STORMWATER MAINTENANCE PLAN

FOR

TABATCHNICK FINE FOODS, INC.

1230 HAMILTON STREET

BLOCK 92 LOTS 5-48
TOWNSHIP OF FRANKLIN
SOMERSET COUNTY, NEW JERSEY

Prepared for:

Tabatchnick Fine Foods, Inc.
1230 Hamilton Street
Somerset, NJ 08873

May 2017

Prepared By:

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(TRG No. 97-021-6)

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I. INTRODUCTION

Tabatchnick Fine Foods, Inc., located at 1230 Hamilton Street, has been granted approval to construct a new food processing and freezer facility adjacent to its existing operations. As part of the new building and parking area, stormwater management measures will be constructed to address the impact of stormwater runoff. These measures include the following:

- an above-ground, bio-retention basin, located along the northwesterly limit of the property
- two underground detention systems, one located in each parking area
- a manufactured treatment device in the courtyard parking area
- the stormwater runoff conveyance system consisting of concrete pipes, inlets and manholes

In order for these stormwater management measures to function adequately, regular maintenance must be performed. This Maintenance Plan outlines the proper inspection and maintenance procedures for each component of the stormwater management system. A site map showing the location of the stormwater management facilities is located in Appendix A of this report.

This document and any future revisions to this document shall be recorded upon the deed of record for Block 92, Lot 5.01 (the lot created by the consolidation of the original property: Lots 5-48 in Block 92). The entity responsible for maintenance of the stormwater management elements designed for the project and outlined in detail below is as follows:

Tabatchnick Fine Foods, Inc.
1230 Hamilton Street
Somerset, NJ 08873 Ph.#: 732-247-6668

The responsible party shall maintain a detailed log of the preventative and corrective maintenance for the stormwater management elements (See Appendix B for Maintenance Logs). The effectiveness of the maintenance plan shall be evaluated by the responsible party at least once a year and the plan shall be adjusted as needed. Written maintenance and repair records for all stormwater management elements shall be maintained for at least five years by the responsible party, and shall be provided to the Franklin Township's Clerk's office on a quarterly basis and/or NJDEP upon request.

II. STORMWATER CONVEYANCE SYSTEM

This element is comprised of the series of pipes and storm drainage structures designed to convey runoff to the proposed bio-retention/extended detention basin, underground detention basins, and to the existing drainage system along Hamilton Street.

Normal maintenance of the storm sewer system requires inlets to be inspected semi-annually on or about April 1st and October 1st of each year. Any sediment or debris on the grate or within the inlets and vegetated swales shall be removed at that time.

Refer to the following Table for Schedule of Maintenance and Maintenance Requirements.

STORMWATER CONVEYANCE SYSTEM MAINTENANCE SCHEDULE

Maint. Item	Schedule	Inspection Requirement	Maintenance Requirement
Visual Inspection	Semi-Annually - April 1 - October 1	Inspect all grates and inlets for buildup of sediment/trash/debris.	Removed excess sediment/trash/debris from grates and/or within inlets.

III. BIORETENTION SYSTEM and EXTENDED DETENTION BASIN

The bio-retention system component is comprised of a soil bed, planted with non-invasive, site-tolerant grasses located in the lower section of the basin. The stormwater runoff entering the bio-retention system is filtered first through the vegetation at the level bottom of the basin and then through the soil mixture (soil bed) before being conveyed to the outlet structure via an underdrain system below the soil bed. The upper section of the basin is designed to function as an extended detention BMP. This includes an outlet control structure that will attenuate peak basin outflow for larger storm events in order to meet stormwater quantity requirements.

A. General Maintenance

The bio-retention system shall be inspected at a minimum four (4) times annually for clogging and excessive debris and sediment accumulation as well as after every storm that produces rainfall in excess of one (1) inch. All components of the bio-retention system shall be inspected (inflow points, overflow structure, slope stabilization) but particular attention shall be paid to the any ponding problems 72 hours after each storm event.

