



ENGINEERING SUCCESS TOGETHER

July 29, 2015

Town of Sherborn  
19 Washington Street  
Sherborn, Massachusetts 01770

Attn: Mr. Alan Rubenstein, Chairman      Mr. Steve Gaskin, Chairman  
Board of Appeals      Conservation Commission

Re: The Fields at Sherborn - Comprehensive Permit Application  
Wetlands and Stormwater Management Review

Dear Mr. Rubenstein and Mr. Gaskin:

BETA reviewed the Comprehensive Permit Application for The Fields at Sherborn relative to the Wetlands Protection Act, Sherborn Wetlands Protection Bylaw and Regulations and MassDEP Stormwater Management Standards. This letter is provided to outline BETA's findings, comments and recommendations.

#### BASIS OF REVIEW

The following documents have been provided and will form the basis of the review.

- Town of Sherborn Massachusetts Zoning Board of Appeals Application for a Comprehensive Permit Under Massachusetts General Law Chapter 40B, Section 20-23 Applicant: The Fields at Sherborn, LLC Subject Property: Assessor's Map 3 Lot 88B and Map 3 Lot 88C in Sherborn Massachusetts. Including the following:
  - Summary Information
  - Project Description
  - Eligibility Letter, MassHousing
  - Evidence of Site Control
  - Limited Dividend Entity Status
  - Development Team Information
  - Tabulation of Proposed Buildings
  - Requested Waivers
  - Traffic Impact Statement
- Plans (9 Sheets) entitled *The Fields at Sherborn Washington Street Sherborn* dated, December 8, 2014, revised through June 8, 2015 by Bruce Saluk & Assoc. Inc., Marlborough, MA
- Colored Plan entitled *General Plan The Fields at Sherborn Washington Street Sherborn* dated, January 22, 2015 by Bruce Saluk & Assoc. Inc., Marlborough, MA
- *Storm Water Management Report The Fields at Sherborn Washington Street Sherborn, MA* dated, May 2015 by Bruce Saluk & Assoc. Inc., Marlborough, MA
- Wetlands Protection Act (WPA) Form 3 and the following attachments
  - Cover letter
  - Wetland Fees
  - Notification to abutters
  - USGS locus and resource map
  - Order of Conditions dated August 8, 2015
  - Letter from Division of Fisheries and Wildlife
- Appendix A: Wastewater Disposal Area Soil and Percolation Testing last revised July 11, 2015

**BETA GROUP, INC.**

315 Norwood Park South, 2nd Floor, Norwood, MA 02062

P: 781.255.1982 | F: 781.255.1974 | W: [www.BETA-Inc.com](http://www.BETA-Inc.com)

## Project Overview

The existing 17.55± acre wooded lot containing wetland resource areas is located on the south side of Washington Street opposite Knollcrest Farm Lane in Sherborn, Massachusetts. The project documents indicate the proposed development includes 36 new residential units in 10 buildings with associated access drives, parking, private water wells, on-site septic, stormwater management systems and private utilities.

Massachusetts Department of Environmental Protections (MassDEP) Priority Resource Map indicates that the site contains wetland resource areas that may include one or more of the following: bordering and isolated wetlands, an intermittent stream, and a vernal pool buffer zone. A portion of the parcel is located within the limits of a wellhead protection area (Zone 2). Natural Heritage and Endangered Species Program (NHESP) maps indicate that the project parcel is located within an estimated habitat of rare wildlife and priority habitat of rare species.

## WETLAND IMPACTS

Wetland Strategies, Inc. (WSI) reviewed the Notice of Intent, plans, and accompanying narrative for the subject project. On July 24, 2015, WSI conducted a site inspection and reviewed the flagged bordering vegetated wetland (BVW) boundaries. The following is a summary of WSI's findings, comments and recommendations.

Compliance with the MA Wetlands Protection Act and regulations at 310 CMR 10.00

MA DEP has issued file Number NE-283-0366 for the subject Notice of Intent.

The Notice of Intent (NOI) cover letter states that the work limits have been approved by the Natural Heritage and Endangered Species Program (NHESP). A letter dated June 24, 2014 from NHESP is included with the Notice of Intent filing. It is important to note however that the "approval" from NHESP is related to the earlier filing for this property (DEP file number NE 2830356).

W1. Since this is a new project, proposing different activities, the Commission must wait until NHESP issues a new letter (or until 30 days from the NOI filing date elapses) prior to issuing an Order of Conditions for this project.

During the course of the wetland delineation review, WSI observed an area where wetland vegetation and hydric soils were located up-gradient of the flagged wetland boundary. WSI placed a new pink/black wetland delineation flag, approximately 40 feet up-gradient of wetland flag A25. WSI notes that a previous NOI was filed for this site and on August 7, 2014 the Commission issued an Order of Conditions approving the work (See DEP file number NE 283-0356). A special condition of the Order was the confirmation of segments of the wetland boundary. Upon review of the former NOI plan an A25N flag was approved in a location similar to WSI flagging.

