



April 29, 2014

SENT VIA EMAIL AND OVERNIGHT MAIL

Nancy Wittenberg
Executive Director
The Pinelands Commission
PO Box 359
New Lisbon, NJ 08064

RE: *Long Term Comprehensive Plan for Treatment and Disposal of Wastewater from the Town of Hammonton – Revised April 28, 2014*

Dear Ms. Wittenberg:

Pursuant to the New Jersey Pinelands Commission Resolution No. PC4-14-10 adopted on March 14, 2014, we submit the above-referenced report which has been revised to satisfy Condition I of the resolution.

Please let me know if you have any questions or need additional information. You can reach me directly via telephone at 609-924-8821 ext. 114 or via e-mail at RFerrara@Kleinfelder.com. We thank you and your staff for the cooperation provided to the Town in this matter.

Sincerely,

A handwritten signature in black ink that reads "Raymond A. Ferrara". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Raymond A. Ferrara, Ph.D.
Vice President / Principal

cc with enclosure via email:

C. Horner
L. Liggett
E. Wengrowski
Mayor DiDonato
D. Dempsey
E. Wuillermin
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A. DeCicco
B. Howell



***Long Term Comprehensive Plan
for
Treatment and Disposal of Wastewater
from the
Town of Hammonton***

Revised April 28, 2014

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Nomenclature

ARH = Adams Rehmann and Heggan

gpd = gallons per day

mgd = million gallons per day

MUD = Municipal Utilities Department

Pinelands CMP = Pinelands Comprehensive Management Plan

WWTP = Wastewater Treatment Plant

I. INTRODUCTION

The Town of Hammonton is undertaking a proactive program to eliminate its discharge of treated wastewater to Hammonton Creek. That initiative includes (1) the construction of drip irrigation facilities at the Town's present land application site, (2) the continued operation of infiltration trenches at the land application site, (3) local ordinance implementation providing for water conservation measures, tax credits and other incentives to reduce water use and hence wastewater flow, and (4) an infiltration/inflow reduction program consisting of sewer system rehabilitation and replacement.

While the Town's wastewater is already treated to a very high level, it is the objective of the Pinelands Comprehensive Management Plan (CMP) that such discharges be permanently eliminated. The November 22, 2010 *Amended Report on an Application for Major Public Development*, approved by the Pinelands Commission on December 10, 2010, requires the Town of Hammonton to (a) prepare "a long term comprehensive plan regarding the treatment and discharge of wastewater", or (b) "cease all discharge of treated wastewater to Hammonton Creek". In the year 2004, the Town developed a land application wastewater disposal facility consisting of a storage lagoon and five infiltration trenches located between Boyer Avenue and Seventh Street within the Town of Hammonton as the first step in eliminating its discharge to the Creek. These facilities are depicted in Figures 1 and 2. (The land application facility will hereafter be referred to as the Boyer Avenue Facility.) The proposed program, as outlined further in this report, will provide the next step in achieving complete land application of treated wastewater.

In its continued effort to eliminate discharge to the Creek, the Town has developed a supplemental method for land application of wastewater at the Boyer Avenue Facility. The Town undertook a drip irrigation pilot study on a one acre parcel in the northeast quadrant of the site near Trench 3 and the storage lagoon between June 2010 and April 2011. When the system was operated continuously, approximately one million gallons of effluent per month or about 30,000 gpd was applied to the one acre parcel. No ponding or other adverse effects were observed. The effluent discharged by the drip irrigation system is consumed by evaporation, plant uptake with subsequent evapotranspiration, and infiltration. The drip irrigation system provides another opportunity to effectively dispose of wastewater at this site by making full use of the site.

A total of 26.5 acres have been identified by Adams Rehmann and Heggan (ARH) as suitable for surface drip irrigation in the northeast quadrant of the site. Appendix A illustrates

the plan for drip irrigation areas as prepared by ARH. An annual average wastewater disposal rate of 25,000 gpd per acre for the surface drip irrigation areas has been assumed by ARH. At that rate, an additional 660,000 gpd could be disposed of at the Boyer Avenue site via surface drip irrigation.

An underground or subsurface drip irrigation system is also being prepared for the recreation fields and green space on the southern portion of the Boyer Avenue site (also illustrated in Appendix A). A total of 21.71 acres of recreation fields have been identified as suitable for such a system. ARH has assumed an annual average subsurface drip irrigation rate of 20,000 gpd, allowing for a potential total disposal rate of over 430,000 gpd.

Consequently, drip irrigation provides the potential for disposal of over a million gallons of wastewater per day. Implementation of the drip irrigation facilities will be done incrementally. It is anticipated that these drip irrigation facilities combined with the existing infiltration trenches will provide land application capacity sufficient to dispose of the Town's presently permitted average flow of 1.6 mgd. The combination of the infiltration trenches and the drip irrigation facilities is expected to eliminate the routine and seasonal discharges to the Creek that have occurred in past years.

The Boyer Avenue infiltration trenches by themselves have been successfully employed to discharge a large portion of the wastewater generated by the Town and can successfully dispose of treated wastewater on a year round basis, but have not been able to accept all of that wastewater all of the time. As illustrated in Table 1, the long term average capacity of the infiltration trenches since the Town has been permitted to fully load the trenches (i.e., October 2009) is in the range of 800,000 gpd, whereas the long term average flow at the treatment plant is in the range of 1,000,000 gpd. Consequently, a portion of Hammonton's wastewater flow has been discharged to Hammonton Creek on an as needed, aperiodic basis when the amount of wastewater generated exceeds the capacity of the Boyer Avenue trenches to infiltrate wastewater. This has typically occurred during and after extreme wet weather events (e.g., in September 2011 after Hurricane Irene), or during extended periods of wet weather (throughout the Winter and Spring of 2010). During periods of drier weather, the Town has been able to dispose of all of its wastewater at the Boyer Avenue Facility (e.g., from May 2012 through December 2012, and from April 8, 2013 through January 2014).

The Town requests that its long term wastewater disposal plan include some component of discharge to Hammonton Creek but only during extreme emergency conditions. Pinelands Commission staff have reiterated that any discharge of treated wastewater to Hammonton

Creek constitutes a violation of the water quality provisions of the Pinelands Comprehensive Management Plan (CMP). The need for emergency¹ discharge of treated wastewater to the Creek has been considered even during discussions leading to the December 10, 2010 approval by the Pinelands Commission. Under the proposed plan including the drip irrigation facilities as presented herein, surface water discharge will only be needed on a standby, emergency basis during and after extreme wet weather events or periods of time (e.g., hurricanes, extreme continued precipitation, etc.) when sewage flow received at the treatment plant may temporarily exceed the infiltrative capacity of the Town's wastewater infiltration facility. Such events would be akin to a NJPDES permit affirmative defense during circumstances that are beyond the control of the facility operator. During such circumstances, the Town would notify Pinelands Commission staff on a daily basis and within 48 hours of each day of such occurrences including an explanation of the conditions that lead to the discharge, the daily volume of the discharge, the anticipated duration of the discharge and the measures being taken to eliminate the discharge. Regardless of such occurrences, it is important to note that it will always be the Town's intention to conform with the objective of the Pinelands Comprehensive Management Plan to eliminate the discharge of wastewater to surface waters.

¹ The authority to declare an emergency as it relates to Hammonton's discharge of wastewater to Hammonton Creek rests solely with the Executive Director of the Pinelands Commission after consultation with the Commission Chairman in accordance with N.J.A.C. 7:50-4.5.

II. HAMMONTON'S WASTEWATER COLLECTION, TREATMENT AND DISPOSAL FACILITIES

A. Wastewater Collection System

The Town's sanitary sewer conveyance system presently consists of approximately 55 miles of gravity sewer pipe of various size and types, 6 municipal pump stations, and 4.5 miles of force main. The 55 miles of gravity sewer could be further broken down as follows:

- ABS Pipe – approximately 4 miles
- Vitrified Clay (VC) Pipe – approximately 23 miles
- PVC Pipe – approximately 28 miles

The Town has replaced approximately 23,000 LF or 4.4 miles of VC pipe over the past 10 years which is about 8% of the total sanitary sewer lines and 19.0% of the vitrified clay lines within the Town. This upcoming year, the Town has received bids to replace an additional 10,000 LF or two miles of pipe which is an additional 8.2% of the old VC pipe. The Mayor and Council has made it one of their goals to replace the older VC lines, vents, manholes, etc. within the Town to reduce the potential for ground water and stormwater infiltration. This also reduces the volume of wastewater which must be treated at the Hammonton Wastewater Treatment Plant (WWTP) and discharged at the Boyer Avenue Facility. The Town has concentrated its replacement program on the oldest major trunk lines, areas of high groundwater table and areas of street flooding concerns. The Town has committed to this goal for sanitary sewer replacement within the upcoming years. They expect to have all of the problematic pipe sections replaced within the next ten years.

It would be premature and unrealistic to provide a firm replacement schedule for each of the pipe and roadway sections contemplated for replacement at the present time. The Town will evaluate the existing pipe conditions, infiltration, roadway flooding potential, funding availability, roadway conditions, flows at the treatment plant and land disposal site, etc. in order to select the pipe replacement priorities as it has done over the past years. This will be formulated in conjunction with the completion of an Infiltration and Inflow (I/I) study by the Town's engineering consultant.

B. Wastewater Treatment Plant

The Town's WWTP has existed on Pleasant Mills Road as far back as the early 1900's and has relied on discharge to Hammonton Creek since its original construction. The treatment plant has been renovated and upgraded a number of times over the years with the most recent improvements completed in approximately 1994 when the facility was replaced and relocated to the opposite side of Pleasant Mills Road. As part of that relocation, discharge to the Creek was scheduled to cease. The treatment plant as it exists today provides for advanced treatment of wastewater that is then discharged via force main to a storage lagoon at the Boyer Avenue Facility or discharged (only on an emergency, as needed basis) directly to Hammonton Creek.

The Hammonton WWTP presently has an average flow of less than 900,000 gpd (2012 and 2013), and is designed to accommodate a flow of 1.6 mgd. Treatment processes include bar screen, grit chamber, comminutor, modified oxidation ditch, final clarifiers, ultraviolet disinfection and post aeration. The facility provides an extremely high level of treatment including nitrogen removal consistent with the objectives of the Pinelands CMP.

It is important to note that at one time the treatment plant was handling significantly greater flow. Wastewater flow has been reduced to its present volume due to the occurrence of the following items:

- Implementation of Water Conservation Measures and Ordinances by the Town.
- Replacement of older gravity sanitary sewer lines, sewer vents, manholes, service laterals, etc. within selected sections of the Town which effectively reduced the volume of extraneous flow to the treatment plant from groundwater intrusion and stormwater flow during localized street flooding conditions
- Loss of four (4) major water/sewer uses, consisting of:
 - Whitehall Pharmaceutical Laboratories
 - Hammonton Brewery
 - Washington Street Laundry Facility
 - Kessler Hospital

C. Boyer Avenue Storage Lagoon and Infiltration Trenches

The Boyer Avenue disposal site was constructed in approximately 2004 and consists of one 16 million gallon storage lagoon, a pump station and five infiltration trenches. The total site is approximately 180 acres. Approximately ninety-five acres of the site consist of wooded area; about thirty acres of that will be used for surface drip irrigation and related activities. Approximately forty-five acres are used for recreational purposes, parking, stormwater recharge, etc. which are already in use or approved for construction. The balance of the site or about forty acres are being used for the storage lagoon, infiltration trenches, access corridors, pump station, etc.

The five infiltration trenches represent about three acres of the site and have a storage volume of approximately twenty-eight million gallons. These trenches have served as the vehicle for the recharge of effluent treated at the Hammonton WWTP since the site became operative in 2004.

D. Proposed Drip Irrigation Facilities

The Town has authorized its Engineer and Irrigation Consultant to design and obtain permits for the installation of a Drip Irrigation System at the Boyer Avenue Land Application Site. The system will consist of two major areas to allow for the recharge of treated effluent. (See Appendix A.) The first component to be installed will be the surface drip irrigation system which will consist of approximately 26.47 acres. The Surface Drip Irrigation Component is designed to accommodate and recharge approximately 660,000 gpd or about 75% of the treatment plant's present average flow. This also represents about 40% of the design capacity for the treatment plant.

The second phase of the drip irrigation facilities will consist of a subsurface drip irrigation system. The subsurface drip irrigation component will be constructed under approximately 21.71 acres of existing and proposed recreational fields and green space. The Subsurface Drip Irrigation Component is designed to accommodate and recharge approximately 430,000 gpd or about 50% of the WWTP's present average flow. This also represents about 27% of the design capacity for the treatment plant.

In total the drip irrigation facilities are estimated to add over a million gallons per day of disposal capacity, and when combined with the existing capacity of the infiltration

trenches, the Boyer Avenue Facility is expected to be more than able to accommodate the entire wastewater flow from the Town. It is the Town's intention to operate the surface and subsurface drip irrigation facilities year round to the maximum extent possible.

