

AGENDA
Inland Wetland Agency
Regular Meeting
Tuesday, July 5, 2011
Council Chambers, Audrey Beck Building

Call to Order: 7:00 PM

Review of Minutes of Previous Meetings and Action Thereon:

- 6.06.2011 - Regular Meeting
- 6.15.2011 - Field Trip

Communications:

- Conservation Commission: June meeting was cancelled.
- GM monthly business memorandum

7:15 p.m. Public Hearing Continuation

- W1474 - Plimpton - Wormwood Hill/Gurleyville Rds - 4 lot subdivision

Old Business:

- W1479 - Bemont - Stafford Rd - garage building & small connector
betw. existing buildings
- W1480 - St.Martin - Storrs Rd - new house, portions in 150' regulated area

New Business:

- Request for Declaratory Ruling:
 - W1481 - Goldberg - Meadowbrook La - lawn regrading

New Applications:

- W1482 - United Services, Inc. - N.Frontage Rd - office building

Reports of Officers and Committees:

Other Communications and Bills:

- GZA GeoEnvironmental - re: Mirror Lake dredging updated technical information
- 6.28.11 letter from G. Fitzgerald re: Storrs Center Post Office Parcel

Adjournment:

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DRAFT MINUTES
MANSFIELD INLAND WETLANDS AGENCY
Regular Meeting
Monday, June 6, 2011
Council Chambers, Audrey P. Beck Municipal Building

Members present: R. Favretti (Chairman), M. Beal, J. Goodwin, R. Hall, K. Holt, B. Ryan
Members absent: G. Lewis, P. Plante, B. Pociask
Alternates present: F. Loxsom, K. Rawn, V. Ward
Staff present: G. Meitzler (Wetlands Agent)

Chairman Favretti called the meeting to order at 7:00 p.m. He appointed alternates Ward, Rawn and Loxsom to act in members' absence.

Minutes:

5-2-11 – Hall MOVED, Ryan seconded, to approve the 5-2-11 minutes as written. MOTION PASSED with all in favor except Loxsom and Ward who disqualified themselves.

5-17-11 Field Trip- Ward MOVED, Goodwin seconded, to approve the 5-17-11 field trip minutes with the correction of members present. MOTION PASSED with Rawn, Goodwin, Favretti, Holt and Ward in favor and all others disqualified.

Communications:

The 5-17-11 Wetlands Agent's Monthly Business report and the 5-18-11 Conservation Commission Draft minutes were noted.

Old Business:

W1477 - Walker - Riverview Rd - Solar Energy Installation within 75' of river

Ryan disqualified herself. Holt MOVED, Ward seconded, to grant an Inland Wetlands License under the Wetlands and Watercourses Regulations of the Town of Mansfield to Harriet & Crayton Walker (file no. W1477), for installation of a photovoltaic system on property owned by the applicants located at 65 Riverview Road, as shown on a map dated 4/22/11, and as described in other application submissions.

This action is based on a finding of no anticipated significant impact on the wetlands, and is conditioned upon the following provision being met:

1. Appropriate erosion and sedimentation controls (as shown on the plans) shall be in place prior to construction, maintained during construction and removed when disturbed areas are completely stabilized.

This approval is valid for a period of five years (until June 6, 2016), unless additional time is requested by the applicant and granted by the Inland Wetlands Agency. The applicant shall notify the Wetlands Agent before any work begins, and all work shall be completed within one year. Any extension of the activity period shall come before this Agency for further review and comment. MOTION PASSED with all in favor except Ryan who disqualified herself.

New Business:

Algonquin Gas Line - Route 89 - installation of ground cable along pipeline

By consensus the Agency agreed to authorize the Chairman to send the applicant a letter stating the Agency has no objections to the cathodic protection work on Route 89.

W1479 - Bemont - Stafford Rd - garage building & small connector between existing buildings

Goodwin MOVED, Holt seconded, to receive the application submitted by Stephen H. Bemont (IWA File #1479) under the Wetlands and Watercourses Regulations of the Town of Mansfield for a living space addition/connection between the existing house and garage and a new garage, located at 787 Stafford Road, on

property owned by the applicant, as shown on a map dated 5/2/11 and as described in other application submissions, and to refer said application to the staff and Conservation Commission for review and comment. MOTION PASSED UNANIMOUSLY.

W1480 - St.Martin - Storrs Rd - new house, portions in 150' regulated area

Holt disqualified herself. Goodwin MOVED, Hall seconded, to receive the application the application submitted by William St. Martin (IWA File #1480) under the Wetlands and Watercourses Regulations of the Town of Mansfield for the construction of a single family residence, well, septic and associated site work, located on the west side of Storrs Road about 500 feet north of Dodd Road, on property owned by Barry & Dru Burnham, as shown on a map dated 5/11/11 and as described in other application submissions, and to refer said application to the staff and Conservation Commission for review and comment. MOTION PASSED with all in favor except Holt who disqualified herself.

Reports of Officers and Committees:

A field trip was scheduled for Wednesday, June 15, 2011 at 1:00 p.m.

Other Communications and Bills:

Noted.

Continued Public Hearing:

W1474 - Plimpton - Wormwood Hill/Gurleyville Rds - 4 lot subdivision

Chairman Favretti opened the continued Public Hearing at 7:16 p.m. Members present were Favretti, Beal, Goodwin, Hall, Holt, Ryan and alternates Loxsom, Rawn and Ward, who were all appointed to act. Meitzler noted in addition to revised plans dated 5/24/11, the following communications were received and distributed to the Commission: a 5/2/11 email from K. Kaminsky; a 5/3/11 letter with photos from C. Gottman; and 6/1/11 report from the Wetlands Agent.

Douglas Bonoff, Land Surveyor; Paul Biscutti, Engineer; and Kim Bradley, Ecologist, were present representing the applicant. Bonoff agreed that the testimony presented at the IWA hearing be entered into the record of the related Planning and Zoning Commission Public Hearing.

P. Biscutti reviewed the changes made to the plans based on previous public hearing comments and reports from staff and the public. He agrees with all recommendations in Meitzler and Padick's memos. He suggested that any remaining issues could be addressed in an approval motion.

C. Gottman, 580 Gurleyville Road, expressed continued concerns for run off from the driveway and the position of the driveway around the large rock.

The consensus of the Agency was that written assurance, from neighbor Potz, was necessary regarding permission for a drainage easement across that neighbor's property.

Noting no further questions or comments, Holt MOVED, Rawn seconded, to continue the public hearing until 7/5/11. MOTION PASSED UNANIMOUSLY. Bonoff stated that on behalf of Mr. Plimpton, he grants a 35-day extension and will request Mr. Plimpton to do so in writing as soon as possible.

Adjournment:

Favretti declared the meeting adjourned at 7:50 p.m.

Respectfully submitted,

Katherine Holt, Secretary

DRAFT MINUTES

MANSFIELD INLAND WETLAND AGENCY/PLANNING AND ZONING COMMISSION

FIELD TRIP

Special Meeting

Wednesday, June 15, 2011

Members present: R. Favretti, M. Beal, J. Goodwin, K. Holt (1-3), K. Rawn,
B. Ryan (2&3), V. Ward

Staff present: G. Meitzler, Wetlands Agent, Assistant Town Engineer
L. Painter, Director of Planning and Development
C. Hirsch, Zoning Agent

The field trip began at 1:00 p.m.

1. BEMONT PROPERTY, NEW GARAGE & CONNECTOR TO HOUSE BETWEEN EXISTING GARAGE, 787 Stafford Rd, (IWA FILE #W1479
Members were met on site by owner S. Bemont. Members observed the site noting the existing conditions and areas of proposed work. No decisions were made.
2. BANIS PROPERTY, GRAVEL RENEWAL REQUEST, North side of Pleasant Valley Road, PZC FILE #1164
Members were met on site by owner S. Banis. Members observed the site noting the existing conditions. No decisions were made.
3. HALL PROPERTY, GRAVEL RENEWAL REQUEST, 35 Mansfield Hollow Road, PZC FILE #910-2
Members were met on site by owner E. Hall. Members observed the site noting the existing conditions and areas of proposed future work. No decisions were made.
4. ST. MARTIN, NEW HOUSE, Storrs Road, IWA FILE #1480
Members were met on site by the applicant W. St. Martin. Members observed the site noting the existing conditions and areas of proposed house & driveway development. No decisions were made.

The field trip ended at approximately 2:30 p.m.

Respectfully submitted,

K. Holt, Secretary

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Memorandum:

June 29, 2011

To: Inland Wetland Agency
From: Grant Meitzler, Inland Wetland Agent
Re: Monthly Business

Informational;

There is a Zoning Application in progress for the Storrs Downtown Project work around the Storrs Post Office. There is a letter attached from BL Companies explaining that the proposed work has not changed from the October 2007 (W1378) Master Plan approval. This is till within the 5 year term for their permit and I have indicated they can proceed without a new application.

W1419 - Chernushek - hearing on Order

3.10.09: The hearing on the Order remains open and should continue until the permit application under consideration is acted upon.

(The Order was dropped on approval of the application required in the Order.)

4.30.09: Former rye grass seeding is beginning to show green. I spoke with Mr. Chernushek this afternoon who indicated health problems that delayed his starting but indicated he will be working this weekend. I will update on this Monday evening.

