

**MEETING NOTICE AND AGENDA**  
**MANSFIELD INLAND WETLANDS AGENCY**  
**Monday, March 7, 2016 ■ 6:30 PM**

Audrey P. Beck Municipal Building ■ 4 South Eagleville Road ■ Council Chambers

- 1. Call to Order**
- 2. Roll Call**
- 3. Review of Minutes**
  - a. 02-01-16– Meeting Minutes
  - b. 02-16-16-Special Meeting Minutes
- 4. Communications**
  - a. Conservation Commission Minutes
  - b. Monthly Business Memorandum
- 5. Old Business**
  - a. **W1561– H. Raphaelson, Dog Lane, 2 lot subdivision**  
Tabled, pending 4/4/16 Public Hearing
- 6. New Business**
  - a. **W1562-Meadowbrook Gardens, 91 & 93 Meadowbrook Lane, 36 Units**
  - b. **W1563-Bicentennial Pond, Aquatic Weed Management and Sediment Removal**
- 7. Reports from Officers and Committees**
- 8. Other Communications and Bills**
- 9. Adjournment**

**DRAFT Minutes**  
Mansfield Inland Wetlands Agency  
Regular Meeting  
Monday, February 1, 2016  
Council Chambers, Audrey P. Beck Municipal Building

Members present: J. Goodwin, C. Ausburger, R. Hall, G. Lewis, K. Rawn, B. Ryan, V. Ward, S. Westa  
Members absent: B. Chandy  
Alternates present: P. Aho, T. Berthelot, K. Holt (6:33 p.m.)  
Staff present: J. Kaufman, Wetlands Agent  
L. Painter, Director of Planning and Development;

Chairman Goodwin called the meeting to order at 6:30 p.m. and appointed alternate Aho to act in Chandy's absence.

**Approval of Minutes:**

**a. 1/04/2016 Regular Meeting:**

Rawn MOVED and Ryan seconded to approve the 1/4/2016 minutes as corrected. MOTION PASSED UNANIMOUSLY.

**Communications:**

The Conservation Commission meeting minutes and Kaufman's monthly business memo were noted.

**Public Hearing:**

**a. W1557 – C.L. Niarhakos, 101 East Road, 3 lot re-subdivision**

Goodwin opened the continued Public Hearing at 6:35 p.m. Members present were Goodwin, Ausburger, Hall, Lewis, Rawn, Ryan, Ward, Westa, and alternates Aho, Berthelot and Holt. Aho was appointed to act. Kaufman noted an email request from the applicant to withdraw his application. Noting no further comments or questions, Hall MOVED, Ryan seconded, to close the Public Hearing at 6:36 p.m. MOTION PASSED UNANIMOUSLY.

Westa MOVED, Hall seconded to accept the applicant's January 15, 2016, request to withdraw the application. MOTION PASSED UNANIMOUSLY.

**b. W1559 – Storrs Lodges, LLC, Application to Amend Inland Wetlands and Watercourses Map**

Goodwin opened the Public Hearing at 6:37 p.m. Members present were Goodwin, Ausburger, Hall, Lewis, Rawn, Ryan, Ward, Westa, and alternates Aho, Berthelot and Holt. Aho was appointed to act. Wetlands Agent Kaufman read the Legal Notice into the record as it appeared in The Chronicle on 1/19/16 and 1/27/16 and noted 1/20/16 comments from the Conservation Commission, a 1/27/16 memo from Kaufman and a 1/9/16 Wetlands Investigation Report from Thomas W. Pietras, Professional Wetland and Soil Scientist, Pietras Environmental Group, LLC.

P. Anthony Giorgio, Ph.D., Managing Director of The Keystone Companies, LLC, introduced his team and reviewed the request for an amendment to the Inland Wetlands and Watercourses Map of the Town of Mansfield.

David Ziaks, President, F.A. Hesketh and Associates, Inc., explained why the applicant's wetlands flagging differed from the Town Wetlands Map.

George T. Logan, Registered Soil Scientist, Professional Wetland Scientist, REMA Ecological Services, LLC, recited his qualifications and then reviewed his methodology and conclusions. He explained the characteristics of the soils on the site as presented in his 11-25-15 Delineation Report. In response to a question about how or if weather conditions and/or the season when the sampling is done affects results, he explained that soils do not change composition from season to season or in various weather conditions unless there is a severe drought. He further reported that there were minor flag adjustments that slightly expanded the area of wetlands made after consultation with Mr. Pietras. He contrasted the current wetlands boundary as depicted on the Town's Wetland Map with the flagging that he conducted, showing the difference.

Thomas W. Pietras, Professional Wetland and Soil Scientist, Pietras Environmental Group, LLC., is the independent expert contracted by the Mansfield Inland Wetlands Agent to review and critique the applicant's report. He reviewed his credentials and presented his findings. He stated that he was in substantial agreement with the applicant's work except for three small areas where he was of the opinion wetland soils existed but were not depicted on the applicant's map. After consultation with the applicant, however, the applicant agreed to include those areas. With these revisions he stated that he was satisfied that the wetlands were properly depicted and mapped.

Brian Usher, 44 Meadowood Road, stated that he has lived at his property since 1985 and is very concerned about the possibility of construction on the subject site behind his property. He reports that his property and that of his neighbors are already extremely wet. The Chairman informed Mr. Usher that this is an issue that should be raised when/if any future application is brought before the IWA and PZC regarding developing the property because if not, the information he presented this evening will not be part of the public record of any future application.

Rawn MOVED, Ryan seconded, to close the Public Hearing at 7:29 p.m. MOTION PASSED UNANIMOUSLY.

#### **Old Business:**

**a. W1557 – C.L. Niarhakos, 101 East Road, 3 lot re-subdivision**

Item withdrawn.

**b. W1559 – Storrs Lodges, LLC, Hunting Lodge Road (Parcel ID 15.21.3), Application to Amend Inland Wetlands and Watercourses Map**

Ryan MOVED, Ward seconded, to amend the Inland Wetlands and Water Courses Map, Mansfield, CT pursuant to section 15.0 of the Mansfield Inland Wetlands and Watercourses Regulations to reflect the wetland delineation on a parcel located on the west side of Hunting Lodge Road (assessor's parcel id 15.21.3) conducted by REMA Ecological Services and reviewed by Pietras Environmental Group and depicted on a map dated 2/8/2007 revised through 1/8/2016 (File # W1559). MOTION PASSED UNANIMOUSLY.

#### **New Business:**

**a. W1561– H. Raphaelson, Dog Lane, 2 lot subdivision**

Ryan MOVED, Rawn seconded, to receive the application submitted by H. Raphaelson (IWA File #1561) under the Wetlands and Watercourses Regulations of the Town of Mansfield for 2-lot subdivision- Raphaelson Estates on property located on the east side of Dog Lane (assessor's parcel id 16.41.23) as shown on a map dated 1/12/2016 and as described in application submissions, and to refer said application to staff and the Conservation Commission for review and comments and to schedule a public hearing for 3/7/16. MOTION PASSED UNANIMOUSLY. A field trip is scheduled for February 10, 2016, at 3 p.m.

**Reports from Officers and Committees:**

None.

**Other Communications:**

Noted.

**Adjournment:**

Chairman Goodwin declared the meeting adjourned at 7:35 p.m.

Respectfully submitted,

Vera S. Ward, Secretary

**DRAFT Minutes**  
Mansfield Inland Wetlands Agency  
SPECIAL Meeting  
Tuesday, February 16, 2016  
Council Chambers, Audrey P. Beck Municipal Building

Members present: J. Goodwin, C. Ausburger, B. Chandy, R. Hall, G. Lewis, K. Rawn, B. Ryan, V. Ward,  
S. Westa  
Alternates present: P. Aho, T. Berthelot, K. Holt  
Staff present: J. Kaufman, Wetlands Agent  
L. Painter, Director of Planning and Development;

Chairman Goodwin called the Special meeting to order at 6:30 p.m.

**Old Business:**

**W1561– H. Raphaelson, Dog Lane, 2 lot subdivision**

Hall MOVED, Ryan seconded, to schedule a public hearing on April 4, 2016 on the application submitted by H. Raphaelson (IWA File #1561) under the Inland Wetlands and Watercourses Regulations of the Town of Mansfield for Raphaelson Estates, a 2-lot subdivision on property located on the east side of Dog Lane (assessor's parcel id 16.41.23) as shown on a map dated 1/12/2016 and as described in application submissions. MOTION PASSED UNANIMOUSLY.

**Adjournment:**

Chairman Goodwin declared the meeting adjourned at 6:32 p.m.

Respectfully submitted,

Vera S. Ward, Secretary

Town of Mansfield  
**CONSERVATION COMMISSION**  
Meeting of 17 February 2016  
Conference B, Audrey P. Beck Building  
**(draft) MINUTES**

*Members present:* Aline Booth (Alt.), Quentin Kessel, Scott Lehmann, Michael Soares.  
*Members absent:* Joan Buck (Alt.), Robert Dahn, Neil Facchinetti, Grant Meitzler, John Silander.  
*Others present:* John & Beth Hankins, Lon Hultgren, Ken Feathers & Jim Morrow (Open Space Preservation Committee), Jennifer Kaufman (Wetlands Agent).

1. The meeting was **called to order** at 7:33p by Chair Quentin Kessel. Booth was designated a voting member for this meeting.

2. The **draft minutes** of the 20 January 2016 meeting were approved as written.

3. **Biking in Town Parks.** Mountain biking is now prohibited on trails in Town parks & preserves, save for Schoolhouse Brook Park. John Hankins, who maintains the Nipmuck Trail in Mansfield, would like to see more Town-owned parkland opened to bikes, particularly areas that would enable riders to make extended circuits on connected trails, such as the Wolf Rock area and the Fifty-foot, Coney Rock, & Dorwart complex. In his experience, use helps to maintain trails, and opening additional trails to bikes would increase traffic on them. A policy of generally allowing bikes on town trails would also reduce confusion about where they are or are not permitted. Kaufman added that the Town has no enforcement mechanism for its current policy and might achieve greater compliance by replacing signs prohibiting bikes with signs that make expectations for their use clear (e.g., yield to pedestrians). Lon Hultgren reported that the Town is beginning to work on a Bicycle/Pedestrian Master Plan, which will need to consider and recommend policies for bike use of town trails.

In the free (& nonlinear) discussion that followed, various concerns were voiced and suggestions made:

- Kessel worried about bikes chewing up wet areas. Hultgren noted that all the biking magazines preach against using bikes on soft ground; such good advice, however, is often ignored. John Hankins suggested this be viewed as a maintenance problem, rather than a use problem (e.g., wet areas can be bridged).
- Ken Feathers thought trail infrastructure would need to be upgraded to make bike use sustainable in wet areas, on steep slopes, etc. A survey of trails should be undertaken to determine what work would be needed.
- Kaufman said the Town needs volunteers to monitor and maintain trails. John Hankins was sure that bikers would help with this, if wider use of trails were permitted.
- Kessel wondered about the Town's liability for injuries, if bicycles are allowed on more trails.
- Soares noted that the areas mentioned by John Hankins for wider bike use are not wholly Town-owned. Joshua's Trust may not welcome bikers on its trails at Wolf Rock or Coney Rock, and owners of private land over which the Nipmuck Trail runs may also object. They should be consulted before opening more Town trails to bikes. {The Connecticut Forest and Park Association's 2005 *Connecticut Walk Book East* states (p.xi) that, save where posted for multi-use on DEP property, "use of the Blue-Blazed Hiking Trails by motorized vehicles, bicycles, horses, or other four-footed

animals (except leashed dogs) is not permitted without the express authorization of the property owner.”}

- Lehmann expressed misgivings about a more liberal policy, noting that, in his experience, it’s rare for bikers to yield to pedestrians on trails in Schoolhouse Brook Park, as they are supposed to, and that renegades have constructed their own extensive trails in the Park with jumps, passages through stone walls, etc.

John & Beth Hankins then left the meeting (at 8:35), Hultgren having had to leave somewhat earlier.

**4. Draft Zoning Regulations.** Kaufman distributed a memo dated 01/05/16 from Planning Director Linda Painter soliciting comments on draft amendments to the zoning regulations; those regulating connections to the new water supply system and storm-water management were attached. The former limit development of rural residential property in the vicinity to what was previously allowed, regardless of whether tapping into the new Connecticut Water Company pipeline would allow more intensive development. Soares & Feathers suggested that such ‘overlay zoning’ include low-density areas served by existing water mains, areas in which development will not longer be water-limited once the new water flows.

Booth wondered why the Zoning Focus Group has not been consulted in the process of drafting these amendments. Members of this Group – Greg Padick, Ed Pelletier, and Booth herself, among others – know a lot about zoning in Mansfield and could contribute valuable insights and advice. Kessel asked Kaufman to convey to Painter the Commission’s suggestion that she reach out to this Group.

**5. Four Corners Sewer Project.** The Executive Summary for the EIE on the Four Corners Sewer Project was included in the packet for this meeting, but the Commission did not act on it. {The DEEP comment period closes on 03/18/16; any Commission comments would need to be submitted to the Town Council in time for review at its 03/14/16 meeting.} Kaufman distributed a useful map, identifying properties that will be served by the new sewer lines and assessed for their cost. Kessel noted that assessments levied on undeveloped land, of which there is quite a bit in the 4-corners area, could force owners to develop it (or to sell to others who will do so), an unwelcome consequence. {The August 2015 draft EIE, p.47, takes the position that the sewer project will promote clustered development and that the Town can protect other values in the area through zoning and wetlands regulations (a significant portion of the undeveloped land there is wetlands).}

**6. Monitoring Conservation Easements.** The Commission’s plans for monitoring town-held conservation easements are now on hold. The State’s Freedom of Information Commission may classify monitoring of an easement by two members of the Commission a “meeting” of the Commission that requires public notice and is open to the public. Kaufman has asked the Town Attorney to look into this.

**7. IWA referrals.** Consideration of W1561 (Raphaelson, Dog Lane: 2-lot subdivision) has been pushed back. The field trip originally scheduled for 02/10/16 will be in March, presumably before the Commission’s meeting on 03/16/16.

**8. Project Greenspace.** After some discussion, the Commission decided not – at this time – to urge the Town Council to support legislation proposed by Connecticut Audubon that would permit towns to set up local conservation funds, financed by a conveyance fee on the sale of residential property. This initiative does not appear to be well-organized, there is no website where one can get more information about it, and any enabling legislation will probably go

nowhere in a short legislative session focused on state budget woes.

**9. Adjourned** at 9:21p. Next meeting: 7:30p, Wednesday, 16 March 2016.

Scott Lehmann, Secretary, 18 February 2016.



# Town of Mansfield

## Inland Wetlands Agency

**Date:** February 29, 2016  
**To:** Mansfield Inland Wetlands Agency  
**From:** Jennifer Kaufman, Inland Wetlands Agent  
**Subject:** Monthly Business Report

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### **Mansfield Auto Parts - Route 32**

At your February meeting, I reported that I was investigating whether or not Mansfield Auto Parts needed to renew their Inland Wetlands License (File #W1403), which expired in 2010. Currently, Mansfield Auto Parts does not have a license and they are not planning to conduct a regulated activity, so renewal of their license is not necessary or appropriate.

Because of the intensity of the operation, even after the license expired, Grant had continued to monitor the site monthly to confirm that there were no cars within 25 feet of the edge of wetlands. I followed suit. From time to time, I have reminded the owners that it is not good practice to place cars close to the edge of wetlands and they have been cooperative about remedying the situation. On February 22, when I visited the site, I did notice that there were approximately 10 tires in the wetland. I have asked them to remove them and will check back with them next week.

Because the permit has expired, the IWA has no regulatory authority to enforce conditions from the previous licenses. If Mansfield Auto Parts were to apply for an IWA license for a regulated activity, the license could be conditioned as long as there was a link to the activity permitted. I can and will monitor the site, as long as they me allow access, to ensure that there are no violations of the regulations.

In early January, I contacted CT DEEP to determine if there was a state or federal agency who did have jurisdiction over this business. On February 3, 2016, Donna Serasin of CT DEEP's Bureau of Materials Management and Compliance Assurance, inspected the site and issued Mansfield Auto Parts a Notice of Violation, which is attached. Ms. Serasin also referred the matter to George Dews of CT DEEP's Waste Engineering and Enforcement Division. Janell Mullen is also looking into the site to determine if any enforcement is necessary from a zoning perspective.

### **Agent Approvals**

- **A6- James Wohl-128 Dog Lane-**Construction of a two car/mudroom addition over 75 feet from the edge of wetlands.
- **A7-Richard Staples-872 Mansfield City Road-** Construction of 12x16 foot deck, over 75 feet from the edge of wetlands.

### **Eagleville Lake Aquatic Invasives Grant**

In November, Mansfield partnered with Coventry to submit a grant to CT DEEP to perform follow-up control of the aquatic invasive fanwort plant (*Cabomba caroliniana*) in Eagleville Lake. Last month, we were informed that we were awarded the grant. We will be working with a contractor to perform the work and obtain the necessary state permits. Because Eagleville Lake is owned by the State of Connecticut, the IWA does not have jurisdiction over this work. The contractor will be responsible for obtaining all necessary state permits.

State of Connecticut Department of Environmental Protection

79 Elm Street, Hartford CT 06106

Stormwater Inspection Report

8/1/2007

Rev.CT3560

Section A: National Data System Coding (i.e., PCS)

Transaction Code	(Select below-Prefix)	Permit #	yy/mm/dd	Inspection Type	(select below)	Inspector	Fac Type
1 N	2 5	3 GSI	11 12 16/02/03	17 18 ~ Storm Water-Non-Construction-Non-Sampling	19 S	20 2	

Remarks

21 Town/Facility ID #:							66
Inspection Work Days	Facility Self-Monitoring Evaluation Rating	B1	QA	Reserved			
67 n/a	69 n/a	70 n/a	71 n/a	72 n/a	73	74 75	80

Section B: Facility Data

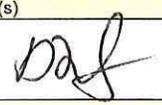
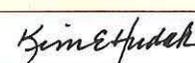
Name and Location of Facility Inspected (For industrial users discharging to POTW, also include POTW name and NDPES permit number)	Entry Time/Date	Permit Effective Date
Mansfield Auto Parts, Inc. 214 Stafford Road Mansfield, CT 06520	1030am/01/20/2016	2011-10-01
	Exit Time/Date	Permit Expiration Date
	1120am/01/20/2016	30/09/2016
Name(s) of On-Site Representative(s)/Title(s)/Phone and Fax Number(s)	Other Facility Data	
Jack Bednarczyk	SIC -	
	NOV # - WR SW 16-001	
	NOV type: (select below)	
	Contacted : <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> CI <input checked="" type="checkbox"/> CIS <input type="checkbox"/>	

Section C: Areas Evaluated During Inspection (Check only those areas evaluated)

<input type="checkbox"/> Permit	<input type="checkbox"/> Self-Monitoring Program	<input checked="" type="checkbox"/> Stormwater	<input type="checkbox"/> Industrial User
<input type="checkbox"/> Records/Reports	<input type="checkbox"/> Compliance Schedules	<input type="checkbox"/> No exposure certification	<input type="checkbox"/> Pollution Prevention
<input type="checkbox"/> Facility Site Review	<input type="checkbox"/> Operations & Maintenance	<input type="checkbox"/> SWPPP review	<input type="checkbox"/> Combined Sewer Overflow
<input type="checkbox"/> Flow Measurement	<input type="checkbox"/> Sludge Handling/Disposal	<input type="checkbox"/> General Permits	<input type="checkbox"/> Sanitary Sewer Overflow
<input type="checkbox"/> Effluent/Receiving Waters		<input type="checkbox"/> Multimedia	<input type="checkbox"/> MS4

Section D: Summary of Findings/Comments (Attach additional sheets of narrative and checklists as necessary)

Note : Select codes and descriptions from drop down menus found below.		<b>Comments:</b>
SEV Codes	SEV Description	
D0N11(Non-Construction) Discharge Without a Permit		See attached.
BN19A(Non-Construction) Failure to Properly Install/Implement BMP's		
B0N17(Non-Construction) Failure to Develop any or Adequate SWPPP/SWMP		
C0N11(Non-Construction) Failure to Monitor		

Name(s) and Signature(s) of Inspector(s)	Agency/Office/Phone and Fax Numbers	Date
Donna Seresin - Sanitary Eng 3 	DEP-BMMCA/ Water Permitting & Enforcement, 860-424-3018 (Phone) and 860-424-4074 (Fax)	2-16-16
Signature of QA Reviewer	Agency/Office/Phone and Fax Numbers	Report Completed Date
Kim Hudak -Assistant Director 	DEP-BMMCA/ Water Permitting & Enforcement, 860-424-3018 (Phone) and 860-424-4074 (Fax)	2/16/2016

Bureau of Materials  
Management and  
Compliance Assurance

## Memo

To: File

From: Donna M. Seresin *DM*

Date: 2/16/2016

Re: Mansfield Auto Parts, Inc. ("MAP"), 214 Stafford Road, Mansfield

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On February 3, 2016, Gabrielle Zirolli (DEEP Student Intern) and I went to the referenced site to follow-up on a citizen complaint (about a septic tank- See Attachment #1) that had been investigated by Rita Langan (WPED Field Compliance Staff) previously and an inquiry from Jennifer Kaufman (Mansfield-Wetlands Enforcement Officer) as to whether MAP has registered for the General Permit for the Discharge of Stormwater Associated with Industrial Activity ("General Permit"). Since the site operates as an auto recycler they may need to register for the General Permit. When we arrived at the site, we met with Jack Bednarczyk. We told him the reason for our inspection. Mr. Bednarczyk said he is only an employee and could not answer many questions. He said his brother, Waldemar Bednarczyk owns the shop and would not be on-site until the afternoon. Mr. Bednarczyk said we could walk the site by ourselves.

Next, Gabrielle and I walk the site while she took the attached photographs. The photographs show various containers of open automotive fluids (including waste oil and gasoline -photographs #7, #8, #15, #16 and # 20). One scrap van had around 10-8 gallon buckets and 1-55 gallon drum of unknown liquids, and numerous partially full used oil containers (see photographs #17 and #18). We also observed tires scattered all over the site. Once we finished touring the site, we went back to the office.

I asked Mr. Bednarczyk about disposal of the following: tires, gasoline, waste oil and anti-freeze. He told me that they use the gasoline and the oil is burned in an on-site heater. He was unsure of the disposal of the anti-freeze and the old tires. I also asked him how long his brother has owned the business. He said Mr. Waldemar Bednarczyk started operating on-site in 1989.

After inspecting the site, I determined that the site must register for the General Permit and is operating in violation of the General Permit based on mismanagement of automotive fluids and failure to register.

Subsequent to our inspection, I spoke with Jennifer Kaufman. She asked me if I saw the tire pile located east of the railroad tracks. They had not told me there was another location where tires are stored. I asked Ms. Kaufman if she would take a photograph of the area. She took the attached photographs of the area but the area was covered by snow. She also sent me an aerial map. I attached a map of the tire area which I obtained from Bing Maps (marked as Attachment #2) which is south of Cider Mill Road and west of MAP. The property is also owned by Mr. Waldemar Bednarczyk and is identified in the Assessor's office as Parcel ID# 36.82.4.

I will be issuing a Notice of Violation to MAP for failure to comply with the requirements of the General Permit.



































DELI PICKLES

KEEP REFRIGERATED

WARNING  
AVISO  
NO FUEGO

DELI PICKLES



**WILLIMANTIC**  
**WASTE**  
**800-726-7893**





#1-A



#2-A





# Attachment # 1

4 South Eagleville Road \* Mansfield, CT 06268 \* Tel: (860) 429-3325 \* Fax: (860) 429-3321 \* www.ehhd.org

Category Septic/Sewage  
Sanitarian Geoffrey W. Havens

Create Date: May 20, 2014

Location

Name Mansfield Used Auto Parts  
Address1 214 Stafford Road  
City Mansfield Center State CT Zip 06250

Property Owner

First Name Mansfield Used Auto Parts Last Name   
Address 1 214 Stafford Road  
Address 2   
City Mansfield Center State CT Zip 06250  
Phone  Email

**COMPLAINT DETAILS**

Gentleman called to inform us that there is a septic tank in the garage at Mansfield Used Auto Parts that is full of motor oil and sewage. When the upstairs tenant showers, the tank overflows onto the floor of the garage. Also, the drain in the floor is full of motor oil and he believe that the drain flows out into the pond. Caller also stated that there is oil on top of the ground in the backyard.

**ACTIONS**

- | Created           | Action  |
|-------------------|---|
| 5/20/2014 4:00:54 | 1avensgw  |
| 5/22/2014 5:49:26 | 1avensgw Site visit, took pictures. Owner removed 3-deep cover from floor of garage, exposing septic tank? cesspool? It appeared quite full. Unable to confirm any motor oil component in the exposed scum layer. Evidence of overflow onto floor not seen.<br>Advised owner to have tank pumped and have pumper report back to me on event, and condition and nature of tank. Unable to confirm motor oil in drain. Drain line into pond not seen. No oil slick seen on pondwater.<br>Await call from septic pumper. |
| 5/30/2014 9:37:02 | 1avensgw Called for status. Tank not yet pumped, still seeking pumper.<br>Instructed to have chosen pumper call me prior to pumping.<br>I will call back Monday morning.  |
| 5/6/2014 12:02:34 | 1avensgw Talked with Kelly septic 860.456.8655. they're scheduled to pump this place next Friday, will fax report on tank condition and nature at that time.  |
| 5/16/2014 4:24:38 | 1avensgw Called Kelly Septic - they stated did not pump site as scheduled due to several school emergencies(?), but that they had done it today and will send report along.   |



4 South Eagleville Road \* Mansfield, CT 06268 \* Tel: (860) 429-3325 \* Fax: (860) 429-3321 \* www.ehhd.org

Category Septic/Sewage  
Sanitarian Geoffrey W. Havens

Create Date: May 20, 2014

Location Waldemar Bednarczyk  
Name Mansfield Used Auto Parts  
Address1 214 Stafford Road  
City Mansfield Center State CT Zip 06250

**Property Owner**

First Name Mansfield Used Auto Parts Last Name   
Address 1 214 Stafford Road  
Address 2   
City Mansfield Center State CT Zip 06250  
Phone  Email

**COMPLAINT DETAILS**

Gentleman called to inform us that there is a septic tank in the garage at Mansfield Used Auto Parts that is full of motor oil and sewage. When the upstairs tenant showers, the tank overflows onto the floor of the garage. Also, the drain in the floor is full of motor oil and he believe that the drain flows out into the pond. Caller also stated that there is oil on top of the ground in the backyard.

**ACTIONS**

Created Action

5/20/2014 4:00:54

havensgw

Site visit 5/22 2PM ST opens in garage - no sign of ~~ST~~ overflow. Upon opening, tank appear overfull. ST tank or cesspool? Needs pumping told owner He will have pumper call me.  
Dil in tank - unconfirmed  
" " drain - "  
Drain to pond - not seen.  
No oil spk seen.  
referred to DEEP

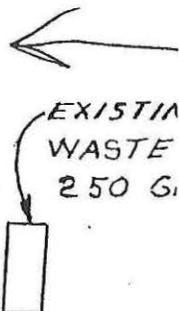
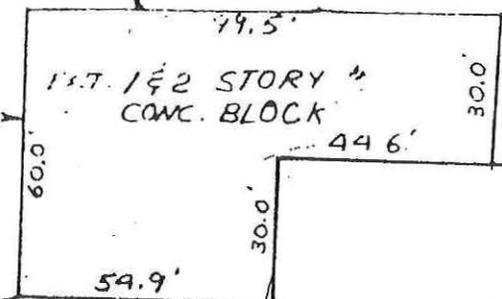
N/F PAULINE KRAWEC

STAFFORD ROAD ~ CONN ROUTE 32

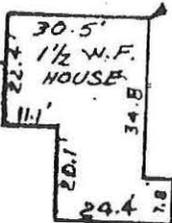
25' RIGHT OF WAY

C.H.D. MON

ACCESS TO HIGHWAY

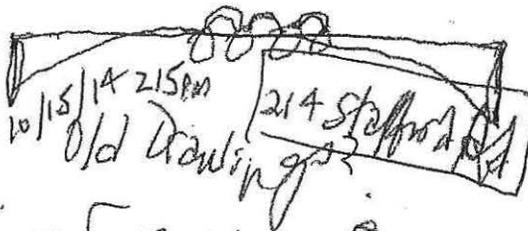


PROPOSED BLDG. 5000 SQ FT



ACCESS TO HIGHWAY

I.P.



1479 For Mansfield Auto Parts

Rita

DEEP

Rita.langan@ct.gov

140'

## Geoffrey W. Havens

---

**From:** Geoffrey W. Havens  
**Sent:** Wednesday, September 03, 2014 10:09 AM  
**To:** Nancy.wollenberg@ct.gov  
**Subject:** Possible petro waste discharge to onsite sewage system  
**Attachments:** EHHD Complaint Form.pdf; Pumper Invoice 061414.pdf; IMG\_20140522\_141923309.jpg; IMG\_20140522\_142718659.jpg

Ms. Wollenberg,

Earlier this year Eastern Highlands Health District received a complaint regarding a septic system overflow at a local garage/auto parts facility. One result of our investigation was the apparent revelation that waste oil was being discharged into that septic system. Attached please find documentation of the complaint and the report from a septic tank pumper that confirmed the waste oil discharge. The site location is 214 Stafford Rd in Mansfield, a business known as Mansfield Used Auto Parts. Telephone (860) 423-4514  
Owner/operator is BEDNARCZYK WALDEMAR

I hope that this provides enough information for you to begin an investigation.

Geoffrey Havens, RS  
Sanitarian II  
Eastern Highlands Health District  
4 South Eagleville Rd.  
Mansfield, CT 06268  
860.429-3325  
[www.ehhd.org](http://www.ehhd.org)

Attachment

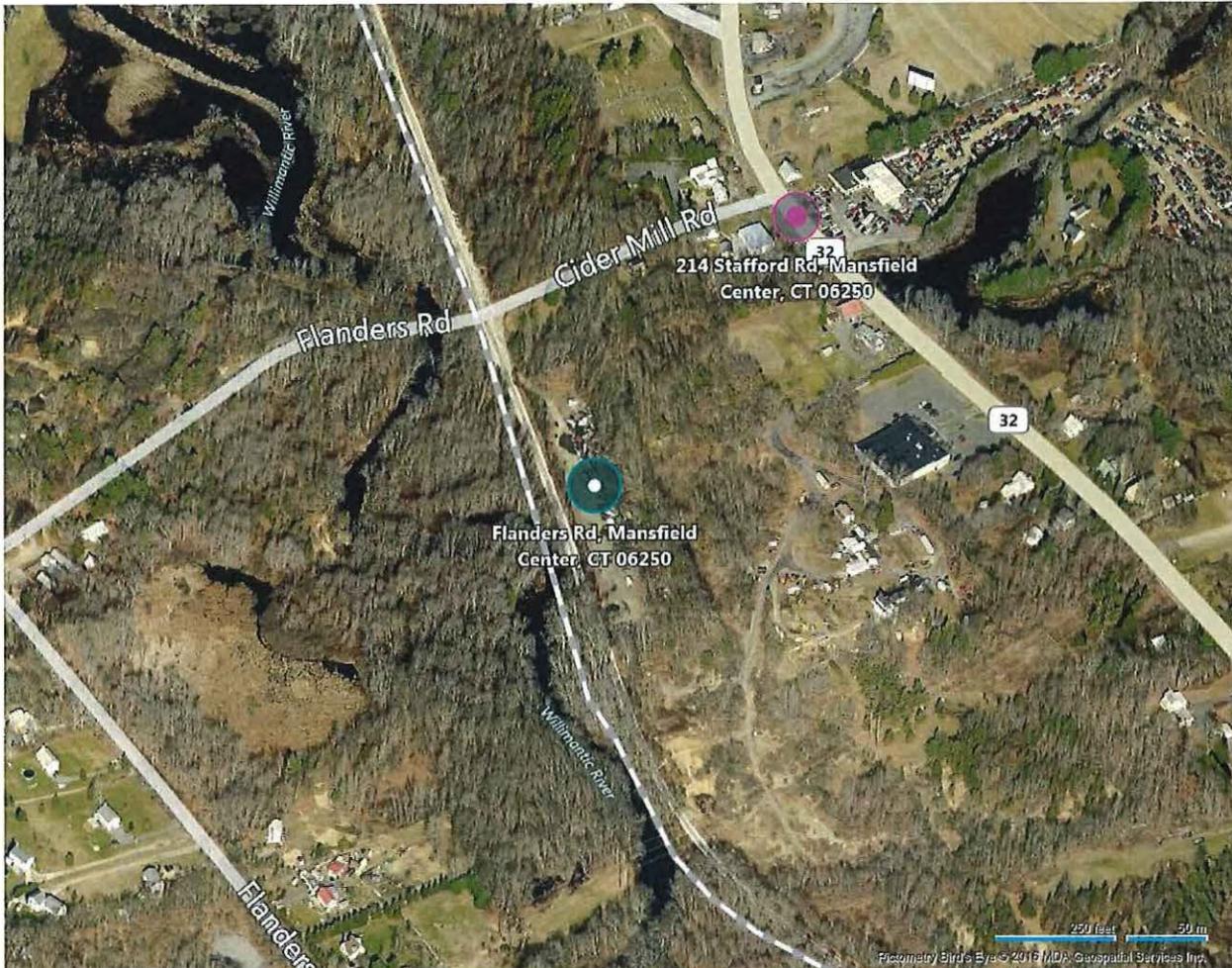
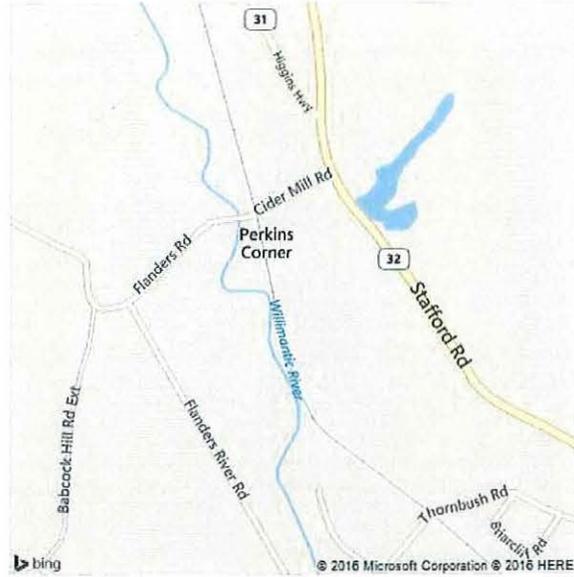
bing maps

Notes

Type your notes here

parcel ID  
36.82.4

#2





**NOTICE OF VIOLATION**

TO: Mansfield Auto Parts, Inc.  
214 Stafford Road  
Mansfield, CT 06250

RE: Mansfield Auto Parts, Inc.  
214 Stafford Road  
Mansfield, CT 06250

ATTN: Waldemar Bednarczyk

NOV NO. WR SW 16 001

DATE: **February 18, 2016**

The purpose of this Notice is to inform you that personnel of the Department of Energy and Environmental Protection ("DEEP") have made observations or otherwise obtained information indicating that a violation of law has occurred at the above referenced location.

1. On February 3, 2016, an inspection was conducted by DEEP Bureau of Materials Management and Compliance Assurance at Mansfield Auto Parts. Based upon that inspection, it appears that you have:
  - a. Failed to register for the General Permit for the Discharge of Stormwater Associated with Industrial Activity ("the general permit"), effective October 1, 2011 pursuant to Section 22a-430b of the Connecticut General Statutes.
  - b. Failed to prepare and implement a Stormwater Pollution Prevention Plan in accordance with Section 5 of the general permit.
  - c. Failed to monitor stormwater in accordance with Section 5(e) of the general permit.
  - d. Failed to maintain good housekeeping procedures at the facility in accordance with Section 5(b)(1) of the general permit.
  - e. Failed to provide roof coverage and secondary containment for containers of liquid chemicals less than 100 gallons in size in accordance with Section 5(b)(9)(A) of the general permit.

**\*Additional Comments:**

1. Pursuant to violations 1.a. through 1.c. inclusive, you must register for the general permit and comply with all applicable requirements as specified in paragraphs 1.a. through 1.e. inclusive.
2. Pursuant to violations 1.d. and 1.e., you must provide a roof and secondary containment for all chemical containers of 100 gallons or less. See photographs #7, #8, #14, #15, #16, #17 and #20.

You should immediately correct the above violation(s) and address the item(s) listed under additional comments, and within thirty (30) days from the date of issuance of this Notice submit a Compliance Statement on a form prescribed by the Department (copy enclosed) describing the details of the corrective action(s)\*, how the item(s) listed under additional comments have been addressed, and attach all applicable supporting documentation. **Such submittal should be sent to the contact person identified**

**below in paragraph D with a copy of such submittal and supporting documentation directed to Jack Melcher of the Environmental Protection Agency ("the EPA") at the address given below in paragraph E.** Until DEEP has received such a statement, DEEP will presume you remain in violation. \*If the violation(s) cannot be corrected within thirty (30) days, provide a schedule of compliance (that includes a timetable) on the enclosed Compliance Statement within thirty (30) days describing the actions you will take to correct the violation(s). Your actions in response to this notice, including submission of the attached Compliance Statement, may affect DEEP's decision whether or not to take formal enforcement action. An *NOV Closure or Acknowledgement Letter* shall not be issued without receipt of a certified compliance statement.

Such submittal should be sent to the contact person identified below in paragraph D.

