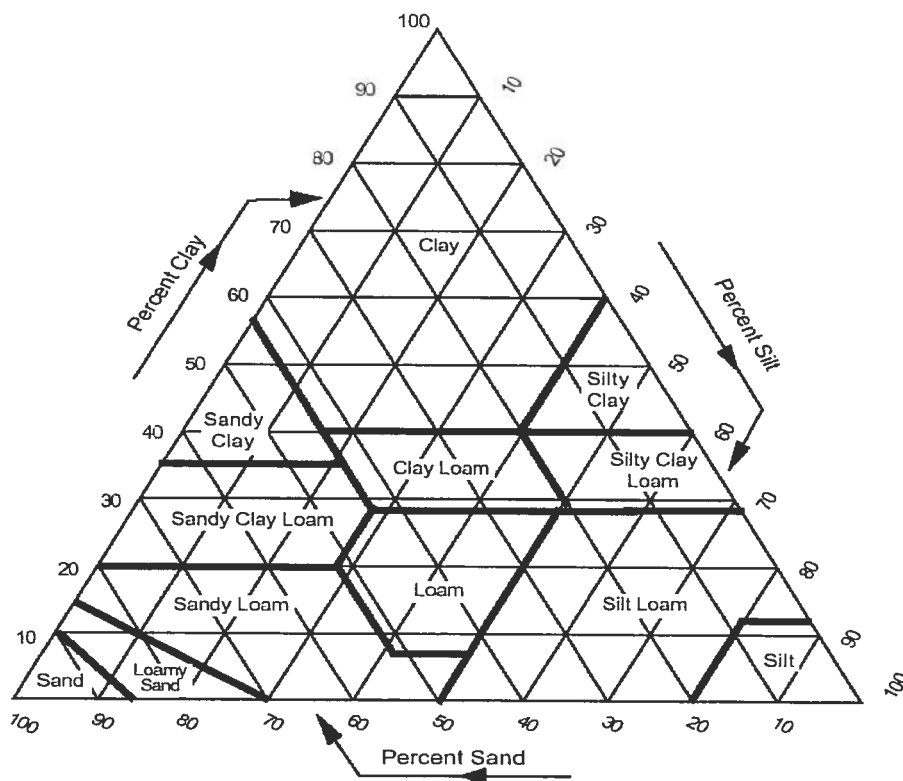
1. The New Jersey Geological Survey Report GSR-32: A Method for Evaluating Groundwater Recharge Areas in New Jersey. Available at <http://www.njgeology.org/geodata/dgs99-2.htm>.
2. The New Jersey Groundwater Recharge Spreadsheet (NJGRS). Available in the New Jersey BMP Manual, Chapter 6, at http://www.njstormwater.org/bmp_manual2.htm.

B. NJDEP Nonstructural Strategies Point System.

The New Jersey Stormwater Management Rules at N.J.A.C. 7:8-5.2(a), and Section IV. A. of this Ordinance, require nonstructural stormwater management strategies to be incorporated into the site design of a major development. A total of nine strategies are to be used to the maximum extent practical to meet the groundwater recharge, stormwater quality and stormwater quantity requirements of the Rules prior to utilizing structural stormwater management measures. The New Jersey Nonstructural Stormwater Management Strategies Point System (NSPS) provides a tool to assist planners, designers and regulators in determining that the strategies have been used to the “maximum extent practical” at a major development as required by the Rules. Refer online to <http://www.njstormwater.org> for information on the NSPS.

C. Soils.

1. USDA Soil Textural Triangle.



Source: US Department of Agriculture.

2. Definitions. For the purposes of this appendix, the following terms shall have the meanings herein ascribed to them.

"A-horizon" means the uppermost mineral horizon in a normal soil profile. The upper part of the A-horizon is characterized by maximum accumulation of finely divided, dark colored organic residues, known as humus, which are intimately mixed with the mineral particles of the soil.

"Artesian zone of saturation" means a zone of saturation which exists immediately below a hydraulically restrictive horizon, and which has an upper surface that is at a pressure greater than atmospheric, either seasonally or throughout the year.

"Chroma" means the relative purity or strength of a color, a quantity which decreases with increasing grayness. Chroma is one of the three variables of soil color as defined in the Munsell system of classification.

"Clay" means a particle size category consisting of mineral particles which are smaller than 0.002 millimeters in equivalent spherical diameter. Also, a soil textural class having more than 40 percent clay, less than 45 percent sand, and less than 40 percent silt, as shown in Section XI.C.1 (USDA Soil Textural Triangle).