5.26.09: A light cover of grass growth has come in. Mr. Chernushek indicates health problems and two related deaths have delayed his start of work since the permit approval was granted. It appears that some light work has started. He has further indicated that he will start a vacation on June 22, 2009 to finish the work.

6.13.09: Work is underway.

6.21.09: Bulldozer work has been completed - finish work remains. The additional silt fencing has been placed along the northerly wetlands crossing, and the additional pipe under the southerly crossing has been installed. Remaining work includes finish grading along edges, spreading stockpiled topsoil, and establishing grass growth.

7.01.09: I spoke with Mr. Chernushek who indicated he expects work to be completed by September 1, 2009. (Site photo attached).

9.03.09: Mr. Chernushek has been working on levelling and grading. The formerly seeded areas have become fairly thick growth surrounding the central wet areas. He has further indicated that with the combination of weather and the slower moving of earth with the payloader compared to the earlier rented bulldozer has led him to contact contractors for earth moving estimates which have not yet been received. The site is not yet finished but has remained quite stable.

9.12.09: I met with Mr. Chernushek today and discussed again what his plans are for stabilizing this work site.

10.01.09: Mr. Chernushek indicated he has not heard back from the contractor he had spoken with about removing material, and is in progress of contacting others. In discussion is removal of material from the site either within the 100 cubic yard limit or obtaining a permit for such removal.

10.28.09: Mr. Chernushek has indicated he has made arrangements with DeSiato Sand & Gravel to remove 750 cubic yards of material.

Staff is in the process of clarifying permit requirements.

W1445 - Chernushek - application for gravel removal from site

- 11.30.09: Packet of information representing submissions by Mr. Chernushek, Mr. DeSiato and myself is in this agenda packet as Mr. Chernusheks's request for modification.
- 12.29.09: Preparation of required information for PZC special permit application is in progress. Tabling any action until the February 1, 2010 meeting is recommended.
 - 1.12.10: 65 day extension of time received.
 - 2.18.10: No new information has been received.
 - 2.25.10: This application has been **withdrawn**.
 - 6.30.10: As viewed from the adjacent property, the upstream and downstream areas have grown to a decent protected surface. I did not see indication of sediment movement.
- 10.26.10: A sale of the East portion of the Chernushek property has been in negotiation.
- 12.27.10: The property exchange has been completed. The owner is now the neighboring property owner Bernie Brodin. He has indicated his intention to stabilize the area as weather permits.
- 4.25.11: Mr. Brodin indicates he is starting with grading and spreading hay and seed to stabilize disturbed areas.

Mansfield Auto Parts - Route 32

- 2.18.10: Same - they are in the process of rebuilding the engine on the payloader.
- 3.30.10: Same - Mr. Bednarczyk indicates a contuing problem finding engine parts.
- 4.13.10: Owner indicates the payloader is operating again.
- 4.15.10: Owner indicates he will have the cars moved this week.
- 4.23.10: No vehicles are within 25' of wetlands.**
- 5.17.10: Inspection - no vehicles are within 25' of wetlands.
- 6.02.10: Inspection - no vehicles are within 25' of wetlands.
- 6.23.10: Inspection - no vehicles are within 25' of wetlands.
- 7.15.10: Inspection - no vehicles are within 25' of wetlands.
- 9.01.10: Inspection - no vehicles are within 25' of wetlands.
Mr. Bednarczyk has started removing tires from the westerly part of his site using roll-off containers. With this arrangement a moderately steady rate of removal of the tires should be possible to maintain until the tires are completely removed.
- 9.28.10: Inspection - no vehicles are within 25' of wetlands.
Tire removal is continuing with 1 to 2 roll-off containers being removed per month.
- 10.07.10: Inspection - no vehicles are within 25' of wetlands.
Tire removal has been continuing.
- 11.29.10: Inspection - no vehicles are within 25' of wetlands.
Owner has been trucking cars for crushing with 6 tires per vehicle. He indicates 3 cars per day or 18 tires per day. The actual number is probably lower than 18.
- 12.23.10: Inspection - no vehicles are within 25' of wetlands.
- 1.07.11: Inspection - no vehicles are within 25' of wetlands.
- 1.20.11: Vehicle storage areas are snowed in and inaccessible.
- 1.26.11: Snows remain, although some clearing has been done I could not count on being able to get out.
- 2.24.11: Inspection - no vehicles are within 25' of wetlands.
- 3.09.11: Inspection - no vehicles are within 25' of wetlands.

- 3.22.11: Inspection - no vehicles are within 25' of wetlands.
4.25.11: Inspection - no vehicles are within 25' of wetlands.
5.17.11: Inspection - no vehicles are within 25' of wetlands.
Mr. Bednarczyk's estimate is that approximately 100
tires per month are being removed from the site.
6.14.11: Inspection - no vehicles are within 25' of wetlands.

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Memorandum:

June 29, 2011

To: Inland Wetlands Agency
Planning & Zoning Commission
From: Grant Meitzler, Inland Wetland Agent
Re: W1474 - Plimpton - Gurleyville & Wormwood Hill Rds
4 lot subdivision

plan reference: bearing latest revision date June 20, 2011, 21 sheets
Vernal Pool Report: undated letter received April 28, 2011, K.Bradley

Summary Recommendations from my previous review (items that were already done are not included in this memorandum):

I.A.3. immediate re-seeding and permanent re-vegetation of native species with 85% cover,

There is a note under the plan narrative indicating immediate stabilization of fill slopes but I do not find any commentary on work in proximity to the vernal pool conservation easement area (near the 100 ft distance).

I think it advisable to include a note on the plan to stress the importance of vernal pool protection in the Lot 1-Lot 2 conservation easement area. I feel it important that the plan and easement document reflect the Bradley report comments and suggestions insofar as it is feasible.

The long curved section of the conservation easement area around the vernal pool has been modified to have three straight line sections essentially meeting the 100' separating distance. There is now a note on the plan on sheet C7 "do not disturb native vegetation".

I strongly recommend including specific wording within the easement document for the conservation easement around the vernal pool on Lot 1 & Lot 2 to be consistent with the recommendations in the K.Bradley vernal pool commentary. Reference to this easement should be included in any subsequent deeds for Lot 1 and Lot 2.

The following are my previous comments updated according to the May 24, 2011 plan revision.

IV. Adding new water to the system carrying water across the Potz property and Lot 1 on the Plimpton property requires the acquisition of drainage rights in favor of lot 4 from each of these properties.

A 20' wide easement is needed for the new drainage from Lot 4, following the route of the present drain across the Potz property.

This easement needs to be revised to show specific metes and bounds, with iron pin monumentation.

A 20' wide easement, continuing from the end of the easement on the Potz

property, leading to a point ten feet past the end of the existing pipes is needed with metes and bound description and an arrow indicating "right to drain" onto Lot 1 from this easement.

This has not been shown on the plans in sufficient detail.

- V. Silt fencing on Lots 2 and 3 should be extended to protect wetland areas located downhill to the rear of each lot.

Silt fence needs to be added southerly of the house on lot 2 downhill of construction areas.

This has been done.

- VI. The potential of significant impact triggers consideration of the holding of a public hearing - May 2, 2011 is an option. The statutory limit for extension of time is 65 more days.

Although Mr. Plimpton has indicated in eMails to Greg Padick that he is agreeable to an extension of time, we have not yet received a signed letter to that effect.

Summary Comments:

1. Completion of the easement across the Potz property in favor of Lot 4 is needed, with addition of a metes and bounds description on the plan.
2. Completion of the easement continuing from the end of the easement on the Potz property to a point 10 feet beyond the end of the existing pipes, with addition of a metes and bounds description on the plan. An arrow showing flow continuing from the end of this easement together with the note next to the arrow indicating "right to drain".

These two additions to the subdivision plans can be handled as an approval condition, but they do need to appear on the final subdivision plans for recordation.

3. The document for the vernal pool easement area now shown on Lot 1 and Lot 2 needs to include specific language from the K.Bradley report on the vernal pool to reinforce the purpose of this easement over and above the open space conservation area requirements.
4. I think it advisable to include specific reference to this vernal pool protection easement in deeds for Lot 1 and Lot 2.
5. A signed letter indicating extension of time has been received.

To: Mansfield Planning and Zoning Commission

Mansfield Inland Wetlands Agency

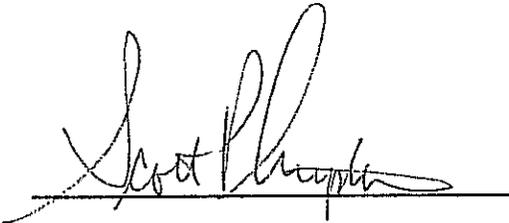
From: Scott Plimpton

Re: Plimpton 4-Lot Subdivision, 627 Wormwood Hill

PZC File #1298

IWA File #1474

I, Scott Plimpton, grant both the PZC & IWA a Public Hearing extension on the applications.

A handwritten signature in black ink, appearing to read "Scott Plimpton", is written over a horizontal line. The signature is stylized and cursive.

