Stormwater Pollution Control Plan
Bloomfield Tennis Club - Proposed Outdoor Tennis Courts
35 and 45 Douglas Street
Bloomfield, CT

Prepared for:
Bloomfield Tennis Club
45 Douglas Street
Bloomfield, CT 06002

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March 2020
# TABLE OF CONTENTS

SECTION 1 Introduction ................................................................. 03

SECTION 2 Site Description ........................................................... 04
  2.1 Nature of Construction Activities ............. 04
  2.2 Construction Documents ............................ 04
  2.3 Site Acreage and Disturbed Acreage ...... 05
  2.4 Runoff Coefficient ................................. 05
  2.5 Receiving Water(s)............................... 05
  2.6 Permits .................................................. 06
  2.7 Wetlands ............................................... 06

SECTION 3 Construction Sequencing ....................................... 07

SECTION 4 Controls .......................................................................... 07
  4.1 Erosion and Sediment Controls .............. 10
  4.2 Post-Construction Stormwater Management ........................................... 11

SECTION 5 Inspection...................................................................... 14

SECTION 6 Contractors ................................................................... 15

SECTION 7 Record Keeping ........................................................... 17

APPENDIX A – Natural Diversity Data Base Map

APPENDIX B – Contractor’s Certifications

APPENDIX C- Inspector’s Checklists
SECTION 1

INTRODUCTION

The property is situated at 35 Douglas Street in Bloomfield, Connecticut. The property is bordered to the south by 45 Douglas Street, to the west by Lot 89-3-89-4-13, to the east by Douglas Street, and to the north by 29 Douglas Street. It consists of approximately 3.8 acres of undeveloped brush with some inland wetlands on site. Topography generally slopes from the south portion of the site to the north where stormwater dumps into a stream that then flows to the west offsite. A small northern portion of the site flows south where it also meets the stream. The existing elevations are approximate elevation 104 at the south side of the site and 101 at the northeast portion of the site. The elevation of the stream where it exits the site is approximately 84.

This Stormwater Pollution Prevention Plan (SWPCP) has been prepared for the proposed site which includes: six (6) clay surface tennis courts, eight (8) bituminous concrete surface pickleball courts, and two small central outdoor pavilions. The athletic courts and pavilions will be interconnected with bituminous concrete walks. In addition, a water quality swale will be constructed between the tennis courts and the pickleball courts.

This plan has been prepared to minimize pollution caused by soil erosion and sedimentation during and after construction as well as stormwater pollution caused by use of the site after construction has been finished. Considered to be part of this plan is a complete set of design plans prepared for the project, which are not included as appendices, but which have been submitted with the wetland’s application.
SECTION 2

SITE DESCRIPTION

2.1 Nature of Construction Activities

In general, stormwater runoff from developed areas contains several pollutants which can have an adverse effect on downstream waters. Stormwater management systems that are properly installed and maintained can significantly decrease the non-point discharge from developed areas.

All stormwater BMPs shall be operated and maintained in accordance with the design plans and the Operation and Maintenance Plan approved by the issuing authority.

The responsible party shall:

a. Implement the routine and non-routine operation, maintenance, and inspection tasks in accordance with the procedures specified in this document to ensure that all storm water management systems function as designed.

b. Maintain an operation and maintenance log for the last three years, including inspections, repairs, replacement and disposal (for disposal, the log shall indicate the type of material and the disposal location.)

The construction of all erosion control measures will start with the perimeter sediment and erosion control measures installation. Existing trees and vegetation shall be cleared and grubbed as noted on construction documents. Topsoil shall be stripped, and sediment control measures shall be installed as necessary. Regrading will commence to match grades on construction documents. Once most of the bulk earthwork operations have been completed, pavilions and courts shall start to be constructed. After that, necessary utilities noted on the construction documents shall be constructed. The bottom courses of courts and pathways shall be constructed. During the appropriate season, landscaping and turf establishment shall begin. Other site amenities will be installed after most of the site has been constructed. Fencing will be installed, as well as, finishing the court materials and pavement surfaces.