"Clay loam" means a soil textural class having 27 to 40 percent clay and 20 to 45 percent sand, as shown in Section XI.C.1 (USDA Soil Textural Triangle).

"Coarse fragment" means a rock fragment contained within the soil which is greater than two millimeters in equivalent spherical diameter or which is retained on a two millimeter sieve.

"County soil survey report" means a report prepared by the US Department of Agriculture, Natural Resources Conservation Service which includes maps showing the distribution of soil mapping units throughout a particular county together with narrative descriptions of the soil series shown and other information relating to the uses and properties of the various soil series.

"Direct supervision" means control over and direction of work carried out by others with full knowledge of and responsibility for such work.

"Equivalent spherical diameter" of a particle means the diameter of a sphere which has a volume equal to the volume of the particle.

"Excessively coarse horizon" means a horizon of limited thickness within the soil profile which provides inadequate removal of pollutants from stormwater due to a high coarse fragment content, excessively coarse texture and/or excessively rapid permeability.

"Excessively coarse substratum" means a substratum below the soil profile which extends beyond the depth of soil profile pits and borings and which provides inadequate removal of pollutants from stormwater due to a high coarse fragment content, excessively coarse texture and/or excessively rapid permeability.

"Extremely firm consistence" means a type of soil material whose moist aggregated mass crushes only under very strong pressure; cannot be crushed between the thumb and forefinger and shall be broken apart bit by bit.

"Firm consistence" means a type of soil material whose moist aggregated mass crushes under moderate pressure between the thumb and forefinger but resistance is distinctly noticeable.

"Hard consistence" means a type of soil material whose dry aggregated mass is moderately resistant to pressure; can be broken in the hands without difficulty but is barely breakable between the thumb and forefinger.

"Hue" means the dominant spectral color, one of the three variables of soil color defined within the Munsell system of classification.

"Hydraulically restrictive horizon" means a horizon within the soil profile which slows or prevents the downward or lateral movement of water and which is underlain by permeable soil horizons or substrata. Any soil horizon which has a saturated permeability less than one (1.0) inch per hour is hydraulically restrictive.

"Hydraulically restrictive substratum" means a substratum below the soil profile which slows or prevents the downward or lateral movement of water and which extends beyond the depth of profile pits or borings or to a massive substratum. A substratum which has a saturated permeability less than one (1.0) inch per hour is hydraulically restrictive.

"Loamy sand" means a soil textural class, as shown in Section XI.C.1 (USDA Soil Textural Triangle), that has a maximum of 85 to 90 percent (85-90%) sand with a percentage of silt plus one and a half (1.5) times the percentage of clay not in excess of fifteen (15); or a minimum of 70 to 85 percent (70-85%) sand with a percentage of silt plus one and a half (1.5) times the percentage of clay not in excess of thirty (30).

"Lower plastic limit" means the moisture content corresponding to the transition between the plastic and semi-solid states of soil consistency. This corresponds to the lowest soil

moisture content at which the soil can be molded in the fingers to form a rod or wire, one-eighth (1/8) inches in thickness, without crumbling.

"Mottling" means a color pattern observed in soil consisting of blotches or spots of contrasting color. The term "mottle" refers to an individual blotch or spot. The terms "color variegation," "iron depletion" and "iron concentration" are equivalent to the term "mottling." Mottling due to redoximorphic reactions is an indication of seasonal or periodic and recurrent saturation.

"Munsell system" means a system of classifying soil color consisting of an alpha-numeric designation for hue, value and chroma, such as "7.5 YR 6/2," together with a descriptive color name, such as "strong brown."

"O-horizon" means a surface horizon, occurring above the A-horizon in some soils, which is composed primarily of undecomposed or partially decomposed plant remains which have not been incorporated into the mineral soil.

"Perched zone of saturation" means a zone of saturation which occurs immediately above a hydraulically restrictive horizon and which is underlain by permeable horizons or substrata which are not permanently or seasonally saturated.

"Piezometer" means a device consisting of a length of metal or plastic pipe, open at the bottom or perforated within a specified interval, and used for the determination of depth to water, permeability or hydraulic head within a specific soil horizon or substratum.

"Platy structure" is characterized by a soil aggregate which has one axis distinctly shorter than the other two and are oriented with the short axis vertical.