Scott Plimpton

Tuesday, June 07, 2011

Dear Mr. Padick,

We have spoken with Scott Plimpton and his project engineer about the proposed sub-division of his land and his need for a drainage easement across the front of our property located at 611 Wormwood Hill Road and will be glad to grant him one whenever the need arises. He has asked us to send you this letter stating our intentions on the matter. If there is anything further you need from us we would be more than happy to oblige.



Emma Potz

Tyler & Emma Potz

611 Wormwood Hill Rd.

Manfield Center, CT 06250

Memorandum:

June 29, 2011

To: Inland Wetlands Agency

From: Grant Meitzler, Inland Wetland Agent

Re: W1479 - Bemont - Stafford Rd - new garage and house addition

plan reference: May 2, 2011

This application is for construction of a new garage to replace an existing garage being converted to living space, together with a small connecting area between the existing house and existing garage.

No work is to take place in wetlands but most if not all of the work is within the 150' regulated area. By my measurement, this is approximately 600' away from the town line with Coventry such that notice to them is not a requirement.

This does not fall in the area where agent approval is authorized since the house-garage connector is as close as 50' from the year round flowing brook.

The wetlands here is a fairly large, year-round flowing brook that runs along the northerly boundary of this and the next property. In order to meet PZC requirements the owner has added property to the south side of his land that allows the new garage to be kept approximately 100' from the brook. The new addition connecting the existing garage and house is approximately 50' from the brook and surface flow is away from the brook.

The owner indicates the 16'x 24' garage is to be placed on a stone bed. This is located about 100 feet from the brook and the land does not slope towards the brook.

The house-garage connecting area will be placed either on a stone base on posts. Either is a low impact form of construction. The connecting addition is 11'x 14'. The brook is protected by the house lying between the connector and the brook, and the land slopes away from the brook.

I do not see significant impact on wetlands or the watercourse from this proposal.

The work is minor - ground disturbance has been kept to a minimum - and surface water drainage is away from the Brook along the north boundary.

Wetlands DRAFT Motion for: BEMONT

Holt _____ moves and _____ seconds to grant/~~deny~~ an Inland Wetlands License under ~~Chapter 45A~~ of the Wetlands and Watercourses Regulations of the

Town of Mansfield to STEPHEN BEMONT

(file W1479) for construction of a living space addition / connection between the existing house & garage, and a new garage,

on property owned by the applicant

located at 787 Stafford Road

as shown on a map dated May 2, 2011, revised through _____,

and as described in other application submissions, and as heard at Public Hearing(s) on _____.

This action is based on a finding of no anticipated significant impact on the wetlands, and is conditioned upon the following provisions being met:

- 1) Appropriate erosion and sedimentation controls (~~as shown on the plan~~) shall be in place prior to construction, maintained during construction and removed when disturbed areas are completely stabilized;

~~2) Maps shall not be signed until all DEP permit requirements have been addressed;~~

BEMONT

(last) This approval is valid for a period of five years (until July 5, 2016), unless additional time is requested by the applicant and granted by the Inland Wetlands Agency. The applicant shall notify the Wetlands Agent before any work begins, and all work shall be completed within one year. Any extension of the activity period shall come before this agency for further review and comment.

Wetlands Draft Approval Motion for:

Re: W1480 - William St.Martin

_____ moves and _____ seconds, to approve the application for wetlands file W1480, on property of Barry & Dru Burnham, for construction of a new house, and appurtenant construction, as outlined in application submissions including a map dated May 11, 2011, showing installation of building drains, yard grading, as detailed on those plans.

This action is based on a finding of no significant impact, and is conditioned on the following provisions being met:

1. All erosion and sediment controls (as shown on the plans) shall be in place prior to construction, maintained during construction, and removed when disturbed areas are completely stabilized.

This approval is valid for a period of five years (until July 5, 2016), unless additional time is requested by the applicant and granted by the Inland Wetlands Agency. The applicant shall notify the Wetlands Agent before any work begins, and all work shall be completed within one year. Any extension of the activity period shall come before this Agency for further review and comment.



TOWN OF WINDHAM WATER WORKS

174 Storrs Road
Mansfield Center, CT 06250
Tel. 860-465-3075 • FAX 860-465-3085

- Inland Wetlands Commission
- Zoning Commission
- Planning & Zoning Commission
- Zoning Boards of Appeals

TOWN: Ashford Chaplin Eastford
 Hampton Mansfield Pomfret
 Union Willington Windham
 Woodstock

INSPECTED BY:

Troy Quick
Troy Quick *W.W. Watershed Inspector*

DATE: June 10, 2011, WW File #M0311

The Windham Water Works has received notification of a proposed project per the requirements of Public Act 89-301.

PROJECT DESCRIPTION:

Single family house with onsite septic and well on 5 acres.

Applicant: William St. Martin

COMMENTS:

The Windham Water Works has reviewed the proposed project and with best management practices and due to the sensitivity of the seasonal brook, proper soil and erosion control measures throughout the duration must be maintained, we would have no objections, we will monitor accordingly

Memorandum:

June 30, 2011

To: Inland Wetland Agency
From: Grant Meitzler, Inland Wetland Agent
Re: New Business for July 5, 2011 meeting

Request for Declaratory Ruling:

W1481 - Goldberg - Meadowbrook Lane - lawn regrading

	yes	no
	-----	-----
fee paid	x	
certified receipts	n.a.	
map dated	June 15, 2011	

Lawn grading done in the distant past on this property and adjacent property owned by St. Onge has left an area of ponding where the two lot sidelines meet. What is proposed is to regrade the Goldberg rear yard to provide a gentle slope. Regrading is intended to involve only inches of change in elevation. No material will be removed from the site or brought in.

I think this clearly fits in Section 4.1 D. "Uses incidental to the enjoyment and maintenance of residential property, such property defined as equal to or smaller than the largest minimum residential lot site permitted anywhere in the municipality provided that in any town where there are no zoning regulations establishing minimum lot sites, the largest minimum lot size shall be two acres. Such incidental uses shall include maintenance of existing structures and landscaping, but shall not include removal or deposition of significant amounts of material from or onto a wetland or watercourse, or diversion or alteration of a watercourse."

New Application:

W1482 - United Services, Inc. - N.Frontage Rd - Office building

	yes	no
	-----	-----
fee paid	x	
certified receipts	x	
map dated	June 27, 2011	

This application is for a United Services, Inc. office building on the Tubridy property on the N.Frontage Rd in the area of the state maintenance garage. Portions of the work are within the 150' regulated areas next to wetlands. No work is proposed in wetlands.

Receipt and referral to the Conservation Commission is appropriate.

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APPLICATION FOR PERMIT
MANSFIELD INLAND WETLANDS AGENCY
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268
TEL: 860-429-3334 OR 429-3330
FAX: 860-429-6863

FOR OFFICE USE ONLY	
File #	W1481
Fee Paid	\$25.00
Date Received	6-27-11

Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact Grant Meitzler, Inland Wetlands Agent at the telephone numbers above.

Please print or type or use similar format for computer; attach additional pages as necessary.

Request for Declaratory ruling.

Part A - Applicant

Name ERIC AND ELLEN GOLDBERG

Mailing Address 96 MEADOWBROOK LANE

MANSFIELD CENTER, CT 06250 Zip 06250

Telephone-Home 860 4560457 Telephone-Business SAME

Title and Brief Description of Project

GRADING OF YARD TO RELIEVE RUNOFF

CAUSED BY FREEDOM GREEN'S CONSTRUCTION

Location of Project 96 MEADOWBROOK LANE - REAR PORTION OF PROPERTY

Intended Start Date SUMMER 2011

Part B - Property Owner (if applicant is the owner, just write "same")

Name SAME

Mailing Address SAME

Zip _____

Telephone-Home SAME Telephone-Business _____

Owner's written consent to the filing of this application, if owner is not the applicant:

Signature SAME date _____

Applicant's interest in the land: (if other than owner) _____

Part C - Project Description (attach extra pages, if necessary)

1) Describe in detail the proposed activity here or on an attached page. (See guidelines at end of application – page 6.)

Please include a description of all activity or construction or disturbance:

- a) in the wetland/watercourse
- b) in the area **adjacent** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is **off** your property

THE YARD WILL BE GRADED FROM EAST TO WEST.
THIS WILL ALLOW THE RUNOFF CAUSED BY THE
CONSTRUCTION OF FREEDOM GREEN TO ENTER THE
BROOK. PRESENTLY THE RUNOFF SITS IN
A LOW SPOT ON THE PROPERTY.

2) Describe the amount or area of disturbance (in square feet or cubic yards or acres):

- a) in the wetland/watercourse
- b) in the area **adjacent** to (within 150 feet from the edge of) the wetland/watercourse, even if wetland/watercourse is **off** your property

APPROXIMATELY 2 TRUCK LOADS OF MATERIAL (SOIL)
WILL BE MOVED AND DEBURSED ON THE PROPERTY
ADJACENT TO THE STREAM.

3) Describe the type of materials you are using for the project:

THE EXISTING SOIL WILL BE MOVED TO GRADE

- a) include **type** of material used as fill or to be excavated SOIL / GRASS
- b) include **volume** of material to be filled or excavated 2 TRUCK LOADS

4) Describe measures to be taken to minimize or avoid any adverse impacts on the wetlands and regulated areas (silt fence, staked hay bales or other Erosion and Sedimentation control measures).