2.2 Construction Documents

The discharge point ultimately remains the same under proposed conditions, however runoff from the athletic courts is collected into a water quality swale before discharging to the stream.
Due to the increase in impervious area, we are slightly increasing peak flow discharges under proposed conditions. This will not result in an adverse effect, however, as the discharge is not directed to a municipal storm system, but rather to a large wetland system, interconnected across many properties, that serves as nature's natural stormwater management system. A water quality swale between the athletic courts will provide some peak flow reduction, however its primary goal is to treat the required water quality volume. The water quality swale will be equipped with two (2) stone check dams which will aid in detaining the water for treatment as well as providing a filter for the water flow. The clay tennis courts are considered a pervious surface cover as they do slowly infiltrate water. The clay courts will be built with flat panel drains in their subbase to provide drainage into the water quality swale.

Site drawings and reports included provide the following information:

- Existing and planned elevations and slopes
- Location of structural and non-structural controls
- Description and map of existing soils
- Limits of soil disturbance
- Existing vegetation
- Locations of E&S controls
- Location of stabilization practices
- Location of post-construction re-vegetation
- Location of roads and structures

2.3 Site Acreage and Disturbed Acreage

Of the approximately 3.82-acre site, approximately 2.34 acres are anticipated to be disturbed.

2.4 Runoff Coefficients

The estimated average curve number before construction is 75.0 and after construction is 76.4.

2.5 Receiving Water(s)

The runoff from the road, driveways, and building roofs are collected in a pipe network which contains stormwater quality treatment structures and eventually discharges towards the North Branch Park River. According to CTDEEP Eco Map Viewers, this drainage system appears to be part of the “Connecticut” major basin and the “North Branch Park River (4404)” subregional basin.
2.6 Permits

The construction activities of this project do not involve the discharge of stormwater and dewatering wastewaters with a total disturbance of five or more acres of land. Therefore, a General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities is not required for this project. This report has been prepared to inform the contractor and owner of maintenance requirements for the proposed work.

2.7 Wetlands

There are wetlands located to the northeast and most southern portion of the site. The wetlands occupy approximately 0.76 acres of the property. Approximately 1,150 square feet or 0.03 acres of wetlands will be filled with the proposed design. Approximately 1,781 square feet or .04 acres will be created. Wetlands will be created as part of water quality treatment.
SECTION 3

CONSTRUCTION SEQUENCING

Construction sequencing and specific construction issues related to sedimentation and erosion control are described in detail on sheets C-1.1 and C-1.2. These plans indicate erosion and sedimentation control measures, clearing, grubbing, grading, cut and fill operations, drainage and utility operation, paving and stabilization measures and the limits of disturbance. The timetable will be revised as warranted during construction.

Proposed conditions are shown on sheets C-3.1 of the Construction Documents. Areas of the site that are not scheduled for immediate construction activities shall remain undisturbed.

SECTION 4

CONTROLS

Control measures will be placed prior to the start of any construction and inspected and maintained throughout the duration of construction. Therefore, they will be in place for all major activities described in the Project Manual and on the Contract Drawings. The contractor is responsible to relocate, adjust, and maintain all erosion control measures warranted as the site development progresses. Erosion and sediment controls (ESC) identified on the drawings and listed in the specifications and in this SWPCP are representative of minimum measures that shall be maintained during construction. Additional controls may be required due to phasing of the construction and shall be constructed in accordance with the CTDEEP guidelines (2002 Connecticut Guidelines for Soil Erosion and Sediment Control and 2004 Connecticut Stormwater Quality Manual). The erosion and sediment controls to be employed on the site include stabilization practices, structural practices and maintenance described in the following sections.

In general, initial installation of Erosion Control Measures are as follows:

1. Prior to any earth disturbing activities, install all ESC measures as shown on the ESC Plan or as directed by the Engineer.
2. Keep land disturbance to a minimum. Plan the phases or stages of construction so that only areas which are actively being worked are exposed.
3. Existing vegetation will be preserved wherever possible and trees to remain will be protected before work begins. All other areas should have the natural vegetation
preserved, have a good cover of temporary or permanent vegetation established or be heavily mulched.

4. Minimize the tracking of sediment off-site by installing a temporary construction entrance at all vehicular access points.

5. Clean all catch basins and properly dispose of their contents prior to removing.

6. Stockpile all excess material. Appropriate ESC devices shall immediately be established around the perimeter of a stockpile. Excess material that will not be reused on-site shall be taken off-site immediately.