- A. Other violations may exist; legal obligations. This Notice does not necessarily specify all violations of Connecticut environmental law or violations of any other legal requirements which may exist at the aforementioned property. This Notice does not preclude DEEP or other state, local or federal agencies from commencing any enforcement action regarding any such violations. Your facility may be inspected again pursuant to law and without additional prior notice to determine compliance with state and any applicable federal law. It is your responsibility to comply with all legal requirements, whether or not DEEP notifies you of any violations or takes any enforcement action against you. Nothing in this Notice relieves you of other obligations under applicable federal, state and local law.
- B. Enforcement action. Civil penalties of up to \$25,000 may be assessed for each day of each violation under section 22a-438 of the Connecticut General Statutes. Notwithstanding the issuance of this Notice, DEEP may seek such penalties and may issue an order, seek and injunction, or take other legal action under Chapters 439 and 446k of the Connecticut General Statutes.
- C. No assurance by Commissioner. No provision of this Notice and no action or inaction by the Commissioner shall be construed to constitute an assurance by the Commissioner that actions you may take to address the violation(s) alleged herein will result in compliance.
- D. Staff contact. If you question any of the information contained in this Notice, you may contact

Donna Seresin  
Bureau of Materials Management and Compliance  
Assurance  
79 Elm Street, 2nd floor  
Hartford, CT 06106  
(860) 424-3025

- E. EPA contact:

Jack Melcher (OES 04-01)  
U.S. Environmental Protection Agency  
5 Post Office Square – Suite 100  
Boston, MA 02109-3912

A handwritten signature in black ink, appearing to read "Donna Seresin", written over a horizontal line.

Donna Seresin  
Water Permitting and Enforcement Division  
Bureau of Materials Management and Compliance  
Assurance

NOV WR SW 16 001

[Note: This sheet is not a part of the Notice and is only attached to the Notice which is retained in separate DEEP files which are accessible to the public with close supervision. The Notice should be mailed to the Respondent by certified mail, return receipt requested.]

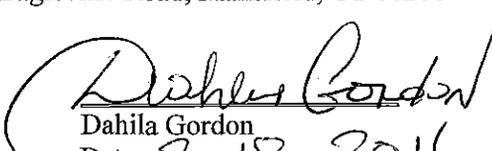
Certification of Mailing

On February 18, 2016 at 1:00 a.m./p.m. I mailed a certified copy of NOV No.    to the following, by placing it in the \*U.S. mail \*interdepartmental mail:

Attention: Waldemar Bednarczyk

On           , 201  , at   :    a.m./p.m., I mailed a plain copy of NOV No.    to the following, by placing it in the \*U.S. mail \*interdepartmental mail:

Jennifer Kaufman, Town of Mansfield, WEO, 4 South Eagleville Road, Mansfield, CT 06268  
George Dews, WEED

  
Dahila Gordon  
Date: 2-18-2016



# Department of Planning and Development

**Date:** March 2, 2016

**To:** Mansfield Inland Wetlands Agency

**From:** Jennifer Kaufman, Inland Wetlands Agent

**Subject:** Receipt of New Application for Wetlands License  
91 & 93 Meadowbrook Lane (IWA File #W1562)  
Uniglobe Investment  
Description of work: construction of 36 dwelling units

---

## Project Description/Recommendation

The applicants propose to develop 36 dwelling units on a 4.6-acre parcel immediately west of the Whispering Glen multi-family complex on Meadowbrook Lane. There is an unnamed brook on the far west side of the parcel that drains to Conantville Brook, approximately 250 feet east of the site. The closest activity to wetlands is the proposed stormwater drainage system, which is located 16 feet from the edge of wetlands.

As the Assistant Town Engineer lives in the immediate vicinity of the proposed Meadowbrook Gardens project, staff recommends that the Agency retain a professional consultant to assist in reviewing the proposed project to ensure that stormwater will be managed in a manner that will not significantly impact wetlands. The consultant would be retained by and report to the Agency. However, as authorized by Chapter 122-12 of the Mansfield Code of Ordinances, all costs associated with the consultant would be the responsibility of the applicant.

Staff posted the attached RFP on the state contracting website and received the attached seven proposals in response. The proposals were reviewed by Linda Painter, Director of Planning and Development, John Carrington, the Director of Public Works and me. Based on the information contained in the proposals, the following three firms were identified as having the best approach and qualifications:

- BSC Group
- Trinkhaus Engineering, LLC
- CME Associates, Inc.

Of these three firms, BSC Group appears to have the lowest cost. As such, staff recommends that the Agency retain BSC Group to assist staff and the Agency with review of the Meadowbrook Gardens project. The Agency has the discretion to select any, or none, of the firms that submitted in response to the proposal.



# Department of Planning and Development

- The project includes work in wetlands.
- The project includes work in the 150 foot upland review area.
- The project is located in a Public Water Supply Watershed.

## Application Fees and Notifications

- The applicant has paid the required application fee
- The applicant has submitted copies of the notice mailed to neighbors and a list of abutters to be notified. Certified mail receipts must be submitted prior to action on the application.

## Receipt Motion

If the agency agrees with the above recommendation the following motion is in order:

\_\_\_\_\_ MOVES, \_\_\_\_\_ seconds to:

- 1) Receive the application submitted by Uniglobe Investment (IWA File #W1562) under the Wetlands and Watercourses Regulations of the Town of Mansfield for construction of 36 dwelling units on property located at 91 & 93 Meadowbrook Lane as shown on a map dated 1/8/2016 and as described in application submissions, schedule a public hearing on May 2, 2016 and to refer said application to staff and the Conservation Commission for review and comments.
- 2) Authorize staff to engage the services of BSC Group to review the project to ensure that the stormwater will be managed in a manner that does not significantly impact wetlands. Pursuant to Chapter 122 of the Code of Ordinances, fees incurred for this review shall be the responsibility of the applicant. A deposit in the amount of the estimated cost shall be provided to the Town prior to issuance of a notice to proceed.

**APPLICATION FOR PERMIT  
MANSFIELD INLAND WETLANDS AGENCY  
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268  
860-429-3015x6204 (DIRECT) TEL: 860-429-3330 OR  
FAX: 860-429-6863**

FOR OFFICE USE ONLY

File # W1562  
W W1562  
Fee Paid \$1,060.00  
Official Date of Receipt 2-9-16

*Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact the 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 Uniglobe Investment, LLC

Mailing Address 73 Meadowbrook Lane

Mansfield Center, CT Zip 06250

Phone Scott Garrett  
203-260-5325 Email scott.garrett13@gmail.com

**Title and Brief Description of Project**

Meadowbrook Gardens

Develop an additional 36 dwelling units associated with the Whispering Glen project.

Location of Project 91 & 93 Meadowbrook Lane

Intended Start Date Spring 2016

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

Name same as applicant

Mailing Address \_\_\_\_\_

\_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

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

Signature \_\_\_\_\_ 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)

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

a) No proposed activity in wetlands

b) Proposed driveway and parking - 54' at its closest point

Proposed multifamily dwellings - 112' at its closest point

Proposed storm drainage system - 16' at its outlet from retention/ recharge basin

Proposed underground utilities - 67' at its closest point

- 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

a) No activity in wetlands

b) 1.5 acres within 150' of wetland soils

- 3) Describe the type of materials you are using for the project: Construction of driveway and parking areas will be using gravel from existing site and process gravel for base before paving.

a) include **type** of material used as fill or to be excavated gravel/ process gravel

b) include **volume** of material to be filled or excavated Site will be graded using on site material (sand & gravel). Excess topsoil will be removed from site - approximately 1700 cu. yds.

- 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).

See attached plans for detailed erosion and sedimentation measures to be installed and maintained until site is stabilized.

**Part D - Site Description**

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

See attached report from Connecticut Ecosystems LLC for site characteristics.

**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.

We moved the proposed buildings northerly to provide a greater distance from  
the brook southerly of this site. Original layout was 30' closer to the brook.  
We believe the submitted proposal is less impact on wetland/ watercourse.

**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)**

2) Applicant's map date and date of last revision January 8, 2016

3) Zone Classification DMR (pending zone change application)

4) Is your property in a flood zone?      Yes   X   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) Attach list of abutters, name, and address

2) **Proof of Written Notice to Abutters.** You must notify abutting (neighboring) property owners (any property immediately contiguous with the subject property, including those across the street) 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.** To generate an abutters list go to <http://www.mainstreetmaps.com/CT/Mansfield/>

**Part I - Additional Notices, if necessary**

Notice to Windham Water Works and CT Department of Public Health is attached. If this application is in the public watershed for the Windham Water Works (WWW), you must notify the WWW and the Department of Public Health 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.

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.

The Statewide Reporting Form 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? X 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 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**

Application fees shall be in accordance with the current Mansfield Code of Ordinance fee Schedule, pursuant to Section 8-1c of the Connecticut General Statutes. The fee schedule includes provisions for applicant-funded consultant studies and reports. The current fee schedule is available in the Planning and Zoning office.

*Note: The Agency may require additional information about the upland review area 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.*

**Certification**

I hereby certify that:

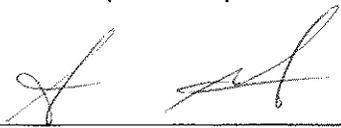
- I am familiar with the information contained in this form and that such information is true and correct to the best of my knowledge.
- I understand the penalties for obtaining a permit through deception or through inaccurate or misleading information.

  
\_\_\_\_\_  
Signature

2/9/10  
\_\_\_\_\_  
Date

**Authorization to Enter Property**

The undersigned hereby consent 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 issued by the Agency.

  
\_\_\_\_\_  
Signature

2/9/10  
\_\_\_\_\_  
Date

SCHEDULE OF DIMENSIONAL REQUIREMENTS  
ZONE R-20 DMR

	REQUIRED/ALLOWED	PROVIDED
MINIMUM LOT AREA:	5 ACRES	14.89 ACRES
MINIMUM LOT FRONTAGE:	300'	772.57'
MAXIMUM BUILDING HEIGHT:	40'	33'
MAXIMUM BUILDING COVERAGE:	25%	9.9%
*UNIT DENSITY: (5000 SF/UNIT)	86	86

\*SEE ART. X.4.A.4.D REQUIRING SPECIAL DIMENSIONAL EXCEPTIONS BY THE COMMISSION

AFFORDABLE HOUSING UNITS (20%) - ART. X SEC. 6.K	
TWO BEDROOM UNITS - 1200 SQ.FT. LIVABLE AREA OR LESS	
UNITS IN 2-FAMILY DWELLINGS	0
MULTI FAMILY DWELLINGS	18
ACCESSIBLE HOUSING UNITS	4 MIN. 4

NOTE: THE DEVELOPER WILL COORDINATE WITH THE MANSFIELD HOUSING AUTHORITY AND OTHER STATE AND REGIONAL AGENCIES THAT PROMOTE AFFORDABLE HOUSING OPPORTUNITIES TO MARKET THE AFFORDABLE UNITS TO LOW AND MODERATE INCOME FAMILIES.

UNIT DENSITY CALCULATION (ART.X.A.5.B)  
 TOTAL SITE AREA = 14.89 ACRES (648,302 SQ.FT.)  
 AREA OF SLOPES > 15% = 1.97 ACRES (85,085 SQ.FT.)  
 AREA OF WETLANDS = 2.89 ACRES (125,828 SQ.FT.)  
 641,302 - 85,085 - 125,828 = 430,389 SQ.FT.  
 430,389 SQ.FT./5000SF/UNIT = 86.07 UNITS

PARKING-MEADOWBROOK GARDENS-(ART X.A.5.B)  
 PARKING REQUIRED (36 UNITS x 2 SPACES/UNIT) = 72  
 REGULAR PARKING SPACES PROVIDED - 73  
 HANDICAP PARKING SPACES PROVIDED - 4  
 TOTAL PARKING SPACES PROVIDED - 77

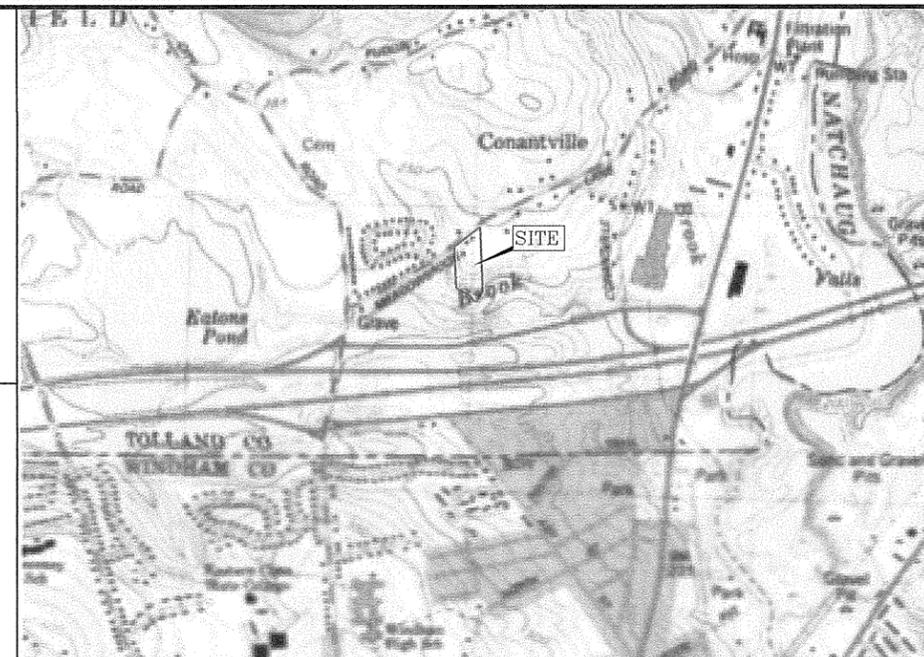
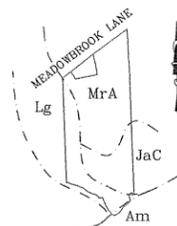
SOIL MAP

SCALE : 1" = 400'

--- SOILS LEGEND ---

SYMBOL DESCRIPTION  
 Am ALLUVAL LAND  
 JaC JAFFREY GRAVELLY SANDY LOAM AND LOAMY SAND, 3 TO 15 PERCENT SLOPES  
 Lg LEICESTER-RIDGEBURY-WHITMAN VERY STONY COMPLEX  
 MrA MERRIMAC FINE SANDY LOAM, 0 TO 3 PERCENT SLOPES

--- SOILS DATA AS PER : "SOIL SURVEY, TOLLAND COUNTY, CONNECTICUT, UNITED STATES DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE"



LOCATION MAP

SCALE : 1" = 1000'

# MEADOWBROOK GARDENS

91-93 MEADOWBROOK LANE  
 MANSFIELD CENTER, CONNECTICUT 06250

OWNER & APPLICANT

UNIGLOBE INVESTMENT, LLC  
 73 MEADOWBROOK LANE  
 MANSFIELD CENTER, CT 06250

JANUARY 8, 2016

INDEX TO SHEETS

COVER SHEET	SHEET 1 OF 10
BOUNDARY SURVEY	SHEET 2 OF 10
EXISTING TOPOGRAPHIC SURVEY	SHEET 3 OF 10
DEMOLITION PLAN	SHEET 4 OF 10
SITE LAYOUT & GRADING PLAN	SHEET 5 OF 10
EROSION, SEDIMENTATION & MAINTENANCE PLAN	SHEET 6 OF 10
DETAIL SHEET	SHEET 7 OF 10
DETAIL SHEET	SHEET 8 OF 10
LANDSCAPE-LIGHTING-SIGN PLAN	SHEET 9 OF 10
LANDSCAPE-LIGHTING-SIGN DETAILS	SHEET 10 OF 10

APPROVED BY THE TOWN OF MANSFIELD INLAND WETLAND AGENCY

CHAIRMAN DATE

APPROVED BY THE MANSFIELD PLANNING AND ZONING COMMISSION

CHAIRMAN DATE

APPROVED BY THE DIRECTOR OF HEALTH

DIRECTOR DATE

APPROVED BY THE DIRECTOR OF PUBLIC WORKS

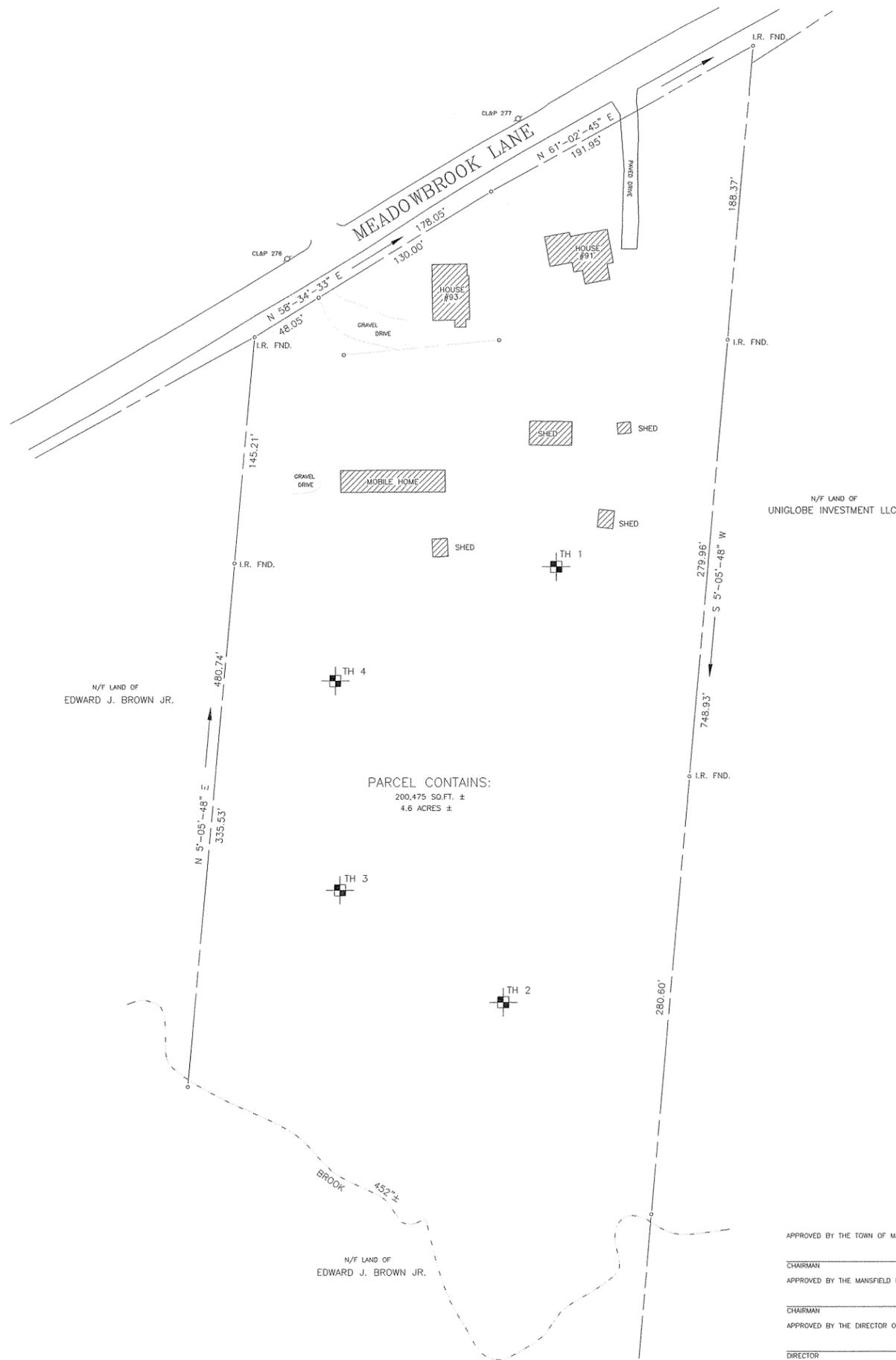
DIRECTOR DATE

DATUM ENGINEERING & SURVEYING, LLC  
 132 CONANTVILLE ROAD  
 MANSFIELD CENTER, CONNECTICUT 06250

GERALD HARDISTY, P.E.  
 203 BOSTON HILL ROAD  
 ANDOVER, CONNECTICUT 06232

JOHN ALEXOPOULOS, ASLA  
 16 STORRS HEIGHTS ROAD  
 STORRS, CONNECTICUT 06268

JOB NO. 215049  
 SHEET 1 OF 10



**MAP REFERENCE:**

"PROPERTY SURVEY OF 91 & 93 MEADOWBROOK LANE MANSFIELD, CT PREPARED FOR JACK YANG" SHEET NO. 1 OF 1 SCALE 1"=40' JANUARY 8, 2015 PROJECT NO. 14-079 PREPARED BY J DEMPSEY ASSOCIATES PROFESSIONAL LAND SURVEYORS 76 BRAINARD ST. NEW LONDON, CT.

**TEST HOLE DATA**

OBSERVED BY GERRY HARDISTY, P.E. ON 12/30/15

- TEST HOLE 1**  
 0- 5" TOPSOIL  
 5-12" BROWN FINE SANDY LOAM  
 12-22" LT. BROWN FINE SAND W/3" BAND AT BOTTOM  
 22-36" YELLOW/BROWN MED SAND  
 36-57" REDDISH COARSE SAND & GRAVEL  
 57-77" YELLOW/BROWN MED/COARSE SAND  
 VERY DISTINCT LAYERS
- TEST HOLE 2**  
 0-20" DARK BROWN FINE SANDY LOAM  
 20-44" TAN VERY FINE SILTY SAND  
 44-60" LAYERS OF FINE SAND & VERY FINE SAND  
 STRIPPED ORANGE AND GRAY  
 60-84" COARSE AND VERY COARSE SAND & GRAVEL  
 NOTE: LAYER OF VERY FINE SAND IN A SLOPE GETTING  
 DEEPER TOWARDS THE EAST, BETTER MATERIAL  
 ON THE WEST END.
- TEST HOLE 3**  
 COARSE SAND AND GRAVEL TOP TO BOTTOM
- TEST HOLE 4**  
 0-24" TRACE TOPSOIL TO DARK BROWN FINE SANDY LOAM  
 24-46" REDDISH/BROWN FINE SAND TO SILT  
 46-60" VERY COARSE SAND & GRAVEL  
 60-72" CLEAN MED-COARSE SAND

**LEGEND**

- PROPERTY LINE
- ABUTTER PROPERTY LINE
- EDGE PAVEMENT
- EDGE GRAVEL
- IRON ROD FOUND
- UTILITY POLE
- TEST HOLE



BOUNDARY SURVEY  
 PREPARED FOR  
**UNIGLOBE INVESTMENT, LLC.**  
 91 & 93 MEADOWBROOK LANE  
 MANSFIELD, CONNECTICUT  
 SCALE: 1" = 40'      DATE: JANUARY 7, 2016

APPROVED BY THE TOWN OF MANSFIELD INLAND WETLAND AGENCY

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY THE MANSFIELD PLANNING AND ZONING COMMISSION

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY THE DIRECTOR OF HEALTH

DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY THE DIRECTOR OF PUBLIC WORKS

DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300a-1 THRU 20-300a-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEYS AND MAPS BY THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. IT IS AN IMPROVED LOCATION MAP BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS "A-2". THIS SURVEY AND MAP IS INTENDED TO ENABLE DETERMINATION OF COMPLIANCE OR NON-COMPLIANCE WITH APPLICABLE MUNICIPAL OR STATUTORY REQUIREMENTS.

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

EDWARD PELLETER, L.S. #14203

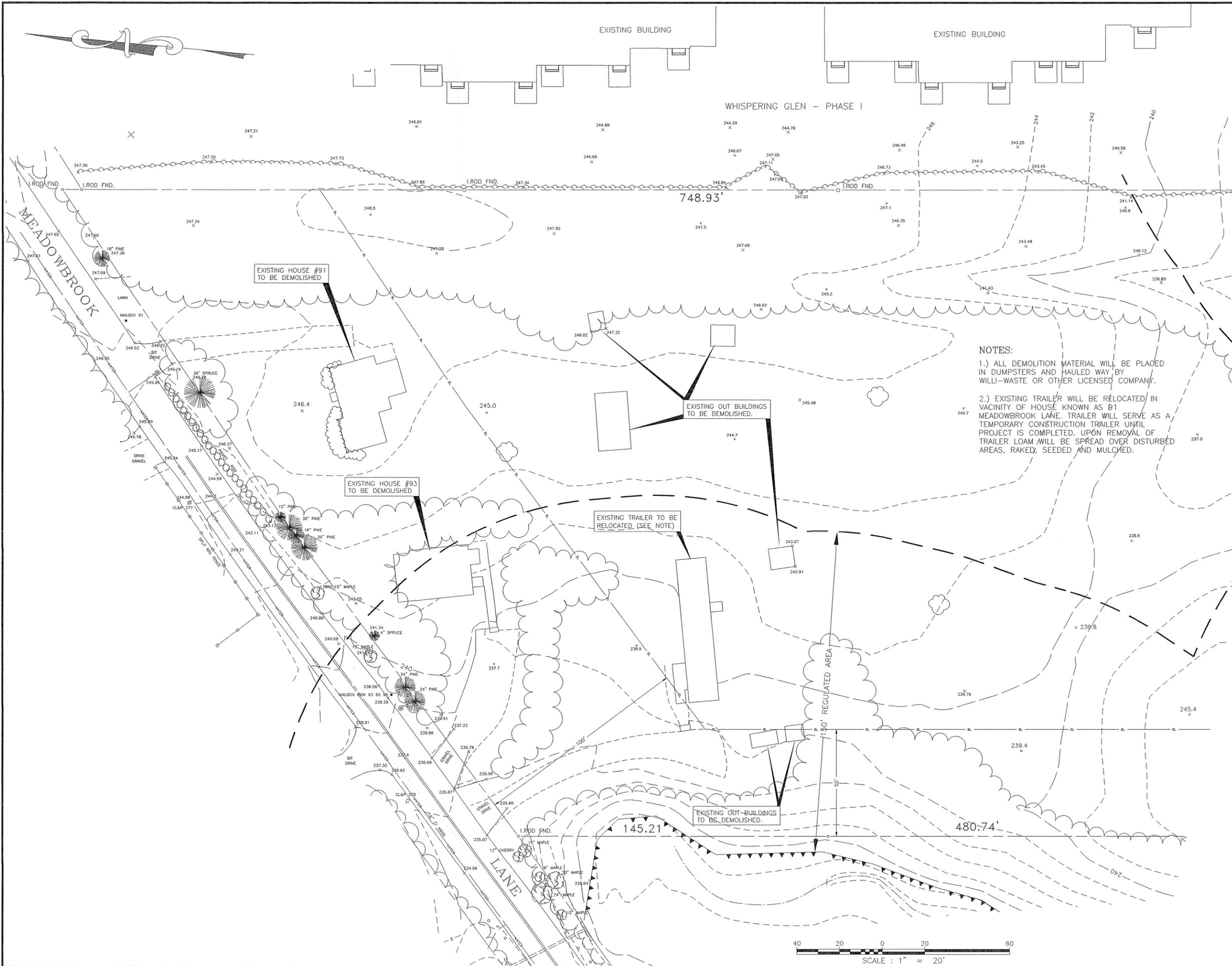
ANY ORIGINAL OR DUPLICATE OF THIS MAP IS NOT VALID UNLESS IT BEARS THE EMBOSSED SEAL OF THE SURVEYOR WHOSE REGISTRATION NUMBER AND SIGNATURE APPEAR ABOVE. NO OTHER CERTIFICATION OR WARRANTY IS EXPRESSED OR IMPLIED.

SHEET 2 OF 10

**DAIUM**  
 ENGINEERING & SURVEYING, LLC

132 CONANTVILLE ROAD  
 MANSFIELD CENTER, CT 06250  
 TEL (860)456-1357      FAX (860)456-1840

CHECKED BY \_\_\_\_\_ CORRECTIONS BY \_\_\_\_\_



WHISPERING GLEN - PHASE I

- NOTES:
- 1.) ALL DEMOLITION MATERIAL WILL BE PLACED IN DUMPSTERS AND HAULED AWAY BY WILLI-WASTE OR OTHER LICENSED COMPANY.
  - 2.) EXISTING TRAILER WILL BE RELOCATED IN VICINITY OF HOUSE KNOWN AS #1 MEADOWBROOK LANE. TRAILER WILL SERVE AS A TEMPORARY CONSTRUCTION TRAILER UNTIL PROJECT IS COMPLETED. UPON REMOVAL OF TRAILER LOAM WILL BE SPREAD OVER DISTURBED AREAS, RAKED, SEEDED AND MULCHED.

APPROVED BY THE TOWN OF MANSFIELD INLAND WETLAND AGENCY  
 CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE MANSFIELD PLANNING AND ZONING COMMISSION  
 CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE DIRECTOR OF HEALTH  
 DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE DIRECTOR OF PUBLIC WORKS  
 DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

DEMOLITION PLAN  
 PREPARED FOR  
**UNIGLOBE INVESTMENTS, LLC**  
 91 & 93 MEADOWBROOK LANE  
 MANSFIELD CENTER, CONNECTICUT  
 SCALE: 1" = 20' DATE: OCTOBER 12, 2015

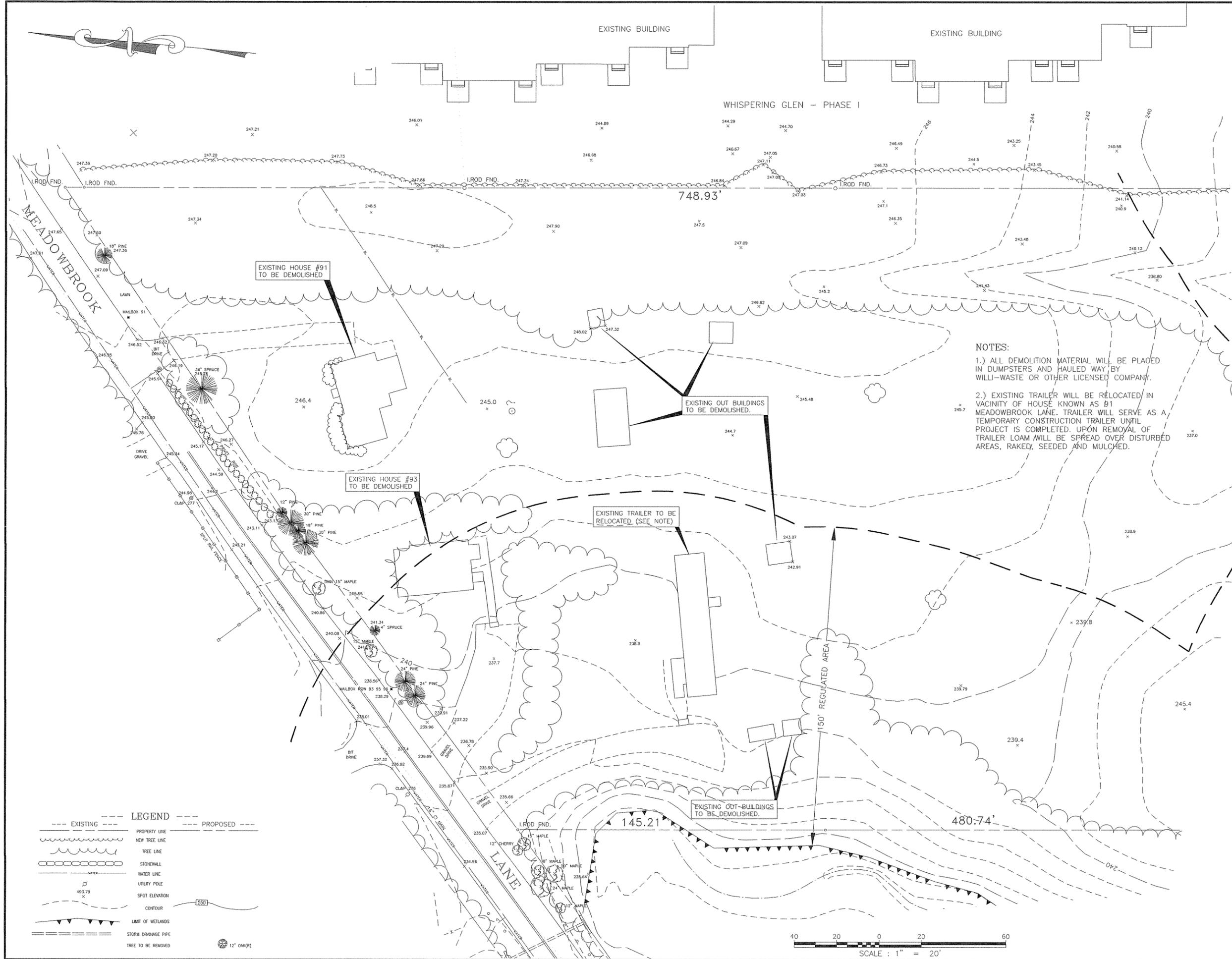
SHEET 3 OF 10

**DATUM** ENGINEERING & SURVEYING, LLC

132 CONANTVILLE ROAD  
 MANSFIELD CENTER, CT 06250  
 TEL (860)456-1357 FAX (860)456-1840  
 JOB NO. 215049

CHECKED BY: \_\_\_\_\_ CORRECTIONS BY: \_\_\_\_\_





WHISPERING GLEN - PHASE I

**NOTES:**  
 1.) ALL DEMOLITION MATERIAL WILL BE PLACED IN DUMPSTERS AND HAULED AWAY BY WILLI-WASTE OR OTHER LICENSED COMPANY.  
 2.) EXISTING TRAILER WILL BE RELOCATED IN VICINITY OF HOUSE KNOWN AS B1 MEADOWBROOK LANE. TRAILER WILL SERVE AS A TEMPORARY CONSTRUCTION TRAILER UNTIL PROJECT IS COMPLETED. UPON REMOVAL OF TRAILER LOAM WILL BE SPREAD OVER DISTURBED AREAS, RAKED, SEEDED AND MULCHED.

APPROVED BY THE TOWN OF MANSFIELD INLAND WETLAND AGENCY  
 CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE MANSFIELD PLANNING AND ZONING COMMISSION  
 CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE DIRECTOR OF HEALTH  
 DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE DIRECTOR OF PUBLIC WORKS  
 DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

DEMOLITION PLAN  
 PREPARED FOR  
**UNIGLOBE INVESTMENTS, LLC**  
 91 & 93 MEADOWBROOK LANE  
 MANSFIELD CENTER, CONNECTICUT  
 SCALE: 1" = 20' DATE: JANUARY 8, 2016

SHEET 4 OF 10  
**DATUM**  
 ENGINEERING & SURVEYING, LLC

132 CONANTVILLE ROAD  
 MANSFIELD CENTER, CT 06250  
 TEL (860)456-1357 FAX (860)456-1840

JOB NO. 215049

CHECKED BY: \_\_\_\_\_ CORRECTIONS BY: \_\_\_\_\_

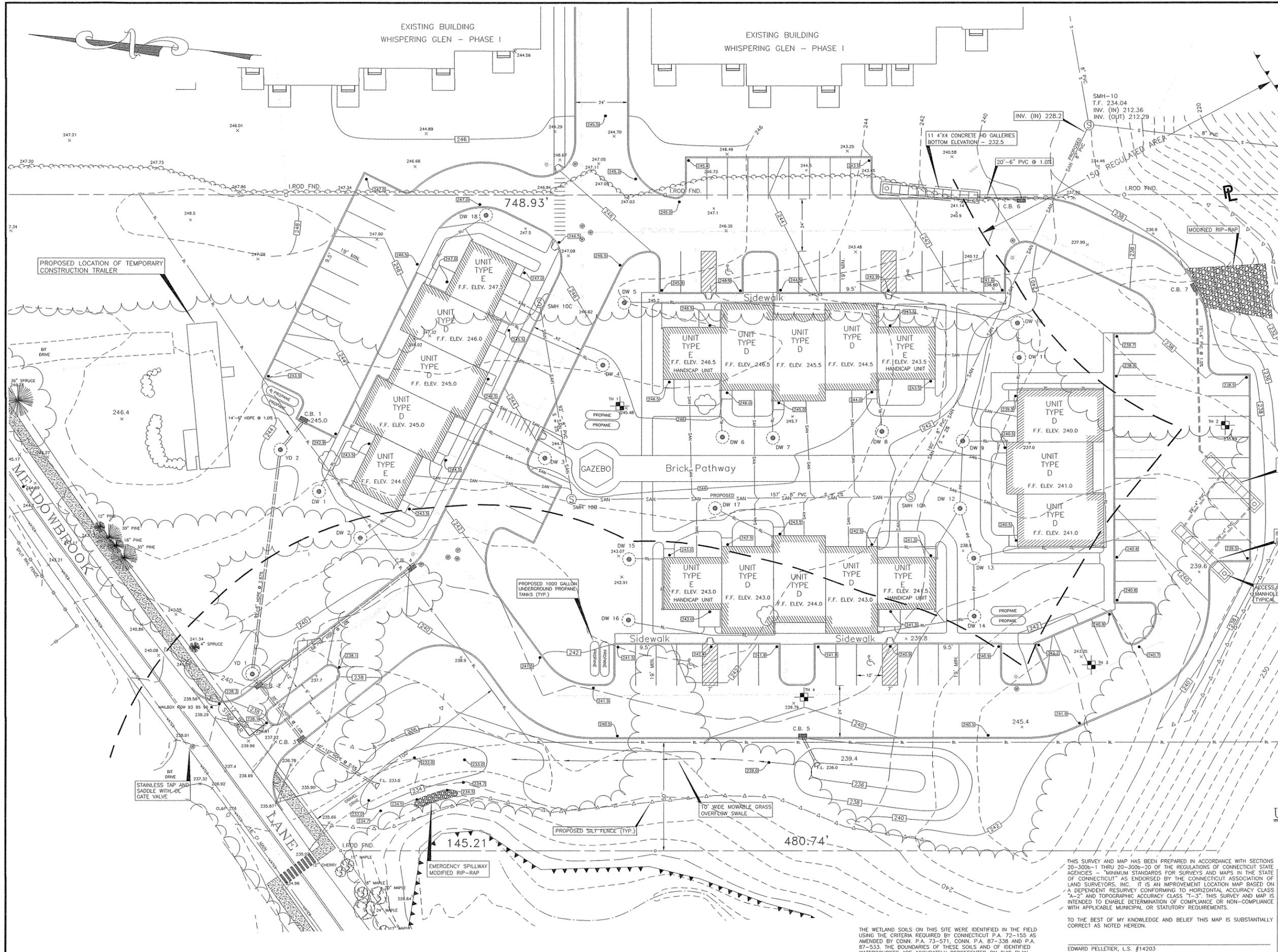
**LEGEND**

---	EXISTING	---	PROPOSED
---	PROPERTY LINE	---	NEW TREE LINE
---	TREE LINE	---	STONEWALL
---	WATER LINE	---	UTILITY POLE
---	SPOT ELEVATION	---	CONTOUR
---	LIMIT OF WETLANDS	---	STORM DRAINAGE PIPE
---	TREE TO BE REMOVED	---	



--- LEGEND ---

- PROPERTY LINE
- EXISTING TREE LINE
- NEW TREE LINE
- TEST HOLE
- 2' CONTOUR INTERVAL
- 10' CONTOUR INTERVAL
- PROPOSED CONTOUR
- EXISTING SPOT GRADE
- PROPOSED SPOT GRADE
- WETLAND SOIL LIMITS
- BUILDING LINE
- EXISTING WATER LINE
- PROPOSED WATER LINE
- EXISTING SEWER LINE
- PROPOSED SEWER LINE
- PROPOSED HYDRANT
- PROPOSED VALVE
- PROPOSED CATCH BASIN
- STORM DRAINAGE PIPE (15" HOPE)
- PROPOSED DRAINAGE PIPE (6" PERF.)
- PROPOSED DRAINAGE PIPE (4" SOLID)
- PROPOSED DRY WELL
- PROPOSED WATER SERVICE SHUTOFF VALVE
- PROPOSED BITUMINOUS CURBING
- PROPOSED SALT FENCE



APPROVED BY THE TOWN OF MANSFIELD INLAND WETLAND AGENCY \_\_\_\_\_ DATE \_\_\_\_\_

CHAIRMAN/ \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY THE MANSFIELD PLANNING AND ZONING COMMISSION \_\_\_\_\_

CHAIRMAN/ \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY THE DIRECTOR OF HEALTH \_\_\_\_\_

DIRECTOR/ \_\_\_\_\_ DATE \_\_\_\_\_

APPROVED BY THE DIRECTOR OF PUBLIC WORKS \_\_\_\_\_

DIRECTOR/ \_\_\_\_\_ DATE \_\_\_\_\_

**SITE PLAN**  
 PREPARED FOR  
**UNIGLOBE INVESTMENT LLC**  
 91 & 93 MEADOWBROOK LANE  
 MANSFIELD CENTER, CONNECTICUT  
 SCALE: 1" = 20' DATE: JANUARY 8, 2016

SHEET 5 OF 10

**DAIUM**  
**ENGINEERING & SURVEYING, LLC**

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JOB NO. 215049  
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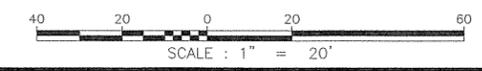
THIS SURVEY AND MAP HAS BEEN PREPARED IN ACCORDANCE WITH SECTIONS 20-300b-1 THRU 20-300b-20 OF THE REGULATIONS OF CONNECTICUT STATE AGENCIES - "MINIMUM STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ENDORSED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. IT IS AN IMPROVEMENT LOCATION MAP BASED ON A DEPENDENT RESURVEY CONFORMING TO HORIZONTAL ACCURACY CLASS "A-2" AND TOPOGRAPHIC ACCURACY CLASS "T-3". THIS SURVEY AND MAP IS INTENDED TO ENABLE DETERMINATION OF COMPLIANCE OR NON-COMPLIANCE WITH APPLICABLE MUNICIPAL OR STATUTORY REQUIREMENTS.