THE OPEN EARTH WILL BE SEEDED AND
COVERED WITH STRAW

Part D - Site Description

Describe the general character of the land. (Hilly? Flat? Wooded? Well drained? etc.)

FLAT GRASSY YARD.

- 3) The Statewide Reporting Form (attached) shall be part of the application and specified parts must be completed and returned with this application.

Part J - Other Impacts To Adjoining Towns, if applicable

- 1) Will a significant portion of the traffic to the completed project on the site use streets within the adjoining municipality to enter or exit the site? Yes No Don't Know
- 2) Will sewer or water drainage from the project site flow through and impact the sewage or drainage system within the adjoining municipality? Yes No Don't Know
- 3) Will water run-off from the improved site impact streets or other municipal or private property within the adjoining municipality? Yes No Don't Know

Part K - Additional Information from the Applicant

Set forth (or attach) any other information which would assist the Agency in evaluating your application. (Please provide extra copies of any lengthy documents or reports, and extra copies of maps larger than 8.5" x 11", which are not easily copied.)

Part L - Filing Fee

Submit the appropriate filing fee. (Consult Wetlands Agent for the fee schedule available in the Mansfield Inland Wetlands and Watercourses Regulations.)

\$1,000. \$750. \$500. \$250. \$125. \$100. \$50. \$25.

\$60 State DEP Fee

Note: The Agency may require you to provide additional information about the regulated area which is the subject of the application, or about wetlands or watercourses affected by the regulated activity. If the Agency, upon review of your application, finds the activity proposed may involve a "significant activity" as defined in the Regulations, additional information and/or a public hearing may be required.

The undersigned applicant hereby consents to necessary and proper inspections of the above mentioned property by members and agents of the Inland Wetlands Agency, at reasonable times, both before and after the permit in question has been granted by the Agency.

Michael & Ellen Goldberg 06/17/2011
Applicant's Signature Date

Dimension
 Address
 ParcelID
 Area
 Streets
 Parcels
 powerlines
 water
 wetlands
 Town
 roads
 highways

Notes:

1. lawn area to be regraded to eliminate ponding area
2. grading to be limited to inches for gentle slope across Goldberg lawn
3. no material to be moved to or from site

36 feet
 1 in = 36 ft

Printed:
 6/15/2011



PAGE
BREAK

APPLICATION FOR PERMIT
MANSFIELD INLAND WETLANDS AGENCY
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268
TEL: 860-429-3334 OR 429-3330
FAX: 860-429-6863

FOR OFFICE USE ONLY
File #
W 1482
Fee Paid \$185
Official Date of Receipt 6-29-11

Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact Grant Meitzler, Inland Wetlands Agent at the telephone numbers above.

Please print or type or use similar format for computer; attach additional pages as necessary.

Part A - Applicant

Name UNITED SERVICES, INC.

Mailing Address 1007 NORTH MAIN STREET, P.O. BOX 839
DAYVILLE, CT Zip 06241-0839

Telephone-Home 860-774-2020 Telephone-Business 860-774-2020

Title and Brief Description of Project
"PROPOSED OFFICE BUILDING"

REFER TO "STATEMENT OF USE" FOR DESCRIPTION

Location of Project NORTH FRONTAGE ROAD (38.101.2-1 & 38.101.6-1)

Intended Start Date FALL 2011

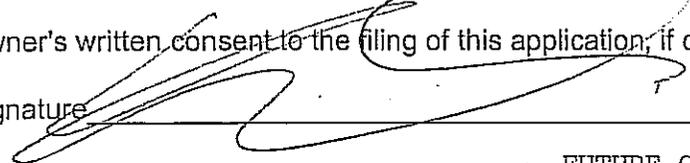
Part B - Property Owner (if applicant is the owner, just write "same")

Name KEVIN TUBRIDY

Mailing Address 25 LEDGEBROOK DRIVE
MANSFIELD, CT Zip 06250

Telephone-Home 860-974-2995 Telephone-Business 860-423-0334

Owner's written consent to the filing of this application, if owner is not the applicant:

Signature  date 6/27/11

Applicant's interest in the land: (if other than owner) FUTURE OWNER

Part E - Alternatives

Have you considered any alternatives to your proposal that would meet your needs and might have less impact on the wetland/watercourse? Please list these alternatives.

THIS PROPOSAL IMPLIMENTS MANY BEST MANAGEMENT PRACTICES AND
NUMEROUS STORMWATER INFILTRATION SYSTEMS TO MINIMIZE IMPACTS TO
THE EXISTING WETLANDS. NO WORK IS PROPOSED INSIDE THE WETLANDS.
SIMILARLY, THERE IS NO PROPOSED WORK WITHIN THE FLOOD ZONE.

Part F - Map/Site Plan (all applications)

1) Attach to the application a map or site plan showing **existing conditions** and the **proposed project** in relation to wetland/ watercourses. Scale of map or site plan should be 1" = 40'; if this is not possible, please indicate the scale that you are using. A sketch map may be sufficient for small, minor projects. **(See guidelines at end of application – page 6.)**

2) Applicant's map date and date of last revision JUNE 27, 2011

3) Zone Classification PLANNED BUSINESS 1

4) Is your property in a flood zone? X Yes No Don't Know

Part G - Major Applications Requiring Full Review and a Public Hearing

See Section 6 of the Mansfield Regulations for additional requirements.

Part H - Notice to Abutting Property Owners

1) List the names and addresses of abutting property owners

Name	Address
REFER TO ATTACHED "TOWN OF MANSFIELD - ABUTTERS LIST"	

2) **Written Notice to Abutters** . You must notify abutting property owners by certified mail, return receipt requested, stating that a wetland application is in progress, and that abutters may contact the Mansfield Inland Wetlands Agent for more information. Include a brief description of your project. **Postal receipts of your notice to abutters must accompany your application.** (This is not needed for exemptions).

Part I - Additional Notices, if necessary

1) Notice to Windham Water Works is attached. If this application is in the public watershed for the Windham Water Works (WWW), you must notify the WWW of your project within 7 days of sending the application to Mansfield—sending it by certified mail, return receipt requested. Contact the Mansfield Inland Wetlands Agent to find out if you are in this watershed.

2) Notice to Adjoining Town. If your property is within 500 feet of an adjoining town, you must also send a copy of the application, on the same day you sent one to Mansfield, to

the Inland Wetlands Agency of the adjoining town, by certified mail, return receipt requested.

- 3) The Statewide Reporting Form (attached) shall be part of the application and specified parts must be completed and returned with this application.

Part J - Other Impacts To Adjoining Towns, if applicable

- 1) Will a significant portion of the traffic to the completed project on the site use streets within the adjoining municipality to enter or exit the site? ___ Yes X No ___ Don't Know
- 2) Will sewer or water drainage from the project site flow through and impact the sewage or drainage system within the adjoining municipality? ___ Yes X No ___ Don't Know
- 3) Will water run-off from the improved site impact streets or other municipal or private property within the adjoining municipality? ___ Yes X No ___ Don't Know

Part K - Additional Information from the Applicant

Set forth (or attach) any other information which would assist the Agency in evaluating your application. (*Please provide extra copies of any lengthy documents or reports, and extra copies of maps larger than 8.5" x 11", which are not easily copied.*)

Part L - Filing Fee

Submit the appropriate filing fee. (Consult Wetlands Agent for the fee schedule available in the Mansfield Inland Wetlands and Watercourses Regulations.)

___ \$1,000. ___ \$750. ___ \$500. ___ \$250. X \$125. ___ \$100. ___ \$50. ___ \$25.

X \$60 State DEP Fee

Note: The Agency may require you to provide additional information about the regulated area which is the subject of the application, or about wetlands or watercourses affected by the regulated activity. If the Agency, upon review of your application, finds the activity proposed may involve a "significant activity" as defined in the Regulations, additional information and/or a public hearing may be required.

The undersigned applicant hereby consents to necessary and proper inspections of the above mentioned property by members and agents of the Inland Wetlands Agency, at reasonable times, both before and after the permit in question has been granted by the Agency.


Applicant's Signature

28 June 2011
Date

Geoffrey P. Fitzgerald (as Agent for United Svc.)

Project Description
North Frontage Road
Mansfield, CT

The proposed activities include construction of an office building with associated parking driveway, drainage, utilities and appurtenances. The new parking lot is +/- 64' at the closest point to the wetland line with associated site grading +/- 52' to the closest point to the wetlands line. The proposed development footprint is approximately 3.5 acres on the 6.025 acre property. There are not proposed activities within the wetlands. Approximately 1 acre of area is disturbed outside the wetland but within the 150' upland review area. Approximately 18,000 CY of earthwork is necessary to prepare the site for this development. Excavated soil will be reused onsite. Processed gravel will be imported as pavement and building bases.

Construction vehicles and machinery capable of conducting the proposed earthwork and development will be used onsite. Construction is anticipated to start in the Fall of 2011 and complete in the Spring of 2012. The wetlands will be protected using sedimentation and erosion control devices such as geotextile silt fence, hay bales, silt sacks in catch basins and other measures consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control. We do not have any knowledge of any previous wetland application for this property.