"Regional zone of saturation" means a zone of saturation which extends vertically without interruption below the depth of soil borings and profile pits.

"Sandy clay" means a soil textural class having 35 percent (35%) or more of clay and 45 percent (45%) or more of sand, as shown in Section XI.C.1 (USDA Soil Textural Triangle).

"Sandy loam" means a soil textural class, as shown in Section XI.C.1 (USDA Soil Textural Triangle), that has a maximum of 20 percent clay, and the percentage of silt plus twice the percentage of clay exceeds 30, and contains 52 percent or more sand; or less than 7 percent clay, less than 50 percent silt, and between 43 and 52 percent sand.

"Silt" means a particle size category consisting of mineral particles which are between 0.002 and 0.05 millimeters in equivalent spherical diameter. It also means a soil textural

class having 80 percent or more of silt and 12 percent or less of clay, as shown in Section XI.C.1 (USDA Soil Textural Triangle).

"Silt loam" means a soil textural class having 50 percent or more of silt and 12 to 27 percent of clay; or 50 to 80 percent of silt and less than 12 percent of clay, as shown in Section XI.C.1 (USDA Soil Textural Triangle).

"Silty clay" means a soil textural class having 40 percent or more of clay and 40 percent or more of silt, as shown in Section XI.C.1 (USDA Soil Textural Triangle).

"Silty clay loam" means a soil textural class having 27 to 40 percent of clay and less than 20 percent of sand, as shown in Section XI.C.1 (USDA Soil Textural Triangle).

"Soil aggregate" means a naturally occurring unit of soil structure consisting of particles of sand, silt, clay, organic matter, and coarse fragments held together by the natural cohesion of the soil.

"Soil color" means the soil color name and Munsell color designation determined by comparison of the moist soil with color chips contained in a Munsell soil color book.

"Soil consistence" means the resistance of a soil aggregate or clod to being crushed between the fingers or broken by the hands. Terms for describing soil consistence described are in N.J.A.C. 7:9A-5.3(h).

"Soil horizon" means a layer within a soil profile differing from layers of soil above and below it in one or more of the soil morphological characteristics including color, texture, coarse fragment content, structure, consistence and mottling.

"Soil log" means a description of the soil profile which includes the depth, thickness, color, texture, coarse fragment content, mottling, structure and consistence of each soil horizon or substratum.

"Soil mapping unit" means an area outlined on a map in a County Soil Survey Report and marked with a letter symbol designating a soil phase, a complex of two or more soil phases, or some other descriptive term where no soil type has been identified.

"Soil phase" means a specific type of soil which is mapped by the Natural Resources Conservation Service and which belongs to a soil series described within the County Soil Survey Report.

"Soil profile" means a vertical cross-section of undisturbed soil showing the characteristic horizontal layers or horizons of the soil which have formed as a result of the combined effects of parent material, topography, climate, biological activity and time.

"Soil series" means a grouping of soil types possessing a specific range of soil profile characteristics which are described within the County Soil Survey Report. Each soil series may consist of several "soil phases" which may differ in slope, texture of the surface horizon or stoniness.

"Soil structural class" means one of the shape classes of soil structure described in N.J.A.C. 7:9A-5.3(g).

"Soil structure" means the naturally occurring arrangement, within a soil horizon, of sand, silt and clay particles, coarse fragments and organic matter, which are held together in clusters or aggregates of similar shape and size.

"Soil test pit" means an excavation made for the purpose of exposing a soil profile which is to be described.

"Soil textural class" means one of the classes of soil texture defined within the USDA system of classification. (Soil Survey Manual, Agricultural Handbook No. 18, USDA Soil Conservation Service 1962.)

"Soil texture" means the relative proportions of sand, silt and clay in that portion of the soil which passes through a sieve with two millimeter openings.

"Static water level" means the depth below the ground surface or the elevation with respect to some reference level, of the water level observed within a soil profile pit or boring, or within a piezometer, after this level has stabilized or become relatively constant with the passage of time.

"Substratum" means a layer of soil or rock material present below the soil profile and extending beyond the depth of soil borings or profile pits.

"Unsuitable soil" means all soil other than suitable soil.

"USDA system of classification" means the system of classifying soil texture used by the United States Department of Agriculture which defines 12 soil textural classes based upon the weight percentages of sand, silt and clay in that portion of the soil which passes through a sieve with two millimeter (2 mm) openings. The soil textural classes are shown graphically on the USDA Soil Textural Triangle, as shown in Section XI.C.1.