7. Provide hay bales around all inlets to existing stormwater systems and wrap the top of all catch basins, including throat, with fabric to prevent sediment from entering existing drainage systems.

8. As soon as possible construct storm drainage systems on-site and protect as noted above.

Procedures for Operation and Maintenance are as follows:

1. ESC measures will be placed prior to the start of any construction. These measures, even if placed prior by others, shall be inspected and maintained throughout the duration of the project by the contractor.

2. The contractor is responsible to relocate, adjust and maintain all ESC measures warranted as site development progresses. ESC measures identified on construction drawings, included within the SWPCP and listed in the specifications are representative of minimum measures that shall be maintained during construction. Additional controls may be required due to changing site conditions and shall be constructed in accordance with the 2002 CT Erosion and Sedimentation Controls Guidelines and the 2004 Connecticut Stormwater Quality Manual.

3. The contractor shall correct any noted deficiencies by placing, repairing or replacing ESC measures within 24-hours or immediately if existing site conditions or forecasted weather events warrant.

4. No vegetation shall be cut outside of the established and approved clearing area. Under no circumstances shall vegetation be damaged or removed unless specifically permitted.

5. Where construction activities have been permanently suspended for more than seven days, or when final grades are reached in any portion of the site, stabilization practices (including mulching and permanent seeding) will be implemented within three days.

6. All areas that remain disturbed but inactive for at least thirty days shall receive temporary seeding in accordance with the CT DEEP guidelines referenced above.

7. The contractor will use silt fencing to divert flows from exposed soils during all construction phases of the site.
8. When topsoil stripping and stockpiling are completed, a continuous silt fence will be in place to divert water from entering the area. Stockpiles will have openings for access on the upgrade side only.

9. The side slopes of stockpiled material shall be no steeper than 2:1 and benched when the height exceeds thirty feet. Stockpiles that are not to be used within thirty days shall be seeded and mulched immediately after formation.

10. Runoff will be controlled by hay bale checks to remove silt and suspended solids.

11. Construction entrances shall be maintained in a condition that will prevent tracking or washing of sediment onto paved surfaces. A top dressing with additional stone or additional length shall be provided as conditions require.

12. The contractor is responsible for dust control and wind erosion throughout site construction activities. Dust control shall include, but is not limited to, sprinkling of water on exposed soils and haul roads. The use of chemicals including additives to water requires prior approval.

13. All paved surfaces should be cleaned daily to avoid traffic hazards and added sediment from entering existing stormwater structures.

14. The contractor shall replace clogged sedimentation bales as required and clean sediment from basins when accumulation of sediment exceeds 8” depth.

15. Sediment build-up along silt fence shall be removed when it is half the height of the barrier.

16. At no time will sediment laden water be discharged down stream of perimeter ESC measures. Where traditional sediment and control measures prove ineffective, flocculants will be required and used by the contractor at no additional cost to the owner.

17. Discharges of sediment resulting in a deposition off-site are a violation and will require immediate remediation by the contractor.
4.1 Erosion and Sediment Controls

Stabilization Practices

The stabilization practices to be employed consist of silt fences, temporary seeding, permanent seeding, mulching, and protection of trees. Existing vegetation will be preserved wherever possible and trees to remain will be protected before work begins. Where construction activities have been permanently suspended for more than seven days, or when final grades are reached in any portion of the site, stabilization practices (including mulching and permanent seeding) will be implemented within three days. All areas that remain disturbed but inactive for at least thirty days shall receive temporary seeding in accordance with the CTDEEP guidelines (2002 Connecticut Guidelines for Soil Erosion and Sediment Control pursuant to Section 22a-328 of the General Statutes). In all cases, stabilization measures shall be implemented as soon as possible within the CTDEEP guidelines.

Structural Practices

The contractor will use silt fencing to divert flows from exposed soils during all construction phases of the site. When topsoil stripping and stock piling are completed, a continuous silt fence will be in place to divert water from entering the area altogether. The soil stockpile areas will have openings for access on the upgrade side only.

Maintenance

Maintenance shall be performed in accordance with measures specified on the design plans and specifications. Any long-term maintenance of the permanent erosion control structures will be performed by the owner.