Statement of Use
North Frontage Road
Mansfield, CT

United Services, Inc. is proposing to develop a two-story professional office building of approximately 28,000 SF to consolidate existing operations in the Windham area. The building would be built on approximately 6 acres at the junction of North Frontage Road and Mansfield City Road. The site development is located within a wetland 150-foot upland review area and therefore is also under jurisdiction of the Mansfield Inland Wetland Agency. An Application for Permit is being submitted concurrently to the Inland Wetland Agency.

United Services would move its present outpatient operations from locations on Mansfield Avenue in Willimantic and Route 6 in Columbia to this site, as well as incorporating several smaller office sites throughout the area. At the time of occupancy, approximately 80 professional and support staff will have their offices at this location. The staff would include Psychiatrists, Primary Care Physicians, Advanced Practice Registered Nurses, Clinical Social Workers, Licensed Professional Counselors, Case Managers, Family Support workers, Vocational Counselors, Prevention and Early Intervention staff, as well as the clerical and secretarial supports necessary. The building as designed could accommodate more than 100 staff without additions, but is also designed for future expansion if necessary.

United Services programs operating from this location would include the Enhanced Care Clinic, which provides outpatient care for behavioral health issues for all ages. These services include emergency, urgent and routine evaluation, as well as individual, family and group treatment. Community and Family Education would also be provided. In home supports for individuals and families would also be based here, with staff travelling to community sites to deliver services. In addition, we anticipate that we will include Primary Care services for clients who have difficulty in accessing such care from existing services, particularly due to psychiatric disabilities.

Licensed office hours at the site would be Monday through Thursday, 9 am to 8 pm, and Friday 9 am to 5 pm. Staff may access the building during other hours for support activities not including direct outpatient services. Many clients use public transportation to come to appointments; others use medical taxis or private vehicles.

United Services has experienced a more than 100 percent increase in the number of clients served and services delivered in our adult clinic since 2007, and our child and family services have grown more than 40 percent. We are developing this office space to be able to meet increased community need and changing models of healthcare delivery that include rapid response, community based as well as office based services and professional levels of care integrated with natural community supports. We have provided these services for more than 47 years in the Windham/Mansfield area, and are excited to continue to grow to meet our neighbors' needs.

GZA
GeoEnvironmental, Inc.

Engineers and
Scientists

June 7, 2011
File No. 15.0166134.00

Mr. Ken Major
CT Department of Environmental Protection
Bureau of Materials Management and Compliance Assurance
Water Permitting and Enforcement Division
79 Elm Street
Hartford, CT 06106



RE: Mirror Lake Dredging
Flocculent Impact Evaluation
Wastewater Discharge Permit
Application No. 200903959

ONE FINANCIAL PLAZA
1350 Main Street
Suite 1400
Springfield
Massachusetts 01103
413-726-2100
Fax: 413-732-1249
www.gza.com

Dear Mr. Major:

On behalf of The University of Connecticut, GZA GeoEnvironmental, Inc. (GZA) is submitting additional information regarding the use of a polymer flocculent in the sediment dewatering process for the Mirror Lake Dredging project, as proposed in the NPDES Permit Application for Wastewater Discharges for the proposed Mirror Lake hydraulic dredging project on the University of Connecticut Storrs Campus.

The CT Department of Public Health (DPH) provided comments to the Department of Environmental Protection (DEP) on UConn's Permit Application for Wastewater Discharges with two (2) letters, one on December 17, 2010 and another on March 1, 2011. Because Mirror Lake is within the watershed of a public drinking water supply (Willimantic Reservoir), the DPH Drinking Water Section, after consulting with Windham Water Works, a public water utility, recommended that the proponent use a flocculent which is already certified by NSF (formerly known as the National Sanitation Foundation) for use in drinking water applications. Alternatively, should the proponent use a flocculent that is not NSF-certified, DPH requested that information be provided that demonstrates no negative impact to the public drinking water supply with use of such a flocculent. The purpose of this letter is to provide that information.

According to the Ashland Hercules Water Technologies (Ashland), the flocculent manufacturer, the concentration of residual acrylamide is the sole concern of NSF in certifying a flocculent used in the treatment of drinking water. While NSF requires that residual acrylamide content not exceed 5×10^{-4} ppm, our analysis predicts that the residual acrylamide will be reduced to $7 \pm \times 10^{-5}$ ppm by the time it reaches the Willimantic Reservoir, the downstream public water supply source. This concentration meets the NSF criterion for certification of substances used in drinking water treatment applications.

SELECTION OF PROPOSED FLOCCULENT

Mirror Lake water and soft sediment samples were collected to run bench scale processing tests using geotextile fabric dewatering tubes. The tests were performed in the labs of Mineral Processing Services, LLC (MPS) of South Portland, Maine in July and August 2010, to simulate the



larger scale dredging, dewatering, and discharge process proposed for the Mirror Lake Dredging project. Characterization of the dredged material was made for consolidation and dewatering properties and for the determination of a suitable polymer flocculant. Laboratory testing of the chemical and toxicological characteristics of the simulated dewatering discharge (filtrate) was performed by Connecticut-certified laboratories to assess the discharge from the dredging and dewatering process. Results of laboratory testing have been previously submitted to DEP as supplementary information for the permit application.

The flocculant determined to provide the most efficient removal of suspended solids from the dredge discharge is the DrewFloc 2421 made by Ashland. This flocculant is a non-NSF approved flocculant in that it is not certified for use in drinking water applications. While taking care not to reveal proprietary information about DrewFloc 2421, Ashland has stated that the product contains no constituents listed in the DEP Water Quality Standards or the EPA National Primary Drinking Water Regulations, with the exception of acrylamide (see Attachment 3).

IMPACT EVALUATION

The criterion of concern for NSF certification of a polymer flocculant used in the treatment of drinking water is the residual monomer content as established by the U.S. Environmental Protection Agency (EPA) through the National Primary Drinking Water Regulations. Acrylamide is a monomer used in the production of polyacrylamide flocculents. Polymer flocculents applied to drinking water systems must contain <0.05% acrylamide (monomer) at a polymer dosage rate of 1 mg/L or Parts per Million (ppm). DrewFloc 2421, while not NSF-certified, has all of the exact same components in the formulation that NSF-certified Ashland polymer flocculents contain, with the exception of monomer content. The residual monomer quality control specification for DrewFloc 2421 is <0.1% residual monomer as opposed to the NSF standard of <0.05%. EPA has recognized that improvements have occurred in the polymerization processes that have reduced the monomer content in most polymers from 5% to 0.3%¹. Ashland maintains a higher standard for the DrewFloc 2421 at <0.1% monomer content. This standard is very close to the EPA/NSF level.

Initial Discharge Concentration

The EPA/NSF acrylamide content limit to polymer flocculant dosage translates to an application concentration of 0.0005 ppm (0.05% of 1 ppm). Assuming no degradation or removal of monomer in the drinking water treatment process, it is assumed that the limit applies to residual monomer concentration at the end use (the tap). This is a conservative assumption.

Introduction and initiation of the dilution of DrewFloc 2421 and its residual monomer will occur at Mirror Lake, 10± miles along waterways upstream of the Windham Waterworks drinking water treatment plant intake on the Willimantic Reservoir in Mansfield Center. The bench testing process determined that the dewatering process for the dredged sediments from Mirror Lake will require a dosage of 400 ppm of DrewFloc 2421 flocculant containing 0.1% acrylamide. This

¹ U.S. Environmental Protection Agency, Technical Factsheet on: Acrylamide, excerpt from the National Primary Drinking Water Regulations.

translates to a concentration of 0.4 ppm (0.1% of 400 ppm) being applied to the dredge discharge entering the dewatering process.

Applying the same conservative assumption as that for the drinking water treatment process, no degradation or removal of monomer in the dewatering process is presumed to occur, therefore, the dewatering process return water discharge to Mirror Lake will be assumed to contain the same concentration of 0.4 ppm acrylamide applied to the dredge discharge entering the dewatering system.



Mirror Lake Discharge Concentration

The concentration of residual acrylamide exiting Mirror Lake was estimated by applying a mass balance for a well-mixed lake², under the assumption that Mirror Lake would be sufficiently well mixed for a uniform distribution of residual acrylamide. Note, the inflow into the lake used in the mass balance equation was estimated using USGS Connecticut StreamStats. The interval of July to October was used to compute the flow rate that is exceeded 50% of the time, as this flow interval is expected to represent average conditions during the driest time of the year when the potential for dilution is lowest, thus computing a conservatively high residual acrylamide concentration. Calculations are described in detail in Attachment 2.

The mass balance analysis indicates that the concentration of residual acrylamide exiting Mirror Lake is reduced by approximately 33% from 0.4 ppm to ± 0.299 ppm, due to dilution and biodegradation.

Roberts Brook Discharge Concentration

Flow from Mirror Lake enters Roberts Brook, which flows for approximately 1.7 miles before joining the Fenton River. The watershed to Roberts Brook, at a point just upstream of where Roberts Brook enters the Fenton River, results in a July to October flow rate exceeded 50% of the time in Roberts Brook of 0.18 cfs, according to USGS Connecticut StreamStats. Any reduction in residual acrylamide concentration along Roberts Brook due to biodegradation or dispersion was neglected. Calculations are described in detail in Attachment 2.