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

EDWARD PELLETIER, L.S. #14203  
 ANY ORIGINAL OR DUPLICATE OF THIS MAP IS NOT VALID UNLESS IT BEARS THE EMBOSSED SEAL OF THE SURVEYOR WHOSE REGISTRATION NUMBER AND SIGNATURE APPEAR ABOVE. NO OTHER CERTIFICATION OR WARRANTY IS EXPRESSED OR IMPLIED.

THE WETLAND SOILS ON THIS SITE WERE IDENTIFIED IN THE FIELD USING THE CRITERIA REQUIRED BY CONNECTICUT P.A. 72-155 AS AMENDED BY CONN. P.A. 73-571, CONN. P.A. 87-338 AND P.A. 97-533. THE BOUNDARIES OF THESE SOILS AND OF IDENTIFIED WATERCOURSES ARE ACCURATELY REPRESENTED ON THIS PLAN.

EDWARD M. PAWLAK \_\_\_\_\_ DATE \_\_\_\_\_



SILT SACS FOR YARD DRAINS AND DRYWELLS  
WWW.TERRACONCEPTS.COM OR EQUL

SILT SACS FOR CATCH BASINS  
WWW.TERRACONCEPTS.COM OR EQUL

**I. GENERAL EROSION AND SEDIMENTATION CONTROL NOTES**

THIS CONSTRUCTION PLAN PROPOSES EROSION CONTROL MEASURES WHICH WILL PERFORM ONE OR MORE OF THE FOLLOWING FUNCTIONS: MINIMIZATION OF SOIL EXPOSURE, CONTROL OF RUNOFF, SHIELDING OF THE SOILS AND BINDING OF THE SOILS. PROPER EROSION MANAGEMENT WILL MINIMIZE THE EROSION, BUT IT MUST BE UNDERSTOOD THAT ONLY "REASONABLE" EROSION CONTROL CAN BE EXPECTED. THUS, EVEN WITH THE BEST PLAN, SOME EROSION MUST BE ANTICIPATED. SEDIMENTATION CONTROLS ARE THE SECONDARY LINE OF DEFENSE ON THE CONSTRUCTION SITE.

WATER GENERATED SEDIMENT IS A SERIOUS PROBLEM WHEN NATURAL VEGETATION IS REMOVED OR ALTERED. FOR THIS REASON, A RECOMMENDATION FOR MINIMAL SITE DISTURBANCE TO THE EXISTING VEGETATION AND SOIL IS PROPOSED. MINIMAL SOIL EXPOSURE NOT ONLY ENTAILS EROSION CONTROL MEASURES, BUT ALSO INVOLVES THE STAGING OF GRADING AND SUBSEQUENT RE-VEGETATION OF DISTURBED AREAS, SO THAT THE LEAST AMOUNT OF SOIL SURFACE IS EXPOSED AT ANY ONE TIME.

RUNOFF SHALL BE CONTROLLED BY THE INTERCEPTION, DIVERSION AND SAFE DISPOSAL OF PRECIPITATION. RUNOFF SHALL ALSO BE CONTROLLED BY THE STAGING OF CONSTRUCTION ACTIVITY AND THE PRESERVATION OF NATURAL VEGETATION WHENEVER POSSIBLE. THE BINDING OF SOIL PARTICLES TO MAKE THEM LESS SUSCEPTIBLE TO REMOVAL BY BRAIN SPLASH OR RUNOFF USING NATURAL AND PHYSICAL "BINDERS" (MULCH AND FABRICS) MAY BE REQUIRED AS DIRECTED BY THE ENGINEER.

TO PREVENT SEDIMENT FROM LEAVING THE SITE, TURBID SURFACE RUNOFF SHALL BE DERTED THROUGH "LEVEL SPREADER" DEVICES. TEMPORARY LEVEL SPREADER DEVICES SHALL BE CREATED BY PLACING ENGINEERING FABRIC DOWN GRADIENT OF SOIL DISTURBING ACTIVITIES. THIS FLOW WILL BE DISPERSED OVER A WIDE AREA AND FILTERED BY THE FABRIC. THE FENCE SHALL FOLLOW THE EXISTING CONTOURS WITH ENDS OF THE FENCE TURNED UPHILL TO PREVENT END CUTTING. FILTER FABRIC USED AS SILT FENCE AND NOT PLACED ON THE CONTOURS SHOULD HAVE "WINGS" AT INTERVALS OF NO GREATER THAN 100 FEET TO INTERRUPT FLOW PARALLEL TO THE FENCE. TECHNIQUES SUCH AS "WINGED" FABRIC SILT FENCE, CHECK DAMS, HAY BALES INSTALLED AND MAINTAINED ALONG ALL CATCH BASINS, FABRIC SILT FENCE/LEVEL SPREADERS AND SEDIMENTATION PONDS MAY BE USED.

DUST CONTROL, IF DETERMINED TO BE REQUIRED DURING THE DAILY INSPECTIONS, SHALL BE ACHIEVED BY THE APPLICATION OF ANIONIC OR CATIONIC ASPHALT EMULSIONS, LATEX EMULSION, OR RESIN IN WATER. FOR APPLICATION RATES AND DILUTION REQUIREMENTS, REFER TO THE MANUFACTURER'S GUIDELINES. THE EXPOSED SOIL SURFACE SHOULD BE MOISTENED PERIODICALLY WITH ADEQUATE WATER TO CONTROL DUST, BUT WATER SHALL NOT BE USED EXCLUSIVELY.

IN AN EFFORT TO REDUCE THE POTENTIAL FOR TRACKING MUD OFF THE SITE, COURSE STONE "TRACKING PADS" AND AN IMMEDIATE CONSTRUCTION OF A GRAVEL SUB-BASE FOR ROADWAYS ARE RECOMMENDED. DIRT TRACKED ONTO EXISTING ROADWAYS SHALL BE REMOVED BY SHOVEL AND C-BROOM AT THE END OF EACH DAY.

EXCAVATION THAT MUST BE DE-WATERED WILL BE PUMPED INTO AN ACTIVE DRAINAGE SYSTEM. BOTH THE INLET AND OUTLET OF THE PUMPS SHOULD BE FILTERED AND PROTECTED FROM SURGE ACTION, DEBRIS AND OTHER WASTE RESULTING FROM EQUIPMENT MAINTENANCE AND CONSTRUCTION SHALL NOT BE DISCARDED ON SITE. THE BI-WEEKLY EROSION AND SEDIMENTATION MONITORING REPORTS SHALL BE SUBMITTED TO THE ZONING AGENT DURING THE TIME THE ROADWAYS ARE BEING CONSTRUCTED.

IN THE EVENT OF CONFLICT BETWEEN THESE PLANS AND OTHER REGULATIONS, THE MORE STRINGENT SHALL APPLY.

**II. CONSTRUCTION SEQUENCE AND DETAILED EROSION CONTROL MEASURES**

THIS CONSTRUCTION PLAN PROPOSES EROSION CONTROL MEASURES WHICH WILL PERFORM ONE OR MORE OF THE FOLLOWING FUNCTIONS: 1. A REGISTERED LAND SURVEYOR SHALL FIELD STAKE LIMITS OF CLEARING AND LOCATION OF TEMPORARY SEDIMENTATION BASINS.

2. UPON COMPLETION OF THE FIELD STAKING, ALL VEGETATION, INCLUDING OVERHANGING TREE LIMBS SHALL BE CHIPPED AND SUCH CHIPS SHALL BE STORED IN NON-GRADED AREAS FOR FUTURE USE AS EROSION BERMS ALONG SILT FENCING AND MULCH. EROSION AND SEDIMENT MEASURES SHALL BE INSTALLED AS APPROPRIATE PRIOR TO ANY SITE DISTURBANCE.

3. TEMPORARY STORM WATER RETENTION BASINS SHALL BE CONSTRUCTED AND SITE RUNOFF DIRECTED TOWARD THE BASINS.

4. STUMPING CAN COMMENCE AND BE GROUND INTO CHIPS. CHIPS SHALL BE STOCK PILED IN NON-GRADED AREAS. ANTI-TRACKING PADS SHALL BE INSTALLED PRIOR TO STRIPPING OF THE BALANCE OF THE SITE. THIS ANTI-TRACKING PADDING SHALL BE MAINTAINED AND REPLACED AS NECESSARY.

5. TEMPORARY SEDIMENTATION BASINS SHALL BE CONSTRUCTED AS DEPICTED, AND MAINTAINED UNTIL STORM DRAINAGE STRUCTURES ALONG WITH EROSION AND SEDIMENTATION CONTROLS, HAY BALES, CHECK DAMS, SILT SACKS AND LEVEL SPREADERS HAVE BEEN INSTALLED.

6. ROADWAYS AND PARKING AREAS SHALL BE ROUGH GRADED, DIRECTING STORM WATER RUNOFF TOWARD THE SEDIMENTATION BASINS. EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AND MAINTAINED UNTIL COMPLETION OF THE PROJECT AND SITE DISTURBANCE IS STABILIZED.

7. INSTALLATION OF THE SEWER SYSTEM FROM THE EXISTING MANHOLE ON PHASE 1 AND THEN THE WATER MAIN FROM MEADOWBROOK LANE TO THE EXISTING CONNECTION PROVIDED FOR IN PHASE 1. INDIVIDUAL WATER SERVICES SHALL BE INSTALLED AS BUILDINGS ARE CONSTRUCTED.

8. UNDERGROUND TELEPHONE, CABLE AND ELECTRIC SHALL BE INSTALLED, FOLLOWED BY THE PLACEMENT OF THE PROCESS GRAVEL BASE, BITUMINOUS PAVEMENT AND BITUMINOUS CONCRETE LP CURBING. THE SHOULDERS OF ROADWAYS AND PARKING AREAS SHALL BE FINE GRADED, LOAMED AND SEEDED, AS SPECIFIED.

9. PERMANENT STORM WATER RECHARGE BASINS SHALL BE COMPLETED AND STABILIZED IMMEDIATELY, ALONG WITH THE RIP-RAP OVERFLOW AREA SOUTH OF CATCH BASIN 7. ALL SILT SACKS SHALL BE MAINTAINED AND CHECKED AFTER EVERY STORM EVENT UNTIL THE SITE HAS BEEN COMPLETELY STABILIZED.

BEFORE AND AFTER EACH STORM EVENT AND ONCE EVERY DAY, ALL SEDIMENT AND EROSION CONTROLS WILL BE INSPECTED BY THE ENGINEER OR ENVIRONMENTAL SUPERVISOR. ANY CORRECTIVE MEASURES TO MITIGATE ENVIRONMENTAL CONCERNS WILL BE ORDERED AT THAT TIME. THERE WILL BE 150 FEET OF SILT FENCE WITH THE REQUIRED POSTS ON HAND FOR EMERGENCY SITUATIONS.

**III. BUILDING SITE DEVELOPMENT**

1. THE LIMITS OF DISTURBANCE SHALL BE ESTABLISHED IN THE FIELD FOR EACH PROPOSED BUILDING. THE MAXIMUM DISTURBANCE LIMITS OF 24-30 FEET BEYOND THE PHYSICAL DIMENSIONS OF THE BUILDING AND RELATED APPURTENANCES IS RECOMMENDED.

2. TOPSOIL AND EXCAVATED SUBSOIL FROM THE FOUNDATION AREA SHALL BE STOCKPILED WITH THE AREA OF DISTURBANCE IF NOT USED FOR THE ON SITE RE-GRADING. EACH STOCKPILE SHALL BE ADEQUATELY RINGED ON THE DOWN GRADIENT SIDE WITH SEDIMENT CONTROL MATERIALS MENTIONED PREVIOUSLY.

3. ANY ADDITIONAL STOCKPILING OF LUMBER AND OTHER BUILDING MATERIALS SHALL ALSO BE CONFINED TO THE AREA OF DISTURBANCE. VEHICULAR MOVEMENT SHALL BE DIRECTED TO ESTABLISHED PARKING AREAS.

4. ONCE THE PROPOSED BUILDING IS ENCLOSED, ALL EFFORTS SHALL BE MADE TO COMPLETE ON SITE IMPROVEMENTS, SUCH AS WATER SERVICE, SEWER LATERALS, ROOF LEADER DRAINS, ETC.. THEREAFTER, AREA AROUND THE BUILDING SHALL BE FINE GRADED AND MULCHED.

**IV. SEEDING AND PLANTING:**

1. SEED BED PREPARATION: FINE GRADE AND RAKE SOIL SURFACE TO REMOVE STONES LARGER THAN 2 INCHES IN DIAMETER FROM LAWN AREAS. APPLY LIMESTONE AT A MINIMUM RATE OF 2 TONS PER ACRE OR 90 LBS. PER 1000 SQUARE FEET. FERTILIZE WITH 10-10-10 AT A RATE OF 300 LBS. PER ACRE OR 7.5 LBS. PER 1000 SQUARE FEET. WORK LINE AND FERTILIZER INTO SOIL UNIFORMLY TO A DEPTH OF 4 INCHES WITH A WHISK, SPRING-TOOTH HARROW OR OTHER SUITABLE EQUIPMENT FOLLOWING THE CONTOUR LINES.

2. SEED APPLICATION: APPLY GRASS SEED MIXTURE BY HAND, CYCLONE SEEDER OR HYDROSEED. INCREASE SEED MIXTURE BY 10% IF HYDROSEEDING. LIGHTLY DRAG OR TOLL THE SEEDED SURFACE TO COVER SEED. SEED SHALL CONSIST OF A MIXTURE OF KENTUCKY BLUEGRASS (0.45LBS/1000 SF), CREEPING RED FESCUE (0.45 LBS/1000 SF), AND PERENNIAL RYE GRASS (0.10 LBS/1000 SF). SEEDING OF PERMANENT GRASS SEED SHALL BE DONE BETWEEN APRIL 15 AND JUNE 15, OR SEPTEMBER 1 THROUGH OCTOBER 15. IN THE EVENT THAT SEEDING CANNOT BE COMPLETED DURING THE ABOVE DATES, A TEMPORARY GRASS SEED CONSISTING OF 1.0 LBS/1000 SF OF ANNUAL RYE GRASS SHALL BE APPLIED. MOISTURE CONDITIONS SHALL BE SUPPLEMENTED FOR TEMPORARY SEEDING BETWEEN JUNE 16 AND AUGUST 31.

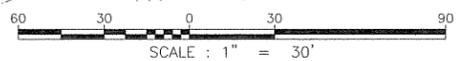
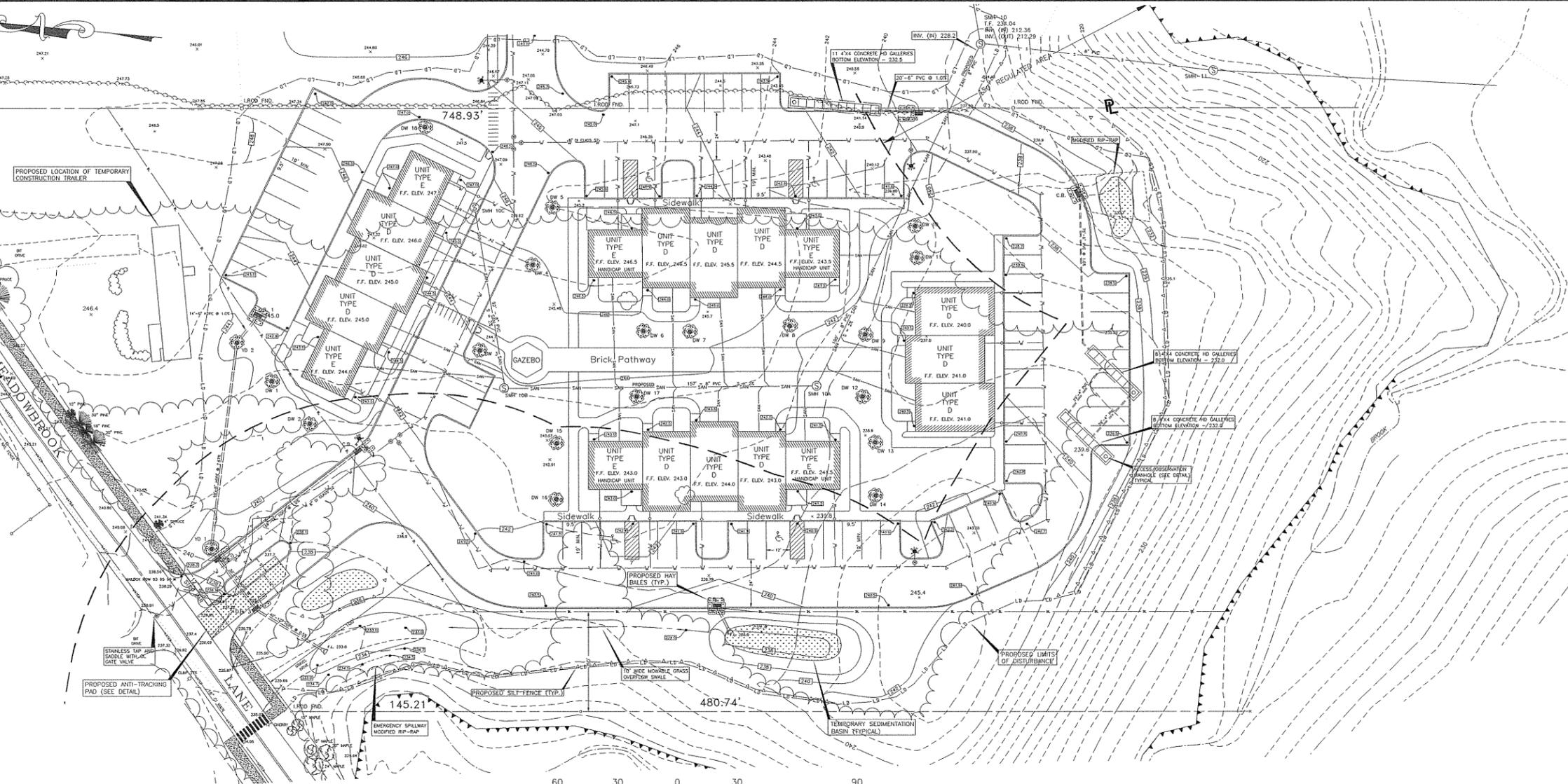
3. MULCHING: IMMEDIATELY FOLLOWING SEEDING, MULCH THE SEEDED SURFACE WITH STRAW OR HAY AT A RATE OF 1.5 TO 2 TONS PER ACRE WHERE SLOPES EXCEED 10 PERCENT. SPREAD MULCH BY HAND OR MULCH BLOWER. PUNCH MULCH INTO SOIL SURFACE WITH TRACK MACHINE OR DISH HARROW SET STRAIGHT UP. MULCH MATERIAL SHOULD BE SET INTO SOIL SURFACE APPROXIMATELY EVERY 2-3 INCHES.

**V. PLAN IMPLEMENTATION**

PRIOR TO THE START OF CONSTRUCTION, THERE SHALL BE A PRE-CONSTRUCTION MEETING WITH THE TOWN ZONING AGENT, THE TOWN WETLANDS AGENT, THE SITE CONTRACTOR AND THE CONTRACTOR'S PROFESSIONAL SOIL EROSION AND SEDIMENT CONTROL SPECIALIST TO DISCUSS THE PLAN, INSPECTION PROCEDURES AND REPORT REQUIREMENTS.

REGULAR INSPECTION OF THE SITE SHALL BE PERFORMED TO ENSURE COMPLIANCE WITH THIS SEDIMENT AND EROSION CONTROL PLAN AND A SEDIMENT AND EROSION MONITORING REPORT MAY BE REQUIRED BY THE TOWN OF MANSFIELD ZONING AGENT AND INLAND WETLAND AGENT AS DEEMED NECESSARY.

DURING CONSTRUCTION IT SHALL BE THE RESPONSIBILITY OF ROBERT MAGI (TEL. NO. (203) 692-5222) TO ENSURE THE IMPLEMENTATION OF THIS SEDIMENT & EROSION CONTROL PLAN. THIS RESPONSIBILITY INCLUDES INSTALLATION AND MAINTENANCE OF CONTROL MEASURES, INFORMING ALL PARTIES ENGAGED ON THE SITE OF THE OBJECTIVES OF THE PLAN, NOTIFYING THE WETLANDS AGENT OF HIS DESIGNATE OF ANY TRANSFER OF THIS RESPONSIBILITY AND FOR CONVEYING A COPY OF THE SEDIMENT & EROSION CONTROL PLAN IF AND WHEN SUCH TRANSFER IS APPROPRIATE. ANY MATERIAL REMOVED FROM SITE AND DEPOSITED IN MANSFIELD MUST BE IN FULL COMPLIANCE WITH APPLICABLE ZONING AND INLAND WETLAND REQUIREMENTS.



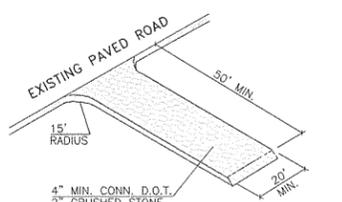
**VI. STORM WATER MANAGEMENT PLAN**

ONCE CONSTRUCTION IS COMPLETE AND LAWNS AND DISTURBED AREAS FULLY STABILIZED, SOIL EROSION AND SEDIMENT CONTROL MEASURES SUCH AS SILT FENCE AND HAY BALES MAY/SHALL BE REMOVED AT WHICH TIME THIS STORMWATER MANAGEMENT PLAN SHALL BE IMPLEMENTED.

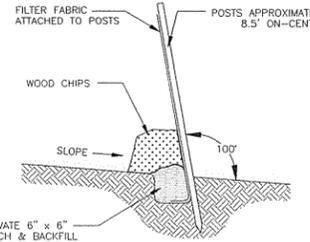
CATCH BASINS AND LAWN DRAINS SHALL BE FITTED WITH "SILT SACKS" OR EQUIVALENT GEOSYNTHETIC FILTER FABRICS TO PREVENT SILTATION OR CLOGGING OF CATCH BASIN SLUMPS AND DRYWELLS. SUCH FILTERS SHALL BE INSPECTED REGULARLY (SUCH AS AT TIMES OF LAWN MOWING) AND EMPTIED AND OR REPLACED AS NECESSARY. INFILTRATION BASINS SHALL BE MAINTAINED AS LAWNS, MOWED REGULARLY AND KEPT FREE OF TREES, BRUSH OR BRAMBLES.

BOTH FILTER FABRIC SYSTEMS AND INFILTRATION AREAS BEAR CLOSE MONITORING ESPECIALLY IMMEDIATELY AFTER IMPLEMENTATION. MAINTENANCE AND INSPECTION INTERVALS SHOULD BE ADJUSTED AS NECESSARY BASED ON INSPECTION RESULTS, AND A LOG OF INSPECTION DATES AND RESULTS SHOULD BE MAINTAINED.

EDWARD PELLETIER, L.S. #14203  
 ANTICIPATED START DATE: JUNE, 2016 COMPLETION DATE: JANUARY, 2017



**ANTI-TRACKING PAD DETAIL**  
 NOT TO SCALE

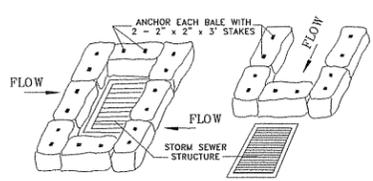


**SILT FENCE DETAIL**  
 NOT TO SCALE

**LEGEND**

- PROPERTY LINE
- EXISTING TREE LINE
- 2' CONTOUR INTERVAL
- 10' CONTOUR INTERVAL
- PROPOSED CONTOUR
- EXISTING SPOT GRADE
- PROPOSED SPOT GRADE
- WETLAND SOIL LIMITS
- BUILDING LINE
- PROPOSED CATCH BASIN
- STORM DRAINAGE PIPE (15" HDPE)
- PROPOSED DRY WELL
- PROPOSED BITUMINOUS CURBING
- INFORMED SILT FENCE
- LIMITS OF DISTURBANCE

APPROVED BY THE TOWN OF MANSFIELD INLAND WETLAND AGENCY  
 CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE MANSFIELD PLANNING AND ZONING COMMISSION  
 CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE DIRECTOR OF HEALTH  
 DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE DIRECTOR OF PUBLIC WORKS  
 DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_



**HAY BALE INSTALLATION AT CATCH BASIN**  
 NO SCALE

**EROSION, SEDIMENTATION & MAINTENANCE PLAN**

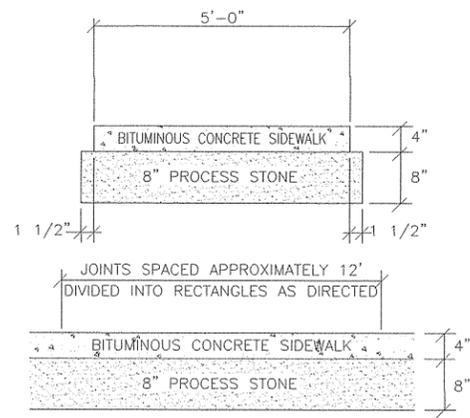
PREPARED FOR  
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91 & 93 MEADOWBROOK LANE  
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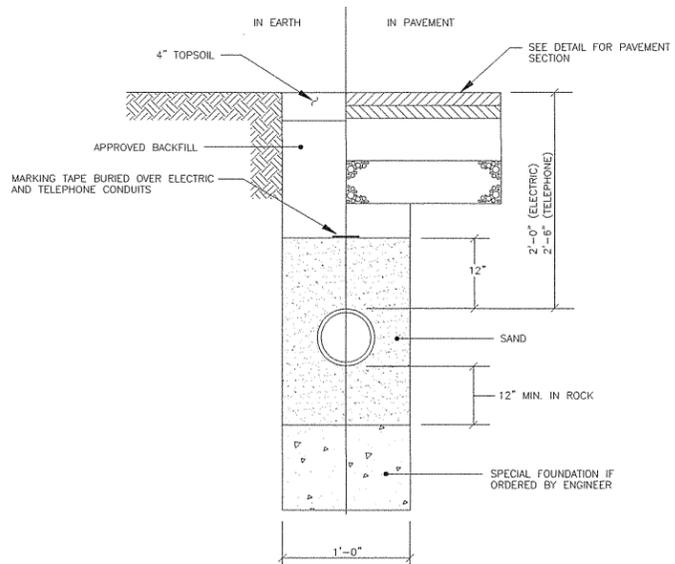
SHEET 6 OF 10

**DATUM**  
 ENGINEERING & SURVEYING, LLC  
 132 CONANTVILLE ROAD  
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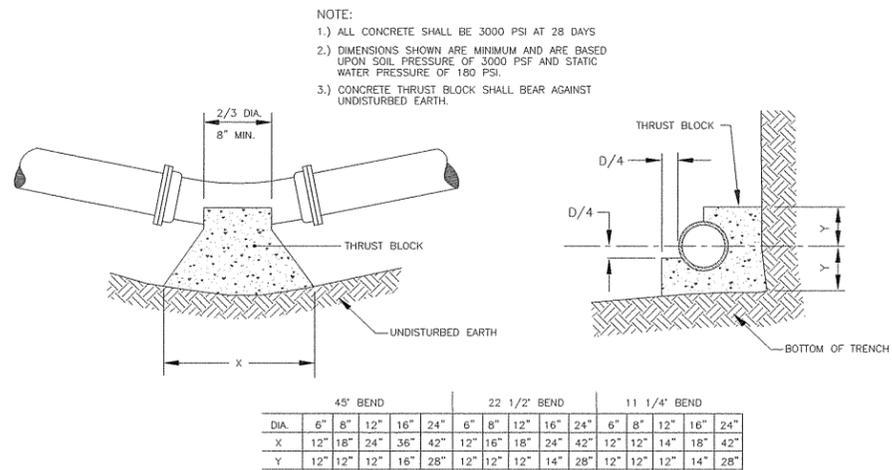
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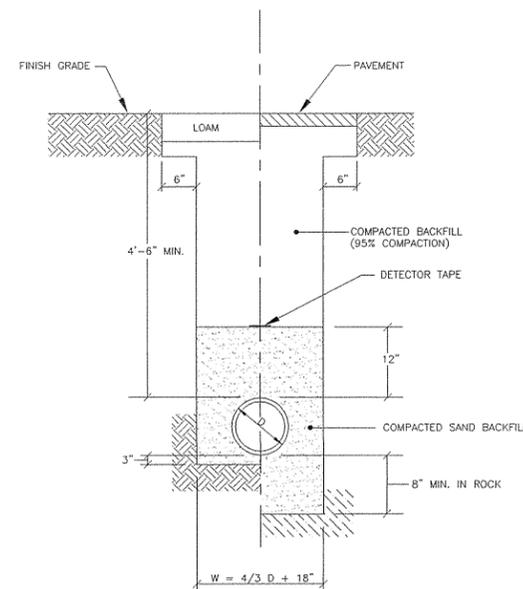
5' BITUMINOUS CONCRETE SIDEWALK  
NO SCALE



ELECTRICAL & TELEPHONE PVC  
CONDUIT TRENCH DETAIL  
NOT TO SCALE

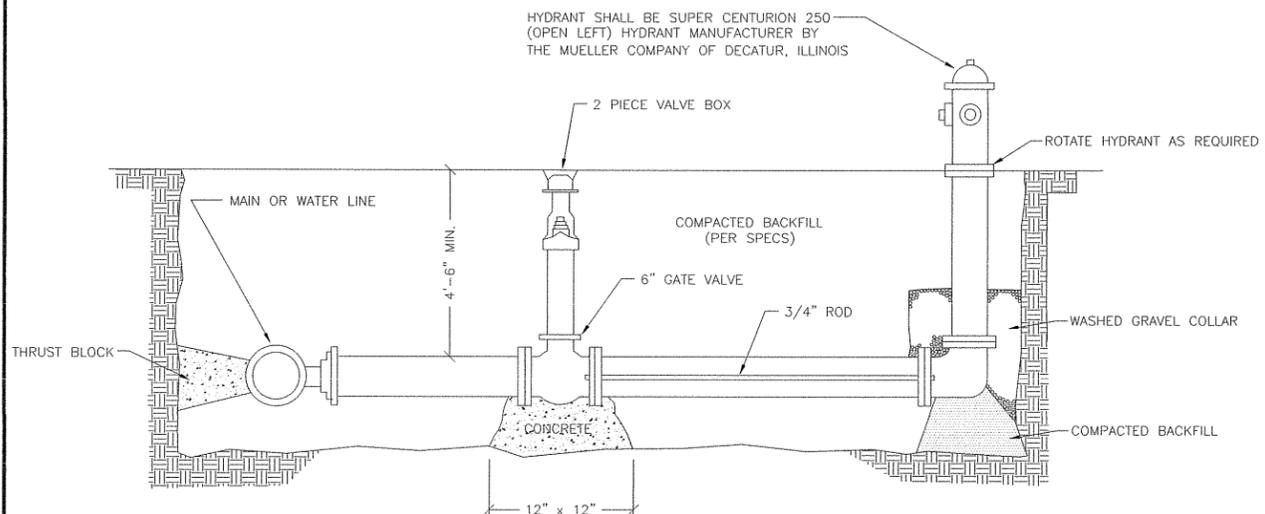


THRUST BLOCK DETAIL  
NOT TO SCALE

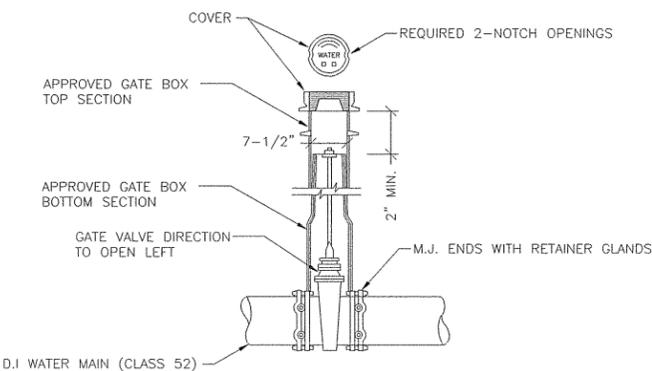


TYPICAL WATER MAIN TRENCH DETAIL  
NOT TO SCALE

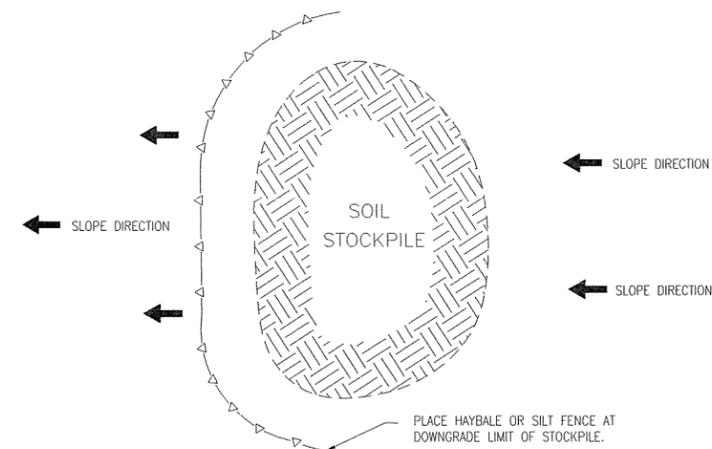
1. ALL WATER LINE MATERIALS SHALL BE PER WWW SPECS
2. WATER MAIN TO MAINTAIN A MINIMUM 10 FEET FROM STORM DRAINAGE RECHARGE STRUCTURES UNLESS APPROVED BY WWW.
3. ALL BUILDING WATER LINE SERVICES TO BE 1" COPPER