"Value" means the relative lightness or intensity of a color, one of the three variables of soil color defined within the Munsell system of classification.

"Very firm consistence" is characterized by a moist soil which crushes under strong pressure; barely crushable between thumb and forefinger.

"Very hard consistence" is characterized by a dry soil which is resistant to pressure, can be broken in the hands only with difficulty; not breakable between the thumb and forefinger.

"Zone of saturation" means a layer within or below the soil profile which is saturated with ground water either seasonally or throughout the year. This includes both regional and perched zones.

3. Methods for Assessing Soil Suitability for Infiltration Stormwater Management BMPs. The results of a subsurface investigation shall serve as the basis for the site selection and design of stormwater infiltration BMPs. The subsurface investigation shall include, but not be limited to, a series of soil test pits and soil permeability tests conducted in accordance with the following:
 - a) All soil test pits and soil permeability results shall be performed under the direct supervision of a Professional Engineer. All soil logs and permeability test data shall be accompanied by a certification by a Professional Engineer. The results and location (horizontal and vertical) of all soil test pits and soil permeability tests, both passing and failing, shall be reported to TOWNSHIP OF BUENA VISTA.
 - b) During all subsurface investigations and soil test procedures, adequate safety measures shall be taken to prohibit unauthorized access to the excavations at all times. It is the responsibility of persons performing or witnessing subsurface investigations and soil permeability tests to comply with all applicable Federal, State and local laws and regulations governing occupational safety.
 - c) A minimum of two (2) soil test pits shall be excavated within the footprint of any proposed infiltration BMP to determine the suitability and distribution of soil types present at the site. Placement of the test pits shall be within twenty (20) feet of the basin perimeter, located along the longest axis bisecting the BMP. For BMPs larger than ten thousand (10,000) square feet in area, a minimum of one (1) additional soil test pit shall be conducted within each additional area of ten thousand (10,000) square feet. The additional test pit(s) shall be placed approximately equidistant to other test pits, so as to provide adequate characterization of the subsurface material. In all cases, where soil and or groundwater properties vary significantly, additional test pits shall be excavated in order to accurately characterize the subsurface conditions below the proposed infiltration BMP. Soil test pits shall extend to a minimum depth of eight (8) feet below the lowest elevation of the basin bottom or to a depth that is at least two (2) times the maximum potential water depth in the proposed infiltration BMP, whichever is greater.

- d) A soil test pit log shall be prepared for each soil test pit. The test pit log shall, at a minimum, provide the elevation of the existing ground surface, the depth and thickness (in inches) of each soil horizon or substratum, the dominant matrix or background and mottle colors using the Munsell system of classification for hue, value and chroma, the appropriate textural class as shown on the USDA textural triangle, the volume percentage of coarse fragments (larger than two (2) millimeters in diameter), the abundance, size, and contrast of mottles, the soil structure, soil consistence, and soil moisture condition, using standard USDA classification terminology for each of these soil properties. Soil test pit logs shall identify the presence of any soil horizon, substratum or other feature that exhibits an in-place permeability rate less than one (1) inch per hour.
- e) Each soil test pit log shall report the depth to seasonally high water level, either perched or regional, and the static water level based upon the presence of soil mottles or other redoximorphic features, and observed seepage or saturation. Where redoximorphic features including soil mottles resulting from soil saturation are present, they shall be interpreted to represent the depth to the seasonal high water table unless soil saturation or seepage is observed at a higher level. When the determination of the seasonally high water table shall be made in ground previously disturbed by excavation, direct observation of the static water table during the months of January through April shall be the only method permitted.
- f) Any soil horizon or substratum which exists immediately below a perched zone of saturation shall be deemed by rule to exhibit unacceptable permeability (less than one (1) inch per hour). The perched zone of saturation may be observed directly, inferred based upon soil morphology, or confirmed by performance of a hydraulic head test as defined at N.J.A.C. 7:9A-5.9.
- g) Stormwater infiltration BMPs shall not be installed in soils that exhibit artesian groundwater conditions. A permeability test shall be conducted in all soils that immediately underlie a perched zone of saturation. Any zone of saturation which is present below a soil horizon which exhibits an in-place permeability of less than 0.2 inches per hour shall be considered an artesian zone of saturation unless a minimum one foot thick zone of unsaturated soil, free of mottling or other redoximorphic features and possessing a chroma of four or higher, exists immediately below the unsuitable soil.
- h) A minimum of one (1) permeability test shall be performed at each soil test pit location. The soil permeability rate shall be determined using test methodology as prescribed in N.J.A.C. 7:9A-6.2 (Tube Permeameter Test), 6.5 (Pit Bailing Test) or 6.6 (Piezometer Test). When the tube permeameter test is used, a minimum of two replicate samples shall be taken and tested. Alternative permeability test procedures may be accepted by the approving authority provided the test procedure attains saturation of surrounding soils, accounts for hydraulic head effects on infiltration rates, provides a permeability rate with units expressed in inches per hour and is accompanied by a published source reference. Examples of suitable sources include hydrogeology, geotechnical or engineering text and design manuals, proceedings of American Society for Testing and Materials (ASTM) symposia, or peer-review journals. Neither a Soil Permeability Class Rating Test, as described in N.J.A.C.