Other Controls

Establishment of an anti-tracking pad at the construction entrance and use of water for dust control will minimize off-site vehicle tracking of sediments and generation of dust.

Contractor is responsible for providing proper disposal containers for general construction debris and litter. Daily inspections will be performed to insure proper trash removal.

All post-construction stormwater structures shall be cleaned of construction sediment in accordance with design documents.
Dewatering Wastewater

It is not anticipated that dewatering from construction excavations will be necessary for construction at this site. If, during excavation for building footings or slabs, dewatering becomes necessary, appropriate measures will be employed to protect nearby wetlands and watercourses from pollution. These measures will be designed to prevent scouring or erosion and remove suspended sediments. Specific measures that may be employed include temporary sediment basins, drainage swales and permanent on-site drainage structures that will be constructed prior to excavation for the buildings. If dewatering wastewaters are generated, they will be infiltrated into the ground unless approval to do otherwise has been granted.

4.2 Post Construction Stormwater Management

Design Objectives

The proposed stormwater management system (SMS) and associated mitigation plan is designed to meet two primary objectives: (1) to attenuate flow rates of stormwater discharges to surface waters, and (2) to protect the existing level of water quality from future degradation by providing a moderate degree of pollutant removal.

The current philosophy in stormwater management stresses control of stormwater where it falls and combines both structural and vegetative measures to detain and “treat” the water. Specific needs regarding quality of stormwater runoff addressed for this project include: (1) maintenance of overland flow patterns, and (2) provisions for improving water quality to the highest degree possible with currently available, passive technology. The specific, structural BMPs to be employed are discussed below.

Structural BMPs

The stormwater management system (SMS) is the central BMP proposed for the site to ensure protection of downstream water quality. As will be explained below, the SMS is designed to filter, transform and store pollutants that could be carried in the stormwater runoff through biological, chemical and physical processes.

Water quality control BMPs assist in preventing the release of pollutants into runoff, or once they are released reduce the quantities that enter surface or groundwaters to levels or concentrations that are not harmful to wetland and aquatic ecosystems, and humans. Completely recapturing released pollutants is impractical, and the expense of the BMPs exponentially increases for higher and higher levels of recapture.
Prevention, which is also one of the goals of the proposed SMS, is always more efficient and cost-effective. Following is a brief description of the SMS’s components.

**Catch basins or Yard drains**

Each catch basin to be used on the property will be the standard type catch basins with minimum three-foot deep sumps. They will serve to collect stormwater off the parking lots, proposed access driveways, and play areas. These are typically employed in areas where no other BMP can be used.

The catch basins will be employed as the first step in the water quality renovation process to pre-treat runoff from paved areas. When properly sized and maintained, catch basin traps are effective in reducing the sediment and pollutant load in runoff. Research has shown that practically all particles larger than 246 microns are removed by catch basins (i.e. >0.25 mm; medium sands and coarser) (Sartor and Boyd 1972). However, investigations have shown that trapped catch basin sediments have a much smaller median particle size than street dirt and, therefore, have a greater potential to pollute, if not properly maintained, than do particulate removed by street sweeping. Regular catch basin cleaning and maintenance, therefore, is of paramount importance for the proper functioning of this BMP, and to reduce the potential for sediment re-suspension and export to downstream receiving waters during rare, large volume, scouring rains.

Units should be inspected and cleaned four times per year. In scenarios where the depth of the deposits is greater than or equal to one half the depth from the bottom of the invert of the lowest pipe in the basin, the catch basin or yard drain should also be removed of sediment. Sediment can be removed using clam buckets or by vacuuming out the sediment. Sediment shall be disposed of properly in accordance with local, state and federal regulations.

**Water Quality Swales**

Water quality swales are vegetated open channels designed to treat the required water quality volume and to convey runoff from the 10-year storm without causing erosion. They remove fine sediment and associated pollutants and provide attenuation of peak flows for storm events. They are recommended as a pretreatment system to critical areas such as wetlands. The water quality swales will be the second step in the water quality renovation process to pre-treat runoff from the site.