WSI agrees with the designation of intermittent for the stream located to the east of the site. In accordance with the MA regulations, WSI conducted a StreamStats analysis and has determined that the watershed to the stream is too small for perennial flows. As such the stream is intermittent and there is no Riverfront Area on the property.

The basic performance standard for wetlands protection is to avoid and/or minimize impacts to wetland resource areas and if that is not possible, provide mitigation to offset impacts. Although there are no direct proposed impacts to the bordering vegetated wetland (BVW) along the east and west sides of the development area, work including clearing, grubbing, grading and construction of buildings, driveways, access and utilities extends well within the 100 foot buffer zone of the BVW.

The project does not provide provisions to maintain the natural buffer zone nor mitigation for impacts to them and potential impacts to wetland resource areas. Note 310 CMR 10.53 (1) states the following as it relates to buffer zones:

*.....For work in the Buffer Zone subject to review under 310 CMR 10.02(2)(b)3., the Issuing Authority shall impose conditions to protect the interests of the Act identified for the adjacent Resource Area. The potential for adverse impacts to Resource Areas from work in the Buffer Zone may increase with the extent of the work and the proximity to the Resource Area. The Issuing Authority may consider the characteristics of the Buffer Zone, such as the presence of steep slopes, that may increase the potential for adverse impacts on Resource Areas. Conditions may include limitations on the scope and location of work in the Buffer Zone as necessary to avoid alteration of Resource Areas. The Issuing Authority may require erosion and sedimentation controls during construction, a clear limit of work, and the preservation of natural vegetation adjacent to the Resource Area and/or other measures commensurate with the scope and location of the work within the Buffer Zone to protect the interests of M.G.L. c. 131, § 40. .... The purpose of preconstruction review of work in the Buffer Zone is to ensure that adjacent Resource Areas are not adversely affected during or after completion of the work.*

- W2. Provide alternative(s) to maximize the maintenance of existing vegetation and reduction of impacts in buffer zones (i.e. cutting back grading, locating buildings further from wetlands, etc....)
- W3. Clearly define limit of work and provide permanent visual barrier to prevent yards from expanding further into the buffers zones. Consider establishing setbacks from any steep slopes.
- W4. Mitigation should include providing supplemental plantings to enhance buffer zones to remain.
- W5. Provide the Commission any revisions to the plan as a result of Planning Board, Board of Health, Zoning Board of Appeals, Natural Heritage Endangered Species Program or other reviews.

Private wells, nine of a total of ten, proposed for this project are located within the buffer zone. Although there is an on-site septic system that includes a soil absorption system, the water will be returned to the ground some 200 to 700 feet away and depending on groundwater flow directions it may not return to the same area.

- W6. Groundwater flow patterns should be analyzed to determine groundwater loss, if any, at the wetland and impacts to down gradient properties.

#### Compliance with Sherborn Wetland Regulations

Section 3.4 of the local regulations requires a 50-foot no alteration zone. This indicates the Commission's regard for the importance of maintaining a natural buffer for the protection of wetland resource areas (see excerpt from 310 CMR above). The work including buildings, walkways, utilities proposed under this filing includes work within the 50 foot buffer zone and thus the project does not comply.

- W7. Provide a narrative explanation as to why proposed work is necessary within the 50 foot buffer. Explanation should document efforts to avoid, minimize and mitigate buffer zone impacts and how the project, with the reduced buffer zone, will continue to protect the BVW.

## GROUNDWATER MOUNDING

GeoHydroCycle, Inc. (GHI) reviewed the infiltration testing and groundwater (stormwater) mounding calculations and offers the following comments.

GW1. Provide the following additional information or explanation for permeability testing:

- a. Method description
- b. Water temperature of 4.5° C
- c. Use of "Correction Factor"
- d. Tests done in Ap and Bw layers
- e. Reason for unsaturated testing

GW2. Provide the following additional information or explanation for groundwater mounding:

- a. Storm water volumes calculated by the mounding model
- b. The aquifer saturated thickness
- c. The hydraulic conductivity (134, 29 or 268 ft/day)
- d. "Ker plunked" reference

## STORMWATER MANAGEMENT

BETA visited the site to confirm limits of watershed areas, characteristics, and existing surface conditions. The site is comprised of an open meadow, woodlands and wetlands. The topography of the site generally slopes down from the road to a knoll in the center of the lot sloping down to wetland areas on three sides. NRCS maps indicate upland soils are comprised of Haven silt loam and Hinckley loamy sand, with a Hydrologic Soil Group Rating (HSGR) A and low wetland areas are Freetown muck with a HSGR of A/D.

Development includes clearing portions of the wooded areas, grading the site and constructing buildings, pavements and lawns which will alter stormwater runoff from this site. The project proposes to mitigate these impacts by capturing and routing stormwater from roofs to subsurface infiltration systems. Runoff from pavement areas will be collected in deep sump catchbasins and routed through water quality units and then to a subsurface infiltration system.