7:9A-6.3, nor a Percolation Test, as described in N.J.A.C. 7:9A-6.4, are acceptable tests for establishing permeability values for the purpose of complying with this ordinance.

- i) Soil permeability tests shall be conducted on the most hydraulically restrictive horizon or substratum to be left in place below the basin as follows. Where no soil replacement is proposed, the permeability tests shall be conducted on the most hydraulically restrictive horizon or substratum within four (4) feet of the lowest elevation of the basin bottom or to a depth equal to two (2) times the maximum potential water depth within the basin, whichever is greater. Where soil replacement is proposed, the permeability tests shall be conducted within the soil immediately below the depth of proposed soil replacement or within the most hydraulically restrictive horizon or substratum to a depth equal to two (2) times the maximum potential water depth within the basin, whichever is greater. Permeability tests may be performed on the most hydraulically restrictive soil horizons or substrata at depths greater than those identified above based upon the discretion of the design or testing engineer. The tested infiltration rate should then be divided by two (2) to establish the soil's design permeability rate. Such division will provide a 100% safety factor to the tested rate.
- j) The minimum acceptable "tested permeability rate" of any soil horizon or substratum shall be one (1) inch per hour. Soil materials that exhibit tested permeability rates slower than one (1) inch per hour shall be considered unsuitable for stormwater infiltration. The maximum reportable "tested permeability rate" of any soil horizon or substratum shall be no greater than twenty (20) inches per hour regardless of the rate attained in the test procedure.
- k) After all construction activities have been completed on the development site and the finished grade has been established in the infiltration BMP, a minimum of one permeability test shall be conducted within the most hydraulically restrictive soil horizon or substratum below the as-built BMP to ensure the performance of the infiltration BMP is as designed. Hand tools and manual permeability test procedures shall be used for the purpose of confirming BMP performance. In addition, the infiltration BMP shall be flooded with water sufficient to demonstrate the performance of the BMP. Test results shall be certified to the municipal engineer.
- l) A groundwater mounding analysis shall be provided for each stormwater infiltration BMP. The groundwater mounding analysis shall calculate the maximum height of the groundwater mound based upon the volume of the maximum design storm. The Professional Engineer conducting the analysis shall provide the municipal engineer with the methodology and supporting documentation for the mounding analysis used and shall certify to TOWNSHIP OF BUENA VISTA, based upon the analysis, that the groundwater mound will not cause stormwater or groundwater to breakout to the land surface or cause adverse impact to adjacent surface water bodies, wetlands or subsurface structures including but not limited to basements and septic systems. If there is more than one infiltration BMP proposed, the model shall indicate if and how the mounds will interact. The mounding analysis shall be calculated using the most restrictive soil horizon that will remain in place within the explored aquifer thickness unless alternative analyses is authorized by the municipal engineer. The mounding

analysis shall be accompanied by a cross section of the infiltration BMP and surrounding topography and the mound analysis shall extend out to the point(s) at which the mound intersects with the preexisting maximum water table elevation.

- m) The applicant shall demonstrate that stormwater infiltration BMPs meet the seventy-two (72) hour drain time requirement established in Section V.B.1 of this ordinance.

D. Pretreatment measures for infiltration BMPs. By reducing incoming velocities and capturing coarser sediments, pretreatment can extend the functional life and increase the pollutant removal capability of infiltration measures. Therefore, the installation of pretreatment measures is recommended for all development sites. Pretreatment measures may include, but are not limited to, the following:

1. Vegetative filter strips;
2. Bioretention systems. Used in conjunction with a bioretention system, the infiltration basin takes the place of the standard underdrain;
3. Sand filters;
4. Grassed swales; and
5. Detention basins.