The mass balance analysis for Roberts Brook upstream of the Fenton River estimates that the acrylamide concentration is diluted from 0.4 ppm to ± 0.037 ppm.

Fenton River Discharge Concentrations

Dilution of the residual acrylamide concentration where Roberts Brook enters the Fenton River was accounted for by applying a basic mass balance assuming complete mixing at the confluence.

² Chapra, Steven C. (1997) Surface Water Quality Modeling, McGraw-Hill, Boston, Massachusetts.

From the mass balance analyses of the tributary confluences along the Fenton River, the concentration of residual acrylamide entering Mansfield Hollow Lake from the Fenton River is estimated to be ± 0.003 ppm.



As was done for Mirror Lake, the mass balance for a well-mixed lake was then applied to Mansfield Hollow Lake to estimate the residual acrylamide concentration exiting Mansfield Hollow Lake. The volume of Mansfield Hollow Lake was estimated from the Lake Bathymetry GIS datalayer from the Connecticut Department of Environmental Protection (2003). The outflow from Mansfield Hollow Lake was taken from the daily outflow data for the Mansfield Hollow Lake Dam, available on the U.S. Army Corps of Engineers website for Mansfield Hollow Lake. The data from June to October, 2010 were plotted to estimate the typical low flow of $30 \pm$ cfs during that period (see Attachment 2, Figure 2).

The mass balance analysis indicates that the concentration of residual acrylamide exiting Mansfield Hollow Lake is reduced by approximately 98% from $0.003 \pm$ ppm to $7 \pm \times 10^{-5}$ ppm, due to dilution and biodegradation.

ESTIMATED IMPACT RESULTS

Mass balance analysis indicates that residual acrylamide discharged from the dredge dewatering process at Mirror Lake will be reduced to $7 \pm \times 10^{-5}$ ppm by the time it is discharged over the Mansfield Hollow Lake Dam, a 99.98% concentration reduction. Analyses of the final reach through the Natchaug River and the Willimantic Reservoir to the Windham Waterworks treatment plant intake were not performed and it is anticipated that the concentration would be further diluted and degraded. The analysis utilizes low-flow conditions developed from USGS Connecticut StreamStats and from existing USGS and USACE gage data that represent the flow conditions expected during a summer period when the Mirror Lake dredging is proposed to take place. Low-flow conditions provide the least potential for dilution and, therefore, represent the probable worst case scenario for the fate of residual acrylamide as it travels downstream from Mirror Lake.

The analysis approach is relatively conservative. Not all inputs and parameters were evaluated including additional contributing areas of runoff within the Fenton River watershed not associated with tributary streams and including the travel path distance and travel time. Additional evaluation to incorporate these elements and more details would indicate even further reduction in the concentration of residual acrylamide in the environment as it travels between Mirror Lake and the Windham Waterworks treatment plant.

It is important to recognize that, while Mirror Lake does reside within the Windham Waterworks water supply watershed, the proposed activity is very distantly removed from the treatment plant intake. The EPA/NSF requirement limiting content of residual acrylamide in flocculents, as



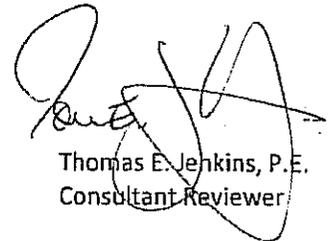
mandated by the EPA National Primary Drinking Water Standards, is concerned with their use in drinking water treatment. The proposed flocculent for the dredging of Mirror Lake is in almost every way the same as the NSF-approved flocculents, with the exception of the residual monomer content. This evaluation demonstrates that residual monomer introduced into Mirror Lake during the temporary activity of hydraulic dredging will be reduced to trace concentrations of 7 ± 10^{-5} ppm, several orders of magnitude less than the EPA standard of 5×10^{-4} ppm, therefore, GZA concludes that the proposed activity will have no negative impact on the public water supply at the Windham Waterworks drinking water treatment plant intake.

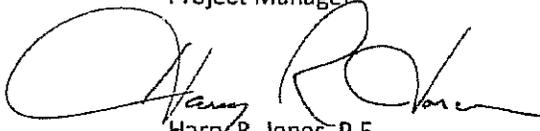
We appreciate your review of this evaluation of the flocculent proposed for use in dewatering sediment dredged from Mirror Lake and hope that the information provided allows DEP to seek acceptance of the proposed activity from DPH with respect to the public drinking water supply.

Please feel free to contact our office should you have questions or require additional information.

Sincerely,
GZA GeoEnvironmental, Inc.


Nathaniel Y. Arai, P.E.
Project Manager


Thomas E. Jenkins, P.E.
Consultant Reviewer


Harry R. Jones, P.E.
Principal in Charge

Attachments:

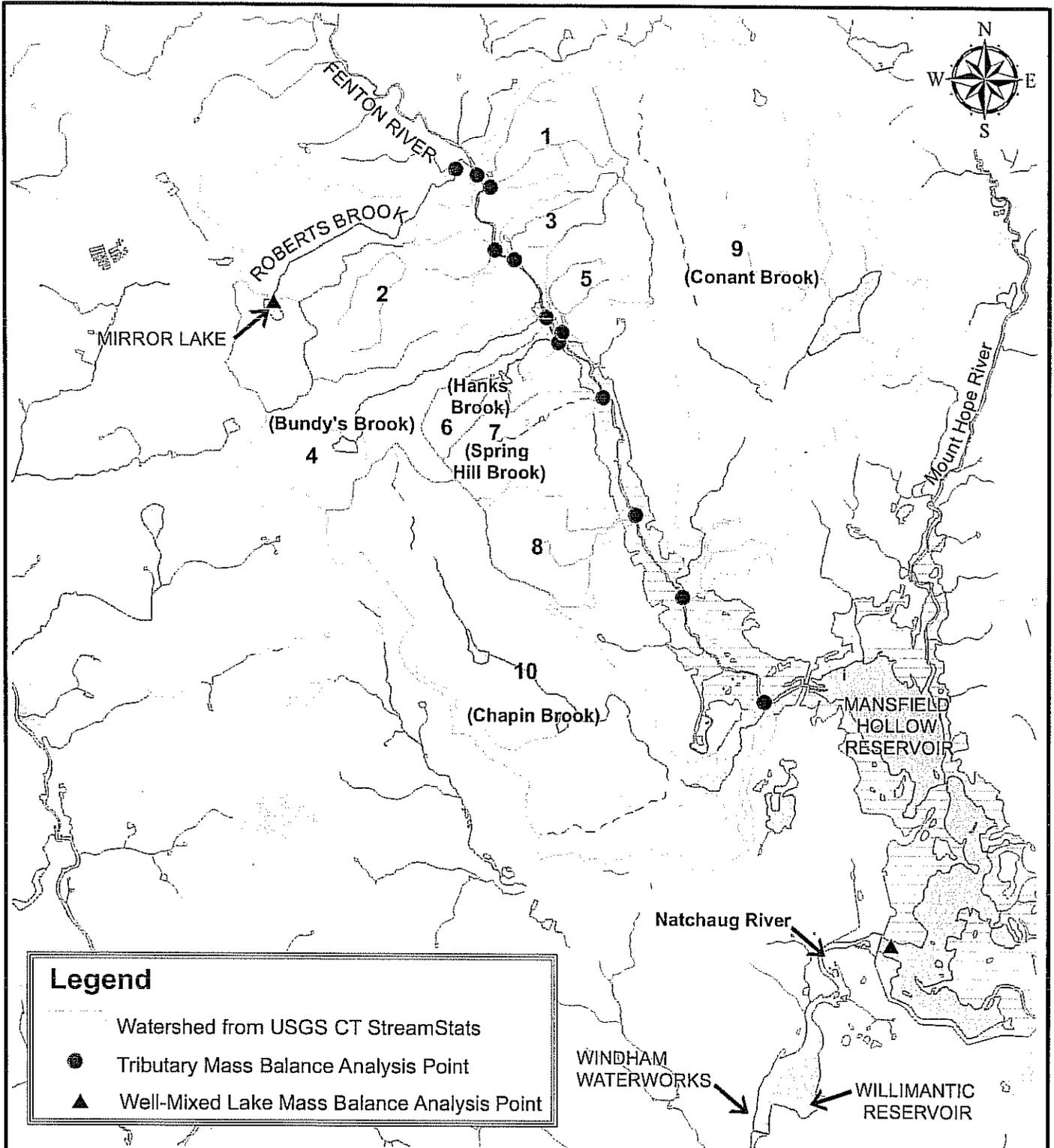
- 1 Figure 1 – Locus Map
- 2 Calculations and Tables
- 3 Ashland Product Statement

cc: Jason Coite – University of Connecticut
Pat Bisacky – Connecticut Department of Public Health
Gregory Padick – Director of Planning, Town of Mansfield
James Hooper – Superintendent, Windham Waterworks
Robert Miller – Director, Eastern Highlands Health District



ATTACHMENT 1

FIGURE 1 – LOCUS MAP



Legend

- Watershed from USGS CT StreamStats
- Tributary Mass Balance Analysis Point
- ▲ Well-Mixed Lake Mass Balance Analysis Point

<p>4,000 2,000 0 4,000 Feet</p>	<p>LOCUS MAP</p>		<p>Project No: 15.0166134.00</p>
	<p>Mirror Lake Dredging University of Connecticut Storrs, Connecticut</p>		<p>Drawn by: ATR</p> <p>Checked by: RTS</p> <p>Date: MAY 2011</p> <p>Figure No: 1</p>
<p>GZA GeoEnvironmental, Inc. Springfield, MA / Hartford, CT</p>	<p>Data obtained from University of Connecticut Map and Geographic Information Center and Connecticut Environmental Conditions Online (CT ECO).</p>		



ATTACHMENT 2

CALCULATIONS AND TABLES

Mirror Lake Discharge Concentration

The mass balance for a well-mixed lake can be expressed as (Chapra, 1997):

$$\text{Accumulation} = \text{loading} - \text{outflow} - \text{reaction} - \text{settling} \quad (1)$$

When settling is neglected, this equation becomes:

$$V \frac{dc}{dt} = \sum(Q_{in} c_{in}) - \sum(Q_{out} c_{out}) - kVc \quad (2)$$

Where:

V = lake volume,

c = in-lake concentration,

$\frac{dc}{dt}$ = change in concentration over time,

Q = volumetric flow rate of all water sources entering or leaving the system,

c_{in} = inflow concentration,

c_{out} = outflow concentration = c for a well-mixed lake, and

k = first order reaction coefficient (T^{-1}).