Debris, trash, sediment, and other waste materials removed from the bio-retention basin shall be disposed of at a suitable disposal site and in accordance with all applicable local, state and federal waste regulations.

B. Vegetated Areas

Mowing and/or trimming of vegetation must be performed on a regular schedule based on site specific conditions. Grass outside the bio-retention system shall be moved at least once a month during the growing season. Grasses within the bio-retention system must be carefully maintained so as not to compact the soil using hand held equipment, such as a hand held line trimmer.

All vegetated areas shall be inspected once yearly at a minimum for erosion, scour, and unwanted growth. Any area damaged by erosion or scour shall be corrected via the original specification. Unwanted growth shall be removed with minimum disruption of the planting bed and vegetation to remain. Control of unwanted vegetative species should be removed manually (by hand) or use of biological controls (EPA or Department approved insects). Use of herbicides should be minimized to the greatest extent possible.

All landscaping associated with the bio-retention basin design shall be inspected bi-weekly during the first growing season or until the vegetation becomes established. Once established, bi-annual monitoring (at a minimum once during the growing season and once during the non-growing season) shall be conducted for the purpose of documenting health, vigor, density and diversity of the vegetative cover. At all times, 85 percent coverage shall be maintained. Vegetation or vegetated areas exhibiting greater than 50 percent damage shall be restored in accordance with the original plan and or specifications.

Use of fertilizers, mechanical treatments, pesticides, and other measures to assure optimum vegetative cover shall not compromise the intended purpose of the bio-retention basin. To the extent possible, all vegetative deficiencies should be corrected with the use of organic fertilizers or enhancements.

C. Structural Components

All structural components, such as inflow and outlet structures, shall be inspected for cracking, subsidence, spalling, erosion, and general deterioration at least once annually. Structural damage to inlet and outlet structures and trash racks from vandalism, flood events, or other causes must be

repaired promptly. Analysis of structural damage and the design of structural repairs shall only be undertaken by qualified personnel.

D. Embankment

The embankment around the bio-retention/extended detention basin shall be visually inspected periodically (April 1st and October 1st) for signs of damage. Problems such as settlement, scouring or seepage shall be analyzed by qualified personnel. The stability of the embankment can be impaired by large roots and animal burrows. Trees and brush with extensive root systems should be completely removed to prevent their destabilization and creation of seepage routes.

Root voids and animal burrows should be plugged by filling with material similar to the existing material and capped just below grade with stone, concrete or other material. If plugging of burrows does not discourage animals from returning, further measures should be taken to remove the animal population.

E. Other Maintenance Criteria

The basin is designed so that volume of stormwater runoff below the 3" orifice shall infiltrate the soil bed at the bottom of the basin and eventually reach the pvc underdrain beneath that bed. The underdrain will convey the flow to the basin outlet structure. This process should be complete 72 hours after the end of the rainfall event. If the basin is not draining completely after 72 hours, the facility should be evaluated by a qualified civil or geotechnical engineer.

Refer to the following Table for Schedule of Maintenance and Maintenance Requirement

BIO-RETENTION /EXTENDED DETENTION BASIN MAINTENANCE SCHEDULE

Maintenance Item	Schedule	Inspection Requirement	Maintenance Requirement
Establish Vegetation	Bi-weekly	During first growing season or until vegetation becomes established	Water all newly installed plant materials as required; Re-plant areas as required.
85 Percent Coverage	Twice Yearly	During both growing and non-growing season : April-May October/November	Re-plant areas exhibiting areas damaged in excess of 50 percent; Re-plant areas exhibit-ing less that the required 85 percent coverage.
General Maintenance – Visual Inspection Pond-wide	Four (4) Times Annually After Every Rainfall Exceeding One Inch	Inspect for Clogging; Inspect all visual components of the bio-retention basin (bottom, inflow pipes, riprap aprons and overflow berm for buildup of trash, sediment, and debris).	Remediate Clogging; Removal all trash and debris and dispose of in accordance with all applicable regulation; Remove sediment only after biobasin is thoroughly dry.
Lawn - Mowing	Minimum of Once Monthly	N/A	Mow/Trim as required – vegetated/lawn areas outside the bioretention system.
Vegetated Areas – Visual Inspection	Once Annually	Inspect for erosion, scour, and unwanted growth.	Restore eroded/scoured areas back to original design; Remove unwanted growth – minimize disturbance to remaining vegetation and planting soil bed.