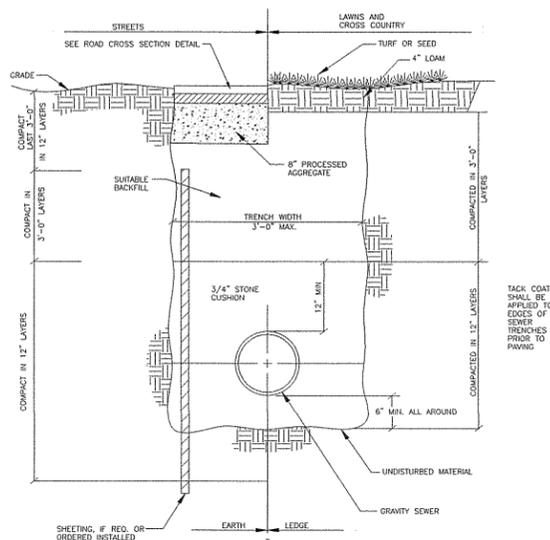
FIRE HYDRANT ASSEMBLY  
NO SCALE



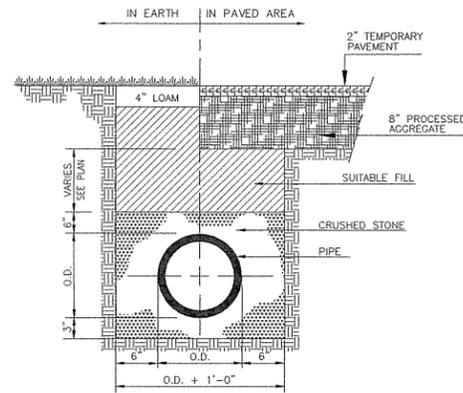
12" OR LESS VERTICAL GATE VALVE  
AND GATE BOX (OPEN LEFT)  
NO SCALE



STOCKPILE EROSION PROTECTION DETAIL  
NOT TO SCALE



TYPICAL GRAVITY SEWER TRENCH SECTION DETAIL  
NOT TO SCALE



STORM SEWER TRENCH SECTION  
NO SCALE

APPROVED BY THE TOWN OF MANSFIELD INLAND WETLAND AGENCY

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY THE MANSFIELD PLANNING AND ZONING COMMISSION

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY THE DIRECTOR OF HEALTH

DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY THE DIRECTOR OF PUBLIC WORKS

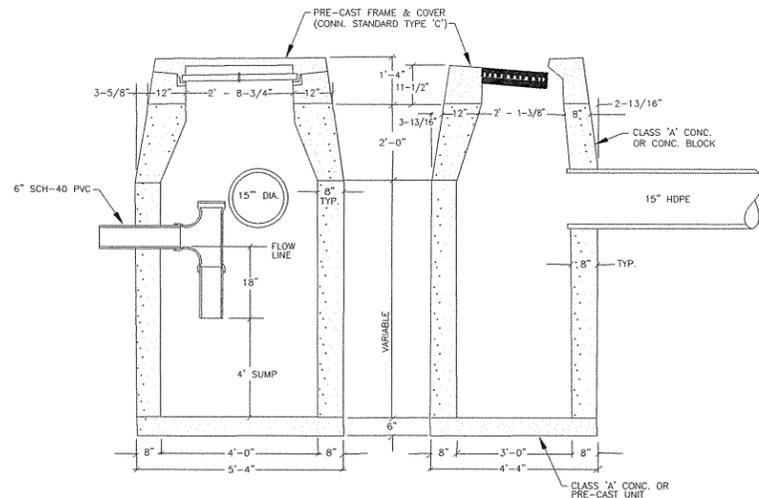
DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

DETAIL SHEET  
PREPARED FOR  
**UNIGLOBE INVESTMENT LLC**  
91 & 93 MEADOWBROOK LANE  
MANSFIELD CENTER, CONNECTICUT  
SCALE: AS NOTED DATE: JANUARY 8, 2016

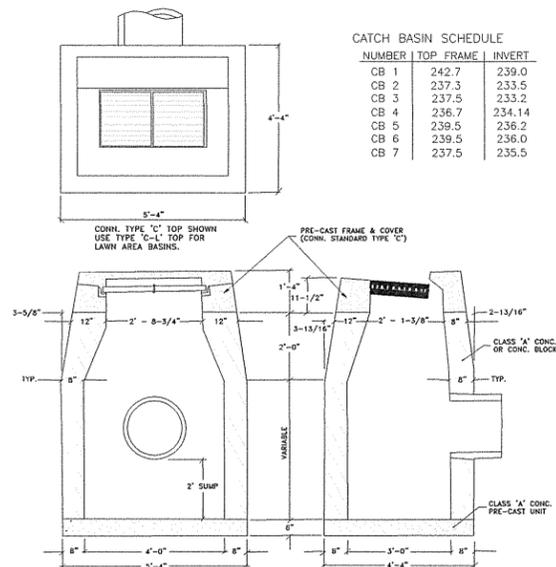
**DATUM**  
ENGINEERING & SURVEYING, LLC  
132 CONANTVILLE ROAD  
MANSFIELD CENTER, CT 06250  
TEL (860)456-1357 FAX (860)456-1840  
JOB NO. 215049

CHECKED BY: \_\_\_\_\_ CORRECTIONS BY: \_\_\_\_\_

SHEET 7 OF 10



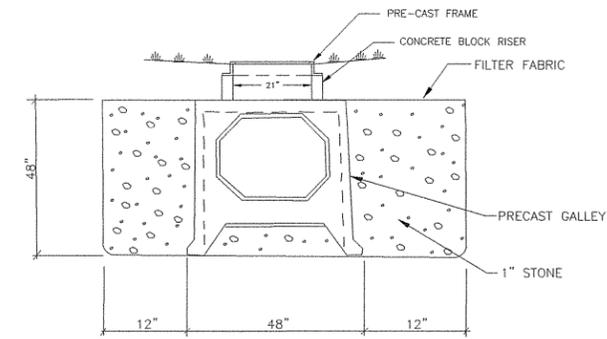
**CONN. STATE STANDARD CATCH BASIN**  
NO SCALE



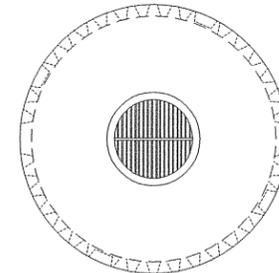
**CONN. STATE STANDARD CATCH BASIN**  
NO SCALE

**CATCH BASIN SCHEDULE**

NUMBER	TOP FRAME	INVERT
CB 1	242.7	239.0
CB 2	237.3	233.5
CB 3	237.5	233.2
CB 4	236.7	234.14
CB 5	239.5	236.2
CB 6	239.5	236.0
CB 7	237.5	235.5

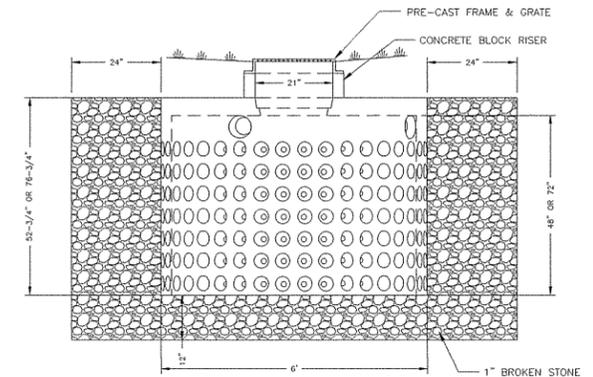


**GALLERY CROSS SECTION**  
NO SCALE

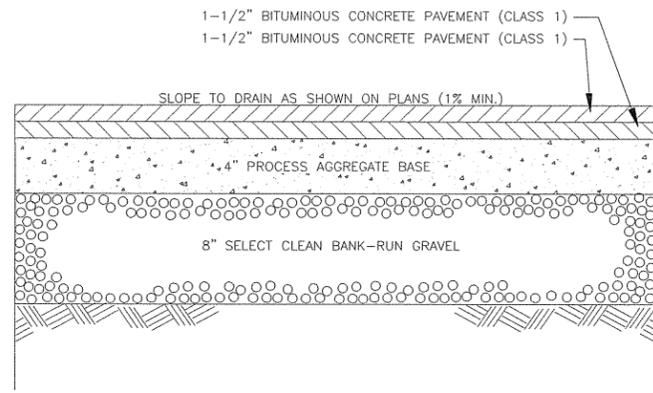


**DRY WELL/YARD DRAIN SCHEDULE**

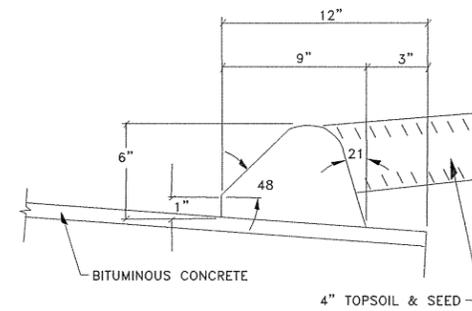
NUMBER	SIZE	TOP FRAME	BOTTOM ELEV.	INVERT
DW 1	6'Dx4'H	242.8	237.6	-
DW 2	6'Dx4'H	242.1	236.9	-
DW 3	6'Dx6'H	242.8	235.4	-
DW 4	6'Dx4'H	242.1	236.9	-
DW 5	6'Dx4'H	246.0	240.8	-
DW 6	6'Dx4'H	244.8	239.6	-
DW 7	6'Dx4'H	244.0	238.8	-
DW 8	6'Dx4'H	242.8	237.6	-
DW 9	6'Dx6'H	239.0	230.1	235.64
DW 10	6'Dx6'H	239.0	231.6	237.14
DW 11	6'Dx6'H	239.5	231.6	237.14
DW 12	6'Dx6'H	240.0	231.1	236.64
DW 13	6'Dx6'H	240.0	231.1	236.64
DW 14	6'Dx6'H	240.5	230.1	235.64
DW 15	6'Dx4'H	242.3	237.1	-
DW 16	6'Dx4'H	241.8	236.4	-
DW 17	6'Dx4'H	242.0	236.8	-
DW 18	6'Dx4'H	247.3	242.1	-
YD 1	6'Dx6'H	237.8	230.4	236.20
YD 2	6'Dx6'H	242.5	235.1	238.86



**PRECAST DRYWELL/YARD DRAIN**  
NO SCALE



**PAVEMENT DETAIL**  
NOT TO SCALE

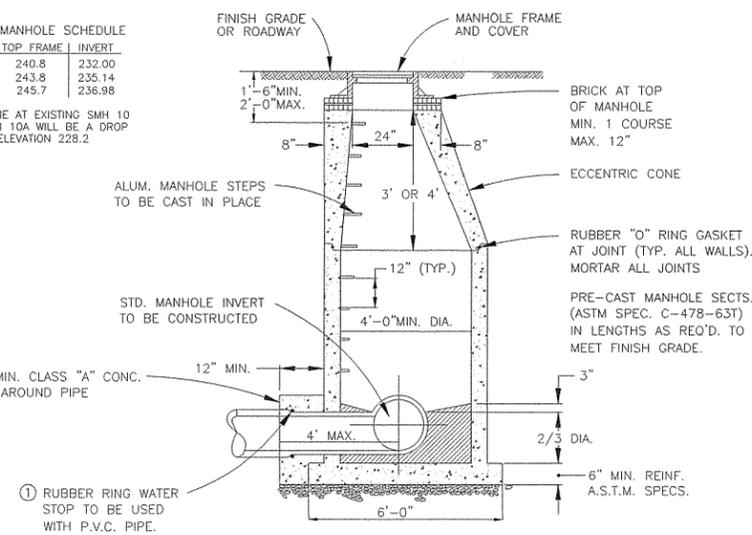


**CURB DETAIL**  
NO SCALE

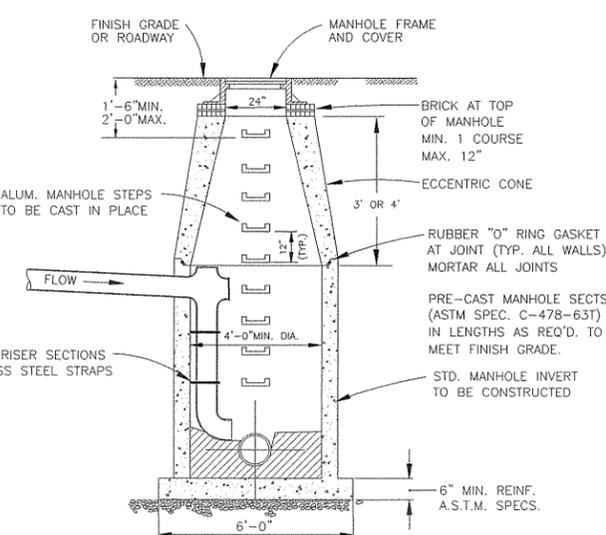
**SANITARY MANHOLE SCHEDULE**

NUMBER	TOP FRAME	INVERT
SMH 10A	240.8	232.00
SMH 10B	243.8	235.14
SMH 10C	245.7	236.98

SEWER LINE AT EXISTING SMH 10 FROM SMH 10A WILL BE A DROP INLET AT ELEVATION 228.2



**PRECAST MANHOLE DETAIL**  
NOT TO SCALE



**PRECAST DROP MANHOLE DETAIL**  
NOT TO SCALE

- MANHOLE SHALL BE WATERTIGHT. IN LIEU OF PARING, TWO COATS OF BITUMINOUS WATERPROOFING MAY BE BRUSHED ON OR SPRAYED ON. INERTOL, TREMCO OR APPROVED EQUAL MAY BE USED TO OBTAIN DESIRED RESULTS. DO NOT BACKFILL UNTIL LAST COAT IS DRY.

APPROVED BY THE TOWN OF MANSFIELD INLAND WETLAND AGENCY

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY THE MANSFIELD PLANNING AND ZONING COMMISSION

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY THE DIRECTOR OF HEALTH

DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY THE DIRECTOR OF PUBLIC WORKS

DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

DETAIL SHEET  
PREPARED FOR  
**UNIGLOBE INVESTMENT LLC**

91 & 93 MEADOWBROOK LANE  
MANSFIELD CENTER, CONNECTICUT  
SCALE: AS NOTED DATE: JANUARY 8, 2016

**D  
A  
T  
U  
M**

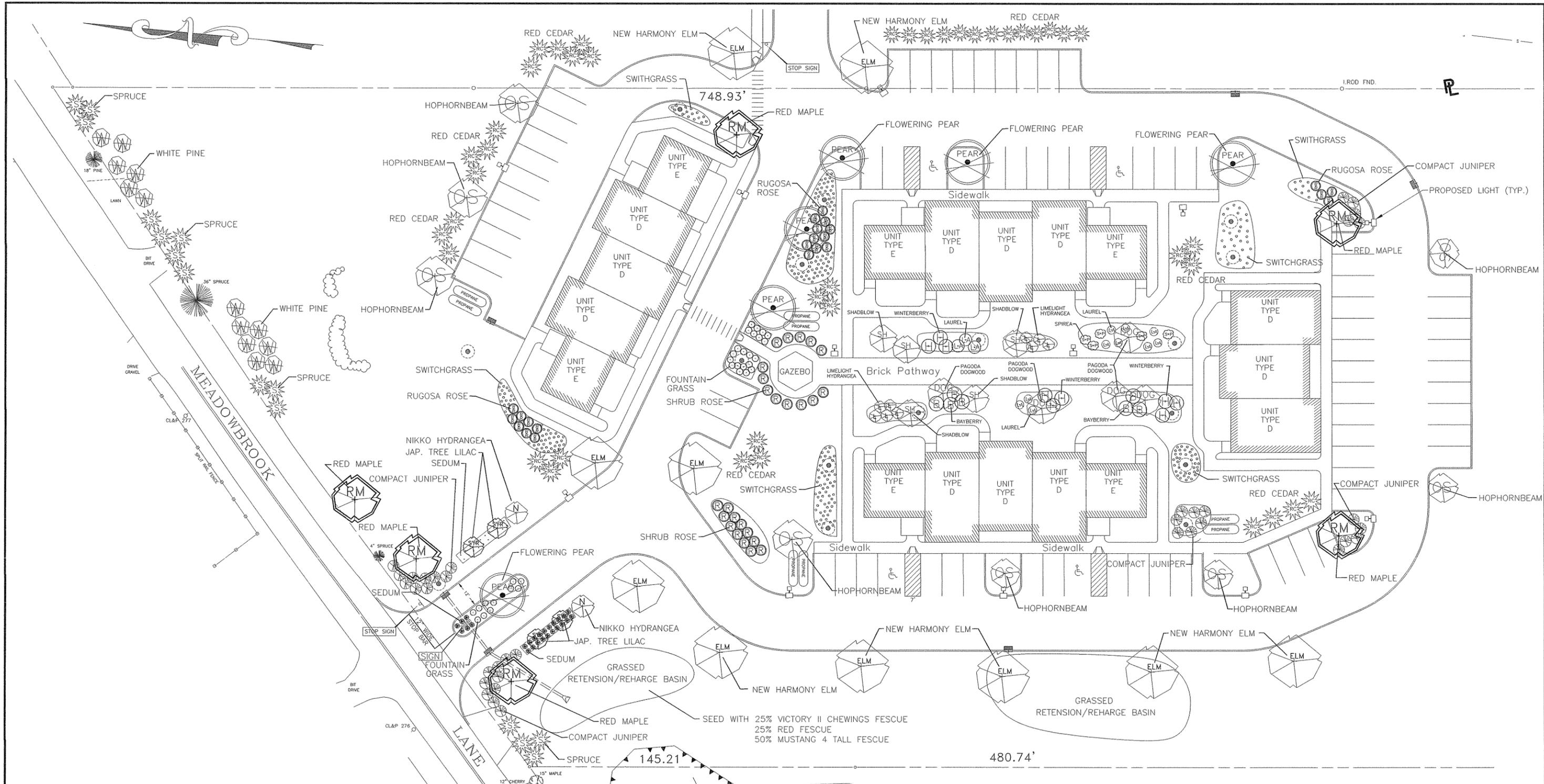
ENGINEERING & SURVEYING, LLC

132 CONANTVILLE ROAD  
MANSFIELD CENTER, CT 06250  
TEL (860)456-1357 FAX (860)456-1840

SHEET 8 OF 10

JOB NO. 215049

CHECKED BY: \_\_\_\_\_ CORRECTIONS BY: \_\_\_\_\_



LANDSCAPE-LIGHTING-SIGN PLAN  
 PREPARED FOR  
**ARTISAN DEVELOPMENT, LLC**

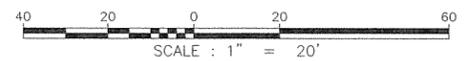
91 & 93 MEADOWBROOK LANE  
 MANSFIELD CENTER, CONNECTICUT  
 SCALE: 1" = 20' DATE: OCTOBER 12, 2015

SHEET 9 OF 10

**DATUM** ENGINEERING & SURVEYING, LLC

132 CONANTVILLE ROAD  
 MANSFIELD CENTER, CT 06250  
 TEL (860)456-1357 FAX (860)456-1840  
 JOB NO. 215049

LANDSCAPE ARCHITECT  
 J. ALEXOPOULOS, LAND. ARCH.  
 CT LIC. NO. 550



APPROVED BY THE TOWN OF MANSFIELD INLAND WETLAND AGENCY

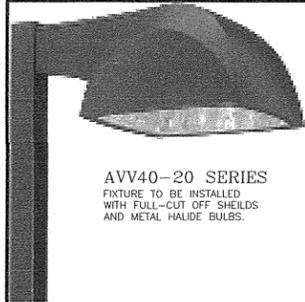
CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE MANSFIELD PLANNING AND ZONING COMMISSION

CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE DIRECTOR OF HEALTH

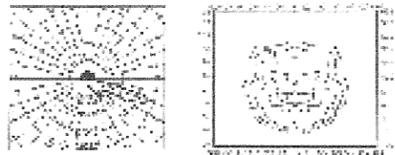
DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_  
 APPROVED BY THE DIRECTOR OF PUBLIC WORKS

DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

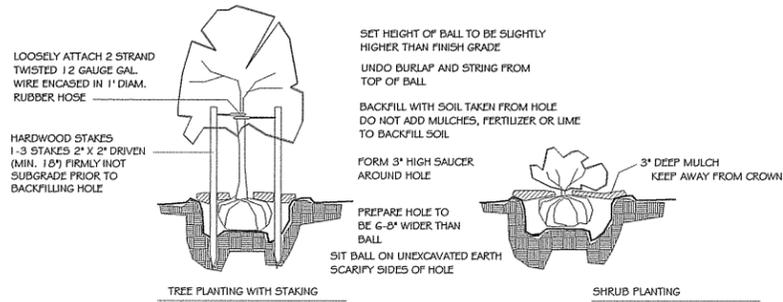
CHECKED BY: \_\_\_\_\_ CORRECTIONS BY: \_\_\_\_\_



AVV40-20 SERIES  
FIXTURE TO BE INSTALLED  
WITH FULL-CUT OFF SHIELDS  
AND METAL HALIDE BULBS.



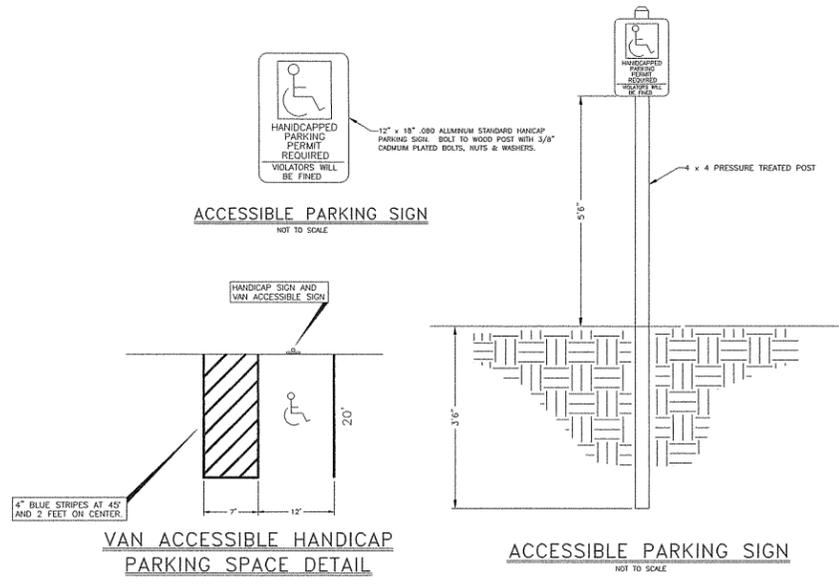
SITE LIGHTING  
NOT TO SCALE



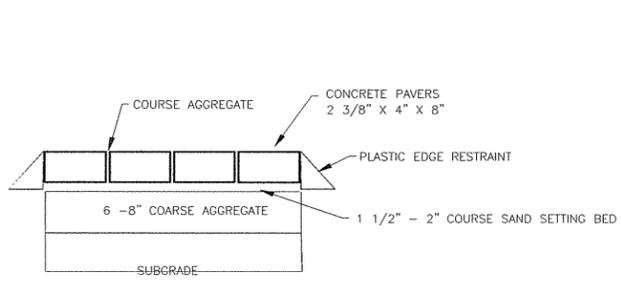
PLANTING DETAILS - NOT TO SCALE

PLANTING SCHEDULE

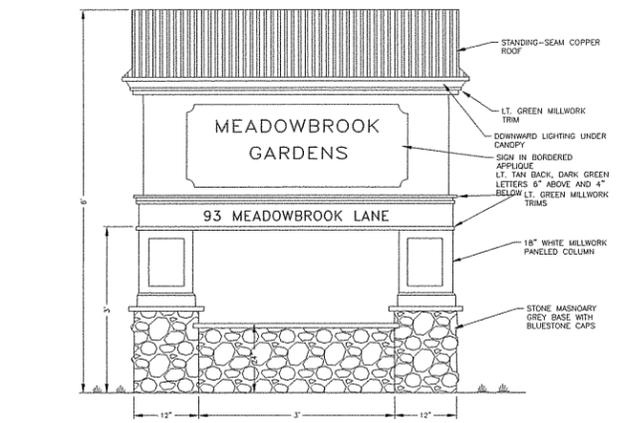
Symbol Code	Name/ Scientific Name	Size	Quantity
RM	ACER RUBRUM 'COLUMNARE'/ COLUMNAR RED MAPLE	2 1/2" - 3" CAL.	6
SL	AMELANCHIER CANADENSIS/ SHADBLOW	6 - 7'	4
DCS	CORNUS ALTERNIFOLIA/ PAGODA DOGWOOD	2 1/2" - 3" CAL.	4
DCS	Ostrya virginica/ HOPHORNBEAM	2 1/2" - 3" CAL.	6
FM	PYRUS CALLERYANA 'CHANTICLEER'/ FLOWERING PEAR	2 1/2" - 3" CAL.	6
SYR	SYRINGA RETICULATA/ JAPANESE TREE LILAC	2 1/2" - 3" CAL.	2
EM	ULMUS AMERICANA 'NEW HARMONY'/ NEW HARMONY ELM	2 1/2" - 3" CAL.	10
JUN	JUNIPERUS VIRGINIANA/ RED CEDAR	6 - 7'	42
PIC	PICEA PUNGENS/ COLORADO SPRUCE	6 - 7'	16
PIN	PINUS STROBUS/ WHITE PINE	6 - 7'	13
HYD	HYDRANGEA MACROPHYLLA 'NIKKO BLUE'/BIGLEAF HYDRANGEA	18 - 21'	2
HYD	HYDRANGEA PANICULATA 'LIMELIGHT'/LIMELIGHT HYDRANGEA	18 - 21'	9
IEX	ILEX VERTICILLATA/ WINTERBERRY	18 - 21'	9
JUN	JUNIPERUS CHIN. PFITZ. COMPACTUM/ COMPACT PFITZER JUNIPER	18 - 21'	37
KAL	KALMIA LATIFOLIA/ LAUREL	18 - 21'	11
MYR	MYRICA PENNSYLVANICUM/ BAYBERRY	18 - 21'	7
ROSA	ROSA 'KNOCKOUT'/ KNOCKOUT SHRUB ROSE	18 - 21'	25
ROSA	ROSA RUGOSA/ RUGOSA ROSE	18 - 21'	23
SPI	SPIRAEA BUMALDA 'ANTHONY WATERER'/ SPIREA	18 - 21'	4
PEN	PENNISETUM ALDPECUROIDES/ FOUNTAIN GRASS	2 GAL.	32
SED	SEDUM 'BRILLIANT'/ SEDUM	1 GAL.	26
PAN	PANICUM 'RUBY RIBBONS/ SWITCHGRASS	PLUGS	255



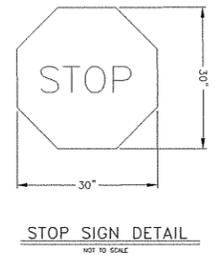
ACCESSIBLE PARKING SIGN  
NOT TO SCALE



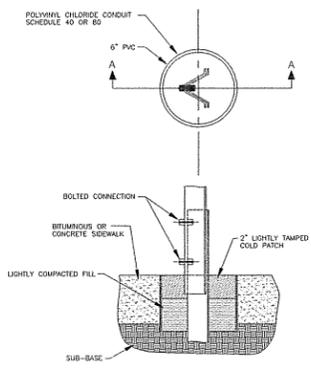
BRICK WALKWAY DETAIL  
NOT TO SCALE



IDENTITY SIGN DETAIL  
NO SCALE



STOP SIGN DETAIL  
NOT TO SCALE



SECTION A-A  
SIGN POST DETAIL  
NO SCALE

LANDSCAPE-LIGHTING-SIGN DETAILS  
PREPARED FOR  
**ARTISAN DEVELOPMENT, LLC**

91 & 93 MEADOWBROOK LANE  
MANSFIELD CENTER, CONNECTICUT  
SCALE: AS NOTED DATE: JANUARY 8, 2016

SHEET 10 OF 10

**DATUM** ENGINEERING & SURVEYING, LLC  
132 CONANTVILLE ROAD  
MANSFIELD CENTER, CT 06250  
TEL (860)456-1357 FAX (860)456-1840  
JOB NO. 215049

APPROVED BY THE TOWN OF MANSFIELD INLAND WETLAND AGENCY  
CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY THE MANSFIELD PLANNING AND ZONING COMMISSION  
CHAIRMAN \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY THE DIRECTOR OF HEALTH  
DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_  
APPROVED BY THE DIRECTOR OF PUBLIC WORKS  
DIRECTOR \_\_\_\_\_ DATE \_\_\_\_\_

LANDSCAPE ARCHITECT  
J. ALEXOPOULOS, LAND. ARCH.  
CT LIC. NO. 550

CHECKED BY: \_\_\_\_\_ CORRECTIONS BY: \_\_\_\_\_

# Connecticut Ecosystems LLC

- Wetland Delineation • Wetland & Aquatic Evaluation • Mitigation
- Natural Resource Inventory • Permit Assistance • Expert Testimony



## ON-SITE SOIL INVESTIGATION REPORT

### Project Name & Location

91 & 93 Meadowbrook Lane  
Mansfield, CT

CE Job No.: 14-27

Field Investigation Date(s): 12/8/2014

Field Investigation Method(s):

- Spade & Auger  
 Backhoe & Test Pits

### Report Prepared For:

Development Solutions, LLC  
33 East Town Street  
Norwich, CT 06360

### Field Conditions:

Weather: Sunny 40° F  
Recent Precipitation: average  
Soil Moisture: average  
Snow Depth: ---  
Frost Depth: ---

### Purpose of Investigation:

- Wetland Delineation/Flagging  
 Sketch Wetland Boundaries on Base Map (No Flagging)  
 High Intensity Soil Mapping by Soil Scientist  
 Medium Intensity Soil Mapping from SCS Soil Survey Maps

Wetland Boundary Marker Series: CE 1-1→1-34

Intermittent Watercourse Marker Series: ---

### Wetland Notes:

- Type(s): Deciduous wooded swamp
- Hydroperiod(s): Seasonally saturated
- Soil Parent Material(s): Glacial till
- Drainage Class(es): Poorly drained
- Slope: Gentle

38 Westland Avenue • West Hartford, CT 06107

Phone (860) 561-8598 • Fax (860) 561-0223 • email [ecosys@comcast.net](mailto:ecosys@comcast.net)

**CONNECTICUT ECOSYSTEMS LLC  
ON-SITE SOIL INVESTIGATION REPORT (CONTINUED)**

**Project Name & Location: 91 & 93 Meadowbrook Lane Mansfield, CT  
Project #: 14-27**

**SOIL MAP UNITS**

Soil symbols used below and on the accompanying Wetland Sketch Map correspond to those in the National Cooperative Soil Survey.

**WETLAND SOIL SERIES**

**Ridgebury, Leicester and Whitman Complex (3)**

This complex consists of poorly drained Ridgebury and Leicester soils, and very poorly drained Whitman soils, described separately below. The complex consists of about 35 percent Ridgebury soils, 30 percent Leicester soils, 20 percent Whitman soils, and 15 percent other soils.

**Ridgebury Series**

The Ridgebury series consists of deep, poorly and somewhat poorly drained soils formed in a coarse-loamy mantle underlain by firm, compact glacial till on uplands. They are nearly level to moderately steep soils on till plains, low ridges and drumloidal landforms. The soils formed in acid glacial till derived mainly from schist, gneiss or granite.

Typically these soils have a black sandy loam surface layer 6 inches thick. The mottled subsoil from 6 to 16 inches is olive gray sandy loam. The mottled substratum from 16 to 60 inches is a light olive brown and olive, very firm and brittle gravelly sandy loam.

The seasonal high water table is within 0 to 18 inches of the surface from late fall through spring. Surface runoff is slow to medium. Permeability is moderate to moderately rapid in the surface layer and subsoil and slow or very slow in the dense substratum. A perched, fluctuating water table above the dense till saturates the solum to or near the surface for 7 to 9 months of the year.

**Leicester Series**

The Leicester series consists of deep, poorly drained loamy soils formed in friable glacial till on uplands. They are nearly level to gently sloping soils in drainage ways and low lying positions on till covered uplands. The soils formed in acid glacial till derived mainly from schist, gneiss or granite.

Typically, these soils have a surface layer of black fine sandy loam 6 inches thick. The subsoil from 6 to 23 inches is grayish brown, mottled fine sandy loam. The substratum from 26 to 60 inches or more is dark yellowish brown, mottled, friable, gravelly fine sandy loam.

Leicester soils are poorly drained. The seasonal high water table is within 0 to 18 inches of the surface from late fall through spring. Surface runoff is slow. Permeability is moderate or moderately rapid in the surface layer and subsoil and moderately rapid to rapid in the substratum.

**CONNECTICUT ECOSYSTEMS LLC  
ON-SITE SOIL INVESTIGATION REPORT (CONTINUED)**

**Project Name & Location: 91 & 93 Meadowbrook Lane Mansfield, CT  
Project #: 14-27**

**Whitman Series**

The Whitman series consists of very poorly drained soils formed in a coarse-loamy mantle underlain by firm, compact glacial till on uplands. They occur in drainageways, at the base of hills and ridges, and in depressions. These soils formed in acid glacial till derived mainly from schist and gneiss. They are characterized by a dense, very firm hardpan at a depth of 22-60 inches.

**UPLAND (NON-WETLAND) SOIL SERIES**

**Canton-Charlton Complex (60)**

This complex consists of well drained Canton fine sandy loam and well drained Charlton fine sandy loam, described separately below. The complex consists of about 45 percent Canton, 40 percent Charlton, and 15 percent other soils.

**Canton Series**

The Canton series consists of deep, well drained soils formed in a coarse-loamy mantle underlain by sandy glacial till on uplands. They are nearly level to very steep soils on till plains and hills. The soils formed in acid glacial till derived mainly from schist, gneiss or granite.

Typically, these soils have a surface layer of very dark grayish brown fine sandy loam 2 inches thick. The subsoil from 2 to 23 inches is yellowish brown fine sandy loam, gravelly fine sandy loam and gravelly sandy loam. The substratum from 23 to 60 inches is pale brown gravelly loamy sand.

The water table is commonly at a depth of more than 6 feet. Surface runoff is medium to rapid. Permeability is moderate or moderately rapid in the surface layer and subsoil and rapid in the substratum.

**Charlton Series**

The Charlton series consists of gently sloping, well drained soils and range from nonstony to extremely stony. Charlton soils occur on the landscape on broad hilltops, ridge tops, and glacial till plains. They formed in glacial till parent material derived mainly from schist and gneiss. Unlike the Paxton soils, which occur on the same landscape, the Charlton soils are not characterized by a dense hardpan.

Typically, the solum is 8 inches thick, dark brown fine sandy loam. The yellowish brown subsoil is 18 inches thick, and the substratum is grayish brown gravelly fine sandy loam to a depth of 60 inches.

**CONNECTICUT ECOSYSTEMS LLC**  
**ON-SITE SOIL INVESTIGATION REPORT (CONTINUED)**

**Project Name & Location: 91 & 93 Meadowbrook Lane Mansfield, CT**  
**Project #: 14-27**

Permeability in Charlton soils is moderate or moderately rapid. The soil has a high available water capacity, and runoff is medium.

**Gloucester Series (59)**

Gloucester soils are somewhat excessively drained, and developed in very friable, coarse-textured glacial till derived mainly from granite and some gneiss. The sand content is high.

The wetlands were field delineated in accordance with the standards of the National Cooperative Soil Survey and the definition of wetlands as found in the Connecticut General Statutes, Chapter 440, Section 22A-38. The investigation was conducted and reviewed by a Registered Soil Scientist.