An application for treatment works approval (TWA) for the surface drip irrigation system was submitted to NJDEP on December 18, 2013. Approval is anticipated to be granted by the early spring of 2014. While construction of the actual drip irrigation facilities cannot begin until that approval is obtained, the Town has already undertaken site preparation activities in anticipation of that approval. The individual sections will be constructed sequentially starting with the largest area (OL#1 consisting of approximately 8.89 acres) which is designed to provide a wastewater disposal capacity of approximately 220,000 gpd. That section is anticipated to be operational by late Spring or early Summer of 2014. The Town has also contracted with a private entity to complete site preparation for the remaining surface drip irrigation sections (OL#2 through OL#11) consisting of approximately 17.58 acres. It is anticipated that these remaining areas will be operational by the Fall of 2014. All work for the surface drip irrigation facilities will be funded independently by the Town with a request for assistance from some additional funding sources that the Town is pursuing. The Town is committed to the completion of the work on their own in the event no outside funding is received.

The Town has filed a Letter of Intent (LOI) with the NJEIT to request funding assistance for the construction of the subsurface drip irrigation facilities. The Town has authorized its engineer to continue with the application process for the portion of the subsurface drip irrigation section designated as UG #1. Design of the above noted area was submitted to NJDEP in the Spring of 2014 to be eligible for FY 2015 funds. A copy of the conceptual design for the entire subsurface drip irrigation facilities was submitted to the Pinelands Commission for review and approval on December 6, 2013. Pinelands Commission approval of the subsurface drip irrigation facilities was provided on February 21, 2014 via Resolution #PC4-14-04. Subsequent discussion with NJDEP resulted in some changes to the design which will be resubmitted to the Commission for approval.

Drip Irrigation Construction Table/Timeline:

- Surface Drip Irrigation Area 26.47 Acres

- | | |
|----------------|---|
| January 2014 | Complete grubbing of all surface drip application areas. |
| April 2014 | Begin construction of surface drip irrigation area, OL#1 consisting of 8.9 acres (subject to receipt of TWA). |
| June 2014 | Begin construction of remaining surface drip irrigation areas OL#2 through OL#11 consisting of 17.6 acres. |
| September 2014 | Complete construction of surface drip irrigation areas OL #1 through OL#11 (subject to weather conditions) |
- Subsurface Drip Irrigation Area 21.71 Acres
- | | |
|-------------------|---|
| December 2013 | Submission of conceptual design plans to Pinelands Commission. |
| February 21, 2014 | Approval of conceptual design plans by Pinelands Commission via Resolution #PC4-14-04. |
| March 15, 2014 | Completion and submission of design plans and related information to the NJEIT for funding approval consideration for UG #1. |
| July 1, 2014 | Submission of design plans for NJDEP TWA for UG #1. |
| November 7, 2014 | Receipt of project approval from NJEIT and obtain Authorization to Advertise for UG #1. |
| December 2014 | Receive bids for construction of subsurface drip irrigation phase for UG #1. |
| December 2014 | Apply for interim project financing and submit bid review and recommendation of award to NJEIT for consideration for UG #1. |
| January 2015 | Receive authorization to award approval from NJEIT for UG #1. |
| March 2015 | Receive approval from NJEIT regarding permanent project funding. |
| Mid-April 2015 | Start construction of subsurface drip irrigation component for active recreation area UG #1 consisting of 7.47 acres. |
| To be determined: | The subsurface drip irrigation process for active recreational areas UG #3, #4 and #5 consisting of 8.96 acres will be constructed on an as needed basis, as further detailed in the Pinelands Commission approval Resolution #PC4-14-10 for the LTWMP. If the capacity of the Boyer Avenue site with the complete surface and UG#1 subsurface drip irrigation is |

found to be inadequate causing discharges to Hammonton Creek, then construction of areas UG #3, #4 and #5 may be required earlier.

To be determined: The remaining 5.3 acres of future active recreation area designated as UG #2 will be constructed on an as needed basis to accommodate additional flow at the land disposal site. The NJDEP TWA permits to construct this remaining 5.3 acres will be secured. If the capacity of the Boyer Avenue site with the complete surface drip irrigation and subsurface areas UG#1, #3, #4 and #5 is found to be inadequate causing discharges to Hammonton Creek, then construction of subsurface drip irrigation at UG#2 may be required earlier.

As noted in the response above, the Town will be completing the subsurface drip irrigation component consisting of a total acreage of 21.71 acres in various stages. The goal would be to complete the active recreation fields in stages as noted above which would represent 16.4 of the total 21.71 acres. This represents approximately 75% of the subsurface drip irrigation area. It is important to have the first section, UG#1 of the active recreation fields completed during the Summer of 2015 so that the fields will be ready for full active recreational use by the Fall of 2015. The construction of the remaining 14.24 acres will follow on an as needed basis as indicated within the above noted paragraph and as further detailed in the Pinelands Commission approval Resolution #PC4-14-10.

Upon construction of the drip irrigation facilities, it is expected that the Boyer Avenue site will have the potential to accept up to 1.8 million gallons per day (mgd) of treated effluent when all systems are fully operating. That is 12% over the present 1.6 mgd design capacity of the WWTP. It is also important to note that flows to the wastewater treatment plant have actually been reduced over the past year substantially related to water conservation measures and reduction in extraneous flow into the sanitary sewer system. With the current plan, there will be sufficient time to monitor whether there will ever be any future need for additional wastewater treatment and disposal capacity at the Boyer Avenue site.

As noted throughout the report, the surface and subsurface drip irrigation components will be operated as much as possible, for as long as possible throughout the year. There is no set schedule for operation until experience with the systems occurs on-line and they are properly monitored. Under Section III.B of the LTWMP entitled “Future Maintenance Schedule”, it is noted that the goal would be to rely on the surface and subsurface drip irrigation as much as possible during the warmer months. It also stipulates that the deeper subsurface drip irrigation lines will remain operative as long as possible throughout the year. The Town will operate the surface and subsurface drip irrigation facilities to the maximum extent possible.

Construction and Operational Details of Drip Component:

- Surface Drip Irrigation System Layout

The surface drip irrigation system has been designed with products specifically suited to meet the special challenges that treated wastewater pose, and for the soils and conditions at this particular site. The drip tubing specified is manufactured by Netafim USA, model Techline RW. This 17 mm (0.66 inch) polyethylene tubing has embedded pressure-compensating emitters to ensure even distribution of water throughout the line at the desired flow rates. Because each drip irrigation system has header and exhaust manifolds, pressure is distributed more evenly across each zone. As long as the inlet pressure to the header manifold fed from the irrigation zone valve is 25 psi, a drip tube can be up to 520 feet long, much greater than the longest run shown on the drawings. Based on the historical soil testing of the site, the drip tubing for the surface drip irrigation area shall be specified with emitters spaced 18 inches apart within the tubing that dispenses water at a rate of 0.4 gallons per hour (gph). With drip tubing spaced 24 inches on center, the effective application rate to the soil is 0.21 inches of water per hour across each zone when running. This application rate is appropriate for the water intake rate characteristics of the exiting soil on the surface site. When laid out over land, the flexible polyethylene tubing has a purple stripe to denote non-potable water is being dispensed, plus, it is UV-resistant and will not degrade in direct sunlight.

- **Subsurface Drip Irrigation for Athletic Field System Layout**

The drip irrigation for the athletic fields on the west portion of the site has been designed specifically to meet the demands of drip irrigation for turf. To accommodate the possible disposal of wastewater during the winter months and throughout the year, a second layer of drip irrigation is proposed beneath the expected frost layer (approximately 2 feet below grade). Once again Techline RW manufactured by Netafim USA is specified in order to handle and dispense the treated effluent. The inlet pressure to the header manifold shall be 45 psi, allowing for continuous drip tube lengths up to 370 feet long. Based on the historical soil testing of the site, the drip tubing shall be specified with emitters spaced 12 inches apart within the tubing that dispenses water at a rate of 0.6 gallons per hour (gph). With drip tubing lines spaced 12 inches on center, the effective layer of drip tubing that shall feed the turf for the athletic field will have a six (6) inch cover from finished grade. This layer must be winterized each year in order to prevent pipe failure from freezing. The deeper drip layer will be installed at 90° to the upper level tubing and placed below maximum frost is identical in material (Techline RW) but the drip tubing will be laid out 18 inches on center with integral emitters 18 inches apart within the lines. At 0.6 gph and this spacing, the application rate is 0.16 inches per hour. This will afford the opportunity to dispose of wastewater year round.

With all three wastewater disposal components (infiltration trenches, surface drip and subsurface drip) on-line, the facility operator will have maximum flexibility to provide for the disbursement of not only the present wastewater flow, but also the 1.6 mgd for which the Hammonton WWTP is designed to accommodate. It also allows the operator to rest, maintain and rehabilitate each area as needed to provide for maximum recharge potential. The plan view of the drip irrigation is included within the appendix of this report.

In addition to the above drip irrigation areas, Appendix A also shows that there is (1) an approximately 10 acre potential future recreational area adjacent to Infiltration Trench 2, and (2) an approximately 4 acre potential future playing field area adjacent to Infiltration Trench 5 that could provide additional opportunity for drip irrigation if needed.

III. OPERATION AND MAINTENANCE PROCEDURES TO MAXIMIZE INFILTRATION CAPACITY

A. Historical Operation

Effective operation of the Boyer Avenue site has required regular maintenance of the facilities. The following illustrates typical maintenance activities that have been performed by the facility operator.

- Since the initial start-up of the land disposal operation, all trenches have been rehabilitated. Rehabilitation work can only be completed while the trench is completely dry. A tractor disc is initially used to remove any grass from the trench and to generally break up the bottom surface area of the trench. The subsoiler is then used to provide for much deeper rehabilitation for the bottom of the trench area and to open up sealed soil pore spaces. This provides for optimal recharge as the trenches are loaded.
- In 2012, trenches 4 & 5 were dried and the subsoil rehabilitated as described above. In 2013, trenches 3 & 4 were dried and the subsoil rehabilitated.
- The time required to complete the trench subsoil rehabilitation work is normally 2 to 4 weeks for trenches 3, 4 & 5. Trenches 1 & 2 take longer to completely dry out and for the subsoil rehabilitation work to be completed. The depths of trenches 1 & 2 also extend the timeframe required for the trenches to dry out and the rehabilitation process to be completed.
- General maintenance also occurs on each of the trench areas periodically including repair to the existing side slopes, cutting of brush, cleaning of debris as needed, etc.
- Town personnel monitor the performance of each of the trenches during the year and make a decision as to which trench would be recommended for subsoil rehabilitation at the appropriate time.

It should be noted that with the implementation of the surface drip irrigation facilities in the late Summer of 2014 and the subsurface drip irrigation to follow after NJEIT funds are provided, the facility operator will have much greater flexibility in operating the site. It would also provide for the diversion of treated effluent to various

areas of the site and optimize the site's availability to recharge, as well as provide for vegetative uptake and evapotranspiration of treated effluent.

B. Future Maintenance Schedule

Once the full complement of wastewater disposal options are in place, the facilities available will include:

- Storage lagoon with capacity of 16 million gallons
- 5 infiltration trenches
- Approximately 26.47 acres of surface drip irrigation
- Approximately 21.71 acres of subsurface drip irrigation

The facility operator will maximize hydraulic loading to the Boyer Avenue site. Whenever possible, all wastewater generated at the treatment plant will be routed to the Boyer Avenue site for discharge to ground water. Exceptions to this requirement include safety concerns² and rare periods of time when the wastewater flow at the treatment plant exceeds the infiltrative capacity of the site. The use of the surface and subsurface drip irrigation components are expected to allow the facility operator to dispose of all of the Town's wastewater via land application year-round.

The Town shall continue its program of monitoring flows from the treatment plant to the Creek and to the storage lagoon along with groundwater levels in the monitoring wells and piezometers at the Boyer Avenue site. By March 31 of each year, in addition to the monthly discharge reports, the Town shall prepare a report on the flows from the treatment plant to the storage lagoon, infiltration trenches, drip irrigation areas, and the Creek, as well as the ground water levels recorded during that year. An evaluation of

² While it is impossible to anticipate all safety concerns that might occur, such conditions could include infiltration trench embankment failure, surface discharge from the Boyer Avenue site to surrounding roadways causing hazardous driving conditions, subsurface discharge from the Boyer Avenue site to adjoining building basements, etc. Proposed measures to abate safety concerns are subject to approval by the Executive Director of the Pinelands Commission after consultation with the Commission Chairman in accordance with N.J.A.C. 7:50-4.5. Within twenty four hours of taking emergency action, the Town shall notify the Executive Director of all actions taken to remedy or prevent conditions that are dangerous to life or health or pose any other safety hazard.

the total disposal capability of the site including the effectiveness of drip irrigation and any impact it may be having on infiltration from the trenches shall be included in that report.

The goal would be to rely on surface and subsurface drip irrigation as much as possible during the summer months, and the silt trenches during the winter months. Resting the trenches during the summer months will provide the operator the opportunity to perform maintenance on the trenches more effectively and prepare them for the winter time use period. The Town will be required to backwash the filter for the drip irrigation along with the draining/blow-out of the surface and shallow subsurface drip irrigation areas for the winter months. The deeper subsurface drip irrigation lines will remain operative as long as possible throughout the year.