E. Collection and Conveyance.

1. Bicycle-safe inlet grates. Site development plans that incorporate site design features that help to prevent discharge of trash and debris from drainage systems shall comply with the following standard to control passage of solid and floatable materials through storm drain inlets. For purposes of this paragraph, "solid and floatable materials" means sediment, debris, trash, and other floating, suspended, or settleable solids.

- a) Design engineers shall use either of the following grates whenever they use a grate in pavement or another ground surface to collect stormwater from that surface into a storm drain or surface water body under that grate:

- i. The New Jersey Department of Transportation (NJDOT) bicycle safe grate, which is described in Chapter 2.4 of the NJDOT Bicycle Compatible Roadways and Bikeways Planning and Design Guidelines (April 1996); or
- ii. A different grate, if each individual clear space in that grate has an area of no more than seven (7) square inches, or is no greater than one half (0.5) inch across the smallest dimension. Examples of grates subject to this standard include grates in grate inlets, the grate portion (non-curb-opening portion) of combination inlets, grates on storm sewer manholes, ditch grates, trench grates, and grates of spacer bars in slotted drains. Examples of ground surfaces include surfaces of roads (including bridges), driveways, parking areas, bikeways, plazas, sidewalks, lawns, fields, open channels, and stormwater basin floors.

- b) Whenever design engineers use a curb-opening inlet, the clear space in that curb opening (or each individual clear space, if the curb opening has two or more clear spaces) shall have an area of no more than seven (7) square inches, or be no greater than two (2) inches across the smallest dimension.

- c) This standard does not apply:
 - i. Where the review agency determines that this standard would cause inadequate hydraulic performance that could not practicably be overcome by using additional or larger storm drain inlets that meet these standards;
 - ii. Where flows from the water quality design storm as specified in Section III are conveyed through any device (e.g., end-of-pipe netting facility, manufactured treatment device, or a catch basin hood) that is designed, at a minimum, to prevent delivery of all solid and floatable materials that could not pass through one of the following:
 - (a) A rectangular space four and five-eighths (4 and 5/8) inches long and one and one-half (1.5) inches wide (this option does not apply for outfall netting facilities); or
 - (b) A bar screen having a bar spacing of one-half (0.5) inch.
 - iii. Where flows are conveyed through a trash rack that has parallel bars with one (1) inch spacing between the bars, to the elevation of the water quality design storm as specified in Section III of this ordinance; or
 - iv. Where the NJDEP determines, pursuant to the New Jersey Register of Historic Places Rules at N.J.A.C. 7:4-7.2(c), that action to meet this standard is an undertaking that constitutes an encroachment or will damage or destroy the New Jersey Register listed historic property.
- 2. Catch basins. Catch basins are storm drain inlets with or without sumps. Catch basins may provide pretreatment for other stormwater BMPs by capturing large sediments. The sediment and pollutant removal efficiency of catch basins depends on the size of the sump and the performance of routine maintenance to retain the available sediment storage space in the sump. Where catch basins with sumps are proposed, the minimum two feet separation between the bottom of the sump and seasonally high water table shall be provided.
- 3. Open or perforated conveyance piping. Where adequate separation to the seasonal high water table exists, stormwater from the development site may be conveyed to a stormwater basin via a system of perforated pipes. These pipes may be made of PVC or corrugated metal and are available with perforations of varying size and spacing. Perforated pipe specifications shall be certified by a Professional Engineer. A Professional Engineer shall certify that perforated conveyance piping will not act to intercept the seasonal high water table and convey groundwater to the stormwater basin. All open or perforated stormwater conveyance systems shall be installed with a minimum separation of two (2) feet from the seasonal high water table.

Section XII. Additional Sources for Technical Guidance.

A. NJDEP Technical Guidance Sources.

1. New Jersey BMP Manual. Available from the Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418, Trenton, New Jersey 08625; or online at <http://www.njstormwater.org>.
2. NJDEP Stormwater Management Facilities Maintenance Manual. Available from the Division of Watershed Management, New Jersey Department of Environmental Protection, PO Box 418, Trenton, New Jersey 08625; or online at <http://njedl.rutgers.edu/ftp/PDFs/1188.pdf>.