Respectfully submitted,

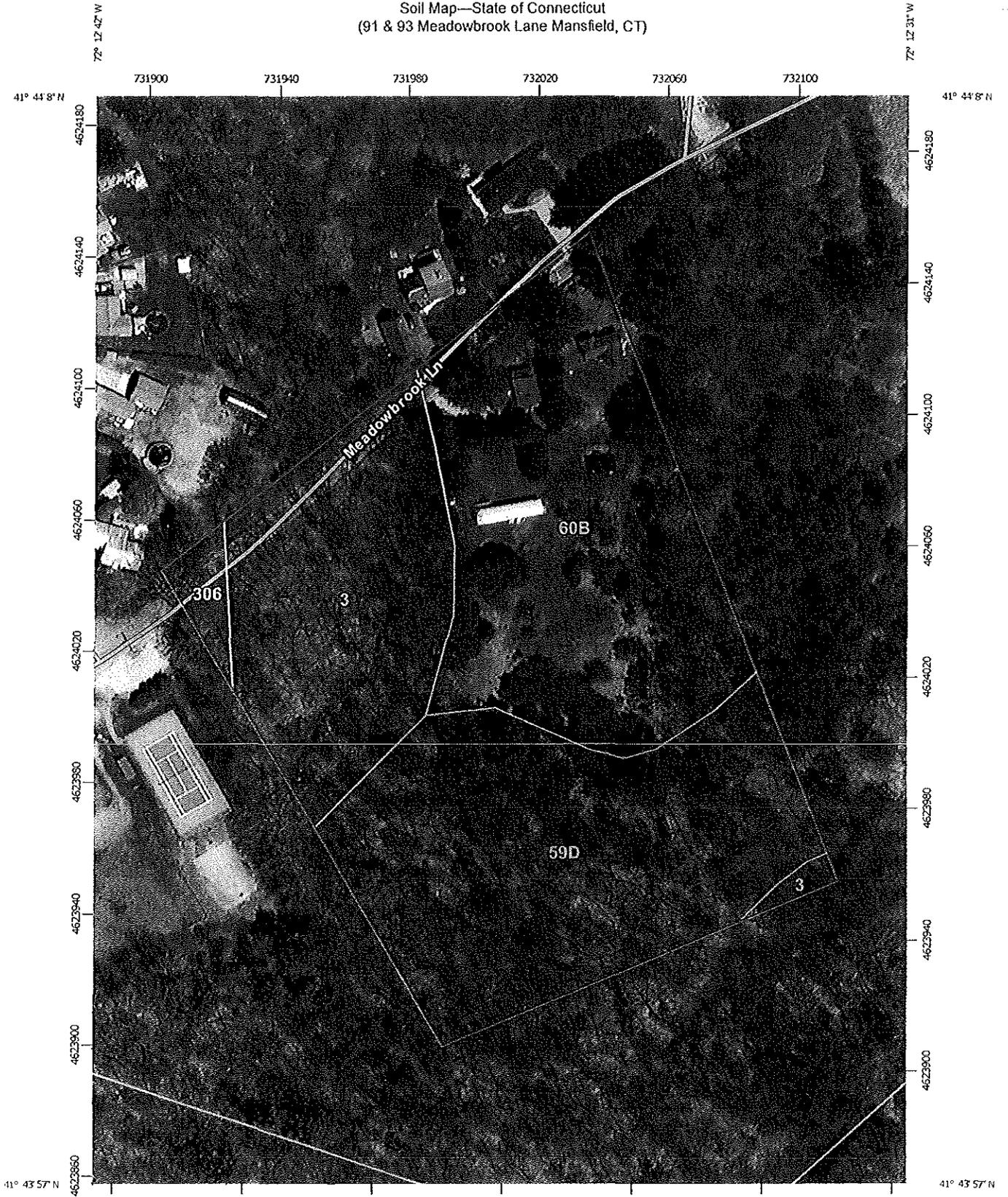
Connecticut Ecosystems LLC



Edward M. Pawlak  
Registered Soil Scientist  
Certified Professional Wetland Scientist

File c:\soils2014\14-27.doc

Soil Map—State of Connecticut  
(91 & 93 Meadowbrook Lane Mansfield, CT)



Map Scale: 1:1,610 if printed on A portrait (8.5" x 11") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge ticks: UTM Zone 18N WGS84



Natural Resources  
Conservation Service

Web Soil Survey  
National Cooperative Soil Survey

8/11/2015  
Page 1 of 3

### MAP LEGEND

- Area of Interest (AOI)**
-  Area of Interest (AOI)
- Soils**
-  Soil Map Unit Polygons
-  Soil Map Unit Lines
-  Soil Map Unit Points
- Special Point Features**
-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot
-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features
- Water Features**
-  Streams and Canals
- Transportation**
-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads
- Background**
-  Aerial Photography

### MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:12,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL: <http://websoilsurvey.nrcs.usda.gov>  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: State of Connecticut  
 Survey Area Data: Version 13, Oct 28, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 28, 2011—May 12, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Map Unit Legend

State of Connecticut (CT600)			
Map Unit Symbol	Map Unit Name	Acres In AOI	Percent of AOI
3	Ridgebury, Leicester, and Whitman soils, 0 to 8 percent slopes, extremely stony	1.7	24.0%
59D	Gloucester gravelly sandy loam, 15 to 35 percent slopes, extremely stony	2.5	36.9%
60B	Canton and Charlton soils, 3 to 8 percent slopes	2.6	37.3%
306	Udorthents-Urban land complex	0.1	1.8%
<b>Totals for Area of Interest</b>		<b>6.9</b>	<b>100.0%</b>

# REQUEST FOR PROPOSALS ■ ENGINEERING SERVICES

TOWN OF MANSFIELD ■ FEBRUARY 16, 2016

## OVERVIEW

The Town of Mansfield is seeking proposals for expert review of a Special Permit application and Inland Wetlands license for a 36 unit apartment complex known as Meadowbrook Gardens. The project is located at 91-93 Meadowbrook Lane in Mansfield and is an expansion of a 50-unit development currently under construction at 73 Meadowbrook Lane. The application is posted on-line as part of the [February 16, 2016 PZC meeting packet](#).

## SCOPE OF SERVICES

The focus of the expert review will be the following:

- **Stormwater.** Review of stormwater management in accordance with Town specifications and the *Connecticut Stormwater Quality Manual*.
- **Traffic.** Review of traffic study prepared by the applicant, analysis of traffic impacts and recommended mitigation measures.
- **Sanitary Sewer.** Review of proposed sewer system design and connection pursuant to Town and Windham Water Pollution Control Requirements.
- **Erosion and Sedimentation Controls.** Review of Erosion and Sedimentation Controls pursuant to Zoning Regulations and *2002 Connecticut Guidelines for Soil Erosion and Sediment Control*.
- **Wetlands.** Identification of potential wetlands impacts and recommended measures to reduce impacts.

The primary staff liaisons for the project will be Linda Painter, Director of Planning and Development, John Carrington, P.E., Director of Public Works/Town Engineer and Jennifer Kaufman, Inland Wetlands Agent. Coordination with the Inland Wetlands Agent will also be required with regard to how the above systems interact with/impact wetlands. The application for a wetlands license will be received by the Inland Wetlands Agency on March 7<sup>th</sup> and be scheduled for a public hearing the same evening as the PZC public hearings for the rezoning and special permit applications for the project.

## TENTATIVE SCHEDULE

The following schedule has been established based on statutory timeframes for review of applications and is subject to change as the project progresses.

- Monday, February 29, 2016: Proposals Due
- Monday, March 7, 2016: IWA and PZC select consultant
- Week of March 7, 2016: Execute contract and issue notice to proceed\*

- March 28, 2016: Consultant submits report with recommendations for changes to the plan/conditions of approval.
- April 15, 2015: Applicant submits revised plans based on consultant and staff recommendations.
- April 27, 2015: Consultant submits updated report based on revised plans.
- May 2, 2016: Public Hearing – Consultant representative to present findings/recommendations and answer questions from the Commission

\*As the applicant is required to pay for the Agency/Commission’s expert consultant, the notice to proceed will not be issued until we receive a deposit from the applicant for the estimated contract amount.

## SUBMISSION OF PROPOSALS

Interested consultants should submit proposals containing the following information by email to [painterlm@mansfieldct.org](mailto:painterlm@mansfieldct.org) by 4:30 p.m. on Monday, February 29, 2016:

- Letter of Interest
- Cost Proposal
- Qualifications of staff that will perform the work
- Examples of similar work performed
- References

Questions regarding the RFP should be directed to Linda Painter at the above email address.

# STATEMENT OF QUALIFICATIONS

## TOWN OF MANSFIELD, CONNECTICUT



Request for Proposal-  
Engineering Services

Expert Review of Special Permit  
Application and Inland Wetlands  
License for Meadowbrook Gardens;  
91 and 93 Meadowbrook Lane

February 29, 2016



**Section 1 Letter of Interest**

- Letter of Interest 1-1

**Section 2 Cost Proposal** 2-1

**Section 3 Qualifications of Staff**

- Resources and Availability 3-1
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**Section 4 Examples of Similar Work Performed**

- Project Understanding 4-1
- Peer Review 4-3

**Section 5 Client References** 5-1

**Section 6 Why Wright-Pierce**

- Who is Wright-Pierce 6-1
- Wright-Pierce Engineering Services 6-2
- Stormwater Management Planning & Design 6-5
- Low Impact Development 6-7

February 29, 2016  
W-P Project No. T10949

Ms. Linda Painter, AICP  
Director of Planning and Development  
Audrey P. Beck Municipal Building  
4 South Eagleville Road  
Mansfield, CT 06268

Subject: Request for Proposals – Engineering Services  
Expert Review of Special Permit Application (File # 1284-3) and Inland Wetland License  
For Meadowbrook Gardens; 91 and 93 Meadowbrook Lane

Dear Ms. Painter,

Thank you for the opportunity to submit this Statement of Qualifications for engineering consulting services to perform and expert peer review the Special Permit Application (File # 1284-3) and Inland Wetland License for Meadowbrook Gardens; 91 and 93 Meadowbrook Lane in the Town of Mansfield. Combined with our proximity and capabilities, we feel that Wright-Pierce is best suited to effectively assist the Town with a detailed expert technical review for the proposed Meadowbrook Gardens expansion project.

For over 67 years, Wright-Pierce has been assisting communities similar to Mansfield with their civil engineering and infrastructure needs. It is just not feasible for small community budgets to provide for a highly diverse technical staff needed to provide the detailed technical reviews for every aspect of the various land development applications submitted to the Town. Assurances for incorporation of the proper erosion control measures, Best Management Practices, Stormwater Management Plan and more recently, water quality and the incorporation of Low Impact Development strategies are integral for the minimization of developmental impacts to the local resources and downstream features. Early on, Wright-Pierce identified the importance of staying with the technological advances and has maintained a disposition that staying in time with advances in design principles and techniques are key to the understanding and incorporation of innovative technology. It is the combination of the diversity of in-house disciplines, peer review and design experience and keeping pace with technology that makes Wright-Pierce a great fit for the project review.

Our experience is only a part of the reason we are well-suited to provide the Town with infrastructure engineering services. We believe that what really sets us apart is our:

- Practical hands-on approach.
- Ability to provide a detailed and thorough review and report to the Town in a clear and concise manner.
- Track record for providing timely review reports with short turn-around time.



- Ability to serve as an extension of municipal resources.
- Proactive approach to work with designers as appropriate to resolve concerns while not “bogging down” Town staff.
- Commitment to achieving total client satisfaction

Wright-Pierce is a full-service, civil and environmental engineering firm with a staff of over 200 engineers and support personnel. For over 67 years, the mainstay of our business has been providing engineering services for municipal clients throughout the Northeast. We have in-house the wide range of engineering disciplines and technical staff needed to support projects including civil, water, wastewater, environmental, structural, electrical, instrumentation, architectural and mechanical engineers, and support staff, all with extensive municipal infrastructure engineering experience. We are familiar with many of the issues facing your Town.

We are committed to client satisfaction and to client involvement. We take the word "service" very seriously. You will recognize it in the thoroughness of our work and in the quickness of our response to your requests. We encourage you to contact our references for a first-hand account of our performance and our capabilities.

Thank you for considering Wright-Pierce to provide Expert Review of Special Permit Application and Inland Wetland License for Meadowbrook Gardens. We look forward to meeting with your selection committee to further discuss our qualifications as needed. If you have any questions, or if you need additional information, please feel free to call.

Sincerely,  
WRIGHT-PIERCE

Jonathan C. Edgerton, PE  
Vice President  
[chris.pierce@wright-pierce.com](mailto:chris.pierce@wright-pierce.com)  
860-343-8297

Jeffrey P. Dewey, PE  
Lead Project Engineer  
[jeff.dewey@wright-pierce.com](mailto:jeff.dewey@wright-pierce.com)  
860-343-8297

Wright-Pierce is a strong believer in the selection of engineers on the basis of qualifications, with an equitable fee negotiated between the selected firm and the client based on a mutually established detailed scope of work. Your primary concern should be that the Project Team you select is fully qualified with recent experience in addressing projects similar to yours and that the Project Team is committed to performing the work in an efficient, cooperative, well-communicated fashion.

Wright-Pierce is amenable to using any of the standard compensation methods usually found in agreements for engineering services. The three common methods are lump sum, hourly rate or cost-plus-fixed fee. The fee structure most suited for a project is typically a function of the degree of flexibility desired by the client to make scope adjustments and directional changes as a project progresses.

We believe that our rates are very competitive and, again, the ultimate scope and fee of any project is the Town's decision. It is our desire to provide meaningful technical services and we are, of course, willing to adjust scope and fee to meet your technical objectives and budget constraints.

As requested by the RFP and based on our current understanding of Mansfield's needs, we have developed the following opinion of the potential engineering fees for the likely tasks necessary for this project.

*It is our desire to provide meaningful technical services and we are willing to adjust scope and fee to meet the project objectives and budget constraints.*

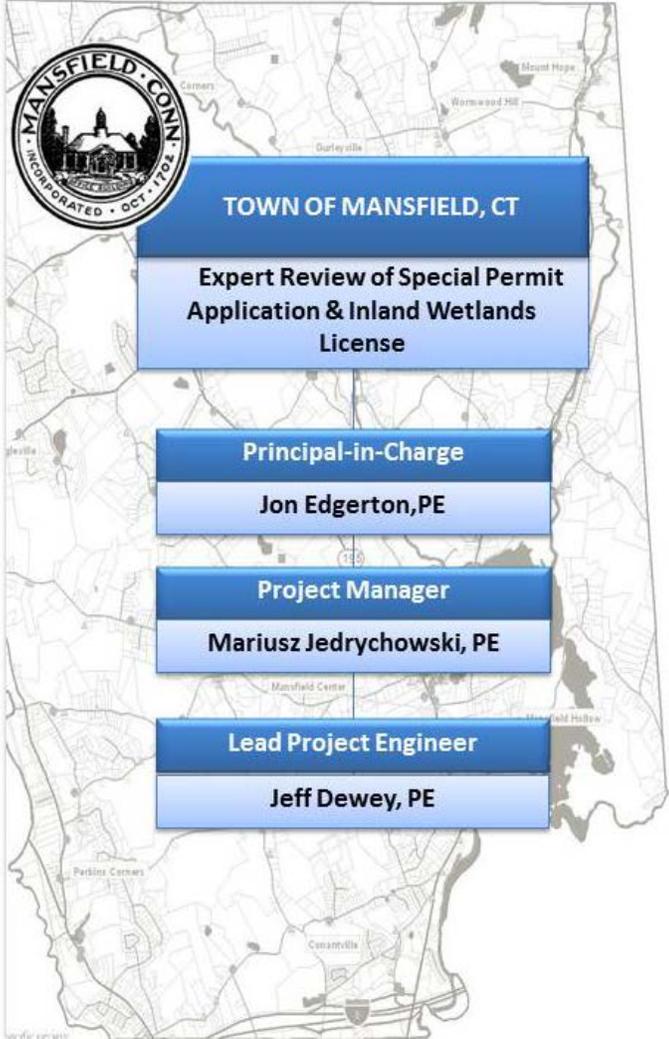
## SECTION 2 COST PROPOSAL

### Opinion of Potential Engineering Fees for Design & Bidding of Sewer Extensions<sup>1</sup> for the Town of Mansfield, Connecticut

Task Description	Proposed Fee
Task 1 – Provide detailed initial review of plans and all supporting documents and prepare review summary documentation	\$ 4,300
Task 2 – Provide second review of additional materials and/or revised plans provided by the applicant and prepare review summary documentation	\$ 1,800
Task 3 – Provide third review of additional materials and/or revised plans provided by the applicant and prepare review summary documentation	\$ 1,800
Task 4 – Public Hearing Presentation	\$ 1,000
<b>TOTAL ENGINEERING COST</b>	<b>\$ 8,900</b>

Notes:

1. *Scope and fees are based on our current understanding of available information. It is our desire to provide meaningful technical services and we are willing to adjust scope and fee to meet the project objectives and budget constraints. Careful preparation of the scope of work at the beginning of the project is the best way to assure that Mansfield's money is spent wisely and results in reliable, cost effective, long-term solutions that are in accord with your ultimate goals and needs.*
2. *Scope and fees are based on one (1) initial detailed review of all provided materials including plans, drainage calculations, traffic study, sanitary sewer design, erosion and sedimentation controls with regards to conformance with the 2002 Connecticut Guidelines to Soil Erosion and Sediment Control and potential impacts to Freshwater Inland Wetlands and two (2) subsequent reviews of additional materials provided*



**RESOURCES AND AVAILABILITY**

Wright-Pierce has a staff of over 200 engineers and support personnel. We complete well over a hundred projects per year, with fees ranging from less than \$5,000 to more than \$20-million. Our Principal-in-charge, Jon Edgerton, will be responsible to the the Town of Mansfield for maintaining technical oversight for the project. Jon has the authority to make certain that projects are adequately staffed with the correct technical personnel.



## SECTION 3 QUALIFICATIONS OF STAFF

### INTRODUCTION TO KEY PERSONNEL

Wright-Pierce is a practice-based organization that focuses on the technical aspects of our work. As a result, all of our staff, from our principals to our administrative staff, are experienced and involved in the technical execution of all phases of projects.

From our full-service staff of engineers, operators, technicians and support personnel, we have assembled a project team with the technical capabilities and experience needed for your project. We believe that the professional background of each team member offers the highest level of experience and expertise for the project that the Town of Mansfield is undertaking. *At Wright-Pierce, when a project team is assembled, the same team members participate throughout all phases of a project to ensure continuity, effective implementation of the original concepts, and the overall success of the project.*

Resumes for each project team member are at the end of this section.

#### Jonathan C. Edgerton, PE – Principle-in-Charge

Mr. Edgerton is manager of the Civil and Infrastructure Engineering Practice Group at Wright-Pierce. In addition to his administrative duties, Mr. Edgerton is responsible for technical quality of projects completed by the firm's Civil and Infrastructure Engineering Practice Group. As evidenced by the partial listing of projects below, Mr. Edgerton has been actively involved with a wide variety of relevant projects throughout New England.



#### Mariusz D. Jedrychowski – Project Manager

Mr. Jedrychowski has joined Wright-Pierce as a lead project engineer and project manager. He brings over 17 years of experience in the planning, design and construction administration of various infrastructure projects. Mariusz currently serves as an interim Town Engineer for the Town of Bethel and is responsible for day to day communications with the Town and various assignments for Public Works, Town Planner, Inland Wetland, Office of Economic Development, Public Utilities Commission and various State of Connecticut agencies including CT DOT, CT DPH and CT DECD.



#### Jeffrey P. Dewey, PE – Lead Project Engineer

Mr. Dewey has more than 25 years of engineering experience working with public utilities, municipalities and private sector clients. He has held senior level management positions with responsibilities for project reviews, design, permitting, budgeting and construction oversight of residential and commercial development



*Our approach is simple — we assemble the right team for your project and we listen to your needs and goals.*

## SECTION 3 QUALIFICATIONS OF STAFF

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projects including stormwater and wastewater management, conformance with Planning and Zoning Regulations and Conservation and Developments Plans. Jeff will be responsible for conducting and overseeing reviews for the Town of Mansfield, attending day and evening meetings, communications with Boards and Commissions, Town Engineer and Mansfield Director of Planning and Development.

# WRIGHT-PIERCE RESUMES



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# JONATHAN C. EDGERTON, PE

## Vice President

**PROJECT ASSIGNMENT:**      **Principal-in-Charge**

### Education

BS, Civil Engineering,  
Rensselaer Polytechnic Institute

Soils and Community Planning  
University of New Hampshire

### Professional Registration

Maine  
New Hampshire

### Experience

28 Years

### Joined Firm

1989

### Professional Affiliations

American Public Works  
Association (APWA)  
American Consulting Engineers  
Council (ACEC)

### EXPERIENCE SUMMARY

Mr. Edgerton is manager of the Civil and Infrastructure Engineering Practice Group at Wright-Pierce. In addition to his administrative duties, Mr. Edgerton is responsible for technical quality of projects completed by the firm's Civil and Infrastructure Engineering Practice Group. As evidenced by the partial listing of projects below, Mr. Edgerton has been actively involved with a wide variety of relevant projects throughout New England.

### RELEVANT PROJECT EXPERIENCE

#### Site Development - Including Storm Drainage

- Wastewater Treatment Facility Upgrade, Farmington, NH
- Composting Facility, Keene, NH
- Wastewater Treatment Facility Upgrade, Berlin, NH
- Wastewater Treatment Facility, Wolfeboro, NH
- Poland Spring Bottling Facility, Kingfield, ME
- Poland Spring Bottling Plant, Hollis ME

#### Stormwater Management and Flood Studies

- Hydrology and Hydraulics Evaluation, Rochester, NH
- Storm Drainage Evaluation, Berlin, NH
- Hydrology and Hydraulics Evaluation, New London, NH
- Lindsey Brook Watershed Study, Rockland, ME
- Dam Hydrology and Hydraulics Evaluation, Wilton, NH
- Dam Hydrology and Hydraulics Evaluation, New London, NH
- Dam Hydrology and Hydraulics Evaluation, Peterborough, NH
- Dam Hydrology and Hydraulics Evaluation, Auburn, NH
- Mantle Lake Restoration Project, Presque Isle, ME
- Watershed Risk Analysis, Lake Auburn, ME
- Trout Brook Watershed Study, South Portland, ME
- Hydrology and Hydraulics Evaluation, North Providence, RI
- Milliken Street Area Flooding Evaluation, Old Orchard Beach, ME
- Townwide Stormwater Master Plan, Richmond, ME
- Penjajawock Stream Stormwater Improvements, Bangor, ME
- Jepson Brook Stormwater Improvements, Lewiston, ME
- Village Center Relocation, Canton, ME
- Corn Shop Brook Restoration, Bridgton, ME
- Cobbossee Stream Master Plan, Gardiner, ME
- Townwide Drainage Improvements, Madawaska, ME
- Brunswick Naval Air Station Infrastructure Evaluation, Brunswick, ME
- East Grand Avenue Stormwater Planning, Old Orchard Beach, ME
- Lovejoy Pond Dam Restoration, Wayne, ME
- Rehabilitation of Three Maine State Fish Hatcheries
- Restoration of Four Stormwater Ocean Outfalls, Old Orchard Beach, ME
- Flood Hazard Permitting, Kingfield, ME

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**JONATHAN C. EDGERTON, PE**  
Vice President

- Royall River Restoration Project, New Gloucester, ME

**Street and Highway Design - Including Storm Drainage**

- Sewer Separation Contract 1 through 3, Lebanon, NH
- Sewer Separation Contract 1 through 4, Lebanon, NH
- Sewer Separation Contract 1 through 5, Lebanon, NH
- Sewer Separation Contract 1 through 7, Lebanon, NH
- Sewer Separation Contract 1 through 8, Lebanon, NH
- Roadway Rehabilitation Program, Hampton, NH
- Chamberlain Street Reconstruction, Rochester, NH
- Jetport Interchange, Portland/South Portland, ME
- Northern Ave Reconstruction, Farmingdale, ME
- Route 9 Reconstruction, Beddington, ME
- Ross Road Reconstruction, Old Orchard Beach, ME
- East Grand Avenue Reconstruction, Old Orchard Beach, ME
- 7th Avenue Reconstruction, Madawaska, ME
- 11th Avenue Reconstruction, Madawaska, ME
- 12th Avenue Reconstruction, Madawaska, ME
- 13th Avenue Reconstruction, Madawaska, ME
- 14th Avenue Reconstruction, Madawaska, ME
- 15th Avenue Reconstruction, Madawaska, ME
- 19th Avenue Reconstruction, Madawaska, ME
- Mountain View Street Reconstruction, Madawaska, ME
- Acadia Street Reconstruction, Madawaska, ME
- Park Street Reconstruction, Van Buren, ME
- Tyler Street Reconstruction, Van Buren, ME
- Newell Road Reconstruction, Yarmouth, ME
- Chamberlain Street Reconstruction, Brewer, ME

**Business Park Planning, Permitting and/or Design**

- Brunswick, Industrial Park, Brunswick, ME
- Saint David Business Park, Madawaska, ME
- Woodland Commercial Park, Baileyville & Baring, ME
- Auburn Industrial Park, Auburn, ME
- Business Park Planning - Wiscasset, ME
- Business Park Planning and Design - Thomaston, ME
- Route 1 Business Park, Van Buren, ME
- Marine Industrial Park, Eastport, ME
- Rhoda Business Park, Houlton, ME
- EDA Business Park Feasibility Evaluation, Berlin, NH
- EDA Regional Business Park Study - Patten, Sherman, Staceyville, ME

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# MARIUSZ D. JEDRYCHOWSKI, PE

## Senior Project Manager

**PROJECT ASSIGNMENT:** Project Manager

### Education

M.S., Environmental Engineering,  
University of Hartford  
B.S., Civil Engineering, University  
of Connecticut

### Professional Registration

Connecticut  
New York

### Experience

17 Years

### Joined the Firm

2007

### Training / Certifications

OSHA 10-Hour Construction  
Safety Program  
Institute in Drinking Water  
Treatment

### Professional Affiliations

American Water Works  
Association  
American Society of Civil  
Engineers

### Publications

Davee, R., Jedrychowski, M.,  
"Infrastructure Sustainability - A  
Sound Asset Management  
Strategy" InFlow-Line Magazine,  
September 2011

Jedrychowski, M., "Testing the  
Reliability of BioWin Computer  
Modeling Software in Predicting  
the Total Effluent Nitrogen  
Concentration from the East  
Hampton Wastewater Treatment  
Facility", Master Degree Thesis,  
University of Hartford, W.H.  
Mortensen Library, 2005

### EXPERIENCE SUMMARY

Mr. Jedrychowski has joined Wright-Pierce as a lead project engineer and project manager. He brings over 17 years of experience in the planning, design and construction administration of infrastructure engineering projects, including water, stormwater and sanitary sewer projects. He has been serving as an interim Town Engineer for the Town of Bethel since September 2014 and coordinating various site plans and proposed developments reviews for the Town Commissions.

### RELEVANT PROJECT EXPERIENCE

#### Site Design, Planning, Review and Management

- Managed Various Development Reviews, Bethel, CT
- Interim Town Engineer, Bethel, CT
  - Municipal Stairs and Sidewalk
  - Downtown Parking
  - Plumtrees Bridge Replacement Project
  - Train Station Parking
  - Dam Inspections
  - Walnut Hill Hoyts Road Intersection Improvements
  - Environmental Compliance
  - Planning and Zoning Reviews
  - Wooster Sidewalks
  - Commercial Center Improvements Phase-I
  - Hoyts Hill Rd Sidewalks
  - TOD Sidewalks

#### Wastewater

- Infiltration/Inflow Studies, Sanitary/Storm Sewers Design, New Britain, CT\*
- Concord Drive Area Sewer Extension Project, Watertown, CT
- MDC Bond Street Area Sewer Rehabilitation Project, Hartford, CT
- Wastewater Flow Allocation Evaluation, Bethel, CT
- Interim Town Engineer, Bethel, CT
- Wastewater Facilities Plan, Fairfield, CT
- WPCF Headworks Evaluation, Stamford, CT
- Plumtrees Wastewater Pump Station Flow Evaluation, Bethel, CT
- MDC 388-390 Farmington Avenue Junction Vault Repair, Hartford, CT
- Darien Pump Station Evaluation, Darien, CT
- Veolia Water Hot Oil Cooler Support Platform Construction Administration, Naugatuck, CT
- Pump Station Evaluation, Fairfield, CT
- Wastewater System CIP, New London, CT
- MDC Flow Meter Evaluation and Assessment, Hartford, CT
- MDC Huyshope Ave Sewer and Drain Rehabilitation Project, Hartford, CT
- Veolia Water Hot Oil Cooler Support Platform Design, Naugatuck, CT
- Heat Exchanger Pad Design, Veolia Water, Naugatuck, CT

*\*experience with previous employer*

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## MARIUSZ D. JEDRYCHOWSKI, PE

### Senior Project Manager

- Upper Albany Avenue Sewer Separation Contract No.1, MDC, Hartford, CT
- Cook Hill Road Pump Station Upgrade, Cheshire, CT
- Mixville Pump Station Upgrade, Cheshire, CT
- WPCF Odor Control Design, Naugatuck, CT
- Prospect Facilities Plan, Prospect, CT
- SCADA System Design Upgrade, Watertown, CT
- MDC Upper Albany Avenue Sewer Separation Contract No. 2, Hartford, CT
- MDC Upper Albany Avenue Contract No.1, Hartford, CT
- WPCF Odor Control Study, Naugatuck, CT
- Aeration System Design Upgrade, Naugatuck, CT
- Mixville Pump Station Upgrade, Cheshire, CT
- Infiltration and Inflow Study, Wallingford, CT
- Wastewater Facilities Plan Review, Mattabassett District, Cromwell, CT
- Comprehensive Facilities Plan, Farmington, CT
- Water Pollution Control Facilities Upgrade, Windham, CT
- Wastewater Treatment Plant Upgrade, New Hartford, CT\*
- Nitrogen Reduction Feasibility Study, Plainfield, CT\*
- Nitrogen Reduction Projects, Plymouth and North Haven, CT\*
- Pumping Stations Design, Glastonbury, CT\*
- Computer Model, Greenwich, CT\*
- Odor Control System, South Windsor, CT\*

#### **Presentations**

"Best Management Practices of a Well-Run Water Utility"  
Annual Technical Conference and Vendor Expo (ATCAVE)  
CT Section of AWWA.  
Cromwell, CT, 2013

"Disinfection Byproducts Control Within the Distribution System"  
ASRWAA Connecticut Conference & Exhibition,  
Wallingford, CT, 2009

#### **Water**

- Concord Drive Area Water Extension Project, Watertown, CT
- MDC Bond Street Water Main Replacement Project, Hartford, CT
- Burwell Hill Tank Replacement, West Haven, CT
- Maple Avenue Wells Replacement, Bethel, CT
- Bethel Hickok Tank Demolition, Bethel, CT
- Lake Gaillard and West River Treatment Facilities Master Flow Meter Calibration, New Haven, CT
- Pond Hill Road Pump Station, Wallingford, CT
- Hoyt's Hill Road Pump Station Design, Bethel, CT
- Interim Town Engineer for Buildings and Roadway Projects, Bethel, CT
- South Street Pump Station Construction Administration, Bethel, CT
- Various Town Water Main Replacement Designs, Bethel, CT
- Aquarion Water Hycliff Pump Station Evaluation, Stamford, CT
- MDC Wethersfield Pump Station Upgraded, Wethersfield, CT
- Water System CIP, Bethel, CT
- Rehabilitation of 3-MG Underground Water Storage Tank, Wallingford, CT
- Water System CIP, New London, CT
- South Street Pump Station Design, Bethel, CT
- Water Main Bridge Crossing Design, Sprague, CT
- MWRA Water Supply Study, North Reading, MA
- MDC Huyshope Ave Sewer and Drain Rehabilitation Project, Hartford, CT
- MDC Water Treatment Plant Bypass Isolation Evaluation, West Hartford, CT

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## JEFFREY P. DEWEY, PE

### Project Engineer

**PROJECT ASSIGNMENT:**     **Lead Project Engineer**

#### Education

B.S., Civil Engineering, University of Connecticut

**Professional Registration**  
Connecticut

**Experience**  
25 Years

**Joined Firm**  
2013

#### Training / Certifications

Class 2 ISDS Designer License - State of Rhode Island DEM;  
Class A Pond Designer - Bentley Systems Inc. Software;  
Gas Technology Institute Gas Distribution Engineering - Piping Systems & Materials

#### EXPERIENCE SUMMARY

Mr. Dewey has more than 25 years of engineering experience working with public utilities, municipalities and private sector clients. He has held senior level management positions with responsibilities for project design, permitting, budgeting and construction oversight. He recently joined Wright-Pierce and works in the Middletown, Connecticut office.

#### RELEVANT PROJECT EXPERIENCE

##### Stormwater Management

- Stormwater Drainage System Evaluations, Cranston, RI
- Skyline Estates II Residential Subdivision Site Plan and Stormwater Management, East Hampton, CT\*
- Stormwater Management and Wetlands Restoration, Chatham Center, East Hampton, CT\*
- Runoff Water Quality Assessment, North Canaan, CT\*
- Commercial Paving & Stormwater Management, Groton, CT\*

##### Wastewater

- Farmington Water Pollution Control Facility Comprehensive Upgrades Project, Farmington, CT
- Middleborough Water Pollution Control Facility Upgrade, Middleborough, MA
- Sanitary Sewer Collection System, Norwich, CT\*
- Newton Street Area Sanitary Sewer Collection System, Norwich, CT\*
- Salem-1 Sanitary Pump Station Rehabilitation, Norwich, CT\*

##### Site Design, Planning and Review

- Development Reviews, Bethel, CT
- Development Reviews, Salem and Lisbon, CT\*
- Development Reviews, Norwich, CT\*
- The Ledges Site Design, Groton, CT\*
- Golf Course Infrastructure Design, Hope Valley, RI\*
- Golf Course Infrastructure Design, Richmond, RI\*
- Cedar Glenn Farms Subdivision, Griswold, CT\*
- Forest Hills Estates, East Hampton, CT\*
- Carriage House Mercedes Benz, Waterford, CT\*
- The Homes at Aspinook View, Griswold, CT\*
- Polinsky Farm Subdivision, Plainfield, CT\*
- The North Stonington Bible Church, North Stonington, CT\*
- Secor Subaru Annex, New London, CT\*
- Colchester PK-2 Elementary School, Colchester, CT\*

### Dams

- Shaker Pond Dam Inspection, Enfield, CT
- Roberts Pond Dam Inspection, Ridgefield, CT
- Mackenzie Reservoir Dam, Wallingford, CT
- Ulbrich Reservoir Dam Inspection, Wallingford, CT
- Pistapaug Reservoir Dam Inspection, Wallingford, CT

### Water and Gas Utilities

- Norwich Water Distribution System Water Quality Improvements, Norwich, CT\*
- Water Tank Maintenance, Norwich, CT\*
- Distribution System Modeling for Fire Safety, Norwich, CT\*
- Freeport-McMoran, Norwich, CT\*
- Roosevelt Avenue Natural Gas Regulator Station Design, Norwich, CT\*
- Golden Street and Old Salem Road Propane Tank Decommissions, Norwich, CT\*
- Regulator Station Emergency Relief, Norwich, CT\*
- Natural Gas Expansion Initiative, Norwich, CT\*

### Disaster Management

- Natural Disaster Damage Location Manager, Norwich, CT\*

### Marine

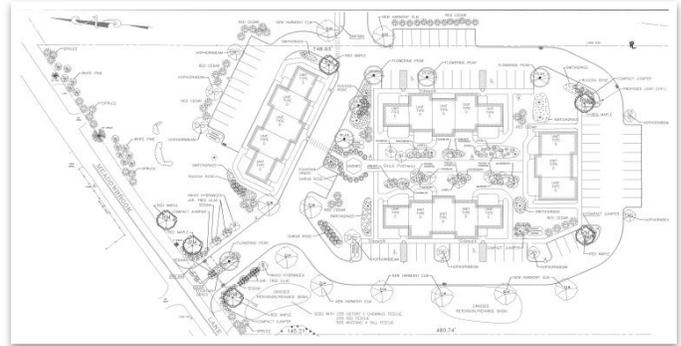
- Marina Expansion, Stonington, CT\*

### Subsurface Technology

- Pedestrian Tunnel, North Stonington, CT\*
- Public Utilities Service Infrastructure, Norwich, CT\*

## PROJECT UNDERSTANDING

The Town of Mansfield Planning and Zoning Commission will retain an engineering firm to provide a detailed technical review for Meadowbrook Gardens; a four building, 36-unit multi-family residential development at 91 and 93 Meadowbrook Lane. The detailed review of the proposed development application includes stormwater conveyance and mitigation, traffic analysis including interpretation of the existing traffic study, sanitary sewer system design and connection, erosion and sedimentation control and also to provide an assessment of potential impact(s) upon adjacent and downstream Freshwater Inland Wetlands as well as any other resources during construction and upon completion of all site work. Considerations will include assessment of the existing site, soils and groundwater, selection of stormwater management features and Best Management Practices (BMP's) employed, suitability for the site and location of each BMP employed, traffic flow, parking and pedestrian safety, snow removal, trash removal, ADA compliance, lighting, landscaping, etc. for appropriate and safe design as well as conformance to the Town Zoning Regulations and all applicable local, state and federal standards.



One of the most important long-term resource protection strategies is stormwater management. Wright-Pierce has a long standing history of properly selecting and developing stormwater remediation technology for New England towns and communities. We have performed a myriad of site specific assessments, designs and peer reviews, as well as provided many large scale studies regarding the impacts of stormwater upon natural resources. We employ many experts specifically trained in the many aspects of related engineering disciplines needed for a comprehensive understanding of hydraulics, hydrology, water treatment, soils, chemistry, biology and engineering. We pride ourselves on our desire for keeping pace with the ever changing technological advances and state of the art techniques to assure our clients get the most cost effective and efficient solutions.

We have performed many peer reviews, each with various preferred reporting formats. Where a particular format is not provided, we readily develop a format acceptable to the regulating authority, as well as project appropriate, to assure all aspects of the review is provided in a simple and

## SECTION 4 EXAMPLES OF SIMILAR WORK

easy to follow arrangement. Reviews are completed and provided to the interested parties in a timely fashion well in advance of commission meetings to allow the designer time to address any and all review comments as well as allow the town time to fully understand and act upon the land use applications. Wright-Pierce employs substantial staffing to allow us to allocate the necessary professionals necessary for a thorough review of all project materials well before meetings and/or various deadlines as well as for last minute submittals.

Below is a brief list of the recent peer reviews performed for the Town of Bethel, CT:

- 10 Trowbridge Drive – 10,000sf Industrial/Manufacturing building addition.
- 11 Stony Hill Road – Special Permit for proposed change of use to a restaurant and expansion.
- 12 Trowbridge Drive – Special Permit for Industrial site plan for a new structure and use.
- 24 Rockwell Road – Single family home development.
- 37 Shelley Road – Under construction multiple home site access improvements.
- 49 Taylor Avenue – Special Permit for multi-family residence.
- 82 Stony Hill Road – Commercial site plan.
- 93 Wooster Street – Residential subdivision.
- 131 Putnam Park Road – Residential subdivision.
- 199 Walnut Hill Road – Single family residential site plan.
- Bethel Crossing – 72 residential single family homes subdivision by Toll Brothers.
- Sycamore Court – Lot 2, single family residential site plan.
- Chestnut Hill Ridge Road – Lot 3, single family residential site plan.
- 8 Gabriella Court - Single family residential site plan.
- 23 Greenwood Avenue – Special Permit for Multi-Family development.
- 131 Putnam Park Road – Single family residential subdivision.
- Turkey Plain Road – Parcel “A” single family residential site plan.
- Grand Street – Apartment building application.

## IN GENERAL

Peer review is often an overlooked aspect of engineering services. However, it is a crucial aspect of assuring the final product has been scrutinized appropriately. Aspects of a complicated design may be overlooked due to the intensity of the design parameters, or aspects such as access, maintenance and longevity overlooked due to budgetary concerns and/or enforced time lines. It is the responsibility of the peer review to flush out any and all potential construction/operational issues which may impact the effectiveness and/or determine additional features which may be employed to achieve the desired result.