1. Infiltration Trench Typical Schedule for Maintenance:

- Restoration and rehabilitation work to occur during the summer months typically June through September.
- Rehabilitation to occur on a rotating basis with various trenches being taken off line each year.
- Trenches 1 & 2 are the longest and deepest at the site. They take the most time to dry out during the rehabilitation process.
- Trench rehabilitation will consist of the following operations:
 - The tractor disc is initially used to remove any grass/vegetative growth that has occurred within the bottom and side slopes of the trenches.
 - The tractor disc will be used to break up the bottom surface area of the trench.
 - The subsoiler will then be used for a deeper rehabilitation of the trench bottom to assist in creating greater porosity within the trench bottom.
 - Soil excavation and replacement will be conducted as needed while the trench is dry.
- Complete general maintenance of trenches includes side slope, erosion repair and stabilization, brush cutting, removal of any accumulated debris, fence repair, access drive repair, etc.
- The following general schedule will be used for the trench maintenance which could be adjusted as required to ensure optimal recharge capability:

- Year 1 – Slit Trench #2
- Year 2 – Slit Trench #4 & 5
- Year 3 – Slit Trench #1
- Year 4 – Slit Trench #3
- Repeat cycle of maintenance

2. Surface Drip Irrigation Typical Schedule for Maintenance:

- Approximately 26.47 acres will be fully operational by the end of the Summer of 2014.
- Each of the eleven surface drip irrigation areas will be initially loaded individually to review their operation and effectiveness and in order to determine a preferred distribution sequence of operation.
- The surface flow drip irrigation component will be operated as long as possible depending on weather conditions with a general operation schedule extending between March and December (i.e., Spring, Summer and Fall).
- At the end of each operating season the Surface Drip Irrigation System will be completely drained of liquid through a series of blow-off locations similar to that required for a lawn irrigation system.
- The filter component used to reduce the potential for suspended solids from entering the drip line will be backwashed to clear the filter as needed and will be drained when weather conditions can no longer safely accommodate its use.
- The start-up of the surface drip irrigation will require the inspection of the filter and replacement as needed prior to filling the lines with effluent and placing the system back into operation for the spring, summer and fall operating seasons. In order to allow for extended use of the filter system and deep drip irrigation component, the Town is considering constructing a small structure next to the pump station building to accommodate the filter unit. The portion of the structure that will house the filter unit will be heated in order to extend the operation of the drip irrigation system.
- Adjustments to the loading for each of the surface drip irrigation areas are controlled through a series of valves, moisture sensors and the facility operator's judgment to ensure maximum efficiency.

3. Subsurface Drip Irrigation Typical Schedule for Maintenance:

- This system will operate on both a shallow and deeper drip irrigation component. This system will be installed under the recreational and green space areas of the Boyer Avenue site consisting of approximately 21.74 acres.

- Controls, valving and moisture sensor measuring components will allow the shallow and deeper drip irrigation lines to function independently of one another.
- The shallow drip irrigation component will operate during the time of year that will allow for grass root uptake of the treated effluent. Depending upon seasonal variations, soil moisture content, etc., the shallow drip irrigation component will be operated March through November of each year.
- The deeper subsurface drip irrigation component will operate for a longer period of time and likely year-round unless a deep freeze or other adverse weather conditions occur.
- As long as the weather permits, the pump, filter system, controls, etc. for the deep subsurface drip irrigation could remain online.
- The upper level component of the subsurface drip irrigation will require the same maintenance procedure as contained in the surface drip irrigation component which will include the following:
 - System drain and blow-out.
 - Backwash of any filter as required and replacement of same as needed.
 - Adjustment to the loading for each of the subsurface drip irrigation areas as controlled through a series of valves, moisture sensors and the facility operator's judgment to ensure maximum efficiency.

IV. WATER CONSERVATION AND INFILTRATION/ INFLOW CONTROL PROGRAM

The Town of Hammonton recognizes that its ability to eliminate discharge of treated wastewater to Hammonton Creek depends in part on its ability to reduce wastewater flow. The Town has sought to achieve this via two separate but related initiatives – (1) water conservation, and (2) reduction of extraneous infiltration/inflow to the sanitary sewer system.

Since 2011 the Mayor and Town Council in cooperation with the NJDEP Bureau of Safe Drinking Water have enacted three separate water conservation ordinances that have helped to reduce water use and at the same time effect a corresponding reduction of flow to the Hammonton WWTP. The three ordinances implemented by the Town Council are as follows (copies are included in Appendix B):

- **Ordinance #022-2011, Water Conservation Ordinance, adopted 11/28/11**
Ordinance #022-2011 requires the Town, its residents, businesses, and industry to maximize the beneficial use of its available natural resources and to prevent the waste or unreasonable use of water. Each resident and business connected to the public water supply is encouraged to support and use water conservation measures throughout the year in order to preserve and protect this valuable commodity. The Superintendent of the Town of Hammonton will provide public notice during the year listing various methods that the general public and business sector can use to conserve water use for the benefit of all.
- **Ordinance #010-2012, Water Rate Ordinance, adopted 5/14/12**
The purpose of the Ordinance is to define the Service, Maintenance and Water Rates for the Town of Hammonton. The prior Water Rate Ordinance was a sliding scale which actually generated a lesser per gallon user rate for more water consumed. The new rates now are consistent with water use rates throughout the State where the more water used, the higher the rate charge. Since its adoption, the Town has seen a definite reduction in water consumed and an increase in water conservation measures on behalf of the Town's residents and businesses.
- **Ordinance #029-2013, Water Conservation Tax Credit/Rebate Program, adopted 12/16/13**
The Town of Hammonton has promoted and will continue to promote water conservation among town residents and businesses. The Town recognizes that conserving natural resources promotes the sustainability of the town, protects the

natural environment and area wildlife, and saves residents and businesses money. The Town has an intrinsic interest in stimulating the adoption of advanced technologies, devices, and appliances by Town residents and business in order to promote the conservation and good stewardship of natural resources. In order to promote this effort, the Town will provide a tax credit to customers using the public water supply system and a rebate to all other residential water consumers based on the installation and use of a variety of water-conserving technologies and appliances.

Table 2 illustrates the benefits that the Town is beginning to realize in connection with the adoption of these ordinances. Monthly water use in year 2013 is clearly trending lower in comparison to earlier years. This will undoubtedly contribute to a reduction in wastewater flows.

With regard to reduction of infiltration/inflow, the Town has been undertaking a proactive sewer replacement program for the past decade for areas of known concerns. Appendix C provides a table outlining the various sanitary sewer replacement projects that the Town has undertaken since 2003. Over 23,000 linear feet or approximately 4.4 miles of sewers have been rehabilitated at a cost of over \$9,000,000 to the Town. Furthermore, the Town has additional projects scheduled that will rehabilitate another 10,000 linear feet or approximately two miles of sewer at a cost of nearly \$5,600,000. The prior and proposed sewer rehabilitation projects are depicted in the map provided in Appendix D. There will be additional sanitary sewer and related structural appurtenances added once the results of the I/I Study are obtained.

The majority of the sanitary sewer rehabilitation work completed to date has included the replacement of old terra cotta (clay) pipe with PVC pipe. The PVC pipe has tighter joints with a rubber seal to reduce the potential for water infiltration. The house service laterals also constructed of terra cotta (clay) pipe and the old Schuster type service vents were replaced with PVC pipe, sanitary tee and solid caps between the curb and sidewalk. The old terra cotta laterals and Schuster vents were a source of water infiltration especially during heavy rain events where the roadway became flooded. Much of the sanitary sewer replacement work along the streets noted also included the reconstruction of older storm sewer pipes which reduced the potential for street flooding and resultant stormwater inflow to the sanitary sewer system.

The map provided in Appendix D illustrates three categories of sanitary sewer rehabilitation undertaken by the Town as follows:

- Sanitary sewer replacement projects completed from 2003 through 2012, 23,000 LF, (4 miles) \$9.1 million.
- Sanitary sewer replacement project to be completed in 2014, 10,000 LF, (2 miles) \$5.6 million (estimated).
- Future sanitary sewer replacement projects, 13,200 LF, (2.5 miles) \$8.5 million (estimated).
- Total 46,000 LF, (8.7 miles) \$23.2 million.
- As noted earlier, the rehabilitation and replacement of additional sanitary sewer pipe and related appurtenances will occur once the results of the I/I Study are obtained.

The sanitary sewer rehabilitation work has been selected to replace the older vitrified clay lines, Schuster vents and manholes where the Town would realize the greatest impact on extraneous flow during high ground water table conditions, excessive storm events and where localized street flooding occurs. The projects have also been targeted to include the trunk lines for the Town's sanitary sewer system which also correspond to some of the oldest lines within the Town and areas where the seasonal high water table is elevated. Also along Bellevue Avenue, a higher volume of vehicular traffic causes a concern for weakness within old pipe line and structures. The higher volume of traffic causes pipe failures particularly adjacent to older brick and block manholes and pipe joints along the line. Manhole covers have been replaced to provide for a tighter seal at the surface and reduce the potential for storm water intrusion into the system during street flooding conditions. Broken or collapsed storm sewer pipe has been replaced where warranted to reduce the potential for street flooding.

Annual average wastewater flows since year 2010 at the Town's treatment plant have been as follows:

Annual Average Treatment Plant Flow

| Year | Annual Average Flow (mgd) |
|------|---------------------------|
| 2010 | 1.18 |
| 2011 | 1.07 |
| 2012 | 0.903 |
| 2013 | 0.873 |

While these reduced flows are of course a function of many variables, we believe that the Town's proactive approach to water conservation and sanitary sewer rehabilitation within problematic areas have been a contributing factor to this reduction in flow. Indeed, the Town was able to eliminate any discharge to Hammonton Creek for virtually nine consecutive months in 2013, and for eight consecutive months in 2012. Progress in eliminating the discharge to the Creek is apparent.

In conjunction with Condition I.d of the Pinelands Commission approval Resolution #PC4-14-10 for the LTWMP adopted on March 14, 2014, the Town will be completing an I/I Study of the Town's sanitary sewer system including inspection of all remaining problematic vitrified clay sewerage pipelines within the Town's sewage collection system. The results of the inspection program, along with conclusions and recommendations, shall be submitted to the Commission under the signature and seal of a New Jersey licensed professional engineer by March 14, 2016. That study will consider a variety of inspection procedures including visual inspection of sewerage system manholes and covers, closed circuit TV inspection of individual lines, smoke and/or dye tests, and location of illegal connections. The final report will include:

1. A map of the Town's sanitary sewer system noting pipe type, old mains, area of elevated seasonal high water table, etc.
2. The results of consultation with cleaning, video and pipe repair contractors to review options for repair, replacement, slip lining, manhole and lateral repair, etc. to reduce ground and surface water infiltration.
3. A public education program related to elimination of extraneous water discharges into the Town's sanitary sewer system by sump pumps, drainage pipe interconnections, etc.
4. Revisions to the Town's ordinance to provide for a comprehensive inspection and enforcement program by the Town's construction official to assist in the identification of points of extraneous groundwater flow to the Town's sanitary sewer system in residential, business and industrial settings.

As stipulated in the Pinelands Commission approval resolution, the I/I study must be completed and submitted to the Commission within two (2) years from the adoption of the approval resolution (i.e., March 14, 2016).

V. LONG TERM COMPREHENSIVE WASTEWATER PLAN IMPLEMENTATION

All conditions as stipulated in the Pinelands Commission resolution of approval #PC4-14-10 adopted March 14, 2014, Section II a through k shall apply.

VI. CLOSING

The Town of Hammonton is willing to aggressively eliminate discharge to surface water from its wastewater treatment plant. As such, it is proactively moving forward with a comprehensive program that includes (1) the construction of drip irrigation facilities at the Town's present land application site, (2) the continued operation of infiltration trenches at the land application site, (3) local ordinance implementation providing for water conservation measures, tax credits and other incentives to reduce water use and hence wastewater flow, and (4) an infiltration/inflow reduction program consisting of sewer system rehabilitation and replacement within problematic areas. As evidence of the Town's position on this matter, attached as Appendix E of this report is the initial Resolution #019-2014 adopted by the Town and Resolution #066-2014 subsequently adopted by the Town endorsing the contents of this long term comprehensive wastewater management plan (referred to as the LTWMP). The Town's commitment is clear. It intends to work cooperatively with the Pinelands Commission in satisfying the objectives of the Pinelands Comprehensive Management Plan.