Structural Components – Visual Inspection	Once Annually	Inspect all structural components for subsidence, erosion and general deterioration.	Repair structural components as required.
Embankment – Visual Inspection	Semi-Annually – April 1st October 1st	Inspect embankment around the bioretention basin for subsidence, scour, seepage, large tree roots, and animal burrows.	Repair subsided, scoured and areas exhibiting seepage at the direction of the Civil Engineer; Remove burrowing animals; Remove large trees/shrubs and root systems; Plug root voids and animal burrows with materials similar to existing embankment material and cap below grade with stone or concrete.
Soil Bed	Every 10 years or deterioration of vegetation	Evaluate soil characteristics and compaction.	Results to be reviewed by a licensed Landscape Architect. If required, soil and plant replacement shall be supervised by a Landscape Architect.
System Function	If Basin is not draining within 72 hours.	Evaluate drawdown time of basin (to 3" orif – approx. 12 hrs; completely drained = 72 hrs)	Analysis to be reviewed by qualified Civil or Geotechnical Engineer – Recommendations will be made at this time.

IV. UNDERGROUND DETENTION SYSTEM

This element is comprised of rows of concrete pipe connected by a concrete chamber on each end (upstream and downstream) of the system. Manhole openings are provided at each end of the chamber (i.e., the four corners of the underground system) to allow access to the system for inspection and maintenance. Underground Detention System #1, located in the courtyard between the original building and its addition, consists of 5 rows of 30-inch diameter concrete pipe, each 160 feet in length. Underground System #2, located under the parking area west of the building addition, consists of 5 rows of 24-inch diameter concrete pipe, each 150 feet in length.

A. General Maintenance

All accessible components associated with the underground detention system must be inspected for clogging, excessive debris, and sediment accumulation twice (2) times annually, at a minimum, as well as after every storm that exceeds one (1) inch of rainfall. Debris, trash, sediment, and other waste materials removed from the systems shall be disposed of at a suitable disposal site and in accordance with all applicable local, state and federal waste regulations.

B. Structural Components

All structural components of the facility, including access manholes at the upstream and downstream ends, should be inspected for cracking, subsidence, spalling, erosion, and general deterioration at least once annually.

C. Other Maintenance Criteria

Based on the hydrologic and hydraulic model of the underground detention systems, the basins should drain within 12 hours of the end of the rainfall event. The maximum amount of time to drain the facility shall not exceed 72 hours. Any significant increase in normally observed drain/drawdown time, or a drain time that exceeds 72 hours, shall be evaluated by a qualified civil or geotechnical engineer.

UNDERGROUND DETENTION SYSTEM MAINTENANCE SCHEDULE

Maint. Item	Schedule	Inspection Requirement	Maintenance Requirement
General Maintenance – Visual Inspection	Two (2) Times Annually or After Every Rainfall Exceeding One Inch	Inspect all visual components of the system for clogging, debris (leaves, twigs & litter), and sediment accumulation.	Remediate Clogging; Removal all trash, debris, sediment and dispose of in accordance with all applicable regulation.
Structural Components – Visual Inspection	Once Annually	Inspect all structural components for cracking, subsidence, spalling, erosion, and general deterioration.	Repair structural components as required.
System Function	After Rainfall Exceeding One Inch	Evaluate drawdown time of system compared to design criteria (12 hours under normal conditions; 72 hours maximum.)	Contact qualified Civil or Geotechnical Engineer is drawdown time is excessive.

V. CDS POLLUTANT REMOVAL UNIT

The manufactured treatment device, a CDS Model 2020 located within the courtyard parking area downstream of Underground Detention System #1, is a five-foot diameter concrete chamber with a hydrodynamic separator used to screen, separate and trap sediment and debris from stormwater runoff. This device shall be monitored and maintained along with all other components of the on-site stormwater management plan. Inspection and maintenance of the CDS unit shall be in accordance with the Guide located in Appendix C of this report. The maintenance log for device is provided in Appendix B.