Wright-Pierce has performed numerous peer reviews throughout the northeast and has developed a detailed approach that is timely and efficient. Our experience with peer reviews include comprehensive drainage studies as well regulatory requirements for local, state and federal agencies, component and strategy analyses and costs assessment for new site improvements and for upgrade projects for existing features. Following are two (2) recent peer review examples Wright-Pierce has performed for the town of Bethel, Connecticut. These reviews are for the Bethel Inland Wetlands and Watercourses and the Planning and Zoning Commissions with regards to regulatory compliance and overall good engineering practice. Therefore the reviews provide more detailed reviews than the Town of Mansfield is requesting. However, the intent is to show the level of detail in the reviews and the process of the design firm addressing each design concern.

## SECTION 4 EXAMPLES OF SIMILAR WORK

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### TOWN OF BETHEL, CT TROWBRIDGE DRIVE

The proposed development at Trowbridge Drive is for a crematorium facility to be located in an Industrial zone district. The use requires a Special Permit application and associated regulatory requirements. There were no inland wetlands associated with the project so the review is with regard to the Zoning Regulations of the town only.

The proposed project had numerous initial regulatory and design issues, as is evident in the initial memorandum. Contact with the design firm and a series of intermediate design reviews Wright-Pierce had performed led to the project meeting all of the regulatory requirements, site and drainage system design improvements and an overall complete project plan.



MEMORANDUM

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TO: [REDACTED] DATE: 1-13-2015  
FROM: Jeffrey Dewey, PE PROJECT NO.: 13035A  
Mariusz Jedrychowski, PE  
SUBJECT: Trowbridge Drive, Bethel, CT

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Based upon our review on the application materials provided including Topographic Survey and Proposed Site Development. Additionally provided are the Drainage Calculations.

Note all references to the town of Bethel Zoning Regulations are denoted by: "ZR". We offer the following review comments for the engineer's clarification:

General Comments:

1. Due to the nature of the proposed facility, please assure that none of the materials listed in ZR section 4.6.E under prohibited uses will be used as part of the proposed use of this application.

Site Plan Review:

Cover Sheet:

1. Site vicinity sketch should be at a larger scale to show more of the surrounding areas to simplify location and adjacent road names should also be provided.

Plan Sheet 14031-S

1. Per ZR Section 6.5.B.5.a: maximum height of a retaining wall is to be 6-feet. The walls on the plan range from 5-feet to 7.5-feet to 13-feet.
2. Per ZR Section 6.5.B.c: the exposed face of the retaining wall requires review and approval. Wall face material is not provided (note smooth face concrete is not accepted).
3. Per ZR Section 6.5.C.2 a building permit is required for a retaining wall including a plan provided by a licensed professional engineer in the state of Connecticut.
4. Plan should show existing elevations within Trowbridge Drive to assure sightline and grading of proposed site are appropriate.
5. The proposed loading area is located within the site access drive. Loading areas are typically not allowed where they could create a traffic block and potentially create a safety issue for emergency vehicles.
6. Traffic flow patterns should be shown on the plans. Site traffic signage and painted symbology should be provided on the plan.
7. It is unclear whether the driveway and parking areas are to be curbed or not. Please clarify.

## SECTION 4 EXAMPLES OF SIMILAR WORK

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Memo: Trowbridge Drive, Bethel, CT  
1/13/2015  
Page 3

2. The height of the light pole should be indicated on luminaire detail.
3. Light fixture specification and luminaire information provided.
4. The following details should be added to the plan:
  - a. Light pole base
  - b. Shrub planting
  - c. Curb
  - d. Driveway section
  - e. Parking lot material detail
  - f. Temporary sediment basin
  - g. Typical basin berm section
  - h. Riprap spillway
  - i. Service details and appurtenances for water, gas and sanitary sewer
  - j. Catch basin frame and grate
  - k. Drain manhole section, frame and grate
  - l. Dumpster pad

### Project Drainage Report

1. The drainage system in Trowbridge Drive should be assessed to assure there is sufficient capacity to handle the peak flow rates from the site.
2. If roof leaders are planned, the design of each should be provided.
3. Peak flow analysis for the 100-year storm even should be provided.
4. In the report narrative, it is stated: "...predevelopment flow from both areas..." this is not a reasonable statement as runoff flow rates cannot be added.
5. Is there any water quality provisions provided? Please clarify.



MEMORANDUM

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TO: [REDACTED] DATE: 3/25/2015

FROM: Jeffrey Dewey, PE PROJECT NO.: 130351  
Mariusz Jedrychowski, PE

SUBJECT: Review of Planning & Zoning Commission Application for Site Plan,  
Special Permit and Excavation and Fill Permit for Property Located at  
Trowbridge Drive

---

Based upon our review on the application materials provided including Topographic Survey and Proposed Site Development. Additionally provided is the Drainage Calculations.

Note all references to the town of Bethel Zoning Regulations are denoted by: "ZR". We offer the following review comments for the engineer's clarification:

General Comments:

1. On the Town application form: the design engineer Michael J. Mazzucco should be noted as the engineer of record.
2. Due to the nature of the proposed facility, please assure that none of the materials listed in ZR section 4.6.E under prohibited uses will be used as part of the proposed use.
3. Application package erosion control check list:
  - a. Item 1. Narrative: no narrative provided yet the box is checked. Please clarify
  - b. Item 2. Site plans: box is checked and all items are not provided such as soil types, and final stabilization measures.

Site Plan Review:

Cover Sheet:

1. Site vicinity sketch should be at a larger scale which would show more of the surrounding areas to simplify site location. Additionally the adjacent road names and a north arrow should be provided.

Plan Sheet 125Lot20A

1. Southerly parcel line bearing and distance is missing.

Plan Sheet 19A20Ae

1. Required building lines should be shown to assure modified parcels meet the zoning requirements.

## SECTION 4 EXAMPLES OF SIMILAR WORK

Memo: Trowbridge Drive, Bethel, CT  
3/25/2015

- denote 4 new spaces required for the new development while 27 spaces are provided. Please clarify.
12. Curve radii for all pavement curves should be provided so the Contractor can construct properly.
  13. The designer should provide information regarding the design vehicle used for unloading to assure all the inner turning radii are appropriate for the design vehicle as well as emergency vehicles.
  14. Site lighting plan and schedule should be provided for review.

### Plan Sheet 14031-SU

1. Are roof leaders proposed as part of the development? Please clarify.
2. Will the new building have footing drains? Please clarify.
3. The proposed grading at the southwest portion of the site will result in the parking area runoff adjacent to the building draining west down the access road instead of south to the inlet, as the watershed map indicates is the design intent. The crown of the access drive will likely collect the runoff and direct it west. This should be clarified and corrected.
4. There is proposed drainage piping proposed to be 8-inches in diameter. The minimal pipe diameter per the CT DOT drainage manual section 11.11.4 is 12-inch.
5. More design effort should be given to assure that when the site is cleared, a rainstorm will not result in site runoff depositing sediment onto Trowbridge Drive as required in the State erosion and sediment control manual.
6. Are the soil stockpiles sized appropriately based on anticipated soil removal? Please clarify.
7. There are no temporary sediment basins provided as part of the erosion control plan. Please locate basins or provide justification for the lack thereof.
8. The 2:1 slopes shown on each side of the access drive likely require additional stabilization efforts or will likely result in sedimentation of Trowbridge Drive.
9. The utility connection information should provide more information regarding size, material, slope, etc. as appropriate.
10. Is it the intent to connect the sanitary sewer top an existing lateral? If not, please clarify connection detail.
11. Proposed storm drainage at site entrance (CB#5&6) does not provide proper cover over piping. Please revise.
12. Proposed berms for stormwater are not designed in accordance with either the CT DOT stormwater manual or the CT DEEP design standards for minimum berm width. Please revise accordingly. Additionally a maintenance plan should be provided.
13. With regard to the gallery detention system located at the southeast corner of the site:
  - a. As the area is gravel, will not the gravel wash into the galleries and eventually fill them? Is there a maintenance plan?
  - b. The gravel surrounding the inlets will likely wash into the inlet grates eventually resulting in washing out around the grates such that the grates become local high

Memo: Trowbridge Drive, Bethel, CT  
3/25/2015

points. This would result in difficulty for stormwater to drain into the detention system and creating ponding.

- c. It is unclear how the discharge pipe “daylights” without elevations shown.
- d. Will the discharge of the detention system have any impact upon downstream areas? Plan should show what is downstream of the discharge location.

- 14. Sedimentation silt sacks or equivalent should be installed in the catch basins located in Trowbridge Drive prior to start of construction and maintained throughout construction.

Plan Sheet 14031-ND

- 1. The catch basin detail is unclear as to its actual construction. Designer should use local or State DOT standard detail. Whether inlet is type C or C-L should also be clarified.
- 2. Rip-Rap Spreader detail is unclear with regard to which outlet is it intended; please clarify.
- 3. The height of the light pole should be indicated on luminaire detail.
- 4. Light fixture specification and luminaire information provided.
- 5. Erosion control notes should include a narrative as per the CT Guidelines for soil erosion and sediment control manual.
- 6. The following details should be added to the plan:
  - a. Light pole base
  - b. Shrub planting
  - c. Curb
  - d. Driveway section
  - e. Parking lot material detail
  - f. Temporary sediment basin
  - g. Typical basin berm section
  - h. Riprap spillway
  - i. Service details and appurtenances for water, gas and sanitary sewer
  - j. Catch basin frame and grate
  - k. Drain manhole section, frame and grate
  - l. Dumpster pad

Project Drainage Report

- 1. In the Project Narrative, the topography is characterized as fairly level, which is true for the gallery detention system, but not true for the new building and infrastructure proposed at the northwest portion of the site. Please revise.
- 2. The report should state the calculation methods used for design and analysis.
- 3. As the detention basin was designed using TR-55, the development of curve numbers including soil types should be provided.
- 4. The drainage system in Trowbridge Drive should be assessed to assure there is sufficient capacity to handle the peak flow rates from the site.
- 5. If roof leaders are planned, the design of each should be provided.

## SECTION 4 EXAMPLES OF SIMILAR WORK

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Memo: Trowbridge Drive, Bethel, CT  
3/25/2015

6. Peak flow analysis for the 100-year storm even should be provided for all stormwater detention facilities as per both the CT DOT Stormwater manual and the CT DEEP Stormwater Manual.
7. There is no pipe design calculations provided. Please revise.
8. Sub-watershed input data should be provided for review as well as detention basin design data.
9. Watershed mapping for both pre-development and post-development conditions showing inlet sub areas and flow concentration time flow paths should be provided for review.
10. Rip Rap sizing calculations: there is only one rip rap sizing calculation provided. It is unclear which discharge point the calculations represent as there are four discharge locations requiring rip rap.
11. Is there any water quality provisions provided? Please clarify and/or provide discussion within the report.
12. Pre s Post-development analysis for areas flowing west has not been provided. Please revise report accordingly.
13. Sizing calculations for the gallery system have not been provided.
14. A watershed map for the gallery system is provided, but it is not very clear. Area, soil types, time of concentration flow path should all be shown.
15. Reasoning for and the Pre vs. Post-development for areas flowing to the gallery detention system has not been provided.



MEMORANDUM

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TO: [REDACTED] DATE: 6/1/2015

FROM: Jeffrey Dewey, PE PROJECT NO.: 130351  
Mariusz Jedrychowski, PE

SUBJECT: Review of Planning & Zoning Commission Application for Site Plan,  
Special Permit and Excavation and Fill Permit for Property Located at  
Trowbridge Drive

---

Wright-Pierce is in receipt of the supplemental Planning and Zoning application materials, Drainage Calculations and Proposed Site Development.

Based upon our review of the provided plans and supporting materials listed above, we offer the following review comments for the applicant's clarification:

General Comments:

1. No further action required.
2. No further action required.
3. No further action required.

Site Plan Review:

Cover Sheet:

1. No further action required.

Plan Sheet 125Lot20A

1. No further action required.

Plan Sheet 19A20Ae

1. No further action required.
2. No further action required.

Plan Sheet 14031EX

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.

Plan Sheet 14031-S

## SECTION 4 EXAMPLES OF SIMILAR WORK

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Memo: Trowbridge Drive, Bethel, CT  
6/1/2015

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.
6. No further action required.
7. As there are two (2) exit lanes meeting immediately east of the main street access, consideration to providing a stop sign and bar at one or both should be considered to assure vehicular safety is maintained.
8. No further action required.
9. No further action required.
10. No further action required.
11. No further action required.
12. No further action required.
13. No further action required.
14. No further action required.

### Plan Sheet 14031-SU

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.
6. No further action required.
7. No further action required.
8. No further action required.
9. No further action required.
10. No further action required.
11. No further action required.
12. No further action required.
13. No further action required.
14. No further action required.

### Plan Sheet 14031-ND1 & ND2

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.
6. The following details should be added to the plan:
  - a. Typical basin berm section

Memo: Trowbridge Drive, Bethel, CT  
6/1/2015

b. Riprap spillway for basin

Project Drainage Report

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.
6. No further action required.
7. No further action required.
8. No further action required.
9. No further action required.
10. No further action required.
11. No further action required.
12. No further action required.
13. No further action required.
14. No further action required.
15. No further action required.

## SECTION 4 EXAMPLES OF SIMILAR WORK

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### TOWN OF BETHEL, CT RICKY'S COURT

The proposed development at Ricky's Court for Townhouse style development required a Special Permit application and associated regulatory requirements. There were no inland wetlands associated with the project so the review is with regard to the Zoning Regulations of the town only.

Similar to the previous peer review example, this proposed project had numerous initial regulatory and design issues, as is evident in the initial memorandum. Contact with the design firm and a series of intermediate design reviews Wright-Pierce had performed led to the project meeting all of the regulatory requirements, site and drainage system design improvements and an overall complete project plan.



MEMORANDUM

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TO: [REDACTED] DATE: 5/6/2015

FROM: Jeffrey Dewey, PE PROJECT NO.: 130351  
Mariusz Jedrychowski, PE

CC: [REDACTED]

SUBJECT: Review of Planning & Zoning Commission Application for  
"Ricky's Court"

---

Wright-Pierce is in receipt of the Planning and Zoning application materials comprised of the Town of Bethel Planning & Zoning Application Form, Site Engineering Report, and plan sheets.

Based upon our review of the provided plans and supporting materials listed above, we offer the following review comments for the applicant's clarification:

**Plan Sheet 1: Cover Sheet**

No review comments

**Plan Sheet 2: Topographic Survey**

No review comments

**Plan Sheet 3: Site Plan**

1. Plan should include traffic control signage and pavement paint. Details for each should also be provided.
2. Proposed retaining wall is shown to be constructed approximately one (1) foot from the northerly property line. Please clarify how the footing is to be installed and remain wholly on the subject parcel. Excavation limits should be shown for clarity.
3. Frontage curbing should be of style and material to match into the existing curbing of Greenwood Avenue.
4. The location of the trash and recycle area enclosure does not appear functional for typical trash and recycling collection vehicles. Please demonstrate the appropriate turning movements.
5. Is fencing or a railing system proposed for the top of the retaining walls? Please clarify.

## SECTION 4 EXAMPLES OF SIMILAR WORK

Memo: Ricky's Court proposed development review  
5-6-15  
Page 2

### **Plan Sheet 4: Grading & Utility Plan:**

1. It appears that the entire site is designed to drain westerly into the street. Site drainage should be design such that all new development related runoff is captured and mitigated on site as much as feasible.
2. The proposed roof drain infiltration system has been designed to be installed approximately four (4) feet below existing grade. Have test holes been conducted to assure the system is above the seasonal high ground water level? Please confirm.
3. Access manholes should be provided at each end of the infiltration system to allow for maintenance access.
4. As a result of this project, will there be any impact upon the floodplain? Please clarify.
5. Will electric service be underground or overhead? Please confirm. Also will a transformer be required? If so, it must be flood proofed.

### **Plan Sheet 5: Landscape and Lighting Plan:**

1. The tree planting adjacent to the eastern building entrance is located in close proximity to the entryway.

### **Plan Sheet 6: Sediment and Erosion Control Plan:**

1. The existing catch basin in Greenwood Avenue and the new area drain should have erosion control measures to prevent silts and sedimentation from entering the basin.
2. Considering the proximity of the northerly retaining wall to the property line: is there enough land to install an effective erosion barrier? Please confirm.
3. If a large rainfall event prior to paving and final stabilization, there is the potential for the sediment laden runoff to drain onto Greenwood Avenue. Measures to prevent this should be incorporated into the plan.
4. There are no noted temporary sediment basins for erosion control located on the plans.
5. Is there anticipated to be any dewatering activities associated with the proposed development? Please clarify.

### **Plan Sheet 7: Details**

1. The following construction details are missing and should be provided:
  - A. Typical water service
  - B. Sanitary sewer service
  - C. Typical Driveway paving section
  - D. Handicap sidewalk ramp
  - E. Light luminaire and pole detail

Memo: Ricky's Court proposed development review  
5-6-15  
Page 3

- F. Stormwater manhole, frame and grate
- G. Stormwater pipe trench
- H. Appropriate sanitary sewer service lateral and connection method to the existing main.

**Site Engineering Report**

1. A portion of the site is within the AE flood zone. Specific requirements for development within a flood zone are defined within the Town's regulations. The designer should not how the flood plain related requirements have been met by the proposed development.
2. Stormwater runoff water quality is not addressed within the design report. This is an important factor in stormwater attenuation and should be addressed.
3. The Project Description states that runoff from the development will be attenuated by an on-site detention system. However there are no inlets except the area drain located at the southwestern corner of the proposed building. The area drain is located to capture runoff from the adjacent parcel to the south, not site runoff.
4. A watershed map should be provided to clarify what areas are captured and directed into the detention/infiltration system and what areas are allowed to flow from the property as well as defining each sub-watershed area used in the calculations. Currently there is no way to understand the calculations without knowing the areas used in the calculations.
5. Overall the hydrographs and related design printouts are not defined and are not substantiated with supporting information. For example: on the Summary For Pond page: there is a constant outflow of 0.04cfs. Please explain what this outflow rate represents. What does the hydrograph entitled "proposed bypass" represent?
6. All backup data including tables, charts and formulas used in the calculations should be provided with the report.

## SECTION 4 EXAMPLES OF SIMILAR WORK



### MEMORANDUM

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TO: [REDACTED] DATE: 6/30/2015

FROM: Jeffrey Dewey, PE PROJECT NO.: 130351  
Mariusz Jedrychowski, PE

CC: [REDACTED]

SUBJECT: Review of Planning & Zoning Commission Application for  
"Ricky's Court"

---

Wright-Pierce is in receipt of the Planning and Zoning application materials comprised of the Engineer's response letter, Site Engineering Report, and plan sheets.

Based upon our review of the provided plans and supporting materials listed above, we offer the following review comments for the applicant's clarification:

**Plan Sheet 1: Cover Sheet**

No review comments

**Plan Sheet 2: Topographic Survey**

No review comments

**Plan Sheet 3: Site Plan**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.

**Plan Sheet 4: Grading & Utility Plan:**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.

Memo: Ricky's Court proposed development review  
6-30-2015  
Page 2

5. Please confirm whether a transformer will be required as part of the necessary electric service. If so, please show on plan and provide appropriate elevation above the 100-year flood elevation.
6. Plan elevations for the infiltration system denote 12" of stone above the gallery units. Please clarify.
7. It may make sense to connect an overflow pipe from the infiltration system to the site outflow piping on the west side of the parcel (catch basin at entrance).

**Plan Sheet 5: Landscape and Lighting Plan:**

1. No further action required.

**Plan Sheet 6: Sediment and Erosion Control Plan:**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.

**Plan Sheet 7: Details**

1. No further action required.

**Plan Sheet 8: Details**

1. Plan sheet 4 notes infiltration system elevations of bottom of concrete = 365.0 and bottom of stone to be 364.0 It appears to suggest there should be 12" of stone beneath the gallery units. If this is the case, please revise the detail accordingly. If not please clarify elevations noted.

**Site Engineering Report**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. For the infiltration system flow calculations, it was assumed to have an outflow rate of 0.04cfs. However the percolation test results in a semi-saturated rate of 0.5-inches in 20 minutes; which equates to 0.02cfs or half that was originally assumed. Please revise the system flow calculations to use the new rate and revise the system design as appropriate.
6. No further action required.
7. It is unclear how the provided volume calculations were developed. For the stone: the 6' width is incorrect for provided volume as most of the width is taken

## SECTION 4 EXAMPLES OF SIMILAR WORK

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Memo: Ricky's Court proposed development review  
6-30-2015  
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up by the gallery units. There is only 2' per linear foot of trench (1' on each side of the gallery). Provided volume of void in stone as follow: 1' stone x 2 sides x 2' high x 0.33(voids) = 1.32sf voids/lf of trench x 98' trench = 0.003ac-ft, not the 0.011ac-ft per report. Please revise and recalculate the system hydraulics.

8. Please provide calculations for the sizing of the "swirl concentrator" to assure proper treatment of the runoff is provided.



MEMORANDUM

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TO: [REDACTED] DATE: 7/13/2015

FROM: Jeffrey Dewey, PE PROJECT NO.: 130351  
Mariusz Jedrychowski, PE

CC: [REDACTED]

SUBJECT: Review of Planning & Zoning Commission Application for  
"Ricky's Court"

---

Wright-Pierce is in receipt of the Planning and Zoning application materials comprised of the Engineer's response letter and plan sheets.

Based upon our review of the provided plans and supporting materials listed above, we offer the following review comments for the applicant's clarification:

**Plan Sheet 1: Cover Sheet**

No review comments

**Plan Sheet 2: Topographic Survey**

No review comments

**Plan Sheet 3: Site Plan**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.

**Plan Sheet 4: Grading & Utility Plan:**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.
6. No further action required.

## SECTION 4 EXAMPLES OF SIMILAR WORK

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Memo: Ricky's Court proposed development review  
7-13-2015  
Page 2

7. No further action required.

### **Plan Sheet 5: Landscape and Lighting Plan:**

1. No further action required.

### **Plan Sheet 6: Sediment and Erosion Control Plan:**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.

### **Plan Sheet 7: Details**

1. No further action required.

### **Plan Sheet 8: Details**

1. No further action required.

### **Site Engineering Report**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.
6. No further action required.
7. It is all too easy to rely on computer programs, however all modeling simulations should be able to be confirmed with hand calculations. To reiterate: the provided volume of voids in the stone portion of the trench = 1' stone x 2 sides x 2' high x 0.33(voids) = 1.32sf voids/lf of trench x 98' trench = 0.003ac-ft. I do not see how the modeling program arrived at a volume of voids = 0.011ac-ft as per your report except by assuming there is a 6-foot wide by 98-foot long trench of stone and a second 98-foot trench of galleries; as follows: 6' x 2' high x 98' long x 0.33 = 388cf = 0.009 ac-ft. Please clarify the program calculated the volumes correctly or provide revised modeling calculations.
8. No further action required.



MEMORANDUM

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TO: [REDACTED] DATE: 7/22/2015

FROM: Jeffrey Dewey, PE PROJECT NO.: 130351  
Mariusz Jedrychowski, PE

CC: [REDACTED]

SUBJECT: Review of Planning & Zoning Commission Application for  
"Ricky's Court"

---

Wright-Pierce is in receipt of the Planning and Zoning application materials comprised of the Engineer's response letter.

Based upon our review of the provided plans and supporting materials listed above, we offer the following review comments for the applicant's clarification:

**Plan Sheet 1: Cover Sheet**

No review comments

**Plan Sheet 2: Topographic Survey**

No review comments

**Plan Sheet 3: Site Plan**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.

**Plan Sheet 4: Grading & Utility Plan:**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.
6. No further action required.

## SECTION 4 EXAMPLES OF SIMILAR WORK

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Memo: Ricky's Court proposed development review  
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Page 2

7. No further action required.

### **Plan Sheet 5: Landscape and Lighting Plan:**

1. No further action required.

### **Plan Sheet 6: Sediment and Erosion Control Plan:**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.

### **Plan Sheet 7: Details**

1. No further action required.

### **Plan Sheet 8: Details**

1. No further action required.

### **Site Engineering Report**

1. No further action required.
2. No further action required.
3. No further action required.
4. No further action required.
5. No further action required.
6. No further action required.
7. No further action required.
8. No further action required.

Location	Services Provided				Project Elements of Interest					
	Study	Planning	Stormwater Quality Design	Permits	Stormwater Conveyance	Water Quality Mitigation	Flood Mitigation & FEMA	Hydraulics/ Hydrology	Dams	Peer Review
<b>CONNECTICUT</b>										
Bethel, CT				◆	◆			◆	◆	◆
Danbury, CT	◆		◆							◆
Farmington, CT	◆	◆	◆	◆	◆	◆	◆	◆	◆	
Glastonbury, CT	◆	◆	◆					◆		
Greenwich, CT	◆	◆	◆					◆		
Hartford, CT					◆			◆		◆
Killingly, CT	◆	◆								
Ledyard, CT	◆	◆	◆					◆		
Mystic, CT	◆	◆								
Naugatuck, CT	◆	◆	◆		◆			◆		
New Milford, CT	◆	◆	◆					◆		
Norwalk, CT	◆	◆	◆					◆		◆
Portland, CT	◆	◆								
Sharon, CT	◆	◆								
Sprague, CT	◆	◆								
Stonington, CT	◆	◆	◆					◆		
Torrington, CT	◆	◆								
Vernon, CT	◆	◆								
Waterford, CT	◆	◆	◆					◆		
Windham, CT	◆	◆								
<b>MASSACHUSETTS</b>										
Hamilton MA	◆	◆		◆	◆			◆		
Otis, MA	◆	◆		◆			◆	◆	◆	
<b>RHODE ISLAND</b>										
Narragansett, RI	◆	◆	◆					◆		
Quonset Point, RI	◆	◆								
Smithfield, RI	◆		◆					◆		◆
<b>NEW HAMPSHIRE</b>										
Berlin, NH	◆	◆		◆	◆	◆	◆	◆		
Bow, NH		◆								

**SECTION 4  
EXAMPLES OF SIMILAR WORK**

Location	Services Provided					Project Elements of Interest				
	Study	Planning	Stormwater Quality Design	Permits	Stormwater Conveyance	Water Quality Mitigation	Flood Mitigation & FEMA	Hydraulics/ Hydrology	Dams	Peer Review
Charlestown, NH	◆	◆								
Claremont, NH	◆	◆								
Derry, NH				◆	◆					
Dover, NH	◆			◆	◆			◆		
Durham, NH	◆	◆								
Exeter, NH	◆	◆		◆	◆	◆	◆	◆	◆	
Greenville, NH	◆									
Farmington, NH	◆	◆		◆	◆			◆		
Hampton, NH	◆	◆		◆	◆	◆		◆		
Hanover, NH	◆	◆		◆	◆	◆		◆		
Jaffrey, NH	◆	◆	◆	◆	◆	◆		◆		
Keene, NH	◆	◆	◆	◆	◆	◆		◆		
Lebanon, NH	◆	◆	◆	◆	◆	◆	◆	◆	◆	
Londonderry, NH	◆			◆						
Manchester, NH	◆			◆	◆			◆		
Merrimack, NH	◆	◆	◆	◆	◆	◆	◆	◆		
North Hampton, NH	◆						◆	◆		
Plymouth, NH	◆									
Portsmouth, NH	◆	◆		◆	◆	◆		◆		
Raymond, NH	◆	◆								
Rochester, NH	◆	◆		◆	◆	◆	◆	◆	◆	
Rye, NH	◆	◆	◆	◆	◆	◆		◆		◆
Swanzey, NH	◆	◆								
Warner, NH	◆	◆								
Waterville Valley	◆			◆	◆		◆	◆		
<b>MAINE</b>										
Auburn, ME			◆						◆	◆
Augusta, ME	◆		◆	◆	◆	◆	◆	◆		
Bangor, ME	◆	◆	◆	◆	◆	◆	◆	◆		
Bar Harbor, ME	◆	◆								
Baileyville, ME	◆	◆		◆	◆	◆		◆		
Bath, ME	◆	◆		◆	◆			◆		◆

**SECTION 4**  
**EXAMPLES OF SIMILAR WORK**

Location	Services Provided				Project Elements of Interest					
	Study	Planning	Stormwater Quality Design	Permits	Stormwater Conveyance	Water Quality Mitigation	Flood Mitigation & FEMA	Hydraulics/ Hydrology	Dams	Peer Review
Bayville, ME	◆	◆								
Bethel, ME		◆								
Biddeford, ME	◆		◆	◆	◆	◆		◆		
Blaine, ME		◆								
Boothbay, ME	◆	◆		◆	◆			◆		◆
Boothbay Harbor, ME	◆	◆		◆	◆	◆		◆		
Bowdoinham, ME	◆			◆	◆		◆			
Brewer, ME	◆		◆	◆	◆	◆		◆		
Brunswick, ME	◆	◆	◆	◆	◆	◆		◆		
Canton, ME	◆			◆	◆	◆	◆	◆	◆	
Cape Elizabeth, ME		◆			◆			◆		
Caribou, ME	◆	◆		◆	◆	◆		◆		
Castine, ME		◆			◆			◆		
Dallas PLT, ME	◆			◆	◆	◆				
Denmark, ME	◆			◆	◆	◆				
Dixfield, ME	◆				◆	◆	◆	◆		
Eastport, ME	◆	◆	◆	◆	◆	◆		◆		
Ellsworth, ME	◆	◆		◆	◆			◆		
Falmouth, ME	◆	◆	◆	◆	◆	◆		◆		◆
Fort Kent, ME	◆	◆		◆	◆	◆	◆	◆		
Fort Fairfield, ME	◆			◆	◆	◆	◆			
Freeport, ME	◆	◆	◆	◆	◆	◆		◆		
Frenchville, ME	◆	◆		◆	◆	◆		◆		
Fryeburg, ME	◆			◆	◆	◆		◆		
Gardiner, ME	◆	◆	◆	◆	◆	◆	◆	◆		
Grand Isle, ME	◆		◆		◆					
Great Salt Bay Sanitary District (Damariscotta-Newcastle)	◆	◆								
Greenville, ME	◆				◆	◆		◆	◆	
Guilford-Sangerville Sanitary District	◆	◆								
Harrison, ME		◆								
Harpwell, ME	◆		◆	◆	◆	◆		◆		

**SECTION 4**  
**EXAMPLES OF SIMILAR WORK**

Location	Services Provided					Project Elements of Interest				
	Study	Planning	Stormwater Quality Design	Permits	Stormwater Conveyance	Water Quality Mitigation	Flood Mitigation & FEMA	Hydraulics/ Hydrology	Dams	Peer Review
Howland, ME		◆								
Hollis, ME	◆		◆	◆	◆	◆		◆		
Houlton, ME	◆			◆	◆	◆		◆		
Indian Township, ME	◆	◆		◆	◆	◆		◆		
KSTD - Waterville, ME	◆	◆								
Kennebunk, ME		◆		◆	◆	◆		◆	◆	
Kingfield, ME	◆	◆	◆	◆	◆	◆		◆		
Kittery, ME	◆	◆		◆	◆					
Lewiston, ME	◆			◆	◆	◆	◆	◆		
Limestone, ME	◆	◆		◆	◆	◆		◆		
Lincoln, ME		◆								
Lisbon, ME	◆	◆		◆	◆	◆		◆		
Livermore Falls, ME	◆			◆	◆	◆		◆		
Lubec, ME	◆	◆		◆	◆			◆		
Madawaska, ME	◆	◆	◆	◆	◆	◆	◆	◆	◆	
Mars Hill, ME	◆	◆		◆	◆	◆		◆		
Monmouth, ME	◆		◆	◆		◆				
New Gloucester, ME	◆			◆				◆		
Newport, ME		◆		◆	◆	◆		◆		
North Berwick, ME	◆	◆		◆	◆	◆				
Oakland, ME			◆		◆					◆
Ogunquit, ME	◆	◆		◆	◆	◆		◆		
Old Orchard Beach, ME	◆	◆	◆	◆	◆	◆	◆	◆		◆
Old Town, ME	◆	◆	◆	◆	◆	◆		◆		
Orono, ME	◆		◆	◆		◆		◆		
Passamaquoddy Indian Reservation		◆								
Penobscot Indian Reservation	◆	◆								
Pleasant Point, ME	◆	◆		◆	◆	◆		◆		
Phippsburg, ME	◆			◆				◆	◆	
Poland, ME	◆		◆	◆	◆	◆				

SECTION 4  
EXAMPLES OF SIMILAR WORK

Location	Services Provided				Project Elements of Interest					
	Study	Planning	Stormwater Quality Design	Permits	Stormwater Conveyance	Water Quality Mitigation	Flood Mitigation & FEMA	Hydraulics/ Hydrology	Dams	Peer Review
Portland, ME	◆		◆	◆	◆	◆		◆		
Presque Isle, ME	◆	◆		◆	◆	◆		◆		
Princeton, ME		◆								
Quoddy, ME	◆	◆		◆				◆		
Rangeley, ME	◆	◆	◆	◆	◆	◆	◆	◆		
Richmond, ME	◆		◆	◆	◆	◆		◆		
Rockland, ME	◆		◆	◆	◆	◆	◆	◆		
Saco, ME	◆	◆		◆	◆		◆			
Saint Albans, ME	◆			◆	◆	◆		◆		
Sanford, ME	◆	◆	◆	◆	◆			◆	◆	
Seven Ponds Township	◆			◆		◆		◆	◆	
Sinclair, ME		◆		◆	◆	◆		◆		
Skowhegan, ME	◆	◆		◆	◆	◆	◆	◆		
South Portland, ME	◆	◆		◆	◆			◆		◆
Southwest Harbor, ME		◆			◆					
Stonington, ME	◆	◆								
Thomaston, ME	◆	◆		◆	◆	◆		◆		
Togus, ME (Veterans' Hospital	◆	◆								
Topsham, ME	◆		◆	◆	◆	◆		◆		◆
Van Buren, ME	◆	◆		◆	◆	◆		◆	◆	
Waldoboro, ME	◆			◆	◆	◆		◆		
Wells, ME	◆	◆		◆	◆	◆	◆	◆		
Westbrook, ME	◆	◆		◆	◆	◆		◆		
Wilton, ME	◆	◆								
Winter Harbor, ME	◆	◆								
Wiscasset, ME	◆	◆		◆	◆	◆		◆		
Woodland, ME	◆			◆	◆	◆		◆		
Woolwich, ME	◆			◆	◆				◆	
Yarmouth, ME	◆	◆	◆	◆	◆	◆		◆		
York, ME	◆	◆	◆	◆	◆	◆		◆	◆	◆

## Introduction

The following is a list of references who are existing clients very familiar with Wright-Pierce’s capabilities to provide Peer Review services for similar projects including stormwater/low impact development review and analysis. They will be able to share candid opinions regarding the quality of service that has been provided by Wright-Pierce. Please contact them and ask specifically about our:

- Responsiveness
- Sensitivity to local goals and objectives
- Adherence to scope, project schedule, and budgets
- Attention to detail
- Effectiveness in dealing with the local and state reviewing agencies
- Technical knowledge
- Quality of technical documents

## Contact List

Client Contact	Project Description
<b>Town of Bethel</b> One School Street, Bethel, CT 06801  Steve Palmer, Director/Town Planner 203-794-8578	Peer Reviews
<b>City of Danbury, CT</b> Department of Public Works 55 Newtown Road, Danbury, CT 06810  David Day, Public Utilities Superintendent 203-797-4539	Peer Reviews
<b>Town of Windham</b> 2 Main Street, Willimantic, CT 06226  David Garand, WPCF Superintendent 860-465-3078	Stormwater design, permitting and construction administration for site improvements at the WPCF
<b>Town of Manchester, CT</b> 125 Spring St., Manchester, CT 06045  Michael Emond, WPCF Superintendent 860-647-3115	Stormwater design, permitting and construction administration for site improvements at the WPCF

## SECTION 5 CLIENT REFERENCES

<p><b>Town of Farmington, CT</b> One Monteith Drive, Farmington, CT 06032 Russell Arnold, Jr., PE, Director of Public Works 860-675-2328</p>	<p>Stormwater design, permitting and construction administration for site improvements at the WPCF</p>
<p><b>Town of Glastonbury</b> 2155 Main Street, Glastonbury, CT 06033 Michael Bisi, WPCF Superintendent 860-652-7774</p>	<p>Stormwater design, permitting and construction administration for site improvements at the WPCF</p>
<p><b>Town of Bethel</b> One School Street, Bethel, CT 06801 Janice Chrzescijanek, Director of Economic Development 203-794-2822</p>	<p>Streetscape and Commercial Development Design Documents for Front Street / Library Place, Durant Avenue, School Street and PT Barnum Square.</p>
<p><b>Mattabassett District Water Commission</b> 245 Main Street, Cromwell, CT 06416 Art Simonian, PE, Executive Director 860-635-5550</p>	<p>Stormwater design, permitting and construction administration for site improvements at the WPCF</p>



### Connecticut

169 Main Street  
700 Plaza Middlesex  
Middletown, CT 06457  
Phone 860.343.8297  
Fax 860.343.9504

**Connecting all offices  
888.621.8156**

### Massachusetts

40 Shattuck Road, Suite 305  
Andover, MA 01810

### New Hampshire

The Ammon Center, Suite 208  
175 Ammon Drive  
Manchester, NH 03103

230 Commerce Way, Suite 302  
Portsmouth, NH 03801

### Maine

99 Main Street  
Topsham, ME 04086

75 Washington Avenue, Suite 202  
Portland, ME 04101

### Rhode Island

The Westminster Square Building  
10 Dorrance Street, Suite 840  
Providence, RI 02903

Wright-Pierce is an award-winning full-service engineering firm providing water, wastewater, and infrastructure services to public and private clients throughout the Northeast for more than 68 years. Municipal infrastructure engineering is a mainstay of our business.

Employee-owned and customer focused, Wright Pierce has a staff of more than 200 engineers and support professionals located in seven offices. While our prime area of operation is the Northeast, we selectively provide services elsewhere in the United States and globally.