FIGURES



FIGURE #1
Hammonton Wastewater
Treatment and Disposal Facilities

January 2, 2014



321 Wall Street, Princeton, NJ 08540
 Tel: 609-924-8821 • www.omni-env.com

2007 NJDEP Orthophotography
 Property Boundary - Atlantic County GIS 2000

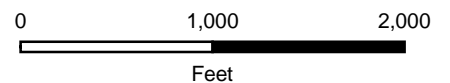




FIGURE #2
Boyer Avenue Facilities

January 2, 2014

TABLES

Table 1. Hammonton WWTP Monthly Average Flows

| Month | Total Flow from WWTP (mgd) | Flow to Boyer Avenue Storage Lagoon (mgd) | Flow to Creek (mgd) | % Flow to Storage Lagoon |
|--------------|-----------------------------------|--|----------------------------|---------------------------------|
| Oct 2009 | 0.9682 | 0.8396 | 0.1286 | 86.71% |
| Nov 2009 | 1.0188 | 0.8803 | 0.1385 | 86.40% |
| Dec 2009 | 1.2961 | 1.0379 | 0.2582 | 80.08% |
| Jan 2010 | 1.3314 | 0.8270 | 0.5045 | 62.11% |
| Feb 2010 | 1.3325 | 0.9108 | 0.4217 | 68.35% |
| Mar 2010 | 1.9165 | 0.8111 | 1.1054 | 42.32% |
| Apr 2010 | 1.7359 | 0.8072 | 0.9286 | 46.50% |
| May 2010 | 1.3184 | 1.0046 | 0.3138 | 76.20% |
| Jun 2010 | 1.1237 | 0.9064 | 0.2173 | 80.66% |
| July 2010 | 0.9936 | 0.9721 | 0.0215 | 97.83% |
| Aug 2010 | 0.9071 | 0.9071 | 0.0000 | 100.00% |
| Sep 2010 | 0.8874 | 0.8874 | 0.0000 | 100.00% |
| Oct 2010 | 0.9127 | 0.9127 | 0.0000 | 100.00% |
| Nov 2010 | 0.8427 | 0.8427 | 0.0000 | 100.00% |
| Dec 2010 | 0.8631 | 0.8631 | 0.0000 | 100.00% |
| Jan 2011 | 0.8649 | 0.8649 | 0.0000 | 100.00% |
| Feb 2011 | 0.9454 | 0.9454 | 0.0000 | 100.00% |
| Mar 2011 | 1.0476 | 1.0476 | 0.0000 | 100.00% |
| Apr 2011 | 1.1054 | 0.8576 | 0.2477 | 77.59% |
| May 2011 | 0.9747 | 0.7616 | 0.2131 | 78.14% |
| Jun 2011 | 0.9013 | 0.9013 | 0.0000 | 100.00% |
| July 2011 | 0.9903 | 0.9903 | 0.0000 | 100.00% |
| Aug 2011 | 1.2688 | 0.9284 | 0.3404 | 73.17% |
| Sep 2011 | 1.3414 | 0.1881 | 1.1533 | 14.02% |
| Oct 2011 | 1.1269 | 0.6384 | 0.4885 | 56.65% |
| Nov 2011 | 1.0774 | 0.7892 | 0.2883 | 73.25% |
| Dec 2011 | 1.1905 | 0.8609 | 0.3296 | 72.32% |
| Jan 2012 | 1.0835 | 0.5536 | 0.5299 | 51.10% |
| Feb 2012 | 0.9677 | 0.4428 | 0.4424 | 45.76% |
| Mar 2012 | 0.9302 | 0.4985 | 0.4316 | 53.60% |
| Apr 2012 | 0.9121 | 0.6419 | 0.2702 | 70.38% |
| May 2012 | 0.9003 | 0.9003 | 0.0000 | 100.00% |
| Jun 2012 | 0.8684 | 0.8684 | 0.0000 | 100.00% |
| July 2012 | 0.8718 | 0.8718 | 0.0000 | 100.00% |
| Aug 2012 | 0.8866 | 0.8866 | 0.0000 | 100.00% |
| Sep 2012 | 0.8376 | 0.8376 | 0.0000 | 100.00% |
| Oct 2012 | 0.8137 | 0.8137 | 0.0000 | 100.00% |
| Nov 2012 | 0.8541 | 0.8541 | 0.0000 | 100.00% |
| Dec 2012 | 0.9078 | 0.9078 | 0.0000 | 100.00% |

Table 1. Hammonton WWTP Monthly Average Flows

| Month | Total Flow from WWTP (mgd) | Flow to Boyer Avenue Storage Lagoon (mgd) | Flow to Creek (mgd) | % Flow to Storage Lagoon |
|----------------|-----------------------------------|--|----------------------------|---------------------------------|
| Jan 2013 | 0.8997 | 0.3229 | 0.5769 | 35.89% |
| Feb 2013 | 0.8979 | 0.3125 | 0.5854 | 34.80% |
| Mar 2013 | 0.9266 | 0.6131 | 0.3136 | 66.17% |
| Apr 2013 | 0.8970 | 0.8471 | 0.0499 | 94.44% |
| May-13 | 0.8661 | 0.8661 | 0.0000 | 100.00% |
| Jun-13 | 0.9302 | 0.9302 | 0.0000 | 100.00% |
| Jul-13 | 0.9302 | 0.9302 | 0.0000 | 100.00% |
| Aug-13 | 0.8590 | 0.8590 | 0.0000 | 100.00% |
| Sep-13 | 0.8116 | 0.8116 | 0.0000 | 100.00% |
| Oct-13 | 0.7812 | 0.7812 | 0.0000 | 100.00% |
| Nov-13 | 0.8018 | 0.8018 | 0.0000 | 100.00% |
| | | | | |
| <i>Average</i> | <i>1.0144</i> | <i>0.8067</i> | <i>0.2060</i> | <i>82.5%</i> |
| <i>Min</i> | <i>0.7812</i> | <i>0.1881</i> | <i>0.0000</i> | <i>14.0%</i> |
| <i>Max</i> | <i>1.9165</i> | <i>1.0476</i> | <i>1.1533</i> | <i>100.0%</i> |

Table 2 Hammonton Monthly Water Use (gallons) 2008 to 2013

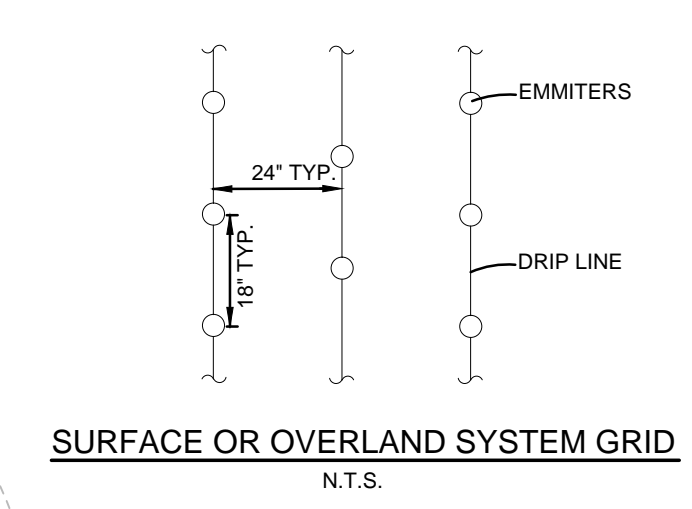
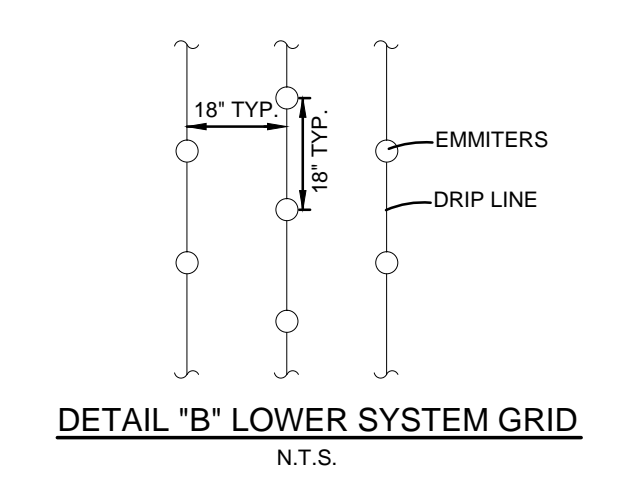
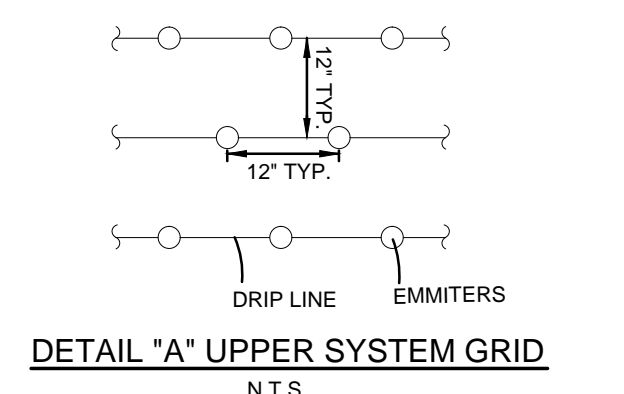
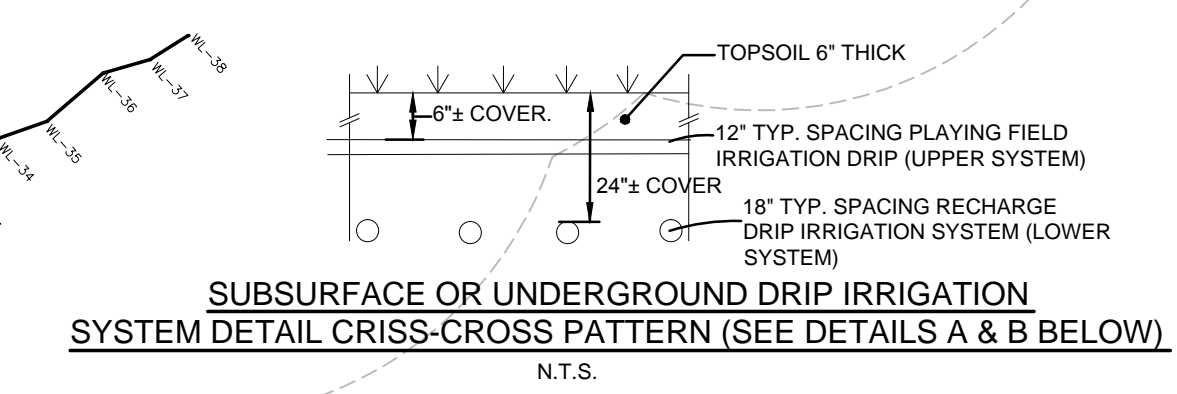
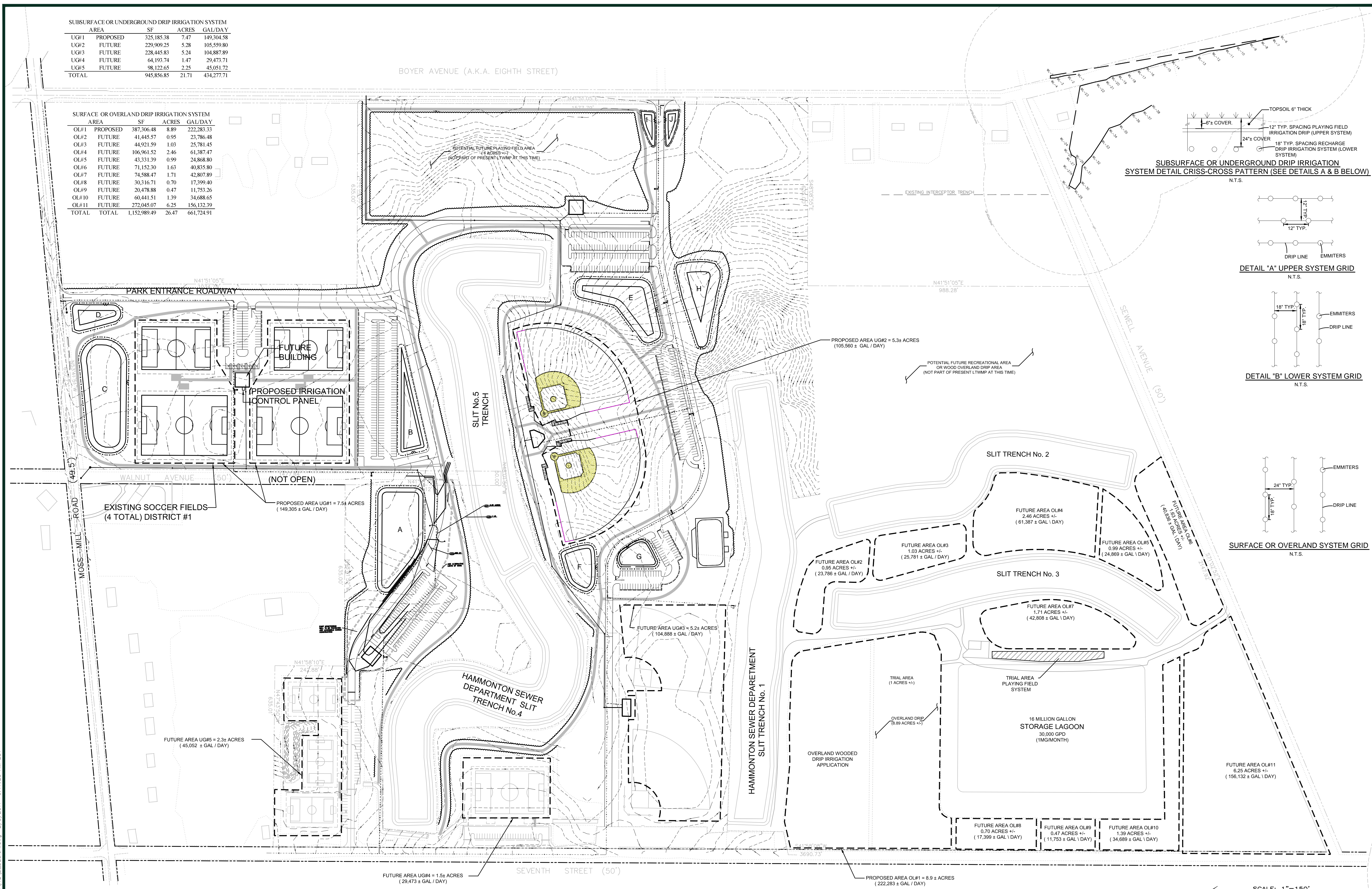
| | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | Average by Month | Minimum by Month | Maximum by Month |
|--------------|--------------------|--------------------|--------------------|--------------------|--------------------|--------------------|-------------------|-------------------|-------------------|
| January | 29,752,000 | 31,566,000 | 30,321,000 | 29,913,000 | 38,175,000 | 25,442,000 | 30,861,500 | 25,442,000 | 38,175,000 |
| February | 26,517,000 | 27,665,000 | 27,453,000 | 26,527,000 | 25,819,000 | 22,089,000 | 26,011,667 | 22,089,000 | 27,665,000 |
| March | 29,616,000 | 28,156,000 | 31,699,000 | 29,194,000 | 31,834,000 | 26,983,000 | 29,580,333 | 26,983,000 | 31,834,000 |
| April | 37,133,000 | 39,675,000 | 36,019,000 | 30,119,000 | 34,830,000 | 31,232,000 | 34,834,667 | 30,119,000 | 39,675,000 |
| May | 51,099,000 | 47,731,000 | 55,820,000 | 49,435,000 | 44,702,000 | 37,307,000 | 47,682,333 | 37,307,000 | 55,820,000 |
| June | 77,980,000 | 47,684,000 | 76,843,000 | 77,065,000 | 69,866,000 | 42,206,000 | 65,274,000 | 42,206,000 | 77,980,000 |
| July | 81,604,000 | 70,565,000 | 88,014,000 | 77,600,000 | 84,596,000 | 52,151,000 | 75,755,000 | 52,151,000 | 88,014,000 |
| August | 78,827,000 | 58,433,000 | 77,906,000 | 57,513,000 | 65,806,000 | 44,459,000 | 63,824,000 | 44,459,000 | 78,827,000 |
| September | 62,267,000 | 49,803,000 | 64,904,000 | 38,720,000 | 49,122,000 | 45,489,038 | 51,717,506 | 38,720,000 | 64,904,000 |
| October | 51,407,000 | 41,659,000 | 42,294,000 | 38,735,000 | 38,716,000 | 37,417,000 | 41,704,667 | 37,417,000 | 51,407,000 |
| November | 32,672,000 | 31,097,000 | 31,317,000 | 32,021,000 | 28,824,000 | 26,976,000 | 30,484,500 | 26,976,000 | 32,672,000 |
| December | 31,933,000 | 30,798,000 | 30,276,000 | 32,459,000 | 25,926,000 | 25,843,000 | 29,539,167 | 25,843,000 | 32,459,000 |
| Total | 590,807,000 | 504,832,000 | 592,866,000 | 519,301,000 | 538,216,000 | 417,594,038 | 43,939,112 | 34,142,667 | 51,619,333 |