VI. MAINTENANCE RECORDS AND REPORTING

All inspections (as required above), regular maintenance, and required repairs shall be documented. Written maintenance records for all stormwater management elements shall be maintained for at least five years by the responsible party, and shall be provided to the Franklin Township Clerk's Office on a quarterly basis and/or the Delaware and Raritan Canal Commission (DRCC) upon request.

VII. EQUIPMENT AND MATERIALS

The following is a list of maintenance equipment and materials that would be required for the general maintenance of the Stormwater Management Facilities. It will be at the discretion of the owner to decide whether to perform the work or to hire a maintenance service to maintain the above facilities. Should the Owner decide to hire a service to maintain the Stormwater Facilities, the responsibility of inspecting the facilities per the above report will still be the job of the Owner. The following equipment list has been separated into the various Stormwater Components. The equipment may be rented for a particular task or stored on-site as part of the maintenance program. Confined space entry shall be enforced at all times.

1. Storm Water Conveyance System
    a. Grass Seed and Mulch
    b. Concrete Repair Material
    c. Riding Mower

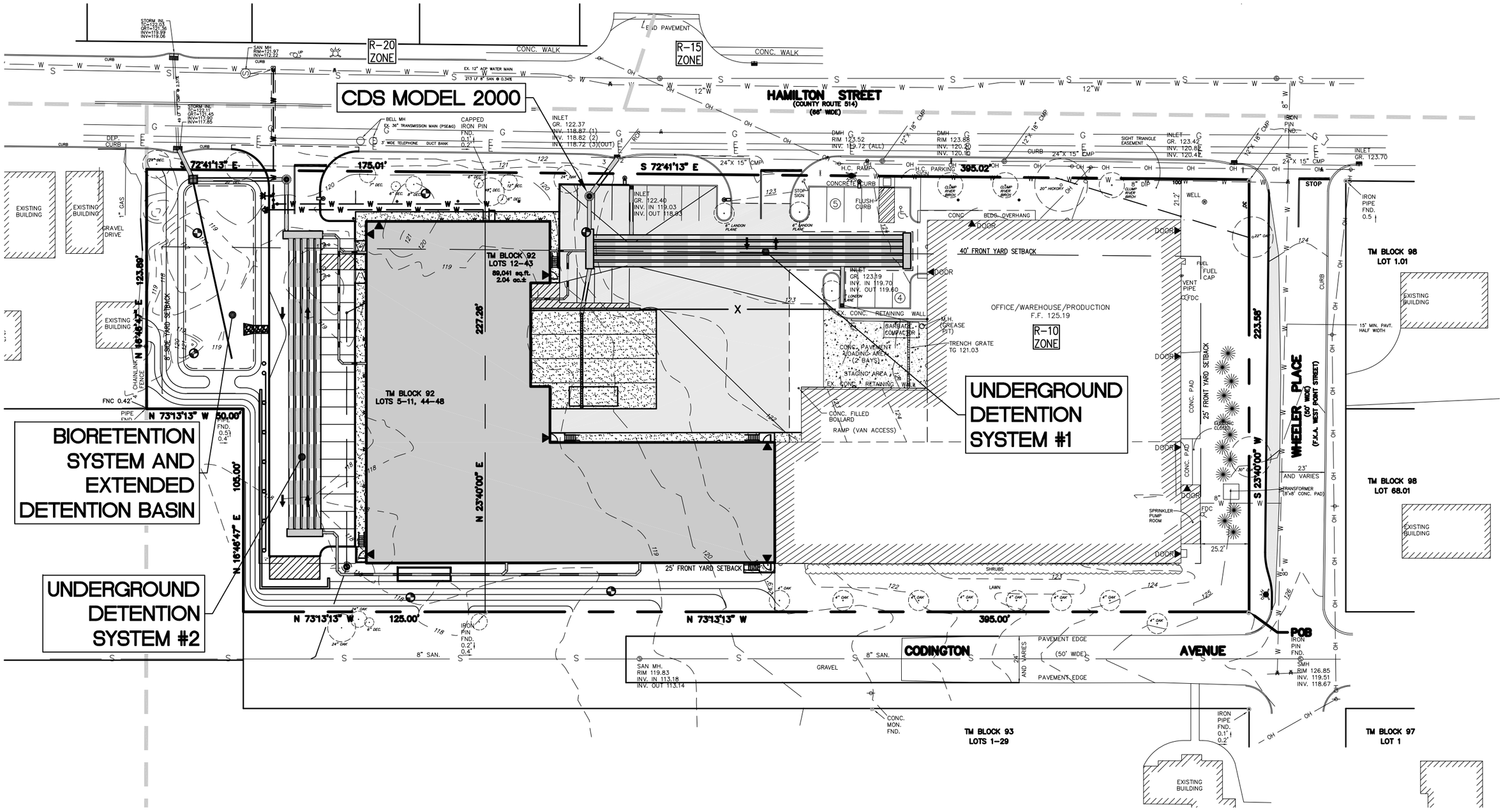
d. Hand Mower
e. Power Trimmer and Edger
f. Seed Spreader
g. De-thatching Equipment
h. Shovels & Rakes & Clippers
i. Wheel Barrow
j. Loader/Backhoe
k. Dewatering pump
l. Combination vacuum truck and sewer jet