### Innovative, Reliable, Sustainable Solutions Tailored to Your Needs

As a respected, quality-driven firm, we are proud of our verifiable track record for delivering technical excellence and innovation. We do not subscribe to a “one-size-fits-all” philosophy; rather, we identify the best solution for your specific needs.

### Value Driven

We understand the value of a dollar and the fiscal constraints facing our clients. We take pride in our track record developing solutions that represent the best life cycle cost value. Our understanding of value and the delivery of reliable solutions has been the cornerstone to our success in the Northeast.

### Responsive Service Focused on Your Success

As a valued client, the success of your project is our foremost concern, and the only measure of our success.

What sets us apart is expertise in developing creative, sustainable, efficient solutions tailored to meet your needs — today and tomorrow.

- We listen, investigate and understand the requirements.
- We stress practical operator-friendly solutions.
- We understand fiscal constraints and emphasize value-based solutions.
- We involve and collaborate with our clients every step of the way.

We are about building long-standing relationships and delivering on our promise to help you succeed and improve our communities and the environment for the future.

**Wright-Pierce — innovative, reliable, sustainable solutions for your success today and tomorrow!**

**WRIGHT-PIERCE ENGINEERING SERVICES**

**Water**

- Master Planning
- Water Treatment Facilities
- Water Supply Location, Evaluation and Development
- Hydraulic Modeling
- Water Quality Modeling
- Vulnerability Analysis
- Pumping, Storage & Distribution
- Desalination Systems
- Corrosion Control
- Reservoir Studies and Modeling

**Wastewater**

- Facility Planning
- Wastewater Treatment Facilities
- Combined Sewer Overflow (CSO) Abatement
- Nutrient Removal
- Odor Control
- Sludge Handling, Disposal and Incineration
- FOG handling
- Sewer System Evaluation Surveys
- Infiltration/Inflow (I/I) Evaluations
- Value Engineering
- Toxicity Reduction
- Asset Management Systems
- Water Reclamation/Reuse
- Decentralized Treatment Systems

**Civil/Infrastructure**

- General Utilities
- Commercial/ Industrial Site Development
- Recreational/Athletic Facilities
- Stormwater Management
- Dam Rehabilitation and Design
- Streets and Highways
- Parking Facilities
- Bridges and Culverts
- Bicycle and Pedestrian Trails
- Natural Gas Pipelines

- Dock and Piers
- Downtown Revitalization
- Permitting
- Hydraulic Modeling/Flood Studies
- Residential

**Solid Waste/Residuals**

- Solid Waste Management
- Landfill Design, Closure and Monitoring
- Biosolids Management
- Beneficial Use and Market Studies
- Fats, Oils and Grease (FOG) Management
- Septage Management
- Concentrated Animal Feedlot Operations (CAFO) Waste Management
- Agricultural Waste Management
- Composting
- Biodiesel Production Facilities
- Sludge Incineration

**Building Design**

*Structural/Architectural*

- Industrial, Commercial and Public Buildings/Structures
- Building Planning and Design
- Bridges and Dams
- Code Analysis

*Mechanical*

- HVAC Systems
- Plumbing Systems
- Fire Protection Systems
- Energy Conservation Programs

*Electrical*

- Power Distribution Systems
- Emergency/Standby Power
- Security/Fire Alarm Systems
- Energy Audits/Conservation
- Telecommunications



**WRIGHT-PIERCE ENGINEERING SERVICES**

**SCADA/Automation**

- Process Control and Information Technology Planning
- Supervisory Control & Data Acquisition (SCADA)
- Programmable Logic Controllers
- Distributed Control Systems
- Network, Telemetry, and Alarm Systems

**Environmental**

- Permitting/Regulatory Assistance
- Corrective Action Designs
- Voluntary Response Action Plans
- Integrated Contingency Plans
- Environmental Compliance Audits
- Spill Prevention, Control, and Countermeasures (SPCC) Plans
- Stormwater Permitting and Pollution Prevention Plans
- Air Emissions Modeling and Permitting

**Financial Planning**

- Rate Studies / Impact Fees
- Grant/Loan Assistance
- Financing Strategies

**Energy Consulting Services**

- Energy Conservation Audits, Design and Implementation
- Alternative Energy Application Feasibility Assessments
- Wind Power
- Solar Power
- Geothermal
- Hydropower
- Bio-fuels (including biogas, bio-solids, waste oils, bio-diesel, ethanol, FOG)
- Co-generation

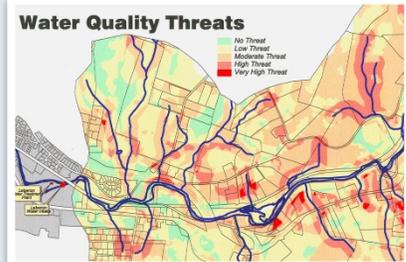
- Natural Gas Pipeline Assessments
- Electric Transmission Line Assessments
- Energy Park Planning
- Site Infrastructure Integration
- Utility Infrastructure Integration
- Facility Permitting
- Grant / Rebate Program Assistance

**GIS**

- Design and Implementation
- Internet Mapping Applications
- Utility Mapping/ Data Management
- Roadway Management
- Environmental Impact Studies
- Regulatory Compliance (GASB34, CMOM)

**Hydrogeology**

- Groundwater Supply*
  - Geophysical Reconnaissance Exploration
  - Assessment /Development
  - Watershed Management
  - Aquifer Management & Analysis
  - Well Restoration/Maintenance
  - Groundwater Modeling
- Wastewater Effluent Disposal*
  - Site Analysis/Exploration
  - Subsurface Disposal Systems
  - “Wick” Systems
  - Slow Rate Infiltration Systems
  - Rapid Infiltration Systems
  - Mounding Analysis
  - Contaminant Modeling



## PEER REVIEW SERVICES / VALUE ENGINEERING

Wright-Pierce has extensive experience with internal and external value engineering and peer review services. We engage developers, contractors and/or construction managers in formal and informal value engineering of our design projects. Ultimately, our goal is to maximize the sustainability of our projects. Internally, Wright-Pierce incorporates value engineering into the initial phase of all evaluations and preliminary design efforts to ensure that all options are considered to:

- Reduce the initial capital cost
- Reduce the long-term operation and maintenance costs
- Improve the reliability of the facilities
- Maximize the project's long-term value to the client

Wright-Pierce is routinely asked to provide value engineering and peer review services because of our track record for developing cost-effective solutions.

Wright-Pierce has been involved in many projects, which have included value engineering or peer review services to ensure the client was getting the best value and that the proposed projects complied with Local and State regulations. Some recent examples include the following:

- Town of Bethel, CT (various P&Z and engineering reviews)
- City of Danbury, CT (various reviews for utility department)
- Town of Durham, CT ((various P&Z and engineering reviews)
- The Mattabassett District (value engineering)
- MDC Hartford, CT (UAL#1 Green Alternatives review for stormwater management)
- City of Norwalk (Keeler Brook Flood Evaluation)
- City of New London (Long Island Sound storm water outfall pipe evaluation and design).



**STORMWATER MANAGEMENT  
PLANNING & DESIGN**

New England states have experienced increases in precipitation trends throughout the past several years. As a result, many communities have witnessed an increase in stormwater runoff, and river, stream and tributary flood flow rates. In an effort to recover from past flood events and to prepare for future events, many communities have turned to Wright-Pierce for stormwater solutions. From community stormwater master planning to emergency dam repairs, Wright-Pierce has provided efficient and expert stormwater planning and design services.

**Example Projects:**

- Stormwater Management Planning - Manchester-by-the-Sea, MA
- Stormwater Management Planning - Weston, MA
- Culvert Design and Replacement - Hudson, MA
- Stormwater Treatment System - North Andover, MA (GLSD)
- Stormwater Management Planning - Hamilton, MA
- Stormwater Management Planning - Maynard, MA
- Water Quality Improvements, Town Beach—Bristol, RI
- Stormwater Separation Area 6 - Newport, RI
- Watershed Reservoir Safe Yield Study—Newport, RI
- Stormwater Management Planning—Smithfield, RI
- Exeter River Study - Exeter, NH
- Berry River Emergency Dam Repairs - Strafford, NH
- Chesley Hill Road Bridge Replacement - Rochester, NH
- Salmon Falls Road Culvert - Rochester, NH
- Winnicut River Dam Removal Study - Greenland, NH
- Sewer Separation and Infrastructure Improvements - Lebanon, NH
- Bottling Facility, Poland Springs - Hollis, ME
- Stormwater Management Planning in LID Area - Bangor, ME
- Boulter Pond Spillway - York, ME
- Design-Build Emergency Storm Drain Replacement - Richmond, ME
- Fisher Road Culvert Replacement - Bowdoinham, ME
- Blayne Street Culvert Replacement - Dixfield, ME
- Allen and Toothaker Bridge Replacements - Pownal, ME
- Grassy Pond Dam Replacement - Rockport, ME



## NPDES PHASE II STORMWATER PROGRAM ASSISTANCE - CONNECTICUT

Stormwater is an integral part of a municipality's operations from both a quantity and quality standpoint. Wright-Pierce has extensive experience working with municipal planning, engineering, and operations staffs to develop the tools required for comprehensive stormwater management.

To preserve and improve the nation's water resources by protecting them from polluted stormwater runoff, the EPA expanded its Phase I stormwater program that was established under the National Pollutant Discharge Elimination System (NPDES) for "medium" and "large" municipal separate storm sewer systems (MS4s) to include "small" MS4s under a Phase II stormwater program. The state of Connecticut is a delegated state, meaning they are authorized to administer the NPDES permitting programs in their state. Currently, regulated small MS4s in Connecticut are in the second 5-year cycle of the Phase II General Permit.

Connecticut's small MS4 General Permit requires the development and implementation of a Stormwater Management Plan that addresses the six minimum control measures (MCMs) and includes best management practices (BMPs) for each measure. In addition to the six MCMs, permittees are also required to conduct limited annual wet weather samplings consisting of six representative samples per year, or an equivalent.

From program inception, Wright-Pierce has been involved with all aspects of the Stormwater Phase II program. Wright-Pierce engineers have participated in stakeholder workgroups developing the General Permit control measures, and have assisted communities throughout New England in the preparation and implementation of Stormwater Program Management Plans and Annual Reports.

Other Stormwater Phase II program assistance includes the collection, compilation, management, presentation and assessment of mapping data through the use of GIS, third-party construction site inspections, and on-site training.

In addition, Wright-Pierce has worked with industrial and municipal clients to develop Stormwater Pollution Prevention Plans (SWPPPs) to identify potential sources of pollution expected to affect stormwater discharge quality and to outline and implement practices to reduce pollutant sources at their facilities.





*Rain gardens help reduce runoff from developed areas. They add visual interest, provide limited detention and treatment of surface runoff, and contribute to habitat values for birds and wildlife.*



## Low Impact Development Mechanisms for Stormwater Management

Over the past several years, there has been significant momentum towards using “Low Impact Development” (LID) methodologies for stormwater management. Historically, most approaches to stormwater management focused on designing and installing a system of swales and pipes to route stormwater to a single point of discharge — generally either directly or indirectly to a surface water body. Today, LID methodologies relate to avoiding concentrated points of discharge, and even eliminating them, by promoting infiltration and/or treatment with natural and native vegetation.

### Embracing LID techniques

Recognizing that traditional stormwater Best Management Practices (BMPs) that focus solely on the conveyance of stormwater have failed to protect the receiving waters to which they drain, many New England regulatory agencies have embarked on a process of updating stormwater regulations with an eye to encouraging LID techniques. In an effort to meet the four primary stormwater management objectives — effective pollutant removal, cooling channel protection, and flood control — guidance has been given towards improved methods of stormwater management, including the use of LID techniques, which seek to sustain four important principles: minimize impervious areas; limit areas of clearing and grading; minimize directly connected impervious areas; and, manage stormwater at its source.

### Rain gardens – design and consideration

Rain gardens, or bioinfiltration areas, are an attractive mechanism for reducing runoff from developed areas. Done properly, they add visual interest, provide limited detention and treatment of surface runoff, and contribute to habitat values for birds and wildlife. In New England, their effectiveness is most evident between March or April and November. In northern areas, the subsoil may freeze to a depth of several feet, which greatly limits their ability to dispose of the precipitation and snow melt from that occasional late February rainstorm. Rain garden design in northern climates should consider the consequences of inability to discharge to groundwater during the winter months and include provisions to manage such flows. Bear in mind that the big open space next to your parking lot that looks like a great spot for a rain garden in the summer, may in fact be your snow storage area in the winter. The piling of snow, coupled with use of winter maintenance sand and deicing chemicals are important considerations in locating and designing a rain garden.

### Infiltration – pros and cons

Infiltration of surface runoff is an effective mechanism for removing pollutants that might otherwise be discharged to adjacent surface waters. However, the filtering effect of the topsoil and vegetation is short-circuited when the runoff is

directed to a highly permeable subsoil. Promoting the use of infiltration from developed areas to groundwater should take into account the presence of aquifers or nearby water supply wells. In areas where subsoils may contain contaminants from past industrial uses, promoting infiltration may actually enhance transport of these substances, ultimately increasing their concentration within adjacent surface water bodies.

### Porous pavements reduce runoff

Use of porous pavements constitutes an excellent mechanism for reducing runoff from parking areas and other paved surfaces that are not typically subjected to

*Continued on back page*



*Porous pavements reduce runoff from parking areas and other paved surfaces that are not subject to heavy vehicle loads.*

## Low Impact Development Mechanisms for Stormwater Management

*Continued from page 7*

heavy vehicle loadings. The jury is still out as to whether use of porous pavements on highways will result in reduced pavement life, due to the lower density of the bituminous courses, or reduced support values of base materials through the introduction of surface water. It is also important to consider compatibility with winter maintenance. Most experts agree that use of winter maintenance sand will dramatically impair the ability of that porous pavement to function as designed.

### Conclusion

In short, the commonly used range of LID methodologies present a number of excellent tools for addressing stormwater management challenges for both developers and municipalities, but like any other tools, they are most effective when one contemplates their use in the full context of the application. As always, consideration must be given to the benefits and pitfalls of LID stormwater management solutions as one seeks opportunities to enhance the sustainability of our developments and infrastructure systems.

Through our role in assisting both municipalities and developers alike, Wright-Pierce has maintained a staff

experienced in all aspects of stormwater management. We pride ourselves in "staying ahead of the curve" with respect to emerging technologies and regulations. Like many others, we have embraced the use of LID techniques for the many benefits they offer, and have incorporated them into many of our projects over the past several years. At the same time, we recognize that our role as consultants includes assisting our clients in understanding both the benefits and the limitations associated with key design decisions related to LID technologies. Project specific decisions with respect to pre-treatment requirements, the need to address certain priority pollutants, and consideration of long-term operation and maintenance requirements, which are different for each BMP, can be expected to have a meaningful impact on the longevity and effectiveness of a stormwater management system. ▲



**For information contact:**

**Jon Edgerton, P.E.**  
Senior Vice President  
jce@wright-pierce.com



**Congratulations  
Mattabassett District,  
Cromwell, CT**

### Recipient of Wastewater Utility Award

We congratulate our client, Mattabassett District, Cromwell, CT, for being awarded the Wastewater Utility Award by New England Water Environment Association (NEWEA).

The NEWEA Wastewater Utility Award serves to acknowledge the outstanding performance of a wastewater division in the New England area. The NEWEA Utility Management committee understands that flow and loadings should not be the only criteria for this award but how the process, people and customers are managed is of paramount importance. This award recognizes Mattabassett for its operation and commitment to the community.

The actual award will be presented to Mattabassett at NEWEA's 2010 annual conference, January 24 - 27, 2010.

To be added to our newsletter mailing list or to update your contact information, please email: [jla@wright-pierce.com](mailto:jla@wright-pierce.com)



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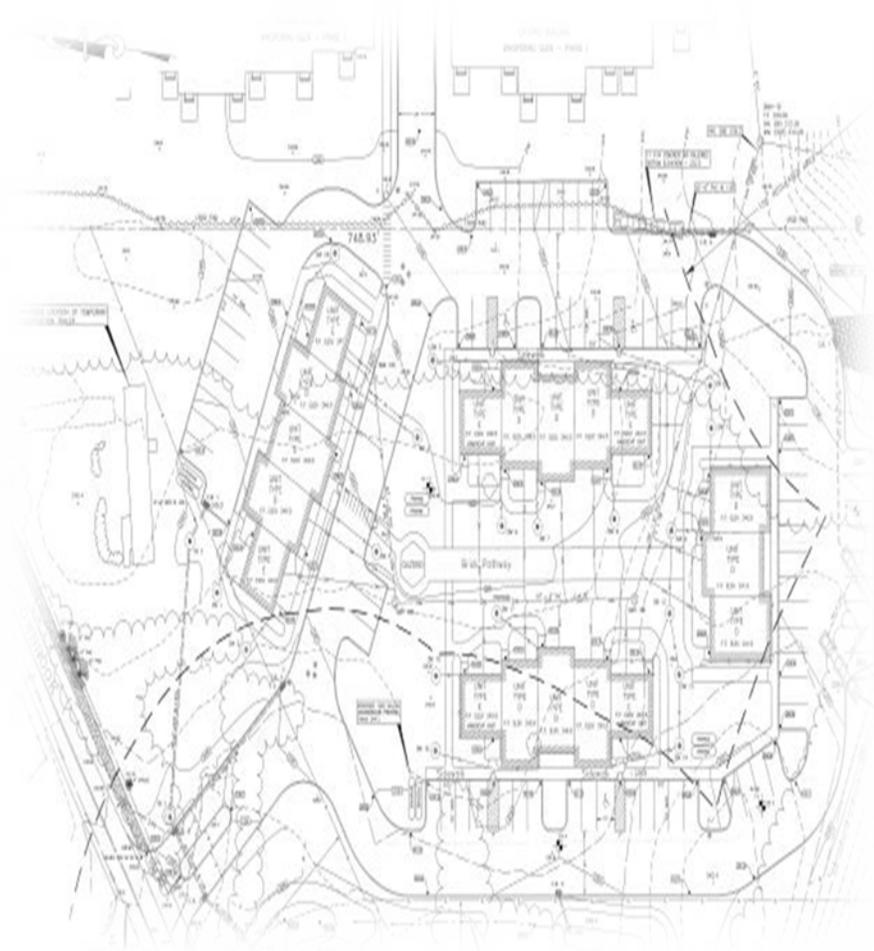
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# **Statement of Qualifications**

**Proposal for third-party Engineering &  
Environmental Services  
For following project:**

**Meadowbrook Gardens  
91-93 Meadowbrook Lane  
Mansfield, Connecticut**

**Prepared for the**

**Town of Mansfield**



**Submitted by: Trinka Engineering, LLC  
114 Hunters Ridge Road  
Southbury, Connecticut 06488**

**Trinkaus Engineering, LLC**  
114 Hunters Ridge Road  
203-264-4558 (phone & fax)  
[www.trinkausengineering.com](http://www.trinkausengineering.com)

Civil Engineers  
Southbury, Connecticut 06488  
E-mail: [strinkaus@earthlink.net](mailto:strinkaus@earthlink.net)

February 21, 2016

Ms. Linda Painter, ACIP, Director of Planning & Development  
Town of Mansfield  
Audrey P. Beck Municipal Building  
4 South Eagleville Road  
Mansfield, Connecticut 06268

RE: Request for Qualifications/Cost Proposal – Professional  
Engineering & Environmental third-party review for  
Meadowbrook Gardens proposal

Dear Ms. Painter

Steven Trinkaus as its principal and Trinkaus Engineering, LLC is pleased submit this statement of qualifications/Cost Proposal to provide professional civil engineering, traffic engineering and environmental review services to the Town of Mansfield for the Meadowbrook Gardens project as requested in the Request for Proposals issued by the Town of Mansfield on February 16, 2016. Trinkaus Engineering is partnering with the following firms to address all of the expertise requested by your office.

Traffic Engineering:

This portion of the review will be performed by Mr. Kermit Hua, PE of KWH Enterprise, LLC of Meriden, Connecticut.

Wetland/Environmental Services:

This portion of the review will be performed by Mr. Matt Popp of Environmental Land Solutions, LLC of Norwalk, Connecticut.

## **SECTION “A” - STATEMENT OF QUALIFICATIONS**

### **Steven D. Trinkaus, PE**

Steven Trinkaus is a licensed professional engineer in the State of Connecticut. He has been licensed since 1988 as a professional engineer. His firm, Trinkaus Engineering, LLC has been licensed as an Engineering Corporation since 2003 in the State of Connecticut.

Mr. Trinkaus has over 35 years practicing in the land development field in the State of Connecticut. He has performed engineering services in many municipalities in the State of Connecticut. He is also an expert in the field of Low Impact Development, where the focus is on

addressing water quality and runoff volumes which result from development proposals. He has over 15 year of experience in the field of Low Impact Development.

Mr. Trinkaus has performed third party engineering reviews for land use agencies in the Towns of Brookfield, Newtown, Southbury, Tolland and Winchester for both inland wetland and planning & zoning applications. He has also performed third party engineering reviews for concerned citizen groups in the Towns of Branford, East Lyme, Groton, Litchfield, Ridgefield, Stonington, and Waterford of land development projects. He has also provided reviews for the Candlewood Lake Authority to assess the potential impacts of a large residential development proposed on steep terrain above the lake.

All of these reviews deal with the changes in stormwater which results from development proposals, particularly increased pollutant loads, runoff volumes and increases of the peak rate of runoff and are these issues being adequately addressed by the applicant's plans. He has also reviewed the design of the stormwater management systems to determine if they are in compliance with the specifications found in the CT DEP 2004 SWQM and any local municipal requirements. Additionally, the grading and erosion control plans are reviewed for compliance with the CT DEP 2002 Guidelines as well as the municipal land use regulations.

### **Kermit W. Hua, PE, PTOE**

Kermit Hua is a registered Professional Engineer (PE) and Professional Traffic Operations Engineer (PTOE) with over 18 years of experiences in traffic engineering. He has represented towns and owners on land use applications in Connecticut since 1998. Land use traffic impact is the focus of his practice.

As examples of his traffic review work similar to this Mansfield assignment, he has helped the Town of Wallingford review the following applications in the past three years:

1. Traffic peer review of service station at 440 Main Street (Route 150), Yalesville, Connecticut;
2. Traffic peer review of Chick-Fil-A Restaurant, Route 5, Wallingford, Connecticut; and
3. Traffic peer review of outparcel development, 1094 North Colony Road (Route 5), Wallingford, Connecticut.

For controversial projects as this, it is important for reviewers to stay above the fray and concentrate on the technical aspects of the application. If selected, Mr. Hua will aim to provide objective and thorough traffic reviews with realistic and constructive recommendations for this development.

### **Matthew Popp, Professional Wetland Scientist**

Mr. Popp is a Connecticut licensed Landscape Architect and Certified Professional Wetland Scientist. He has over 28 years in the environmental field, with the last 20 years being the principal of Environmental Land Solutions, LLC in Norwalk, Connecticut. Mr. Popp served on the Greenwich Inland Wetlands and Watercourses Agency for 16 years and is a past President of the Audubon Greenwich Board. Matthew has a Master's degree in Landscape Architecture

from the University of Georgia's School of Environmental Design. He spends a significant portion of his free time birding the Connecticut's southwest corner.

Mr. Popp has performed the following environmental services for private and municipal clients:

1. Delineation of inland wetland soils using Federal criteria,
2. Delineation of coastal tidal wetland boundaries,
3. Inventories of vegetative and wildlife communities, including the identification of vernal pools and conducting rare species surveys,
4. Environmental reports assessing impacts of land development projects on natural resources,
5. Development of and evaluation of wetland mitigation plans,
6. Preparation of aquatic studies of wetland and watercourse systems,
7. Provide expert testimony on environmental issues before land use agencies.

Mr. Popp has been the environmental consultant to the City of Bridgeport's Inland Wetlands and Watercourses Agency for over 25 years responsible for the review of all applications, the preparation of permits, environmental site monitoring, and updating regulations. Mr. Popp has also performed environmental reviews in the towns of Greenwich, New Canaan, Stratford, Trumbull, and Wilton. The focus of these reviews is to evaluate the land development proposals and their effect on the aquatic resources on the site. These reviews also focus on the adequacy of the environmental assessment performed by the applicant and whether impacts to the aquatic resources are significant and unavoidable.

## **SECTION "B" – SCOPE OF SERVICES**

### Civil Engineering:

1. Conduct a field inspection of the subject property,
2. Review of stormwater management system for compliance with Town of Mansfield requirements as well as the CT DEP 2004 Storm Water Quality Manual (SWQM),
3. Review all hydrologic calculations provided by the applicant to support the design of the stormwater management system,
4. Review the adequacy of the soil testing performed by the applicant for the stormwater management system to ensure compliance with the requirements of the SWQM,
5. Review the design of Low Impact Development (LID) practices proposed to ensure that the practices are appropriately sized and designed to function over the long term,
6. Review construction and maintenance specifications for the stormwater management systems,
7. Review proposed sanitary sewer design and the connection to the existing Town of Mansfield system to ensure compliance with Windham Water Pollution Control requirements and sound engineering practices,
8. Review of erosion and sedimentation control plan for compliance with CT DEP 2002 Guidelines for Soil Erosion & Sediment Control (Guidelines) as well Town of Mansfield requirements,
9. Review of site grading for compliance with requirements of DEP Guidelines and Town of Mansfield regulations,

10. Prepare report summarizes comments and concerns regarding stormwater management and erosion/sedimentation control plans and reports,
11. Prepare update report in response to modifications submitted by the applicant after initial review letter,
12. Attendance at one (1) public hearing to present review letter and respond to questions of the commission, staff and public.

Traffic Engineering:

1. Conduct a field visit,
2. Review the traffic study and site plans from the applicant,
3. Prepare a report summarizing traffic review comments and additional traffic impact assessment and mitigation measures if applicable,
4. Prepare an updated peer review report in response to a resubmission by the applicant,
5. Attendance at one (1) public hearing to present review letter and respond to questions of the commission, staff and public.

Wetland/Environmental:

1. Conduct a field visit to inspect field delineated inland wetlands,
2. Review of submitted documentation and identify potential impacts to inland wetlands or watercourses,
3. Review of submitted documentation for proposed mitigation measures to address impacts to delineated inland wetlands or watercourses,
4. Prepare a report summarizes potential impacts of development proposal on delineated inland wetlands or watercourses,
5. Provide recommendations to mitigate potential impacts to delineated inland wetlands or watercourses,
6. Prepare an updated report in response to modifications made by the applicant,
7. Attendance at one (1) public hearing to present review letter and respond to questions of the commission, staff and public.

## **SECTION "C" - LIST OF REFERENCES**

The following are a list professional references for Steven Trinkaus, Mr. Hua and Mr. Popp where they have performed similar engineering or environmental review services requested by the Town of Mansfield.

References for Steven Trinkaus, PE:

1. Alice Dew, Wetlands Enforcement Officer, Town of Brookfield, 100 Pocono Road, Brookfield, CT 06804 Phone: 203-775-7316; Email: [adew@brookfieldct.gov](mailto:adew@brookfieldct.gov)
2. Rob Sibley, Deputy Director of Conservation for the Town of Newtown; 31 Primrose Street; Newtown, Connecticut 06470. Phone: 203-270-4276, Email: [rob.sibley@newtown-ct.gov](mailto:rob.sibley@newtown-ct.gov)
3. Linda Farmer, AICP (former town planner for Tolland), P.O. Box 8, Calaumet, MA 02534. Phone: 860-247-8363, Email: [lindafarmer2000@gmail.com](mailto:lindafarmer2000@gmail.com)

4. Penny Bellamy (Branford Citizens for Responsible Development), Phone: 203-804-1674  
Email: [pennybellamy@gmail.com](mailto:pennybellamy@gmail.com)
5. Michele Crow of PLAN Litchfield, South Lake Street; Litchfield, Connecticut. Phone: 860-567-0243; Email: [crow@artemislaw.com](mailto:crow@artemislaw.com)

References for Kermit W. Hua, PE:

1. John Thompson, PE; Former Wallingford, CT Town Engineer, 79 School House Road, Wallingford, CT 06492-3454, Phone: 203-269-1859, Mobile: 203-631-1699, [JPTHOMPSONPE4@aol.com](mailto:JPTHOMPSONPE4@aol.com)
2. Robert V. Baltramaitis, PE; Current Wallingford, CT Town Engineer, Town of Wallingford, 45 South Main Street, Wallingford, CT 06492, Phone: 203-294-2035, [baltro@aol.com](mailto:baltro@aol.com)

References for Matthew Popp, PWS:

1. Richard Talamelli, Environmental Planner, Environmental Protection Board, 888 Washington Blvd., Stamford, CT 06904, Phone: 203-977-4965, [rtalamelli@ci.stamford.ct.us](mailto:rtalamelli@ci.stamford.ct.us)
2. Alexis Cherichetti, Senior Environmental Officer, Inland Wetland Agency, 125 East Avenue, P.O. Box 5125, Norwalk, CT 06856-5125, Phone: 203-854-7744, [acherichetti@norwalkct.org](mailto:acherichetti@norwalkct.org)
3. Patricia Sesto, Director, Inland Wetlands and Watercourses Agency, 101 Field Point Road, Greenwich, CT 06830, Phone: 203-622-7736, [Patricia.Sesto@greenwichct.org](mailto:Patricia.Sesto@greenwichct.org)

## SECTION "D" – FEE SCHEDULES

### **Civil Engineering:**

Lump sum fee for defined scope of services above = \$ 7,850.00

Items not included in lump sum fee:

1. Attendance at more than one public hearing: \$ 775.00

### **Traffic Engineering:**

Lump sum fee for defined scope of services above = \$ 5,500.00

Items not included in lump sum fee:

1. Attendance at more than one public hearing: \$ 700 per meeting

### **Wetland/Environmental:**

Lump sum fee for defined scope of services above = \$ 5,000.00

Items not included in lump sum fee:

1. Attendance at more than one public hearing: \$ 700.00
2. Attendance at additional site visits / meetings: \$ 500.00

The project team of Trinkaus Engineering, LLC; KWH Enterprise, LLC and Environmental Land Solutions, LLC appreciate the opportunity to offer our professional expertise to the Town of Mansfield. Please contact my office if you have any questions concerning this information.

Respectfully Submitted,  
Trinkaus Engineering, LLC

A handwritten signature in cursive script that reads "Steven D. Trinkaus".

Steven D. Trinkaus, PE

Enclosures

**APPENDIX “A”**  
**Curriculum Vitae of**  
**Steven D. Trinkaus, PE**

**Kermit Hua, PE**

**Matt Popp**

**Steven D. Trinkaus, PE**  
**Trinkaus Engineering, LLC**  
114 Hunters Ridge Road Southbury, Connecticut 06488  
203-264-4558 (phone & fax)  
<http://www.trinkausengineering.com>  
[strinkaus@earthlink.net](mailto:strinkaus@earthlink.net)

<b>Education</b>	B.S. / Forest Management/1980 University of New Hampshire
<b>Licenses/Certifications</b>	Licensed Professional Engineer-CT Connecticut (1988)
<b>Professional Societies</b>	American Society of Civil Engineers National Society of Professional Engineers Connecticut Society of Professional Engineers Soil and Water Conservation Society of America International Erosion Control Association American Society of Agricultural and Biological Engineers
<b>Professional Awards</b>	Steve was named an Industry Icon by Storm Water Solutions in July 2015 <a href="http://editiondigital.net/publication/?i=263831&amp;p=16">http://editiondigital.net/publication/?i=263831&amp;p=16</a> for his work in the Low Impact Development field.

### International Experience

#### South Korea – April 2015, October 2014, April 2014, October 2013 and June 2013

- Steve was an invited presenter at the World Water Forum by Dr. Hyunsuk Shin of Pusan National University. He presented case studies of GI/LID applications in the United States.
- Steve was invited by Dr. Yong Deok Cho of Kwater to participate in the Water Business Forum at the World Water Forum. Steve presented an overview of his business and expertise in Low Impact Development.
- Steve was invited by Dr. Hong-Ro Lee of Kunsan National University and made a presentation entitled “Understanding Low Impact Development in the Urban-Rural Interface” for the **Ariul Brainstorming Working Group** on April 16, 2015 in Gunsan, South Korea. He also toured portions of the proposed land reclamation area to assess how Low Impact Development strategies could be incorporated to address water quality issues from the proposed agricultural, residential, commercial and industrial land uses for this area.
- Steve was a Contributing Author as well as an Advisory Reviewer for a report prepared by Land & Housing Institute (LHI) entitled “Pyeongtaek Godeok New City Low Impact Development techniques (LID), A study on the introduction of measures (I) “ dated: January 2015. This report by LHI also cited the Town of Tolland LID Design Manual as a foreign LID Manual to be used as a reference document.
- Steve was an invited presenter at the International Water Forum 2014 held in conjunction with the Nakong River International Water Week in Gyeongju, South Korea sponsored by DaeGyeong Water Foundation & the International Hydrologic Environmental Society. His presentation focused on urban stormwater and the benefits of LID in these areas.
- Steve was an invited presenter at the IWA Water Reuse & Energy Conference 2014 held in Daegu, South Korea.
- He also made a presentation at The 1<sup>st</sup> GI & LID Technical Education Workshop held at Pusan National University on October 22<sup>nd</sup> on an overview of LID and the application of LID concepts. He was invited by Dr. Kyung Hak Hyun of Land & Housing Institute (LHI) to make two presentations of LID case studies at Sangyung University and at a seminar hosted at LHI along with Kwater.

- Steve signed a MOU with HECOREA to provide consulting services on LID monitoring approaches and maintenance protocols for the Go-Deok International Planning District near Pyeongtaek, South Korea.
- Steve was invited by Dr. Kyung Hak Hyun of Land & Housing Institute to present at the 2<sup>nd</sup> Low Impact Development Forum in Daejeon, South Korea on October 31, 2013.
- Steve was invited to make a presentation of the implementation of LID on commercial sites by Dr. Reeho Kim of the Korea Institute of Construction Technology in Seoul.
- Steve met with Dr. Sangjin Lee of Korean Water and Dr. Woo Young Heo, CEO of LID Solution Co, Ltd to review the initial concept plans for the Eco-Delta City project. Eco-Delta City is a new city located near the Gimhae International Airport of 13 square kilometers and will incorporate LID concepts throughout the new city.
- Steve signed a MOU with Dr. Shin of Pusan National University to provide consulting services for the Smart GI/LID Research Facility at Pusan National University. Steve was asked by Dr. Shin to review the design plans for the GI/LID research facility to be constructed at Pusan National University with a focus on the exterior LID research facilities. He provided a written comprehensive review for consideration by PNU.
- Steve was invited by Dr. Hyunsuk Shin of Pusan National University in South Korea to present a workshop on Low Impact Development on June 24, 2013. The presentation was made to research professors, graduate engineering students and practicing engineers at K-water headquarters in Daejeon, South Korea.

### **Zhenjiang, China – June 2015**

Steve was retained by Dr. Nian She to design Urban LID retrofits for a 2.5 hectare (6.5 acres) dense residential area in the city of Zhenjiang. The LID retrofits had to fully treat runoff from the existing impervious areas (building roofs, driveways and parking areas) for 65 mm (2.6”) of rainfall in 24 hours. The LID systems also had to attenuate the peak rate of runoff for a rainfall event of 150 mm (5.9”) rainfall event. A combination of Bioretention systems, and permeable pavers with a filter course and reservoir layer were used to meet these stormwater requirements.

### **Zhenjiang, China – May 2015**

Steve was invited by Professor Nian She of Shenzhen University to make a presentation entitled “Using LID to Attenuate Large Rainfall Events and Reduce Flood Potential” at the 2015 First Sino US Sponge City LID Technology Practice Conference held on May 4-5, 2015 in Zhenjiang, China organized by Zhenjiang Water Supply and Drainage Management Office. ([http://www.c-water.com.cn/2015lid/en/index\\_e.html](http://www.c-water.com.cn/2015lid/en/index_e.html)). In addition to the presentation, field inspections were made of several new LID installations in the city consisting of Bioswales, permeable pavement systems and rainwater harvesting.

### **Guangzhou, China – December 2012**

Steve was an invited attendee at the 15<sup>th</sup> Annual Guangzhou Convention of Chinese Scholars in Science and Technology in Guangzhou, China on December 17 – 21, 2012 to present a project narrative on how Low Impact Development and sustainable development can be applied to address water quality issues in urban and rural areas of China to implement sustainability concepts and conservation of resources. He attended with Dr. Jim Su, PE of Golder Associates of Mt. Laurel, New Jersey. While at the convention he met with representatives from Sichuan University, Chang’an University, Guangdong University of Technology, Shenzhen University and the South China Institute of Environmental Sciences, MEP to discuss LID being incorporated into their engineering programs.

### **Taiwan – December 2011**

Steve was invited by Hung Kwai Chen, Director of the Water Resources Planning Institute, Water Resource Agency, Ministry of Economic Affairs of Taiwan and Dr. Yong Lai of the US Bureau of Reclamation to present a 12-hour presentation on Low Impact Development on December 8<sup>th</sup> and 9<sup>th</sup>, 2011 in Taichung, Taiwan. The presentation focused on applying LID strategies in both urban and rural environments to address runoff volumes and water quality issues.

### **Future Presentations**

- Steve will be presenting an all-day workshop on Stormwater Issues and Low Impact Development with Dan Medina of Atkins and James Lenhart of Contech at the **2016 International Conference on Green Infrastructure and Resilient City** being held in Shenzhen, China on March 16 – 18, 2016.