APPENDIX A

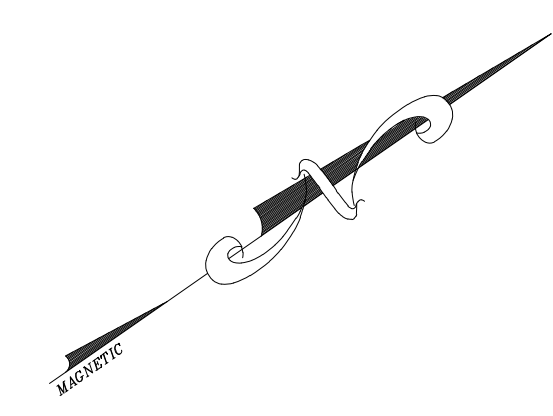
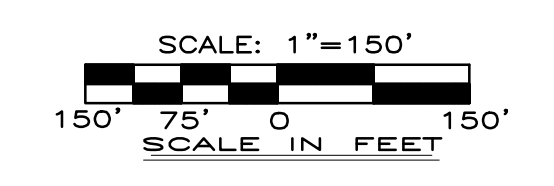
Drip Irrigation Concept Plan

| SUBSURFACE OR UNDERGROUND DRIP IRRIGATION SYSTEM | | | | |
|--|----------|------------|---------|------------|
| AREA | SF | ACRES | GAL/DAY | |
| UG#1 | PROPOSED | 325,185.38 | 7.47 | 149,304.58 |
| UG#2 | FUTURE | 229,909.25 | 5.28 | 105,559.80 |
| UG#3 | FUTURE | 228,445.83 | 5.24 | 104,887.89 |
| UG#4 | FUTURE | 64,193.74 | 1.47 | 29,473.71 |
| UG#5 | FUTURE | 98,122.65 | 2.25 | 45,051.72 |
| TOTAL | | 945,856.85 | 21.71 | 434,277.71 |

| SURFACE OR OVERLAND DRIP IRRIGATION SYSTEM | | | | |
|--|----------|--------------|---------|------------|
| AREA | SF | ACRES | GAL/DAY | |
| OL#1 | PROPOSED | 387,306.48 | 8.89 | 222,283.33 |
| OL#2 | FUTURE | 41,445.57 | 0.95 | 23,786.48 |
| OL#3 | FUTURE | 44,921.59 | 1.03 | 25,781.45 |
| OL#4 | FUTURE | 106,961.52 | 2.46 | 61,387.47 |
| OL#5 | FUTURE | 43,331.39 | 0.99 | 24,868.80 |
| OL#6 | FUTURE | 71,152.30 | 1.63 | 40,835.80 |
| OL#7 | FUTURE | 74,588.47 | 1.71 | 42,807.89 |
| OL#8 | FUTURE | 30,316.71 | 0.70 | 17,399.40 |
| OL#9 | FUTURE | 20,478.88 | 0.47 | 11,753.26 |
| OL#10 | FUTURE | 60,441.51 | 1.39 | 34,688.65 |
| OL#11 | FUTURE | 272,045.07 | 6.25 | 156,132.39 |
| TOTAL | TOTAL | 1,152,989.49 | 26.47 | 661,724.91 |



NOTE: WOODS LINE INSIDE FENCE OBTAINED FROM 2007 NJ AERAIL No. F16D14



Robert A. Vette
 PROFESSIONAL ENGINEER
 NEW JERSEY LICENSE NO. 28898

arh **adams, rehmann & heggan**
 ENGINEERS SURVEYORS PLANNERS
 associates, inc.
 850 South White Horse Pike
 Hammonton, NJ 08307-2019
 tel: (609) 561-0482
 fax: (609) 567-8909
 certificate of authorization no. 246AZ9723300

| | | |
|-----------|--------------------|-----|
| 4/16/14 | DRIP TUBING DETAIL | DCD |
| 2/18/2014 | LTWMP REPORT | DCD |
| REVISIONS | | |

CONCEPTUAL DESIGN APPROVAL PLAN FOR
 BOYER AVENUE SITE
 SURFACE AND SUBSURFACE
 DRIP IRRIGATION COMPONENTS
 TOWN OF HAMMONTON - ATLANTIC COUNTY - NEW JERSEY

| | |
|------------|----------------|
| DATE: | MARCH 10, 2008 |
| SCALE: | 1"=150' |
| DRAWN BY: | MAK |
| CHECKED: | KEC |
| PROJ. NO.: | 11-50058 |

DRAWING LOCATION: W:\FILEROOM\CS115066\ENGIN\DWG\2014 IRRIGATION\DESIGN\DWG
 LAST DATE SAVED: 4/16/2014
 LAST SAVE BY: DDEMP

W:\FILEROOM\CS115066\ENGIN\DWG\HOLD\DESIGN\DWG_2/2/2011_9:17:23 AM EST

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APPENDIX B

Ordinance #022-2011, Ordinance #010-2012, Ordinance #29-2013

11/28/11

Ordinance #022-2011

AN ORDINANCE AMENDING ARTICLE IV, CHAPTER 275
OF THE CODE OF THE TOWN OF HAMMONTON ENTITLED "WATER CONSERVATION"

BE IT ORDAINED by the Town of Hammonton, County of Atlantic and State of New Jersey as follows:

SECTION I. **PURPOSE AND INTENT**

It is hereby declared that the public health, safety and welfare require that the Town of Hammonton maximize the beneficial use of its available natural resources and that the waste or unreasonable use or unreasonable method of use of water be prevented. The conservation of such potable water resource is to be extended with a view to the reasonable and beneficial use thereof as is necessary for sanitary, domestic and firefighting purposes in the interests of the people of the Town of Hammonton. Each resident and business within the Town of Hammonton connected to the public water supply is encouraged to support and use water conservation measures throughout the year in order to preserve and protect this valuable commodity. The Superintendent of the Town of Hammonton will provide public notice during the year listing various methods that the general public and business sector can use to conserve water use for the benefit of all.

Listed below are some of the measures that shall be used to conserve water:

1. Check regularly to make sure all pipes, faucets, toilets and other systems and equipment are free of leaks and drips.
2. Water lawn no more frequently than three times a week and limit irrigation time to 15 or 30 minutes within each zone. (See the specific section in this Ordinance concerning irrigation).
3. Install rain sensor gauges to lawn sprinkler systems to prevent irrigation during rain events.
4. Install drip irrigation where possible within landscaped areas to avoid excessive water use.
5. Install low volume toilets. (Max 1.6 gpm)
6. Install low flow shower heads. (Max 2.0 gpm)
7. All faucets should be equipped with aerators. Aerator screens should be cleaned on a regular basis.
8. Use water intermittently when brushing teeth and washing dishes and utensils.
9. Run dishwashers and washing machines only with full loads.

SECTION II. **APPLICABILITY**

All properties located within the Town of Hammonton, whether they be served by the public water system or a private well, shall be subject to compliance with this ordinance.

SECTION III. IRRIGATION CATEGORIES

- A. Lawn Watering with a hose or hose end sprinkler
1. May only be done three days per week. Properties with even number addresses may only water on Monday, Wednesday and Friday, properties with odd number addresses may only water on Tuesday, Thursday and Saturday.
 2. No irrigation to occur on Sundays.
 3. Watering shall only be conducted between the hours of 12:00AM (midnight) and 9:00AM or between 5:00PM and 12:00AM (midnight).
 4. The watering of any single zone shall not exceed thirty minutes per day.
 5. Flowers and shrubs may be watered as needed with a hand held hose equipped with an automatic shut-off nozzle;
 6. No hose or hose end watering shall be permitted when it is raining.
- B. Irrigating lawns and landscapes with automatic irrigation systems equipped with a conventional irrigation controller (this includes all systems that do not have a "smart" controller as defined in section III.C)
1. May only be done three days per week. Properties with even number addresses may only water on Monday, Wednesday and Friday, properties with odd number addresses may only water on Tuesday, Thursday and Saturday.
 2. Watering shall only be conducted between the hours of 12:00AM (midnight) and 9:00AM or between 5:00PM and 12:00AM (midnight).
 3. Operation of any irrigation zone equipped with spray (mist) heads shall not exceed 15 minutes per zone. Operation of any irrigation zone equipped with rotary sprinkler heads shall not exceed 30 minutes per zone.
- C. Irrigating with systems equipped with a SMART Controller
1. To qualify for this provision as a SMART Controller, the SMART Controller must have successfully completed IA-SWAT protocol testing. Lists of climate-based and sensor based controllers that have successfully completed the protocol testing can be found at <http://www.irrigation.org/SWAT/swat.aspx?id=298>.
 2. The property owner must register the SMART Controller with the municipality.
 - a. The municipality will issue a yard placard which the homeowner must display signifying that the property is irrigated with a SMART Controller.
 3. The SMART Controller must be programmed by an EPA Water Sense Partner who holds a New Jersey Landscape Irrigation Contractor Certificate pursuant to NJSA 45:5AA-3.
 - a. The SMART Controller must be programmed to irrigate between the hours of 12:00AM (midnight) and 9:00AM or between 5:00 PM and 12:00 AM (midnight).
 - b. Proper sprinkler head data and accurate soil/plant/irrigation information must be entered.
 - c. The SMART Controller programming data shall be posted at the controller.
 - d. The Water Sense Partner must make a minimum of two site visits after the initial programming to adjust and fine tune the irrigation schedule.
- D. Irrigation systems programmed by an irrigation manager
1. The property owner must designate a qualified person who will be the irrigation manager and register that person with the municipality with defining qualifications.
 2. The irrigation manager must be an EPA Water Sense Partner or show evidence of successfully completing a class on irrigation scheduling.
 3. A property specific irrigation program shall be developed by the irrigation manager based on plant variety, soil type, precipitation rate, and irrigation efficiency.
 4. Weekly adjustments shall be made to the irrigation schedule based on current evapotranspiration (ET) rates or weather conditions.