B. Additional Guidance Sources.

1. New Jersey Pinelands Commission, PO Box 7, 15 Springfield Road, New Lisbon, New Jersey 08064; Phone: 609-894-7300; Website: <http://www.state.nj.us/pinelands>.
2. State Soil Conservation Committee Standards for Soil Erosion and Sediment Control in New Jersey. Available from all State Soil Conservation Districts[, including Burlington County Soil Conservation District, Tiffany Square, Suite 100, 1289 Route 38, Hainesport, New Jersey 08036; Phone: 609-267-7410; Fax 609-267-3347; Website: <http://bscd.org>] *The municipality should substitute the appropriate local Soil Conservation District.*
3. State Soil Conservation Districts. *The municipality should substitute the appropriate local Soil Conservation District.*
4. New Jersey Department of Transportation, PO Box 600, Trenton, NJ 08625-0600; Phone: 609-530-3536; Website: <http://www.state.nj.us/transportation>.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

VI. COMPARISON TO ADJACENT MUNICIPALITIES, THE 2000 ATLANTIC COUNTY MASTER PLAN, THE PINELANDS COMPREHENSIVE MANAGEMENT PLAN AND THE STATE OF NEW JERSEY DEVELOPMENT AND REDEVELOPMENT PLAN

The following comparison of Buena Vista Township with adjacent surrounding municipalities was conducted to investigate the consistency of the existing and proposed land uses of Buena Vista Township with those of the neighboring communities. The following explanation for each community represents that there are no existing conflicts and that compatible and similar land uses flow from one municipal boundary to the other. Additionally, commentary has been provided regarding the consistency of the 2006 Master Plan Re-Examination Report with the 2000 Atlantic County Master Plan, the Pinelands Comprehensive Management Plan, and the New Jersey Development and Redevelopment Plan.

A. BOROUGH OF BUENA, ATLANTIC COUNTY

The Borough of Buena is located to the west of Buena Vista Township where portions of the existing Pinelands Area Zoning Districts of the Rural Development Residence-1 (RDR1), Agricultural Production (AP) and Pinelands Town (PT) along with the Non-Pinelands Area Zoning Districts of the Business (B1), Residence / Agriculture (RA) and Office Campus District Overlay Zone (OC) define the shared municipal boundary between the two municipalities. There are no recommended changes for this area within the Pinelands Management Area. The recommended changes include the Non-Pinelands area, specifically a portion of the OC Zoning District along Lincoln Avenue where a Redevelopment Plan has been approved for the development of an age-restricted, single-family residential complex. The inclusion of a redevelopment area which specifically promotes a residential use is consistent with the adjacent Residential (R-4) Zoning District of Buena Borough. The intent within the remainder of the Non-Pinelands area is to continue the existing land uses and patterns of development currently located along the shared municipal boundary.

B. BOROUGH OF FOLSOM, ATLANTIC COUNTY

The Borough of Folsom is located to the north of Buena Vista Township where portions of the existing Pinelands Area Zoning Districts of the Pinelands Village Residence-1 (PVR1), Rural Development Exclusive Industry (RDI), Forest Area-3 (FA3), and the Rural Development Residence-1 (RDR1) define the shared municipal boundary between the two municipalities. There are no recommended changes for this area

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

within the Pinelands Management Area. The intent is to continue the existing land uses and patterns of development currently located in this area as well as continuing the previous goal of maintaining and protecting the environmentally important forest area of Buena Vista Township.

C. TOWNSHIP OF HAMILTON, ATLANTIC COUNTY

The Township of Hamilton is located to the east of Buena Vista Township where portions of the existing Pinelands Area Zoning Districts of the Forest Area-1 (FA1), Forest Area-2 (FA2), Forest Area-3 (FA3), Pinelands Village Residence-2 (PVR2), Agriculture Production (AP), Rural Development Residence-1 (RDR1), and the Rural Development Residence/Commerce (RDR1C) define the shared municipal boundary between the two municipalities. There are no recommended changes for the Pinelands Management Zoning Districts of FA1, FA2, FA3, AP, RDR1 or the RDR1C and the intent is to continue the existing land uses and patterns of development currently located along the shared municipal boundary. The only recommended changes impact the PVR2 portion located within the Village of Richland, where a Redevelopment Plan has been approved for residential and commercial uses consistent with the traditional uses as found within a Pinelands Village.