2. Bioretention Systen and Extended Detention Basin
   a. Grass Seed (Native for biobasin component and turf)
   b. Concrete Repair Material
   c. Riding Mower
   d. Hand Mower
   e. Hand Trimmer
   f. Power Trimmer & Edger
   g. Seed Spreader
   h. De-thatching Equipment
   i. Grass Clipping Equipment
   j. Shovels & Rakes
   k. Wheel Barrow
   l. Loader/Backhoe

3. Underground Detention System
   a. Concrete Repair Material
   b. Shovels & Rakes
   c. Wheel Barrow
   d. Loader/Backhoe
   e. Dewatering pump
   f. Combination vacuum truck and sewer jet

APPENDIX A

STORMWATER MANAGEMENT PLAN



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The Reynolds Group, Inc.

Engineers
Landscape Architects
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State of New Jersey
Certificate of Authorization
Number 24GA27980300
21ME00043300

SCALE: 1"=50'

TRG Job No.: 97-021-6

Date: 05/19/17

Project:
TABATCHNICK FINE FOODS, INC.
STORM WATER MANAGEMENT PLAN
BLOCK 92 LOT 5-48
TOWNSHIP OF FRANKLIN
SOMERSET COUNTY, NEW JERSEY

Sheet No.:
SWM-1

APPENDIX B

MAINTENANCE LOGS

UNDERGROUND DETENTION SYSTEM #1

Maintenance Log for Stormwater Management Facilities

YEAR: _____

Name of Facility: **Tabatchnick Fine Foods – Underground Det. Basin #1**

Location/Address: **1230 Hamilton Street - Block 92, Lots 5-48**

Franklin ID #: _____

Submission for: **(Select One)**
☐ 1st Quarter
☐ 2nd Quarter
☐ 3rd Quarter
☐ 4th Quarter

UNDERGROUND DETENTION SYSTEM													
Date:													
Preventative Maintenance						(X):Completed							
Trash and Debris removal:													
	Trash racks												
	Underdrains												
	Access/Inlet												
	Bottom of Pipes												
	Outlet												
Sediment Removal:													
	Trash racks												
	Underdrains												
	Access/Inlet												
	Bottom of Pipes												
	Outlet												
Other:													
Corrective Maintenance													
Structural Repair													
Dewatering													
Pest Control													
Erosion Repair													
Other													
Comments: (indicate any repairs which were completed)													

Inspection reports can be mailed, faxed to (732) 873-5391, or emailed to stormwater@twp.franklin.nj.us