SECTION IV. EQUIPMENT COMPLIANCE

- A. All automatic irrigation systems
1. Per NJ PL 2000, c. 107 (see NJSA 52:27D-123.13), operational automatic rain sensor devices are required for all sprinkler/irrigation systems to ensure that watering does not occur during periods of rain. In addition, all sprinkler / irrigation systems must be equipped with an operational automatic rain sensor device.
 2. Any work performed on a system as a result of any inspection made by the homeowner or a professional must be in compliance with Landscape Irrigation Contractor Certification Act of 1991 (NJSA 45:5AA-3).
 3. Flowers and shrubs irrigated with drip or micro irrigation may be watered as needed.
 4. Must have a functional rain sensor that interrupts the automatic irrigation cycle when ¼-inch of rain has fallen.
- B. All new irrigation systems must comply with the following:
1. The system must be installed by an EPA Water Sense Partner who holds a New Jersey Landscape Irrigation Contractor Certificate pursuant to NJSA 45:5AA-3.
 2. The system must comply with New Jersey Irrigation Best Management Practices including:
 - a. Be designed to insure sufficient operating pressure at the sprinkler head
 - b. Divide irrigation areas into hydro-zones of turf and plants with similar water requirements
 - c. Zone the system according to exposure
 - d. Consider the soil type so the sprinkler precipitation rate is compatible with the soil infiltration rate or the irrigation schedule is to be modified to multiple, short cycles to prevent runoff
 - e. Provide separate control of sloped areas

- f. Prevent sprinkler heads from overthrowing onto driveways, roads, and sidewalks
 - g. Provide for separate irrigation for parkway strips between curbs and sidewalks that minimizes overthrow onto concrete walks and pavement
 - h. Include pressure regulating technology as necessary to insure sprinkler heads operate within the manufacturer's recommended range. The pressure regulation may be:
 - i. A pressure regulation device at the point of connection
 - ii. Pressure regulation at each remote control valve
 - iii. Pressure regulation at the sprinkler head
 - iv. A combination of the above
 - i. Irrigate all flowers and shrubs with a drip and/or micro-irrigation
 - j. Include check valves in low sprinkler heads to prevent low-point drainage
 - k. Have a pressure regulating device and wye strainer on each drip/micro control valve
3. The system must have a SMART Controller capable of providing the optimum schedule for the turf and landscape.
- a. The SMART Controller must have undergone SWAT testing and be listed on the Irrigation Association website www.swatirrigation.org (This section will be replaced by a Water Sense labeling requirement once the EPA releases the labeling of SMART Controllers anticipated in 2010).
 - b. The SMART Controller must be programmed by an EPA Water Sense Partner who holds a New Jersey Landscape Contractor Certificate pursuant to NJSA 45:5AA-3.
 - i. Proper sprinkler head data and accurate soil/plant/irrigation information must be entered.
 - ii. The SMART Controller programming data shall be posted at the controller.
 - iii. The Water Sense Partner must make a minimum of two site visits after the initial programming to adjust and fine tune the irrigation schedule.
- C. Vehicles may be washed any day with a hand-held hose equipped with an automatic shut-off nozzle.
- D. Restrictions identified in Section IX shall supersede those identified in this Section when the Town of Hammonton declares a Declaration of Water Emergency.
- E. State of New Jersey requirements shall supersede those identified in this Section when more stringent than the Town of Hammonton Water Conservation Guidelines.

SECTION V. NEW CONSTRUCTION COMPLIANCE

- A. All new construction shall be equipped with water conservation fixtures. All new shower heads to be installed shall have a maximum flow rate of two (2.0) gallons per minute and all new toilets shall have a maximum flow rate of one and six-tenths (1.6) gallons per flush.
- B. All new construction shall be encouraged to use xeriscape landscaping to eliminate the need for over-irrigation.
- C. All new construction shall be encouraged to use gray water collectors and rain water collectors to limit the amount of potable water used for irrigation. The use of gray water and rain water for irrigation purposes shall be unlimited and shall not be subject to the restrictions of this ordinance. Property owners are responsible for obtaining any permits required for the reuse of gray water.

SECTION VI. EXISTING CONSTRUCTION COMPLIANCE

- A. Prior to the issuance of a C.O. for any building addition, expansion, and/or change in use, the Owner of said structure shall install water conservation fixtures throughout the structure. These fixtures include installing new shower heads which shall have a maximum flow rate of two (2.0) gallons per minute and installing new toilets which shall have a maximum flow rate of one and six-tenths (1.6) gallons per flush (also faucets and aerators).
- B. Exceptions to this section shall be made for historically significant structures of which the installation of historical fixtures is in keeping with the historical nature of the structure. Exceptions to this section shall also be made for the installation of fixtures in facilities which provide for a public education benefit whose benefit is solely towards Water Conservation Education.

SECTION VII. EXEMPTIONS

The restrictions in this ordinance do not apply to the following:

- A. Outdoor water use from rain water harvesting, gray water, or reclaimed water is exempt from the provisions of this ordinance.
- B. Outdoor water use for harvestable crops or commercial nurseries, sod farms, and golf courses are exempt from the provisions of this ordinance.
- C. Outdoor irrigation necessary for one day only where treatment with an application of chemicals require immediate watering to preserve an existing landscape or to establish a new landscape (a permit shall be obtained).
- D. Outdoor irrigation necessary for the establishment of newly sodded lawns or landscaping within the first 21 consecutive days of planting (a permit shall be obtained from the Construction Code Office).

- E. Visually supervised operation of watering systems by a State of New Jersey Licensed Irrigation Contractor for short periods of time to check system condition and effectiveness.

SECTION VIII.

AUTHORIZATION TO DECLARE A STATE OF WATER SUPPLY CONSERVATION

The Mayor and Council of the Town of Hammonton, by and through the Town of Hammonton Municipal Utility Department, may declare a State of Water Supply Conservation upon a recommendation by the Superintendent and by a majority vote of the Water Subcommittee of the Public Works and Transportation Committee, or its successor, that conservation measures are necessary and appropriate to ensure an adequate supply of water to all water customers of the Town of Hammonton.

In case of an emergency in which, in the opinion of the Municipal Utility Department's superintendent, the available supply of water becomes dangerously low, the Town of Hammonton Municipal Utility Department through the Water Subcommittee of the Public Works and Transportation Committee, or its successor, is hereby authorized to recommend to the full Mayor and Council to declare by Resolution the existence of a Water Emergency.

The resolution (hereinafter referred to as the "Declaration") by the Town of Hammonton shall state that an emergency exists requiring the implementation of such measures for the conservation of water for domestic and sanitary purposes and fire protection as are specified in Section 3.

SECTION IX.

WATER CONSERVATION STAGES

It is unlawful for any customer of the Town of Hammonton to make, cause, use or permit the use of water from the Town of Hammonton for residential, commercial, industrial, agricultural, governmental or any other purpose in a manner contrary to any provision herein, or in an amount in excess of that use permitted by the following conservation stages which shall be placed into effect pursuant to action taken by the Town of Hammonton, or its designees, in accordance with these provisions.

Uses of water in violation of the standards set forth herein shall include, but shall not be limited to, the following practices:

- A. A customer shall not let water leave the customer's property by drainage onto adjacent properties or public or private roadways, streets or storm sewer systems due to excessive irrigation and/or uncorrected leaks.
- B. A customer will not fail to repair a water leak upon notice by the Superintendent or his authorized designee to repair said leak.

The following stages shall take effect upon issuance of a Declaration as herein provided.

SECTION IX.i

STAGE I: WATER ALERT MANDATORY COMPLIANCE

Upon implementation by the Town of Hammonton and publication of notice in one or more of the Town's official newspapers, the following Stage 1 water conservation measures shall apply:

- A. Lawn watering and landscape irrigation, including construction irrigation, is permitted only during designated hours on designated days, regardless of the particular month. Watering is permitted at any time if:
1. A hand-held hose equipped with a positive shut-off nozzle is used, or
 2. A hand-held container is used, or
 3. A drip irrigation system is used.
- B. The washing of automobiles, trucks, trailers, boats, airplanes and other types of mobile equipment, is prohibited at any time. Washing may be done at any time on the immediate premises of a commercial car wash or commercial service station, or by a mobile car wash or on-site car wash using high pressure washing equipment. Further, such washings are exempted from those regulations where the health, safety and welfare of the public is contingent upon frequent vehicle cleanings, such as garbage trucks and vehicles to transport food and perishables.
- C. The overfilling of swimming pools and spas is prohibited. The filling or refilling of ponds and artificial lakes is prohibited.
- D. Use of water from fire hydrants shall be limited to firefighting, related activities or other activities necessary to maintain the health, safety and welfare of the citizens of Hammonton.
- E. All restaurants are prohibited from serving water to their customers except when specifically requested by the customers.
- F. Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios or other paved areas, except to alleviate immediate fire or sanitation hazards. High pressure washing of such surfaces will be permitted.
- G. Ornamental fountains and garden ponds may operate if they re-circulate water. Ornamental fountains and garden ponds that do not recycle water are prohibited.
- H. Construction operations receiving water from a construction meter or water truck shall not use water unnecessarily for any purposes other than those required by regulatory agencies. Construction projects requiring watering for new landscaping

materials should adhere to the designated irrigation hours associated with subsection A of Section III.

- I. Commercial nurseries, commercial sod farms and similarly-situated establishments are exempt from Stage 1 irrigation restrictions but will be required to curtail all nonessential water use.

SECTION IX.ii

STAGE II: WATER EMERGENCY

- A. Lawn watering and landscape irrigation performed with a hand-held hose equipped with a positive shut-off nozzle is not permitted. Watering is permitted only during designated hours on designated days, regardless of the months of the year, if a hand-held container or drip irrigation system is used.
- B. Commercial nurseries shall reduce water by an amount to be determined by the Town of Hammonton Municipal Utility Department Superintendent. Water use is permitted only for commercially grown food crops, sod at commercial farms and golf courses, and nursery stock at nurseries and retail outlets.
- C. The washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited. Washing is permitted at any time on the immediate premises of a commercial car wash provided the facility uses reclaimed water. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be prohibited. Further, such washings are exempt from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleanings, such as garbage trucks and vehicles to transport food and perishables.
- D. The overfilling of swimming pools and spas is prohibited. The filling or refilling of ponds and artificial lakes is prohibited.
- E. Watering golf courses, parks, school grounds and recreation fields is permitted only during designated hours on designated days, except for golf course greens which may be irrigated to remain viable.
- F. Use of water from fire hydrants shall be limited to firefighting or other activities immediately necessary to maintaining the health, safety, and welfare of the citizens of Hammonton. The use of hydrants by municipal road departments, contractors, and all others shall be prohibited.
- G. All restaurants are prohibited from serving water to their customers except when specifically requested by the customers.
- H. Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire and/or sanitation hazards.
- I. The operation of any ornamental fountain or similar structure is prohibited except for short periods of time to prevent damage and to support fish and aquatic life.
- J. The use of water for all outdoor recreational purposes is prohibited.
- K. The washing of the outsides of dwellings, buildings, or other structures, except for windows, is prohibited.

SECTION IX.iii

STAGE III: SEVERE WATER EMERGENCY

- A. All outdoor irrigation of turf and ground covers is prohibited with the exception of plant materials classified to be rare, exceptionally valuable or essential to the well-being of the public at-large or rare animals. Irrigation of only trees and shrubs is permitted only by a hand-held container or drip irrigation system. Gray water may be used in accordance with the appropriate regulatory agency guidelines and regulations to irrigate fruit trees, ground covers, and ornamental trees and shrubs. Gray water is defined as household wastewater other than toilet waste.
- B. Commercial nurseries shall reduce water by an amount to be determined by the Town of Hammonton Municipal Utility Department Superintendent. Water use is permitted only for commercially grown food crops, sod at commercial farms and golf courses, and nursery stock at nurseries and retail outlets. Gray water may be used in accordance with the appropriate regulatory agencies to irrigate fruit trees, ground covers, and ornamental trees and shrubs.
- C. The washing of automobiles, trucks, trailers, boats, airplanes, and other types of mobile equipment is prohibited. Washing is permitted at any time on the immediate premises of a commercial car wash provided the facility uses reclaimed water. The use of water by all types of commercial car washes not using partially reclaimed or recycled water shall be prohibited. Further, such washings are exempt from these regulations where the health, safety, and welfare of the public is contingent upon frequent vehicle cleanings, such as garbage trucks and vehicles to transport food and perishables.
- D. The overfilling of swimming pools and spas is prohibited. The filling or refilling of ponds and artificial lakes is prohibited.
- E. Watering golf courses, parks, school grounds and recreation fields is permitted only during designated hours on designated days, except for golf course greens.
- F. Use of water from fire hydrants shall be limited to firefighting or other activities immediately necessary to maintaining the health, safety, and welfare of the citizens of Hammonton. The use of hydrants by municipal road departments, contractors, and all others shall be prohibited.