D. TOWNSHIP OF WEYMOUTH, ATLANTIC COUNTY

The Township of Weymouth is located to the south of Buena Vista Township where portions of the existing Pinelands Area Zoning District of the Forest Area-1 (FA1) defines the shared municipal boundary between the two municipalities. There are no recommended changes for this area within the Pinelands Management Area other than continuing the previous goal of maintaining and protecting the environmentally important forest area of Buena Vista Township.

E. CITY OF VINELAND, CUMBERLAND COUNTY

The City of Vineland is located to the southwest of Buena Vista Township where portions of the existing Pinelands Area Zoning Districts of the Forest Area-1 (FA1) and Agriculture Production (AP) along with the Non-Pinelands Area Zoning Districts of the Business (B1), Residence / Agriculture (RA) and Office Campus District Overlay Zone (OC) define the shared municipal boundary between the two municipalities. There are no recommended changes for this area which includes both Pinelands and Non-Pinelands portions of Buena Vista Township. The intent is to continue the existing land uses and patterns of development currently located in this area as well as continuing the previous goal of maintaining

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

and protecting the environmentally important forest area and agricultural production area of Buena Vista Township.

F. TOWNSHIP OF MAURICE RIVER, CUMBERLAND COUNTY

The Township of Maurice River is located to the southwest of Buena Vista Township where portions of the existing Pinelands Area Zoning Districts of the Forest Area-1 (FA1) and the Rural Development Residence-2 (RDR2) define the shared municipal boundary between the two municipalities. There are no recommended changes for this area within the Pinelands Management Area. The intent is to continue the existing land uses and patterns of development currently located in this area as well as continuing the previous goal of maintaining and protecting the environmentally important forest area of Buena Vista Township.

G. TOWNSHIP OF FRANKLIN, GLOUCESTER COUNTY

The Township of Franklin is located to the northwest of Buena Vista Township where a portion of the existing Pinelands Area Zoning District of the Rural Development Residence-1 (RDR1) defines the shared municipal boundary between the two municipalities. There are no recommended changes for this area within the Pinelands Management Area. The intent is to continue the existing land uses and patterns of development currently located within the area of the shared municipal boundary.

H. TOWNSHIP OF MONROE, GLOUCESTER COUNTY

The Township of Monroe is located to the northwest of Buena Vista Township where portions of the existing Pinelands Area Zoning Districts of the Pinelands Village Residence-1 (PVR1) and the Rural Development Residence-1 (RDR1) define the shared municipal boundary between the two municipalities. There are no recommended changes for this area within the Pinelands Management Area other than continuing the previous goals of this area of the community. The intent is to continue the existing land uses and patterns of development currently located within the area of the shared municipal boundary.

I. ATLANTIC COUNTY MASTER PLAN

The Atlantic County Master Plan issued in October of 2000 identifies the land use areas of Buena Vista Township as consistent with the existing land use areas. Additionally, the Planning Goals of the Atlantic County Master Plan are consistent with the goals of Buena Vista Township, 2006 Master Plan Re-Examination Report. This is evident through the

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

compatible and consistent land uses between the neighboring municipalities of Atlantic County and Buena Vista Township.

J. PINELANDS COMMISSION, COMPREHENSIVE MANAGEMENT PLAN

The majority of Buena Vista Township exists within the Pinelands Management Area and Pinelands Area Zoning Districts. As a requirement of the Pinelands, local ordinances for Pinelands Area Zoning Districts must be in conformance with the Pinelands Commission, Comprehensive Management Plan and as such Chapter 49, Development Regulations for Buena Vista Township is in compliance.

K. NEW JERSEY STATE DEVELOPMENT AND REDEVELOPMENT PLAN

The Non-Pinelands portion of Buena Vista Township is located within the New Jersey State Planning Area of the Rural Planning Area (PA-4). One of the main goals of this planning area is the continuation and preservation of the rural character of the existing community. Due to the regulatory constraints including the limited infrastructure of public sewer and water and the environmental constraints of the community such as wetlands and a relatively high water table, in conjunction with the overall effort of the Governing Body, Planning Board and Administration of the Township of Buena Vista, the existing rural character will be continued and preserved.

**2006 MASTER PLAN RE-EXAMINATION REPORT
BUENA VISTA TOWNSHIP
Adopted May 2007**

VII. APPENDIX A

1. As the 2006 Master Plan Re-Examination Report is intended to be a working document for the community, the Appendix area is reserved for future additions as the Planning Board or the Governing Body sees fit to include.