UNDERGROUND DETENTION SYSTEM #2

Maintenance Log for Stormwater Management Facilities

YEAR: _____

Name of Facility: **Tabatchnick Fine Foods – Underground Det. Basin #2**

Location/Address: **1230 Hamilton Street - Block 92, Lots 5-48**

Franklin ID #: _____

Submission for: **(Select One)**
☐ 1st Quarter
☐ 2nd Quarter
☐ 3rd Quarter
☐ 4th Quarter

UNDERGROUND DETENTION SYSTEM													
Date:													
Preventative Maintenance						(X):Completed							
Trash and Debris removal:													
	Trash racks												
	Underdrains												
	Access/Inlet												
	Bottom of Pipes												
	Outlet												
Sediment Removal:													
	Trash racks												
	Underdrains												
	Access/Inlet												
	Bottom of Pipes												
	Outlet												
Other:													
Corrective Maintenance													
Structural Repair													
Dewatering													
Pest Control													
Erosion Repair													
Other													
Comments: (indicate any repairs which were completed)													

Inspection reports can be mailed, faxed to (732) 873-5391, or emailed to stormwater@twp.franklin.nj.us

BIORETENTION AND EXTENDED DETENTION BASIN

2O__ Maintenance Log for Stormwater Management Facilities

Name of Facility: **Bioretention/Extended Detention Basin**

Location/Address: **Block 92, Lots 5-48**

Franklin ID #:

Submission for: (Select One)

- ☐ 1st Quarter
- ☐ 2nd Quarter
- ☐ 3rd Quarter
- ☐ 4th Quarter

BIORETENTION BASIN AND EXTENDED DETENTION BASIN													
Date:													
Preventative Maintenance		(X):Completed											
Lawn/Vegetative Area:													
	Cutting												
	Maintenance												
	Pest Control												
	Planted Bottom												
Trash and Debris removal:													
	Trash rack/outlets												
	Underdrains												
	Inlets												
	Slopes/Ramps												
	Rip-Rap												
Sediment Removal:													
	Trash rack/Outlets												
	Underdrains												
	Inlets												
	Slopes/Ramps												
	Rip Rap												
Mechanical Components:													
	Fence Gates/Locks												
	Other												
Corrective Maintenance													
Structural Repair													
Fence Repair													
Erosion Repair													
Other													
Comments: (indicate any repairs which were completed)													

Inspection reports can be mailed, faxed to (732) 873-5391, or emailed to stormwater@twp.franklin.nj.us

APPENDIX C

MAINTENANCE MANUAL
FOR CDS UNIT

CONTECH®
ENGINEERED SOLUTIONS

CDS® Inspection and Maintenance Guide – New Jersey

CDS TECHNOLOGIES

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point allows both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine weather the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump. Refer to Table 1 for depth from water surface to top of sediment pile for each model size indicating that maintenance is required.

Cleaning

Cleaning of a CDS systems should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill should be cleaned out immediately. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be power washed to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes.

CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile[1]		Sediment Storage Capacity	
	ft	m	ft	m	yd^3	m^3
CDS-4	4	1.2	3.0	0.9	0.9	0.7
CDS-5	5	1.5	3.7	1.1	1.5	1.1
CDS-6	6	1.8	4.7	1.4	2.1	1.6
CDS-8	8	2.4	5.8	1.8	3.7	2.8
CDS-10	10	3.0	7.4	2.3	5.8	4.4
CDS-12	12	3.4	8.0	2.4	8.4	6.4

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities

[1] Distances from water surface to top of sediment pile are based on 75% of sump capacity being occupied.

Support

- Drawings and specifications are available at www.contechstormwater.com.
- Site-specific design support is available from our engineers.

Contech Engineered Solutions LLC provides site solutions for the civil engineering industry. Contech's portfolio includes bridges, drainage, sanitary sewer, stormwater, earth stabilization and wastewater treament products. For information, visit www.ContechES.com or call 800.338.1122

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CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment[1]	Floatable Layer Thickness[2]	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.**

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.