- G. All restaurants are prohibited from serving water to their customers except when specifically requested by the customers.
- H. Water shall not be used to wash down sidewalks, driveways, parking areas, tennis courts, patios, or other paved areas, except to alleviate immediate fire and/or sanitation hazards.
- I. The operation of any ornamental fountain or similar structure is prohibited except for short periods of time to prevent damage and to support fish and aquatic life.
- J. The use of water for all outdoor recreational purposes is prohibited.
- K. The washing of the outsides of dwellings, buildings, or other structures, except for windows, is prohibited.
- L. The use of water for commercial, manufacturing, or processing purposes shall be reduced in volume by an amount determined by the Town of Hammonton Municipal Utility Department.
- M. All sales of non-reclaimed water outside of the Town's limits shall be discontinued, with the exception of sales previously approved by the Town of Hammonton.
- N. No new construction meters will be issued. Construction water shall not be used for earthwork or road construction purposes. Construction projects necessary to maintaining the health, safety, and welfare of the public are exempt from these regulations.
- O. Except as to property for which a building permit has been previously issued, no new building permit(s) shall be provided, except in the following circumstances:
 1. For projects necessary to protect the public's health, safety, and welfare;
 2. When using reclaimed water;
 3. When the recipient of the building permit can demonstrate that no net increase in water use will occur.
 4. In the case of an emergency declaration as is described herein, the terms of the curtailment may be modified by amendment from time to time based on any changes in emergent conditions.

SECTION X. NOTICE OF DECLARATION

Immediately following the passage of any of the Water Supply Conservation Declarations hereinbefore described, a copy of the declaration shall be published in one or more of the Town's official newspapers and posted in the municipal building, police headquarters, construction office and the office of the Town of Hammonton Municipal Utility Department. It should also be noted that the Town of Hammonton presently provides for the collection, advance treatment and reclamation of the majority of its sanitary sewer effluent through a slit trench recharge process and soon to be employed drip irrigation system within the Town's Recreation Complex.

SECTION XI. EFFECT OF DECLARATION

The Declaration of a State of Water Supply Conservation shall be conclusive of the fact of the existence of such stage of Water Supply Conservation and shall be binding upon all persons and users upon the filing of the same in the office of the Town Clerk and the publication thereof in one or more of official Town newspapers.

SECTION XII. TERMINATION OF DECLARATION

The Declaration shall continue in full force and effect, except as amended, until terminated by a resolution of termination adopted by the Council of the Town of Hammonton.

SECTION XIII. INSPECTIONS

All premises receiving service from the Town of Hammonton water and sewer system as well as those with private wells shall be subject to an exterior inspection of the unoccupied portion of the premise by the Town of Hammonton's employees or any other person duly authorized and appointed by the Town or Authority to perform inspections to oversee compliance during each stage of Water Supply Conservation. It shall be a violation of this chapter for any person to hinder, obstruct, delay, resist or prevent any such inspection as is described herein.

SECTION XIV. USE TO BE A VIOLATION

It shall be a violation of this Chapter for any person to use water from the Town of Hammonton's water system at any time in a manner prohibited by any declaration issued pursuant to this Chapter.

SECTION XV.

CONTINUED USAGE DEEMED A VIOLATION OF THIS SECTION AND THE AUTHORITY RULES AND REGULATIONS

In the event that there is on any premises a continuing usage of water from the Town of Hammonton water system by any person in a manner prohibited by any declaration issued pursuant to this chapter, such continuing usage is hereby declared to be a violation of this section and the Authority Rules and Regulations. The owner, occupant, and/or operator of the premises whereon the violation is occurring shall be served with written notice of the violation by the delivery to any such owner, occupant, and/or operator or the agent or employee of any of same actually on the premises. If no such person is present the notice shall be posted on the premises. If, after the passage of one (1) hour from the delivery or posting of such notice, the violation has not been abated, any employee of the Town of Hammonton is hereby authorized to enter upon the premises to abate the violation and discontinue water service. Thereafter, the Town or the Municipal Utility Department, as the case may be, shall assess the costs of such abatement against the owner, operator and/or occupant of the premises.

SECTION XVI.

VIOLATION AND PENALTIES

Any person found guilty of violating any portion of this Ordinance shall be subject to a fine according to the following schedule:

| | |
|-----------------------------|---|
| First Offense: | Written Warning; |
| Second Offense: | One Hundred dollars (\$100.00) fine; |
| Third Offense: | Two Hundred dollars (\$200.00) to Four Hundred dollars (\$400.00) fine; and |
| Fourth or Multiple Offense: | a fine not to exceed Seven Hundred & Fifty dollars (\$750.00) and up to Thirty (30) days Community Service. |

Any person found guilty of violating Section 9 shall be subject to a fine of Seven Hundred & Fifty dollars (\$750.00) for each twenty-four (24) hour period or part thereof for which it can be proven that the violation occurred.

Any violation occurring within twenty-four (24) hours of any Declaration issued pursuant to this Ordinance shall result in a warning and shall not be considered an offense.

This Ordinance shall take effect immediately upon final passage and publication according to law.

Amended Ordinance Introduced: October 24, 2011

Amended Ordinance Adopted: November 28, 2011

ORDINANCE # 010 -2012

AN ORDINANCE AMENDING CHAPTERS 275-4 ENTITLED SERVICE AND MAINTENANCE CHARGES FOR METERS AND 275-7 ENTITLED WATER RATES

BE IT ORDAINED BY THE MAYOR AND COMMON COUNCIL OF THE TOWN OF HAMMONTON IN THE COUNTY OF ATLANTIC AND STATE OF NEW JERSEY, AS FOLLOWS:

- 1. PURPOSE. The purpose of this Ordinance is to amend the Service, Maintenance and Water Rates for the Town of Hammonton.
- 2. SERVICE AND MAINTANCE CHARGES. For the service and maintenance, there shall be charged the following rates beginning August 1, 2012.

SEMI-ANNUAL SERVICE & MAINTENANCE CHARGES

| <u>Meter Size</u> | <u>Fee</u> |
|-------------------|------------|
| 5/8 Inch Meter | \$8.00 |
| 1 Inch Meter | \$10.00 |
| 2 Inch Meter | \$12.00 |

- 3. WATER RATES. For the use of water, there shall be charged the following rates beginning August 1, 2012.

SEMI-ANNUAL WATER RATES

| <u>Water Consumption (cubic feet)</u> | <u>Fee</u> |
|---------------------------------------|------------------------------|
| First 3,000 or less | \$85.00 |
| From 3,001 to 5,000 | \$32.00 per 1,000 cubic feet |
| From 5,001 to 10,000 | \$34.00 per 1,000 cubic feet |
| All usage in excess of 10,000 | \$36.00 per 1,000 cubic feet |

4. PAYMENT OF WATER BILLS, LATE PAYMENT PENALTIES

Assessed and minimum meter rates are payable quarterly, in advance. All water rates are to be charged from the date the water is turned on. For water consumption in excess of the minimum quantity, the charge as per meter statement will be made at the close of each six (6) months. The bill shall be due when rendered. If any bill is not paid when due, interest at the rate of 1.5% per month will be charged. If a bill is more then forty-five days past due, water service may be terminated.

- 5. REPEALER. Any other ordinance or parts of ordinances inconsistent with this ordinance shall be and the same are hereby repealed to the extent of inconsistency. The provisions of any ordinances of the Town of Hammonton, including those specifically referred to herein, not inconsistent with this ordinance and the provisions of any amendments not inconsistent with this ordinance, shall remain in full force and effect as though expressly and fully set herein.
- 6. EFFECTIVE DATE: This ordinance shall take effect upon publication and passage according to law; however, not prior to the above effective date.
- 7. SEVERABILITY. If any part of this ordinance shall, for any reason adjudged by a Court of competent jurisdiction be declared invalid, such judgment shall not affect, impair or invalidate the remainder of this Ordinance which will be declared severable.

Introduced: March 26, 2012

Amended: April 16, 2012

Adopted: May 14, 2012

Ordinance #29-2013
Water Conservation Tax Credit/Rebate Program

BE IT ORDAINED, By the Mayor and the Common Council of the Town of Hammonton, County of Atlantic, State of New Jersey, as follows:

WHEREAS, the Town of Hammonton has promoted and will continue to promote water conservation among town residents and businesses, recognizing that conserving our natural resources promotes the sustainability of our town, protects our natural environment and area wildlife, and saves residents and businesses money, and

WHEREAS, a variety of water-saving technologies, devices, and appliances exist that, apart from individual behavioral changes, could have a significant positive impact on the Town's annual draw from the Kirkwood-Cohansey aquifer, and

WHEREAS, the Town has an intrinsic interest in stimulating the adoption of advanced technologies, devices, and appliances by Town residents and businesses in order to promote the conservation and good stewardship of our natural resources,

NOW, THEREFORE, BE IT FURTHER ORDAINED that the Town of Hammonton hereby creates and adopts a "Town of Hammonton Water Conservation Tax Credit/Rebate Program". The Town will provide a tax credit to customers using the public water supply system and a rebate to all other residential water consumers based on the installation and use of a variety of water-conserving technologies and appliances. The tax credit/rebate will be applied under the following conditions:

a. The resident must submit a complete "Application for Water Tax Credit/Rebate" (to be developed by the Town's Business Administrator and which shall include a Certification as to the accuracy of the representations contained therein), including receipt(s) documenting the purchase and installation of the device or appliance.

b. The Town may, at its own prerogative or as otherwise required by law or regulation, conduct an inspection of the residence to verify proper installation of the device(s).

c. Tax credits/rebates are available only for those technologies, devices, and appliances that carry the US EPA "Energy Star" or "Water Sense" labels, or are approved and endorsed as a bona-fide water-saving technology by the NJ Department of Environmental Protection through the Energy and Environmental Technology Verification Program or its successor.

d. Residents may propose additional technologies, devices, or appliances that have a proven track record of saving water and the Town will investigate the possible addition of these to the approved list. No guarantee is offered that a submitted device not already on the list will be approved for a tax credit/rebate.

e. No credits/rebates or combination of credits/rebates may surpass \$100 per year.

f. The tax credit/rebate amount will be applied, in the case of a municipal water user, to the next billing cycle and, in the case of a non-municipal water system user, in the form of a rebate via mail as soon as possible following approval of their application and the availability of funds. If there are insufficient funds to provide credits/rebates in a billing cycle, the credit/rebate will be addressed in the next billing cycle.

g. In the event a user is approved for multiple devices, the cumulative effect of more than one device will be calculated and an appropriate tax credit/rebate will be applied.

h. Credits/Rebates will be available as follows:

1. \$100 or 50 percent off the purchase of a permanent, mechanical pool cover, whichever is less,

2. \$50 for each Water Sense certified toilet.

3. \$25 off or half the purchase price of a rain sensor, whichever is less,

4. \$100 off the purchase of a water-smart lawn irrigation system,

5. \$75 for a high efficiency ("HE") clothes washer,

6. \$50 for an Energy Star dishwasher, and

7. \$100 or 50 percent of the purchase price of technologies certified by the NJ DEP under the Energy and Environmental Technology Verification Program, whichever is less.

8. The list of qualifying credits/rebates may be expanded to include new technologies, appliances, or devices, upon review and approval by Council, with the new qualifying rebates to become eligible upon the first of the year following their approval.

i. Funding for this program is subject to the annual appropriation of funds by Town Council. Such appropriation shall only be made following certification by the Town Business Administrator, or his designee, that such allocation will have no deleterious effect upon the safe and continuing operation of the Town's water utility system and/or the Town's general fund.

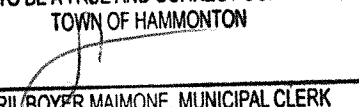
BE IT FURTHER ORDAINED that all ordinances or parts of ordinances inconsistent with this ordinance are hereby repealed to the extent of such inconsistency.

BE IT FURTHER ORDDAINED that this ordinance shall take effect after final passage and publication according to law.