Swales should be inspected for the first few months after construction to ensure that they are working properly, and vegetation is establishing. Swales should be inspected
biannually for slope integrity, soil moisture, vegetation health, erosion, soil compaction, ponding and sedimentation. Swales should be mowed, fertilized, limed, watered, pruned as needed. They should also be checked for weeds and pests. At least, swales should be mowed once per year and the grass should not be cut below four inches. Grass should not exceed six inches.

**Constructed Stormwater Wetlands**

Constructed stormwater wetlands are systems that maximize the removal of pollutants from runoff through vegetation uptake, retention and settling. These systems remove nitrogen, phosphorus, oil and grease. The system does this by temporarily storing runoff in shallow pools that allows wetland plants to grow. These systems are used as the last method to clean water before discharging into the watercourse.

Constructed wetlands should be monitored twice a year for the first three years after construction during growing and non-growing seasons. During this time, invasive vegetation species should be removed. Dead plants shall be removed and reestablished. The design elevation of the wetlands shall be maintained. They should be cleaned out of sediment once every 10 years. Sediment shall be disposed of properly in accordance with local, state and federal regulations.
SECTION 5

INSPECTION

The construction manager and on-site personnel (Site Superintendent) and site sub-consultant shall conduct weekly inspections and/or following storm events in excess of 0.5” rainfall as described within the contract documents. Monthly site-walk shall be conducted with Staff. Qualified representatives may perform additional inspections at any time.

A checklist has been developed and is included as Appendix D. The checklist will facilitate thorough inspections and record keeping by the designated on-site agent. Items identified by either the contractor or the owner as deficient shall be corrected within 24 hours of receipt of the comments.
SECTION 6

CONTRACTORS

The contractors and subcontractors which will perform site actions may be reasonably be expected to cause or have the potential cause pollution of the waters of the State are listed below. Signed certifications are included in Appendix C.

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SECTION 7

Record Keeping

Record keeping will be performed per the General Permit.

The Permittee shall retain copies of Stormwater Pollution Prevention Plans and all reports required by this general permit, and records of all data used to complete the registration to be authorized by this general permit, for a period of at least three years from the date that construction at the site is completed. This period may be extended by request of EPA at any time.

The Permittee shall retain an updated copy of the Stormwater Pollution Control Plan required by this general permit at the construction site from the date construction is initiated at the site until the date construction at the site is completed.
QUESTIONS: Department of Energy and Environmental Protection (DEEP)
79 Elm St, Hartford, CT 06106
email: deep.nddbrequest@ct.gov
Phone: (860) 424-3011

www.ct.gov/deep/nddbrequest

Use the CTECO Interactive Map Viewers at www.cteco.uconn.edu to more precisely search for and locate a site and to view aerial imagery with NDDB Areas.

NOTE: This map shows general locations of State and Federal Listed Species and Critical Habitats. Information on listed species is collected and compiled by the Natural Diversity Data Base (NDDB) from a variety of data sources. Exact locations of species have been buffered to produce the generalized locations.

This map is intended for use as a preliminary screening tool for conducting a Natural Diversity Data Base Review Request. To use the map, locate the project boundaries and any additional affected areas. If the project is within a hatched area there may be a potential conflict with a listed species. For more information, complete a Request for Natural Diversity Data Base State Listed Species Review form (DEP-APP-007), and submit it to the NDDB along with the required maps and information. More detailed instructions are provided with the request form on our website.

Natural Diversity Data Base Areas
BLOOMFIELD, CT
December 2019

State and Federal Listed Species
Critical Habitat
Town Boundary
APPENDIX B

Contractor’s Certifications
I certify under penalty of the law that I have read and understand the terms and conditions of the General Permit for the Discharge of Stormwater and Dewatering Wastewaters from Construction Activities. I understand that as a contractor or subcontractor at the site, I am authorized by this general permit, including but not limited to the requirements of the Stormwater Pollution Control Plan prepared for the site.

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APPENDIX C

Inspector’s Checklists
**EROSION CONTROL CHECKLIST**

Erosion Control Measures shall be inspected weekly and after each rainfall event of 0.5 inches or greater.

Project: ___________________________  Date: ___________________________

Inspected By: ______________________  Rainfall Amount ______________________

Rainfall Amount (within last 24 hours) ______________________

Signature: __________________________

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