The project is subject to the Wetlands Protection Act therefore the project was reviewed as it relates to DEP's ten Stormwater Management Standards with the following comments:

No new untreated stormwater conveyances (Standard No. 1): *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.* The project does not propose any new stormwater conveyances and proposed uses are unlikely to generate pollutants - complies with standard.

SW1. Provide sizing calculations and a level, non-erosive edge for the level spreaders (i.e. granite or concrete curb).

Post development peak discharge rates (Standard No.2): *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.* Calculations included in the Stormwater Report indicate there will be no increase to the peak rates of stormwater runoff.

SW2. The existing watershed map areas do not match the HydroCAD model. Watershed analysis areas should include areas from offsite upgradient areas that contribute runoff onto the site. The HydroCAD model analyzes a total of 11.07 acres where the maps show areas that includes the entire 17.55 acre parcel. Revise watershed maps and analysis accordingly.

SW3. Except for disturbance where test pits were dug, field observations indicate that existing woods and grass areas should be modeled in "good" not "fair" condition. Revise analysis to reflect "good" surface condition throughout.

SW4. Area PPR1 should be divided into two subareas to prevent the time of concentration for the septic fields from skewing the peak flow (time of concentration) calculations for the entire developed (impervious) area.

Recharge to groundwater (Standard No.3): *Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to maximum extent practicable.* The design plans show that project proposes the infiltration of roof runoff and an infiltration basin for pavement runoff - complies with standard.

SW5. Provide explanation for PVC geomembrane liner on bottom of infiltration basin allowing utilization of only 21% of the basin for infiltration.

Total suspended solids (Standard No.4): *For new development, stormwater management systems must be designed to remove 80% of the annual load of Total Suspended Solids (TSS).* The project proposes deep sump catchbasins, water quality units and subsurface infiltration systems. Due to soils with high infiltration, 80% TSS removal is required prior to infiltration. The design meets this requirement - complies with standard.

SW6. Recommend "clean" roof drains for buildings A, B and C be routed directly to infiltration system and not through water quality unit.

Higher potential pollutant loads (Standard No.5): *Stormwater discharges from Land Uses with Higher Potential Pollutant Loads require the use of specific stormwater management BMPs.* The project does not propose any uses with higher potential pollutant loads – not applicable.

Critical areas (Standard No.6): *Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas.* The project discharges to critical areas. Design includes water quality inlets to treat runoff prior to infiltration and discharge to wetland - complies with standard.

Redevelopment (Standard No.7): *Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable.* The project does not qualify as a redevelopment project – not applicable.

Erosion and sediment controls (Standard No.8): *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities.* The project is proposing to disturb more than one acre of land and therefore a Stormwater Pollution Prevention Plan (SWPPP) and Notice of Intent with EPA are required. The Applicant will need coverage under the National Pollution Discharge Elimination System (NPDES) Construction General Permit. Erosion and Sedimentation Controls locations and details are provided on plan.

SW7. Provide dimension of straw wattle diameter. Recommend minimum of 12 inches.

SW8. Provide locations and erosion controls for stockpile areas.

SW9. Provide specific methods to protect infiltration basin from sedimentation during constructions to maintain the design infiltration rate post construction.

SW10. Recommend a condition to provide a copy of the stormwater pollution prevention plan (SWPPP) to Conservation Commission prior to commencing construction.

Operations/maintenance plan (Standard No.9): *A Long-Term Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed.* An Operation and Maintenance Plan was not provided for review.

SW11. Provide a plan showing the locations of all stormwater BMPs along with discharge points.

SW12. Recommend pavement areas be swept twice per year (spring and fall).

SW13. Provide snow storage areas on plan. These should be coordinated with landscape plan.

SW14. Recommend condition to provide copies of inspection reports to the Conservation Commission.

Illicit discharges (Standard No.10): *All illicit discharges to the stormwater management system are prohibited.* The project documents include a statement noting the site does not include any illicit discharges - complies with standard.

If we can be of any further assistance regarding this matter, please contact us at our office.

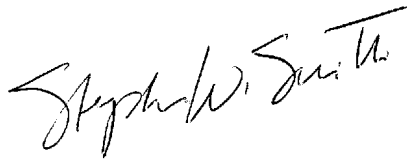
Very truly yours,  
BETA Group, Inc.

GeoHydroCycle, Inc.

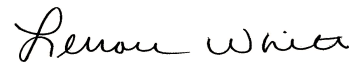
Wetland Strategies, Inc.



Philip F Paradis, Jr., PE  
Senior Project Manager



Stephen Smith, PE, P.HGW  
Hydrogeologist



Lenore White, PWS  
Wetland Scientist

CC: Jeanne Guthrie  
Kaitlyn Kutzer  
Ben Stevens,  
Bruce Saluk  
Desheng Wang