Introduced: November 18, 2013

December 16, 2013

THE FOREGOING DOCUMENT IS HEREBY CERTIFIED
BY ME TO BE A TRUE AND CORRECT COPY OF THE
TOWN OF HAMMONTON


APRIL BOYER MAIMONE, MUNICIPAL CLERK

APPENDIX C

Sanitary Sewer Line Replacement Projects

Boyer Avenue Land Disposal
ARH #11-50058.12
 10/21/13 Revised 2/18/14

Sanitary Sewer Line Replacement Projects

| | | |
|---|-------------------------------|--------------------------|
| Year 2003 | | |
| Second Street (North) | 2,400 lf | \$0.7 million +/- |
| Year 2004 | | |
| Elm Street | 500 lf | \$0.15 million +/- |
| Cottage Street | 600 lf | \$0.20 million +/- |
| Year 2005 | | |
| Wood Street | 1,000 lf | \$0.30 million +/- |
| Colwell Avenue (new installation) | 1,000 lf | \$0.30 million +/- |
| Railway (new installation) | 1,300 lf | \$0.40 million +/- |
| Year 2006 | | |
| Pressey Street | 500 lf | \$0.15 million +/- |
| Year 2007 | | |
| Pleasant Street | 3,000 lf | \$1.0 million +/- |
| Horton Street | 900 lf | \$0.3 million +/- |
| Year 2008 | | |
| Rt. #54, Phase I (trunk line) | 2,400 lf | \$1.2 million +/- |
| Year 2009 | | |
| Packard Street (North) | 2,500 lf | \$0.8 million +/- |
| Year 2010 | | |
| Vine Street | 900 lf | \$0.4 million +/- |
| Second Street (South) | 500 lf | \$0.2 million +/- |
| Year 2011 | | |
| Fourth Street | 2,500 lf | \$1.2 million +/- |
| Year 2012 | | |
| Route #54 (Phase 2) (trunk line) | 3,000 lf | \$1.8 million +/- |
| | | |
| TOTAL PROJECT LENGTH& EXPENDITURE: | 23,000 lf (4.4 miles)* | \$9.1 million +/- |

****This equates to approximately 19.0% of the total vitrified clay pipe within the Town's sanitary sewer collection system.**

Proposed Roadway Improvements 2014 – 2015:

| | | |
|---|------------------------------|--------------------------|
| Grape Street | 4,500 lf | \$2.5 million +/- |
| Packard Street (South) | 1,100 lf | \$0.6 million +/- |
| Second Street (South), Phase II | 1,100 lf | \$0.6 million +/- |
| Pratt Street (trunk line) | 3,300 lf | \$1.9 million +/- |
| | | |
| TOTAL PROJECT LENGTH& EXPENDITURE: | 10,000 lf (2 miles)** | \$5.6 million +/- |

**This equates to approximately 8.2% of the total vitrified clay pipe within the Town’s sanitary sewer collection system*

Present Identified Future Sanitary Sewer Replacement Projects:

| | | |
|---|---------------------------------|-----------------------|
| Washington Street | 1,400 lf (0.26 miles) | \$900,000.00 |
| Valley Avenue | 4,500 lf (0.85 miles) | \$2,900,000.00 |
| Third Street | 2,700 lf (0.51 miles) | \$1,750,000.00 |
| Broadway | 3,000 lf (0.58 miles) | \$1,900,000.00 |
| Tilton Street | 1,600 lf (0.30 miles) | \$1,050,000.00 |
| TOTAL PROJECT LENGTH& EXPENDITURE: | 13,200 lf (2.5 miles)*** | \$8.5 million± |

**This equates to approximately 10.9% of the total vitrified clay pipe within the Town’s sanitary sewer collection system*

The majority of the sanitary sewer work completed included the replacement of old terra cotta (clay) pipe with PVC pipe. The PVC pipe has tighter joints with a rubber seal to reduce the potential for water infiltration. The house service laterals also constructed of terra cotta (clay) pipe and the old Schuster type service vents were replaced with PVC pipe, sanitary tee and solid caps between the curb and sidewalk. The old terra cotta laterals and Schuster vents were a source of water infiltration especially during heavy rain events where the roadway became flooded. Much of the sanitary sewer replacement work along the streets noted above also included the reconstruction of older storm sewer pipe which reduced the potential for street flooding and resultant stormwater inflow to the sanitary sewer system.

The Town has been active and continues the process of replacing the old sanitary sewer mains and storm sewer improvements in order to reduce the potential of ground and surface water infiltration into the sanitary sewer system.

As problematic areas of sanitary system pipe are identified such as older vitrified clay pipe, trunk lines, high groundwater table, roadway flooding concerns and as further identified within the Inflow and Infiltration study, the Town will proceed to replace and rehabilitate its sanitary sewer system to reduce extraneous flow to the Hammonton Wastewater Treatment Plant.

APPENDIX D

Sanitary Sewer System

Town of Hammonton Sanitary Sewer System

base plan last updated September 2010 (see notes*)



Legend

Pipe Diameter

- 8" (Green line)
- 10" (Blue line)
- 12" (Purple line)
- 15" (Orange line)
- 18" (Red line)
- 24" (Yellow line)
- Force Main (Yellow dashed line)

Pipe Material

- ABS (Purple fill)
- PVC (Orange fill)
- VC (Red fill)

- Manhole (Black dot)
- Pumping Station (Red circle)
- Treatment Plant (Yellow square)
- Pinelands Buildout (Light green shaded area)

Scale: 1" = 1700'

Replacement Projects

- Completed 2003-2012 (Green outline) 23,000 LF ±
- To Be Completed Within 2014 (Purple outline) 10,000 LF ±
- Future Projects** (Blue outline) 13,000 LF ±

additional legend added February 2010 (see notes below)

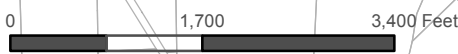
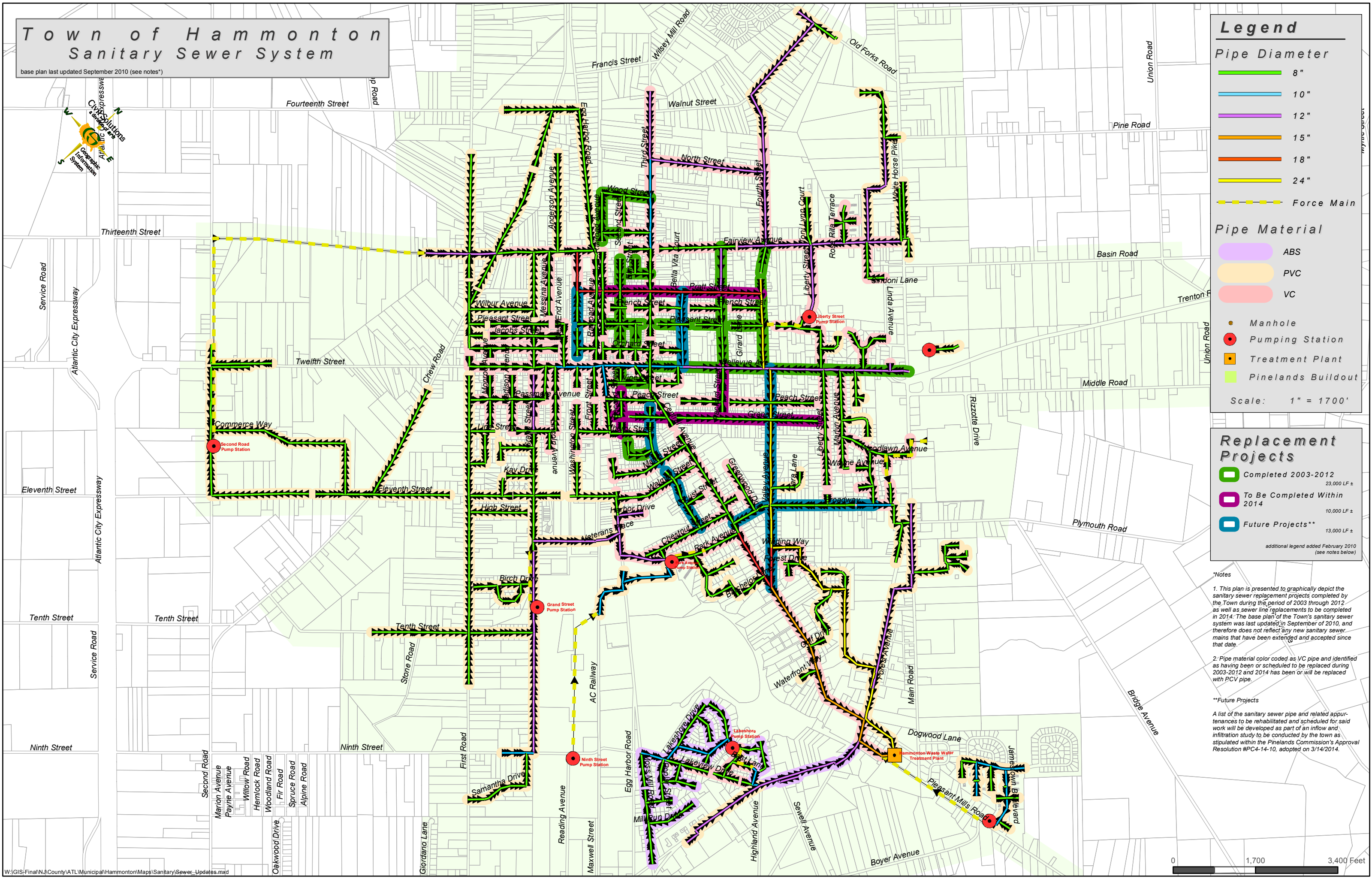
***Notes**

1. This plan is presented to graphically depict the sanitary sewer replacement projects completed by the Town during the period of 2003 through 2012 as well as sewer line replacements to be completed in 2014. The base plan of the Town's sanitary sewer system was last updated in September of 2010, and therefore does not reflect any new sanitary sewer mains that have been extended and accepted since that date.

2. Pipe material color coded as VC pipe and identified as having been or scheduled to be replaced during 2003-2012 and 2014 has been or will be replaced with PCV pipe.

****Future Projects**

A list of the sanitary sewer pipe and related appurtenances to be rehabilitated and scheduled for said work will be developed as part of an inflow and infiltration study to be conducted by the town as stipulated within the Pinelands Commission's Approval Resolution #PC4-14-10, adopted on 3/14/2014.



APPENDIX E

Resolution #019-2014

&

Resolution #066-2014

R#019-2014
ENDORSEMENT OF THE LONG TERM WASTEWATER MANAGEMENT PLAN
FOR THE BOYER AVENUE LAND DISPOSAL SITE
TOWN OF HAMMONTON

WHEREAS, The Town of Hammonton is required to provide a Long Term Wastewater Management Plan (LTWMP) to handle treated effluent generated from the Hammonton Wastewater Treatment Plant; and

WHEREAS, the Mayor and Town Council has taken significant strides to comply with the requirements as established by the Pinelands Commission related to the disposal of treated effluent at the Boyer Avenue Land Application Site; and

WHEREAS, the Public Works and Transportation Committee (PWTC) of the Mayor and Town Council has requested the Town's consultants to develop a LTWMP for the Boyer Avenue Land Application Site to comply with the Pinelands Commission as discussed in multiple dialogues between town officials and Pinelands staff; and

WHEREAS, one of the requirements is to provide the LTWMP to the Pineland's Commission and should be accompanied by an official endorsement thereof by Hammonton's Governing Body; and

WHEREAS, the members of the PWTC, Town Solicitor and Town's Consultants have reviewed and support the submission of the LTWMP in a timely manner with endorsement from Mayor and Town Council; and

THEREFORE BE IT RESOLVED, by the Mayor and Council of the Town of Hammonton, County of Atlantic, State of NJ that it endorses the contents and submission of the LTWMP for the Boyer Avenue Land Application site to the Pinelands Commission for their review and approval.

Adopted: January 1, 2014

THE FOREGOING DOCUMENT IS HEREBY CERTIFIED
BY ME TO BE A TRUE AND CORRECT COPY OF THE
TOWN OF HAMMONTON



APRIL BOYER MAIMONE, MUNICIPAL CLERK

R#066-2014
ENDORSEMENT OF THE LONG TERM COMPREHENSIVE WASTEWATER PLAN FOR THE BOYER A VENUE
LAND DISPOSAL SITE
TOWN OF HAMMONTON
(Revised April 28, 2014)

WHEREAS, The Town of Hammonton is required to provide a Long Term Comprehensive Wastewater Plan (LTCWP) to handle treated effluent generated from the Hammonton Wastewater Treatment Plant; and

WHEREAS, the Mayor and Town Council has taken significant strides to comply with the requirements as established by the Pinelands Commission related to the disposal of treated effluent at the Boyer A venue Land Application Site; and

WHEREAS, the Public Works and Transportation Committee (PWTC) of the Mayor and Town Council has requested that the Town's consultants to develop a LTCWP for the Boyer Avenue Land Application Site to comply with the Pinelands Commission outline and address the items discussed in the joint meeting held between the Town Officials and the Pinelands Staff; and

WHEREAS, one of the requirements of the outline provided is that the LTCWP submitted to the Commission should be accompanied by an official endorsement by Hammonton's Governing Body; and

WHEREAS, the members of the PWTC, Town Solicitor and Town's Consultants have reviewed the outline and notes from the Pinelands Commission Staff meeting and support the submission of the LTCWP in a timely manner with endorsement from Mayor and Town Council; and

WHEREAS, the Mayor and Town Council passed a Resolution #019-2014 on January 1, 2014 related to the submission of the LTCWP to the Pinelands Commission for their review; and

WHEREAS, as a result of revisions to the LTCWP, the Pinelands Commission passed Resolution #PC4-14-10 on March 14, 2014 approving, with conditions, Hammonton's Long Term Comprehensive Wastewater Plan (LTCWP); and


WHEREAS, one of the conditions to said approval was that on or before April 30, 2014, the Town shall submit and the Hammonton Town Council shall endorse a revised LTCWP subject to the Executive Director's approval. The revised plan shall incorporate the items contained within the Pinelands Commission's approved Resolution #PC4-14-10 adopted 3/14/14; and

WHEREAS, the conditions of the Pinelands Commission's Resolution #PC4-14-10 and the latest revised version of the LTCWP dated 4/28/14 prepared by the Town's consultants have been reviewed with Public Works and Transportation Committee (PWTC) of Mayor and Town Council and recommend full Council's endorsement of same; and

THEREFORE BE IT RESOLVED, by the Mayor and Council of the Town of Hammonton, County of Atlantic, State of NJ that it endorses the submission of the revised LTCWP for the Boyer A venue Land Application site to the Pinelands Commission for their review and approval.

Adopted: April 28, 2014

THE FOREGOING DOCUMENT IS HEREBY CERTIFIED
BY ME TO BE A TRUE AND CORRECT COPY OF THE
TOWN OF HAMMONTON


APRIL BOYER MAIMONE, MUNICIPAL CLERK