Assuming that the system is at steady state, $\frac{dc}{dt}$ becomes zero and the equation may be solved for the in-lake concentration, c, as:

$$c = \frac{\sum(Q_{in}c_{in})}{\sum(Q_{out})+kV} \quad (3)$$

This equation assumes:

1. A constant lake volume as the average of the pre-dredging lake volume and the post-dredging lake volume.
2. A constant flow rate ($Q_{in} = Q_{out}$).
3. The inflow (Q_{in}) to the lake consists the return flow from the Geotubes and contribution from the watershed.
4. Return flow can be as high as 2,000 gallons per minute (gpm), but will discharge to the geotextile tube dewatering system at an average rate of 1,500 gpm or 3.34 cubic feet per second (cfs) operating over a 12 hour operating day. The dewatered sediments captured in the geotextile tubes will retain some water which, in total, will reduce the return water flow by approximately 15% to a rate of about 2.84 cfs.
5. The watershed contribution to Mirror Lake estimated using USGS Connecticut StreamStats. The July to October flow rate exceeded 50% of the time. This flow is expected to represent average conditions during the driest time of the year, when the potential for dilution is lowest.
1. All inputs (loadings) are instantaneously distributed throughout the volume.

The input parameters for the computation of the residual acrylamide concentration in Mirror Lake are summarized in Table 1.

Table 1. Mirror Lake Mass Balance Input Parameters and Result

Mirror Lake Mass Balance Input Parameter	Value	Source
Mirror Lake Volume, V (million gallons)		
Pre-dredging volume	4.2	1
Post-dredging volume	7.7	
Average volume	6.0	
First Order Reaction Coefficient, k (day ⁻¹)	4.7 x 10 ⁻²	2
Inflow Flow Rate, Q _{in} (cubic feet per second)		
Inflow from watershed	0.02	3
Inflow from Geotubes	2.84	4
Outflow Flow Rate, Q _{out} (cubic feet per second)		
Outflow to Roberts Brook	0.02	3
Outflow to Geotubes	3.34	4
Inflow Concentration, c _{in} (parts per million)		
From Geotubes	0.4	5
From watershed	0	
Resulting Mirror Lake Residual Acrylamide Concentration		

1: From bathymetric survey information, July 2009, BEC, Inc.

2: First order reaction coefficient for biodegradation of acrylamide in surface water from the *European Union Risk Assessment Report for acrylamide*, Institute for Health and Consumer Protection, European Chemicals Bureau, Existing Substances, European Commission Joint Research Centre, CAS No: 79-06-1, EINECS No: 201-173-7, 1st Priority List, Volume: 24.

3: USGS Connecticut StreamStats, StreamStats Ungaged Site Report, "D50_07_10": July to October flow exceeded 50% of the time, May 6, 2011.

4: Dredge discharge anticipated average daily (12 hour) flow rate is estimated at 1.08 mgd (3.34 cfs) or 25% of maximum daily flow of 1.44 mgd

5: Approximately 15% of water will be retained within the dewatered sediments effectively reducing the return water discharge rate to 981,000 mgd (2.84 cfs).

Roberts Brook Discharge Concentration

Dilution of the residual acrylamide concentration in Roberts Brook due to added flow from the watershed was accounted for by applying a mass balance at the downstream end of Roberts Brook, as follows:

$$Q_{\text{Mirror Lake}} \times C_{\text{Mirror Lake}} + Q_{\text{watershed}} \times C_{\text{watershed}} = Q_{\text{Roberts Brook}} \times C_{\text{Roberts Brook}} \quad (4)$$

$$Q_{\text{Roberts Brook}} = Q_{\text{Mirror Lake}} + Q_{\text{watershed}} \quad (5)$$

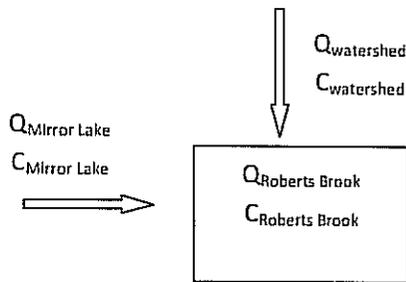


Table 2. Roberts Brook Mass Balance Analysis

Roberts Brook Mass Balance Input Parameter	Value	Source
Flow rate from Mirror Lake, $Q_{\text{Mirror Lake}}$ (cubic feet per second)	0.02	1
Residual Acrylamide Concentration from Mirror Lake, $C_{\text{Mirror Lake}}$ (parts per million)	0.299	2
Flow rate from Roberts Brook Watershed, $Q_{\text{watershed}}$ (cubic feet per second)	0.16	1
Residual Acrylamide Concentration from Roberts Brook Watershed, $C_{\text{Roberts Brook}}$ (parts per million)	0	-
Resulting Roberts Brook Residual Acrylamide Concentration		
$C_{\text{Roberts Brook}}$ (parts per million)	0.037	

1: USGS Connecticut StreamStats, StreamStats Ungaged Site Report, "D50_07_10": July to October flow exceeded 50% of the time, May 6, 2011.

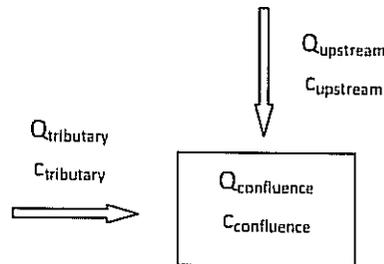
2: Mirror Lake mass balance analysis (Table 1).

Fenton River Discharge Concentrations

Dilution of the residual acrylamide concentration where Roberts Brook enters the Fenton River was accounted for by applying a basic mass balance with complete mixing at the confluence, as follows:

$$Q_{\text{upstream}} \times C_{\text{upstream}} + Q_{\text{tributary}} \times C_{\text{tributary}} = Q_{\text{confluence}} \times C_{\text{confluence}} \quad (6)$$

$$Q_{\text{confluence}} = Q_{\text{upstream}} + Q_{\text{tributary}} \quad (7)$$



The flow on the Fenton River was estimated as the annual seven-day minimum for Water Years 2006-2008 from the *USGS Water-Data Report 2008 for Gage 01121330 Fenton River at Mansfield, Connecticut*. A similar mass balance was applied at each location along the Fenton River where a tributary enters the Fenton River as it travels downstream to Mansfield Hollow Lake. The mass balance analysis was performed at a total of ten confluences in addition to the Roberts Brook/Fenton River confluence. Some very small tributaries were neglected. The flows for each tributary were taken as the July to October flow exceeded 50% of the time, as computed by USGS Connecticut StreamStats. The mass balance computations are summarized in Table 3.

Table 3. Tributary Mass Balance Analyses

Tributary	Flow, cfs			Concentration, ppm		
	Q _{upstream}	Q _{tributary}	Q _{confluence}	C _{upstream}	C _{tributary}	C _{confluence}
Roberts Brook	0.32	0.18	0.50	0.000	0.037	0.013
1 (unnamed)	0.50	0.09	0.59	0.013	0.000	0.011
2 (unnamed)	0.59	0.11	0.70	0.011	0.000	0.010
3 (unnamed)	0.70	0.03	0.73	0.010	0.000	0.009
4 (Bundy's Brook)	0.73	0.16	0.89	0.009	0.000	0.008
5 (unnamed)	0.89	0.09	0.98	0.008	0.000	0.007
6 (Hanks Brook)	0.98	0.04	1.02	0.007	0.000	0.007
7 (Spring Hill Brook)	1.02	0.06	1.08	0.007	0.000	0.006
8 (unnamed)	1.08	0.08	1.16	0.006	0.000	0.006
9 (Conant Brook)	1.16	0.79	1.95	0.006	0.000	0.003
10 (Chapin Brook)	1.95	0.62	2.57	0.003	0.000	0.003

From the mass balance analyses of the tributary confluences along the Fenton River, the concentration of residual acrylamide entering Mansfield Hollow Lake from the Fenton River is estimated to be ± 0.003 ppm. The mass balance for a well-mixed lake (Equation 3) was then applied to Mansfield Hollow Lake to estimate the residual acrylamide concentration exiting Mansfield Hollow Lake. The volume of Mansfield Hollow Lake was estimated from the Lake Bathymetry GIS datalayer from the Connecticut Department of Environmental Protection (2003). The outflow from Mansfield Hollow Lake was taken from the daily outflow data for the Mansfield Hollow Lake Dam, available on the U.S. Army Corps of Engineers website for Mansfield Hollow Lake. The data from June to October, 2010 were plotted to estimate the typical low flow of ± 30 cfs during that period, as shown in Figure 2.

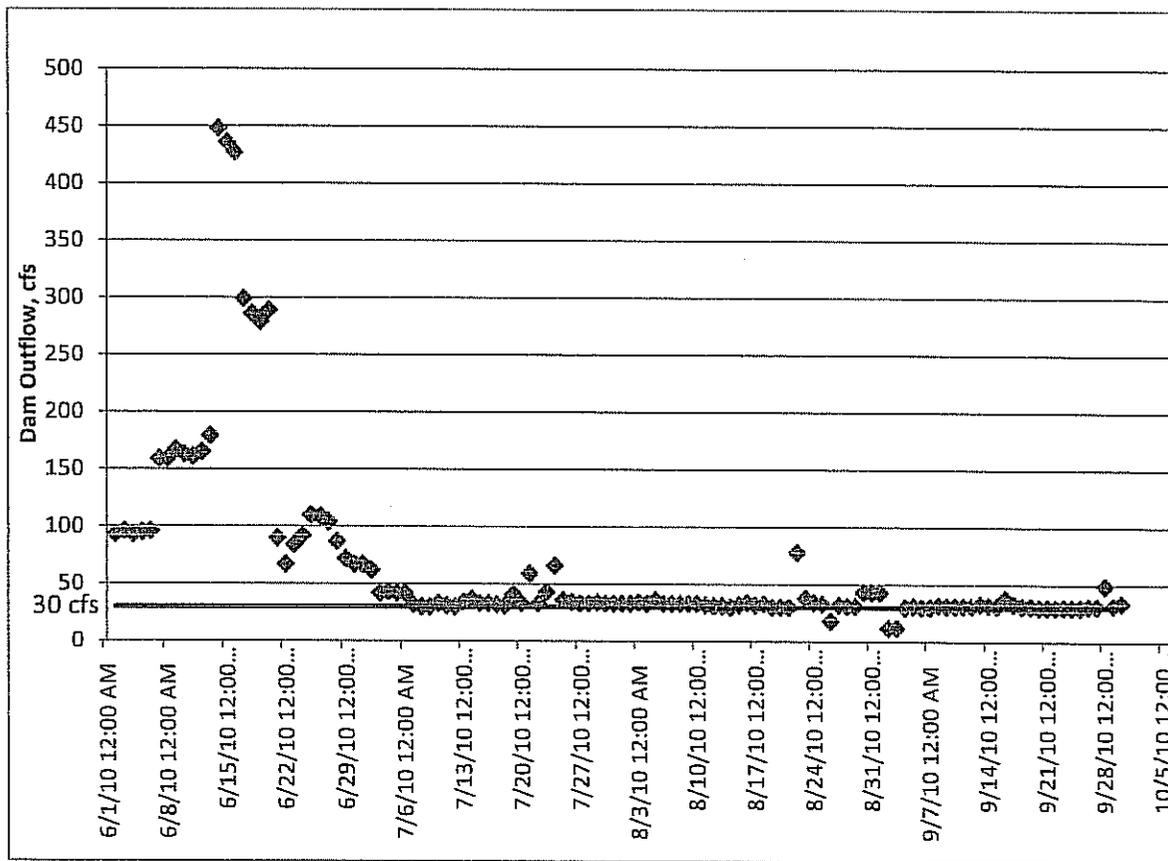


Figure 2. Mansfield Hollow Lake Dam Daily Outflow, 6/1/2010 – 9/30/2010

Source: USACE website for Mansfield Hollow Lake Dam -

https://rsgis.crrel.usace.army.mil/nae/pls/cwmsweb/cwms_realtime.ProjectPage?pagecode=MHD

As demonstrated in Table 4, the mass balance analysis indicates that the concentration of residual acrylamide exiting Mansfield Hollow Lake is reduced by approximately 98% from ± 0.003 ppm to $7 \pm \times 10^{-5}$ ppm, due to dilution and biodegradation.

Table 4. Mansfield Hollow Lake Mass Balance Input Parameters and Result

Mansfield Hollow Lake Mass Balance Input	Value	Source
Parameter		
Mansfield Hollow Lake Volume, V (cubic feet)	119,049,480	1
First Order Reaction Coefficient, k (day ⁻¹)	4.7×10^{-2}	2
Inflow Flow Rate, Q _{in} (cubic feet per second)		
Inflow from Fenton River	2.57	3
Inflow from remainder of watershed	Assumed 27.43	4
Outflow Flow Rate, Q _{out} (cubic feet per second)	30	5
Inflow Concentration, c _{in} (parts per million)		
From Fenton River	0.003	3
From watershed	0	
Resulting Mansfield Hollow Lake Residual Acrylamide Concentration		
Outflow Concentration = in-lake concentration, c (parts per million)	7×10^{-5}	

- 1: Lake Bathymetry GIS datalayer from the Connecticut Department of Environmental Protection (2003).
- 2: First order reaction coefficient for biodegradation of acrylamide in surface water from the *European Union Risk Assessment Report for acrylamide*, Institute for Health and Consumer Protection, European Chemicals Bureau, Existing Substances, European Commission Joint Research Centre, CAS No: 79-06-1, EINECS No: 201-173-7, 1st Priority List, Volume: 24.
- 3: Tributary mass balance analyses (Table 3).
- 4: Based on data providing outflow of 30 cfs (see note 5). However, this term falls out of the analysis when it is multiplied by a concentration of zero, thus the determination of the exact value was not required.
- 5: Daily outflow data from June to October, 2010 for the Mansfield Hollow Lake Dam, available on-line at the U.S. Army Corps of Engineers website for Mansfield Hollow Lake
https://rsgls.crrel.usace.army.mil/nae/pls/cwmsweb/cwms_realtime.ProjectPage?gagecode=MHD



ATTACHMENT 3

ASHLAND PRODUCT STATEMENT

March 29, 2011 Rev 1

Mr. Nathaniel Y. Arai, P.E.
Project Engineer
GZA GeoEnvironmental, Inc.
One Financial Plaza
1350 Main Street, Suite 1400
Springfield, Massachusetts 01103

Re: Drewfloc 2421 EPA Drinking Water and CT DEP

Dear Mr. Arai:

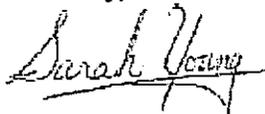
I am writing at the request of Jeffrey Kisty regarding regulatory information for the above referenced product.

The Ashland Hercules Water Technologies product Drewfloc 2421 is not known to contain any of the substances described in the State of Connecticut, Department of Environmental Protection Water Quality Standards, effective February 25, 2011 Appendix D, either as a formulation component or as a known contaminant.

Furthermore, with the exception of a maximum level of acrylamide of 0.1%, Drewfloc 2421 is not known to contain any of the substances listed in the EPA Drinking Water Contaminants, National Primary Drinking Water Regulations either as a formulation component or as a known contaminant.

Please contact me at ProductStewardshipGroup@Ashland.com should you have any questions regarding this information.

Sincerely,



Sarah M. Young
Product Compliance Assistant



Companies

June 28, 2011

Mr. Grant Meitzler, Inland Wetlands Agent
Town of Mansfield
Audrey P. Beck Municipal Building
4 South Eagleville Road
Storrs, CT 06268

RE: Storrs Center - U.S. Post Office Lease Parcel
Inland Wetlands Consistency
BL Project No.: 03c667-w

Dear Mr. Meitzler,

As you are aware, as part of the Storrs Center Project plans for improvements to the Post Office Lease Parcel have been submitted to the Town Planner for Zoning Permit. This work is required as part of the Master Plan approvals to provide required land for the construction of the proposed Village Street, and to meet the goals of the U.S. Army Corps of Engineers (ACOE) permit and CTDEP Water Quality Certification with respect to runoff from the southern end of the project.

The Storrs Center Masterplan for a "mixed use town center" received an Inland Wetlands License from the Mansfield Inland Wetlands Agency on 10/01/07 (IWA File #1378). As part of this application, detailed stormwater management design was submitted, integrating the post office site with the overall project. This design was also submitted to ACOE and CTDEP in order to obtain the required State and Federal permits.

The Zoning Permit Application for site improvements to the U.S. Post Office parcel, submitted to the Town Planner on June 23, 2011, is consistent with the Masterplan IWA approval detailed above. The temporary wetland disturbance proposed is identical, and restoration plans have been provided. The water quality improvements and detention structures proposed are also the same.

If you have any questions, please do not hesitate to contact me.

Very truly yours,

BL COMPANIES

Geoffrey P. Fitzgerald, PE
Manager, Civil Engineering

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