### **Low Impact Development**

- Review of existing municipal land use regulations to identify barriers to the implementation of Low Impact Development
- Preparation of regulatory language changes to facilitate the adoption of Low Impact Development
- Preparation of design manuals for the implementation of Low Impact Development strategies and processes with an approach that simplifies the design process
- Application of environmental site design strategies to focus development concepts on land most suitable for development while enhancing the protection of environmentally sensitive areas
- Design of Low Impact Development treatment systems, such as Bioretention areas, wet/dry swales, vegetated level spreaders, vegetated filter strips, subsurface gravel wetlands, constructed wetlands and/or pond systems, infiltration basins & trenches
- Hydrologic analyses of current and post-development conditions to assess impacts of proposed development on storm water flows
- Design of storm water control systems including detention and water quality basins and appropriate planting plans
- Perform hydrologic modeling of stormwater management systems to demonstrate compliance with regulatory benchmarks
- Prepare Pollutant loadings analyses to evaluate the effectiveness of stormwater treatment designs in reducing pollutant loads

### **Wastewater Management:**

- Soil testing to determine suitability of land to support on-site sewage disposal systems for residential and commercial projects and assistance with identifying optimal location for both small and large scale system
- Perform necessary calculations to model and design large scale subsurface sewage disposal systems under CT DEEP criteria and State Department of Public Health
- Design of on-site sewage disposal systems in accordance with state and local health codes
- Perform construction oversight of both small and large scale subsurface sewage disposal systems and provide certifications of compliance

### **Site Engineering:**

- Development feasibility studies
- Layout concepts to maximize development, while preserving environmentally sensitive areas
- Design of horizontal and vertical road geometry
- Preparation of grading, drainage and erosion and sedimentation control plans
- Use AutoCAD Land Development, Civil3D, HydroCAD and Pondpack software packages
- Layout and design of sanitary sewers
- Bid estimates
- Construction oversight
- Third party technical reviews
- Expert testimony

### **Professional Committees**

- Chairman and primary author of EWRI/ASCE LID Model Ordinance Task Committee (goal is to create a National LID Guidance document to further the adoption of LID)

- Chairman of EWRI/ASCE LID Task Committee on Filter Strips and Bioswales (goal is to review & evaluate literature and design specifications for filter strips and Bioswales and create uniform design standards for different geographical regions)
- Member of EWRI/ASCE LID National Guidelines Task Committee
- Connecticut Representative to the Board of Directors of the Northeast Chapter of the International Erosion Control Association

### Published Articles

- **“Large-scale LID Design for urban expansion in South Korea”** with co-author, Dr. Kyung Hak Hyun of South Korean Land and Housing Institute – Volume 3/Issue 4, August/September 2015 – Worldwater Stormwater Management by the Water Environmental Federation.
- **“Research team leads LID deployment in South Korea”** – Volume 2/Issue 1, Spring 2014 – Worldwater Stormwater Management by the Water Environmental Federation.
- **“Low Impact Development, Sustainable Stormwater Management”** – English article converted to Chinese and published in the Chinese Edition of Global Water Magazine, July 2013.
- **“A Case Study: Southbury Medical Facility and Low Impact Development”** - January/February 2014 issue of Land and Water.
- **“A True Pioneer of Low Impact Development – Member Spotlight”** – January/February 2014 Issue of Erosion Control – Official Journal of the International Erosion Control Association.
- **“Low Impact Development: Changing the Paradigm”** published in the March 2012 edition of PE, The Magazine for Professional Engineers by the National Society of Professional Engineers. Article was also republished in the Spring 2012 addition of EWRI Currents (with permission of NSPE).
- **“Stormwater Retrofit of Existing Detention Basins”** published in the March/April 2012 Land and Water, The Magazine of Natural Resource Management and Restoration with co-author Sean Hayden of the Northwest Conservation District.
- **“Out in the Open; Creating a Stormwater Park in the Heart of a Community”** published in the April 2013 issue of WaterWorld by Pennwell Corporation.
- **“Creating a Stormwater Park in the City Meadow of Norfolk, Connecticut”** published in the July/August 2013 edition of Land and Water

### Volunteer Organizations

- Immediate Past President (elected 11/2013) and Connecticut Representative to the Board of Directors for the Northeast Chapter of IECA, (Chairman of 2012 Annual Conference to be held in Fishkill, NY)
- Chairman, Water Pollution Control Authority for the Town of Southbury
- Alternate member of Inland Wetlands Commission Town of Southbury (served three years)
- Northwest Conservation District Board of Directors (served 18 months)

### Software Development

Developed a proprietary software application called **Assessment of Pollutant Loads and Evaluation of Treatment Systems (A.P.L.E.T.S.)**. This application calculates the pollutant loads for current and future land use conditions for the seven most common pollutants in non-point source runoff (TSS, TP, TN, Zn, Cu, TPH, & DIN) for a total of twenty two different types of land uses. The application then allows the evaluation of the effectiveness of thirty four Conventional and Low Impact Development treatment systems in removing these pollutants. Up to four treatment systems can be used in a row as a treatment train to achieve water quality goals.

### Conferences Attended

- Bioretention Summit: Ask the Researcher – Annapolis, MD by the University of Maryland (Dr. Alan Davis), North Carolina State University (Dr. Bill Hunt) and Villanova University Stormwater Partnership (Dr. Rob Traver) – (July 2010).

- Workshop at the University of New Hampshire Stormwater Center on permeable pavements. This full-day training included field visits to a variety of on-the ground porous pavement installations throughout the region. Participants learned key design principles necessary to successfully design, evaluate, specify, and install porous pavement for stormwater management. (December 2009).
- Two workshops at the University of New Hampshire Stormwater Center in Durham, NH to observe conventional and Low Impact Development storm water treatment systems in operation. The Stormwater Center is independently verifying the effectiveness of the various treatment systems to remove pollutants from runoff and reduce impacts associated with storm flows. (March 2006 and May 2007).
- 2<sup>ND</sup> National Low Impact Development Conference – North Carolina State University held in Wilmington, NC, (March 2007).
- Designing Bio/Infiltration Best Management Practices for Stormwater Quality Improvement – University of Wisconsin (Madison, WI) (November 2005).
- Stormwater Design Institute – Center for Watershed Protection (White Plains, NY), (December 2004).
- Engineering and Planning Approaches/Tools for Conservation Design – University of Wisconsin (Madison, WI) (December 2003).
- Law for Design Professionals in Connecticut – Lorman Education Services in Trumbull, CT (September 2002).
- On-site Wastewater Facility Design – University of Massachusetts in Amherst, MA (May 2002).
- The Northeast Onsite Wastewater Short Course & Equipment Exhibition – New England Interstate Water Pollution Control Commission in Newport, RI (March 2002).
- Designing On-site Wetland Treatment Systems, University of Wisconsin, (Madison, WI) (October 1999).
- Cost Effective Drainage System Design – University of Wisconsin (Atlanta, GA) (November 1997).
- Treatment Wetlands, University of Wisconsin, (Madison, WI). “Creating and Using Wetlands for Wastewater Disposal and Water Quality Improvement” (April 1996).
- Alternative On-site Wastewater Treatment Systems, New England Intrastate Pollution Control Commission’s On-Site Wastewater Task Force in Westford, MA (November 1994).
- Stormwater Quality, University of Wisconsin, (Portland, ME). “Designing Stormwater Quality Management Practices” (June 1994).

### **Invited Speaker Presentations:**

- Steve was invited by Dr. Jae Ryu of the University of Idaho Water Center to make a presentation entitled “Designing Low Impact Development treatment systems for **Urban & Agricultural Environments**” at the **Annual US-Korea Conference on Science, Technology, and Entrepreneurship** being held in Atlanta, Georgia on July 29 to August 1, 2015. ( <http://www.ukc.ksea.org/UKC2015/> )
- Steve was invited by the Lake George Waterkeeper to make a presentation entitled “Applying LID Concepts in the Real World” at the 5<sup>th</sup> Annual Low Impact Development Conference being held in Lake George, NY on May 7, 2015. ( <http://fundforlakegeorge.org/2015LID> )
- Steve was invited by Dr. Hyunsuk Shin and made a presentation entitled “Real Adaptation and Implementation of GI and LID Technology in USA” at the **World Water Forum** (<http://eng.worldwaterforum7.org/main/>) being held in Daegu, South Korea on April 14, 2015.
- Steve prepared a presentation for a workshop to civil and environmental engineering students at **Pusan National University** ([http://www.pusan.ac.kr/uPNU\\_homepage/kr/default.asp](http://www.pusan.ac.kr/uPNU_homepage/kr/default.asp)) in Busan, South Korea on April 17, 2015 entitled “Designing LID System, What do you need to know and why?”.
- Steve was invited by Dr. Hong-Ro Lee of Kunsan National University and made a presentation entitled “Understanding Low Impact Development in the Urban-Rural Interface” for the **Arial Brainstorming Working Group** on April 16, 2015 in Gunsan, South Korea. It will focus on how Low Impact Development concepts can be applied to made land areas filled in off the west coast of South Korea to address water quality issues.
- Steve was an invited speaker at the **2014 Low Impact Development Conference** sponsored by the Lake George Waterkeeper and the Fund for Lake George in Lake George, NY on May 1, 2014 for land use

professionals and regulatory agencies. He will be presenting case studies focusing on the application of LID concepts for commercial and residential projects.

- Steve was invited by Justin Kenney, Green Infrastructure Coordinator of the Vermont Department of Environmental Conservation Watershed Management Division to present an eight hour workshop entitled “From Bioretention to Permeable Pavement: An In-depth Introduction to Low Impact Development and Green Stormwater Infrastructure” in Montpelier, Vermont on December 5, 2013. The presentation was hosted by the **Vermont Green Infrastructure Initiative** with support from the following Vermont Agencies and Divisions; **Building and General Services, Ecosystem Restoration Program and Agency of Transportation.**
- Steve was invited to attend and present on the Application of LID Concepts for the Urban Environment and LID Case Studies at the 2<sup>nd</sup> Low Impact Development, Stormwater Management Forum hosted by the **Land & Housing Institute, Korean Land & Housing Corporation** to be held in South Korea in on October 31, 2013. He also made presentations at the **Korean Institute of Construction Technology** and **Pusan National University** on various aspects of LID during this time.
- Steve was an invited speaker at the **2013 Low Impact Development Conference** sponsored by the Lake George Waterkeeper and the The Fund for Lake George in Lake George, NY on May 2, 2013 for land use professionals and regulatory agencies. Over 80 design professionals and regulatory people were in attendance. He made a presentation entitled “Barriers to the implementation of LID”.
- Steve was an invited presenter at a closed-meeting of the **National Association of Home Builders (NAHB) and the Water Environment Federation (WEF)** on October 10, 2012 focusing on progressive stormwater management. The presentation focused on the application of LID strategies on actual development projects and discussed the hydrologic performance and cost effectiveness of LID design.
- Steve was the invited presenter for a 1-hour long webinar presented by **Stormwater Solutions and Stormwater USA** on Low Impact Development and the Basics of Bioretention held on September 18, 2012. Over 760 individuals watched the webinar.
- Steve was an invited speaker at and **EPA/WEF Stormwater Technical Meeting** on July 18, 2012 in Baltimore, MD to discuss the application of Low Impact Development strategies for actual projects with a focus on cost effectiveness when compared to conventional stormwater management as well as field performance of the LID designs. The purpose of this meeting was to assist EPA in the development of a National Stormwater Rule.
- Site Design using Low Impact Development Strategies and What are the impacts of Impervious Cover on Water Quality and Quantity were presented at a workshop entitled “Challenges and Solutions using Low Impact Development”, sponsored by the **Lake George Waterkeeper** in Lake George, NY on May 5, 2011 for land use professionals and regulatory agencies. 90 design professionals and regulators in attendance.
- Steve was an invited speaker at the **2012 Low Impact Development Seminar** sponsored by the Lake George Waterkeeper in Lake George, NY on April 25, 2012 for land use professionals and regulatory agencies. 100 design professionals and regulatory people were in attendance. He made a presentation entitled “The Hydrologic Benefits of Vegetation in Site Design”.

### **Conference Presentations:**

- Steve made five presentations at the **2016 Environmental Connection** conference by IECA ([www.ieca.org](http://www.ieca.org)) being held in San Antonio, Texas on February 16 – 19, 2016. The presentations were entitled “Designing LID Systems: What do you need to know and why”, “Construction Site Stormwater: The Ignored Problem”, “Solving Construction Stormwater Problems in the Field”, “Developing Effective LID Municipal Regulations”, and “LID Demonstration Projects in Connecticut, a study of Contrasts”.
- Steve made two presentations at the **EPA Region Stormwater Conference 2015** (<http://epa.gov/region6/water/npdes/sw/ms4/2015conference/index.html>) being held in Hot Springs, AR on

October 18-23, 2015. The presentations are entitled “Designing LID systems: What do you need to know and why” and “Designing LID treatment systems for Urban and Agricultural Environments.”

- Steve made a presentation entitled “Applying LID strategies to residential and commercial developments to address water quality and runoff volumes” at the KSEA Northwest Regional Conference 2015 held at the Idaho Water Center in Boise, Idaho on October 11, 2015.
- Steve made a presentation entitled “Solving Construction Stormwater Problems in the Field” at **WEFTEC 2015** (<http://www.weftec.org>) in Chicago, IL on September 29, 2015.
- Steve made three presentations entitled: “Korean GI/LID Research Facility”, Applying LID concepts to High Density Residential Developments, and Municipal LID Regulations” at the 2015 Environmental Connection IECA Annual Conference being held in Portland, Oregon on February 16 – 18, 2015. He also presented a half day workshop entitled: “Designing LID Projects”. He moderated an Expert Panel on Low Impact Development with Seth Brown, (Water Environment Federation), Bob Adair (Construction Ecoservices, Inc.) and Roger Sutherland (AMEC)
- Steve made two presentations at International Low Impact Development Conference 2015 in Houston, Texas which is sponsored by ASCE-EWRI. The presentations are entitled “Korean GI/LID Research Facility”, and “LID Demonstration Projects in Connecticut: The Good and the Bad”.
- Steve made presentations entitled “Overview of Low Impact Development” and “The Application of Low Impact Development Strategies for Land Development Projects” along with Dr. Jae Ryu of the University of Idaho and Dr. Hyun-Suk Shin of Pusan National University at the annual meeting of the **American Water Works Association** in Tyson Corners, VA on November 6, 2014.
- Steve made two presentations entitled “Construction Site Stormwater: The Ignored Problem” and “Applying LID Concepts to High Density Residential Development” at the **2014 Annual Conference and Trade Show of the Northeast Chapter of IECA** held at Lake Morey, Vermont on November 4 – 5, 2014.
- Steve made the following presentations entitled: “A Case Study – Southbury Medical Facility and Applying LID concepts on undeveloped land and in the urban environment” at Municipal Wet Weather Stormwater Conference, hosted by the **Southeast Chapter of IECA** in Charlotte, NC on August 18<sup>th</sup> and 19<sup>th</sup>, 2014.
- Steve made the following presentations: “The Incorporation of LID on Affordable Housing Projects, A Case Study – Southbury Medical Facility and LID’ and Municipal LID Regulations” at the **16<sup>th</sup> Annual EPA Region 6 Stormwater Conference** sponsored by the South Central Chapter of IECA in Fort Worth, TX on July 27<sup>th</sup> through August 1<sup>st</sup>, 2014.
- Steve made oral presentations at the **2014 Environmental Connection** sponsored by the International Erosion Control Association in Nashville, Tennessee on February 25 – 18, 2014. The presentations were entitled “A Case Study – Southbury Medical Facility and LID”, “The Implementation of the Highland Estates Detention Basin Retrofit water quality impairment in Northfield Lake”, and “Creating Effective Municipal LID Regulations”.
- Steve co-presented an all day workshop on Low Impact Development with Jamie Houle of the University of New Hampshire Stormwater Center at the **2013 International Erosion Control Association Northeast Chapter Conference and Trade Exposition** on November 19 – 21, 2013 in Warwick, RI.
- Steve made three oral presentations at the **2013 International Low Impact Development Symposium** held at the Saint Paul RiverCentre in Saint Paul, Minnesota on August 18 – 21, 2013. The presentations were entitled “A Case Study – Southbury Medical Facility and LID”, “LID regulations in Connecticut: The Long and Tortured Road”, and “Creating a Stormwater Park in the City Meadow of Norfolk, Connecticut.”

- Steve presented two papers at the **2013 EWRI World Environmental and Water Resources Congress** held in Cincinnati, Ohio on May 19- 23, 2013. The papers are entitled: “Municipal LID Regulations - What is important to include to be successful?” and “Creating a Stormwater Park in the City Meadow of Norfolk, Connecticut”. <http://content.asce.org/conferences/ewri2013/index.html>
- Steve made a presentation at the **Soil and Water Conservation Society Winter Conference** held in Berlin, Connecticut on February 15, 2013. The presentation focused on erosion and sedimentation control issues with Low Impact Development treatment systems.
- Steve presented two papers at the **2013 Environmental Connection** held in San Diego, CA on February 10 – 13, 2013. The papers are entitled “LID Demonstration Project for Seaside Village in Bridgeport, Connecticut” and “Creating a Stormwater Park in the City Meadow of Norfolk, Connecticut”. He also presented a full day LID workshop entitled “Next Generation Low Impact Development and Meet Today’s Needs” and a half day workshop on Low Impact Development covering Environmental Site Design, Water Quality Issues, Pollutant Loading Analyses, Designing different types of LID treatment systems and actual case studies.
- Steve made three presentations at the **2012 Annual Conference of the Northeast Chapter of IECA** in Fishkill, NY on November 7, 8, & 9, 2012. The presentations are entitled: “LID Demonstration Projects in Connecticut, A Study of Contrasts, Environmental Site Design and LID Hydrologic Issues, and Siting and Designing LID Treatment Systems with Case Studies”
- Steve made two oral presentations entitled “Applying Environmental Site Design Strategies to Design a Residential Subdivision” and “The incorporation of LID on Affordable Housing Projects” at the **2012 Ohio Stormwater Conference** in Toledo, Ohio sponsored by the Ohio Stormwater Association on June 7<sup>th</sup> and 8<sup>th</sup>, 2012.
- Presented two papers at the **ASABE Watershed Technology Conference** in Bari, Italy, May 28 – 30, 2012. The papers were entitled “LID Demonstration Project for Seaside Village in Bridgeport, Connecticut” and “The creation of a Stormwater Park in the City Meadow of Norfolk, Connecticut”.
- Steve made one oral presentation entitled “LID Demonstration Project for Seaside Village in Bridgeport, Connecticut” and presented one poster entitled "The Incorporation of LID on Affordable Housing Projects" at the **2012 World Environmental & Water Resources Congress** in Albuquerque, New Mexico sponsored by EWRI/ASCE on May 20 - 24, 2012.
- “Stormwater Retrofit of Highwood Estates Detention basins to address Water Quality Issues and How the application of Environmental Site Design Strategies can provide a resource for carbon sequestering” were presented at the **2011 International Erosion Control Associated Northeast Chapter Annual Conference** on December 1 – 3, 2011 at the Crowne Plaza Hotel in Natick, Massachusetts.
- Stormwater Retrofit of Highwood Estates Detention Basins to enhance Water Quality Benefits; A Low Impact Development (LID) Model Ordinance and Guidance Document and The Farmington River Enhancement Grants: A tale of three towns and the path to Low Impact Development were presented at the **Philadelphia Low Impact Development Symposium “Greening the Urban Environment”** in Philadelphia, PA (September 2011) sponsored by EWRI, Villanova University, North Carolina University and the University of Maryland.
- Stormwater Retrofit of Highwood Estates Detention Basins to enhance Water Quality Benefits; The Farmington River Enhancement Grants: A tale of two towns and the path to Low Impact Development and A Low Impact Development (LID) Model Ordinance and Guidance Document was presented at the **EWRI/ASCE 2011 World Environmental & Water Resources Congress** in Palm Springs, CA (May 2011).
- Stormwater Retrofit of Highwood Estates Detention Basins to enhance Water Quality Benefits was presented at the “Annual Nonpoint Source Pollution Conference”, sponsored by the **New England Interstate Pollution Control Commission** in Saratoga Springs, NY, on May 17-18, 2011.

- Stormwater Pollutant Load Modeling presented at the **Northeast Chapter of IECA Annual Conference** at the University of New Hampshire Stormwater Center in Durham, NH (December 2010).
- How the application of Environmental Site Design Strategies and Low Impact Development Storm Water Treatment Systems can mimic the Natural Hydrologic Conditions in a watershed and provide a resource for carbon sequestering and The Importance of Assessing Pollutant Loads from Land Development Project and the Design of Effective Storm Water Treatment Systems at the **EWRI/ASCE Watershed Management Conference** in Madison, WI (August 2010).
- The Tolland Low Impact Development Design Manual: The Changing Paradigm for Land Development, The application of Environmental Site Design Processes to design a residential subdivision and A Low Impact Development (LID) Model Ordinance and Guidance Document at the **ERWI/ASCE 2010 World Environmental and Water Resources Congress** in Providence, RI (May 2010).
- The application of Form-Based Zoning and Low Impact Development for the Revitalization of the Town Center of Simsbury, Connecticut and The Integration of Low Impact Development to enhance the application of Smart Code Zoning to create a Gateway District to the Historic Town Center of Tolland, Connecticut at the **EWRI/ASCE 2010 International Low Impact Development Conference** in San Francisco, CA (April 2010).
- The application of Environmental Site Design Processes to design a residential subdivision and Assessing Pollutant Loads and Evaluation of Treatment Systems to achieve Water Quality Goals for Land Development Projects at the **EWRI/ASCE 2009 World Environmental & Water Resources Congress** in Kansas City, Missouri (May 2009).
- Ahead of the Curve – Tolland, CT adopts Low Impact Development Regulations and Preparing a Pollutant Loading Analysis for Land Development Projects at the **Urban Water Management Conference** in Overland Park, KS sponsored by National Association of Clean Water Agencies (NACWA) and the City of Independence Water Pollution Control Department (March 2009).
- Ahead of the Curve – Tolland, Connecticut adopts Low Impact Development Regulations and Trade Winds Farm – Winchester, Connecticut – How to create a LID subdivision along with the preparation of a poster on Preparing a Pollutant Loading Analysis for Land Development Projects at **EWRI/ASCE 2008 International Low Impact Development Conference** in Seattle, WA (November, 2008).
- Trade Winds Farm – Winchester, Connecticut – How to create a LID subdivision and Preparing a Pollutant Loading Analysis for Land Development Projects at the **IECA Northeast Chapter’s Annual Conference & Trade Exposition** in Portland, ME (October, 2008).
- The Preparation of a Valid Pollutant Loading Analysis at the **National StormCon 2008 Conference** in Orlando, FL (August, 2008).
- Panelist with Linda Farmer, AICP for Profiles of Partnerships for Addressing NPS Pollution at **NEIWPC Annual Non-point Source Pollution Conference** in Groton, CT (May, 2008).

### **Workshop Presentations:**

- Steve presented a webinar entitled “Construction Stormwater Regulation Strategies: Best Practices to Assure NPDES Compliance” on Thursday, November 12, 2015 at 2:00 pm to 3:00 pm eastern time. The webinar is sponsored by Business and Legal Resources ([www.blr.com](http://www.blr.com)).
- Steven presented a full day workshop entitled “Stormwater Management 2015” in Columbia, Maryland on August 13, 2015 which focused on applying the State of Maryland Stormwater Manual. The workshop was sponsored by Halfmoon Seminars, LLC and 113 people attended the workshop.

- Steve presented a full day workshop on “Stormwater Regulations in Connecticut”, sponsored by Halfmoon Seminars, LLC in North Haven, Connecticut on June 25, 2014. More than 30 engineers and landscape architects attended the workshop.
- Steve was the facilitator in a live chat as part of the Stormwater Solutions Virtual Trade Show on April 2, 2014. The topic of the live chat will be LID with a focusing on Bioretention systems.
- Steve made a presentation entitled “What is Low Impact Development and how do you apply it to residential projects” for the Connecticut Chapter of the American Institute of Architects in New Haven, Connecticut on April 22, 2014.
- Steve made a presentation entitled “Wastewater to Stormwater: Designing a subsurface flow gravel wetlands” at the annual meeting of the Connecticut Association of Wetland Scientists on March 20, 2014 in Southbury, Connecticut.
- Steve made a presentation entitled “Low Impact Development and the Connecticut General Stormwater Permit” at the annual meeting of the Southern New England Chapter of the Soil and Water Conservation Society on March 14, 2014 at Eastern Connecticut State University.
- He co-taught an ASCE Short Course entitled, “Introduction to Low Impact Development” with Mike Clar at the 2013 Low Impact Development Symposium held in St. Paul, Minnesota on August 18, 2013.
- Steve presented a workshop on Low Impact Development to the Town of Naugatuck Inland Wetlands Commission on June 5, 2013 to demonstrate how the implementation of LID can reduce stormwater impacts in the urban area of the community.
- Steve presented a webinar entitled “The Basics of Low Impact Development on Wednesday, April 17, 2013.” More information is available at <http://www.ieca.org/education/webinar/livewebinars.asp>
- Steve presented a webinar entitled “Changing the Regulatory Framework to Adopt LID Strategies” on Thursday, March 7, 2013 and on Thursday, August 8, 2013 from 11:30 am to 1:00 pm through **ASCE and EWRI**. Link for more information: <http://www.asce.org/Continuing-Education/Brochures/Webinars/ChangingRegulatoryFrameworkLIDStrategies/#Purpose>
- Steve presented a three hour workshop on Low Impact Development on June 5, 2012 at the Oxford town hall for municipal land use staff and officials at the request of the **Oxford Inland Wetlands and Watercourses Commission**. Approximately 20 individuals attended the workshop.
- Steve presented an eight hour short courses on Low Impact Development at the **EWRI/ASCE 2011 World Environmental & Water Resources Congress** in Palm Springs, CA (May 2011). The following topics will be covered: Understanding and Implementing Principles of Low Impact Development, Applying LID Strategies to a Site, Low Impact Development Hydrologic Considerations, The Regulatory Framework and LID, LID Integrated Management Practices, Erosion and Sedimentation Controls for the Implementation of LID Practices and Case Studies (Applying LID and Regulations). 12 attendees took the course, including professors from Mississippi State University, Oklahoma State University, Adelaide University (Australia) and Pusan National University (South Korea).
- Understanding and Implementing Principles of Low Impact Development, Applying Low Impact Development to a Site, Low Impact Development Hydrologic Considerations, Low Impact Development Integrated Management Practices, Erosion and Sediment Control for the Implementation of Low Impact Development Practices, and Case Studies of LID (Residential and Commercial) at workshops on Low Impact Development sponsored by **HalfMoon, LLC** (<https://www.halfmoonseminars.com> ) in Albany, NY, Ronkonkoma, NY, North Haven, CT, Manchester, NH, Nanuet, NY, Cleveland, OH, Natick, MA, Portland, ME Fort Washington, PA, Springfield, MA, Wilmington, DE, White River Junction, VT, Somerset, NJ, and White Plains, NY for

continuing education credit for design professionals. A total of 322 land use professionals have attended these workshops.

- Pollutant Loads and the Design of Effective Stormwater Treatment Systems was presented at the Virtual H2O conference on February 22, 2011 as presented by **PennWell Publishing**. 25 professionals in attendance.
- LID Stormwater Treatment Systems: Siting, Design and Installation for Maximum Environmental Benefit. What are the aesthetic, financial and maintenance implications? presented at a seminar for the **AIA Connecticut, Committee on the Environment** in New Haven, CT (December 2010). 70 architects in attendance.
- Low Impact Development and the Environmental Site Design process to create sustainable sites at a seminar for the **AIA Connecticut, Committee on the Environment** in New Haven, CT (September 2010). 40 architects in attendance.
- Workshop entitled Using Environmental Site Design Strategies and LID stormwater systems for commercial development at the **Connecticut Conference on Natural Resources** at the University of Connecticut (March 2010). 10 design professionals and regulatory staff in attendance.
- Implementing Low Impact Development in Your Community for the **Connecticut Technology Transfer Center** in Glastonbury, CT (November, 2009). 40+ professionals in attendance.
- What towns can do to encourage LID at the “Low Impact Development Forum” presented by the **Housatonic Valley Association** in Shelton, CT. (October 2009). 12 professionals in attendance.
- Town of Tolland, CT; Low Impact Development Regulations and Design Manual at the **Community Builders Institute** for the workshop entitled: “Swift, Certain & Smart: Best Practices in Land Use” (May 2009). 30+ professionals in attendance.
- Low Impact Development, Environmental Site Design and Water Quality issues and strategies to local municipalities (**Greenwich, and Old Lyme**) to provide an educational opportunity about the many benefits of Low Impact Development in 2009. 30+ design professionals, regulatory commissioners and staff in attendance for each presentation.
- Low Impact Development, Environmental Site Design and Water Quality issues and strategies to local municipalities (**Bolton, Farmington, and Guilford** to date) on a pro bono basis to provide an educational opportunity about the many benefits of Low Impact Development in 2009. 25+ design professionals, regulatory staff and commission members in attendance for each presentation.
- Workshop entitled Using Environmental Site Design Strategies to create a residential subdivision at the **Connecticut Conference on Natural Resources** at the University of Connecticut (March 2009). 20 design professionals and regulatory staff in attendance.
- The Need for Pollutant Loading Analyses for Land Development Projects to storm water engineers at **CT DEP** (March 2009). 6 DEP staff in attendance.
- A review of existing land use regulations and storm water management issues for the Middle Quarter Districts in Woodbury, CT and how the implementation of Environmental Site Design and Low Impact Development strategies can improve water quality of storm water runoff for the Woodbury land use agencies (August 2008). 15 regulatory commission members in attendance.
- Low Impact Development at meeting of the **Connecticut Association of Zoning Enforcement Officers** (October 2007). 30+ professionals in attendance.

- Low Impact Development and adoption of LID regulations by municipalities at workshops of the **Land Use Leadership Alliance (LULA)** (2007, 2010 and 2011). 20+ professionals in attendance at each presentation.
- Stormwater management and Low Impact Development at workshop sponsored by the **Northwest Conservation District** held for land use officials (March 2006). 20+ professionals in attendance.



## LOW IMPACT SUSTAINABLE DEVELOPMENT PROJECTS

### LID Regulations and Design Manuals

- **Town of Tolland, CT** – Prepared amendments to Town of Tolland Zoning, Subdivision, Inland Wetland regulations and Road Design Manual to incorporate Low Impact Development standards. Wrote “Design Manual – Low Impact Development – Storm Water Treatment Systems – Performance Requirements – Road Design & Storm Water Management” prepared for the Town of Tolland; October 2007. The Town of Tolland was awarded the Implementation Award by the CT-APA for the LID regulations and design manual in December 2008.
- **Town of Plainville, CT** – Planimetrics was the lead consultant on this project. This office performed the technical regulatory audit to identify barriers to the implementation of LID. These barriers were removed from the regulations to provide for the implementation of LID. A LID design manual was written by Steve Trinkaus to address specific development/stormwater issues for the Town of Plainville. The regulatory changes and LID manual were adopted by the Planning and Zoning Commission in September 2010. This work was funded by the Farmington River Enhancement Grants from CT DEP.
- **Town of Harwinton, CT** – In conjunction with Planimetrics of Avon, CT, the existing land use regulations were evaluated for barriers to the implementation of Low Impact Development (LID). The project team suggested changes to the land use regulations to encourage the application of LID in the community. Steve Trinkaus defined design processes and strategies to encourage the implementation of LID in the town. This work was funded by the Farmington River Enhancement Grants from CT DEP.
- **Town of East Granby, CT** – Planimetrics was the lead consultant on this project. This office performed the technical regulatory audit to identify barriers to the implementation of LID. These barriers were removed from the regulations to provide for the implementation of LID. Steve Trinkaus prepared a LID Design Manual and LID Educational document for the town working with Gary Haynes, the town planner. This work was funded by the Farmington River Enhancement Grants from CT DEP.

### LID Projects

- **Garden Homes Management** – Westport, Connecticut – 48 unit residential apartment building being developed under 8-30g (affordable housing) on 1 acre site directly tributary to West Branch of the Saugatuck River. All construction activities are located outside regulatory setbacks to tidal wetland and 100-year flood boundary. Stormwater management system was designed to fully infiltrate the runoff for all storm events up to and including the 100-year event and reduce pollutant loads to existing levels as wooded parcel.

- **Jelliff Mill, LLC** – New Canaan, Connecticut: Redesigned the site layout to create ten single family residential units on a site overlooking the restored historic Jelliff Mill dam on the Noroton River. The site design uses two sections of permeable pavement and a Bioretention system to infiltrate the runoff from the proposed impervious areas on the site. Due to the presence of sand and gravel soils, all runoff from the impervious areas will be infiltrated up to and including the 25-yr storm event (5.7” of rain/24 hrs). Fully constructed and occupied.
- **SRG Family, LLC** – Southbury, Connecticut: Design final site grading for 38,000+ sq.ft. Medical services building and approximately 225 parking spaces in order to maintain overland flow patterns. Designed multiple LID treatment systems consisting of bioswales with weirs, Bioretention systems and Permeable Pavement (asphalt) to handle runoff from all impervious area on the project site. The LID treatment systems are capable of fully infiltrating the runoff from a 50-yr storm event will virtually eliminating the discharge of any pollutants to the adjacent wetland area. Currently pending before Inland Wetlands Commission for modification of original approval.
- **Farmington River Watershed Association** – Winchester, Connecticut: Designed stormwater retrofit for existing 1 acre paved parking area at the science building of the Northwest Community College to treat runoff prior to discharge into the Still River. Retrofit consists of forebay and Bioswale to treat runoff from parking area and building roof. Currently at Bid stage.
- **Garden Homes Management** – Southport, Connecticut: Designed site to support 96 unit apartment building and 115 parking spaces. Site contains both freshwater and tidal wetlands. Stormwater management design required to provide Groundwater Recharge Volume & Water Quality Volume in addition to reducing the post-development peak rate of runoff from the 10-yr rainfall event to the pre-development peak rate of runoff from the 2-yr rainfall event. The stormwater management design includes grassed swales, Bioretention systems and underground concrete galleries to meet all of these stormwater requirements. Due to favorable soils on the site, the site will likely be a zero discharge site. Currently under legal review.
- **Garden Homes Management** – Milford, Connecticut: Designed site to support 257 unit apartment building with 295 parking spaces. Stormwater management design required to provide Groundwater Recharge Volume & Water Quality Volume in addition to reducing the post-development peak rate of runoff from the 25-yr rainfall event to the pre-development peak rate of runoff from the 25-yr rainfall event. The design utilizes a Bioretention system, two underground galleries systems as well as a small detention basin to meet all of the stormwater requirements. Currently under legal review.
- **Garden Homes Management** – Milford, Connecticut: Designed site to support 21,888 sq.ft. building (three stories) containing 36 studio apartments and 45 parking spaces. Permeable pavement and Bioretention will be used on the site to treat runoff for water quality improvements along with reducing runoff volume from the 1-yr to 100-yr storm event. Construction complete and project ready for occupancy.
- **Quickcomm, Inc.** – Newtown, CT: Design a parking facility for approximately 140 vehicles to serve an existing corporate use. Runoff from the entire parking facility will be directed to one of seven Bioretention systems. Water quality of the runoff will be improved by the filtration through a specialized soil media and will then infiltrate into the underlying soils. Due the presence of sand and gravel soils, the Bioretention systems will fully infiltrate all runoff up to and including a fifty-year design storm (6.5” of rain/24 hours). Land use approvals obtained in the fall of 2012 and work completed in the fall of 2013.
- **Garden Homes Management** – Fairfield, Connecticut: Designed site to support 32,592 sq.ft. building (three stories) containing 54 studio apartments and 68 parking spaces. Permeable pavement will be used for majority of parking facility. Roof drains will also be directed to permeable pavement system for water quality improvement. Reservoir layer was sized to fully contain 1.7” of runoff from contributing impervious area. By using a raised underdrain an anaerobic condition will be maintained in the bottom of the reservoir, thus providing denitrification of Total Nitrogen prior to discharge to tidal section of Rooster River. Construction complete and project ready for occupancy.

- **Garden Homes Management** – Oxford, Connecticut: Design site plan for 126 units of manufactured housing on 41+ acres. Stormwater management is achieved by the use of linear Bioretention systems (Bioswales) along both sides of all interior roads. After treatment in Bioswales, all runoff is directed to standard detention basins to provide peak rate attenuation from the 2-year to 100-year rainfall event. Approved by Inland Wetlands Agency, Denied by Planning and Zoning Commission. Currently under legal appeal in court.
- **Compton Family Trust** – New Hartford, Connecticut: Design two wet swales systems to convey and filter runoff from road which is currently discharged into West Hill Lake via a paved swale. West Hill Lake has very good water quality and the owner desires this work on this property to become a template for other homeowners on West Hill Lake to prevent adverse impacts of stormwater on the water quality of the lake. Received all necessary land use approvals. Construction to commence in the summer of 2012.
- **Highwood Estates** – Thomaston, Connecticut: Design retrofits for two existing failing detention basins serving existing 50 lot residential subdivision. Retrofits were designed using LID techniques to improve water quality reaching Northfield Brook, an impaired waterway. The larger basin was converted to an Extended Detention Shallow Wetlands to significantly reduce pollutant loads. Due to a limited area, only a forebay and deep pool could be designed for the smaller basin, thus providing measurable improvements in water quality.
- **Farmington River Watershed Association** – Winchester, Connecticut: Design stormwater retrofits consisting of a Bioretention system at the Town of Winchester Wastewater Treatment Plant and a Bioswale at the Town of Winchester Public Drinking Supply facility. These projects are being funded as LID demonstration projects to increase public awareness of LID. The systems were installed in June 2012 and were featured in articles in the Republican American and Register Citizen newspapers.
- **Harwinton Sports Complex** – Harwinton, Connecticut: Redesign stormwater management system for indoor sports facility to use vegetated swales and Bioretention systems. Redesign site grading to eliminate all structural drainage in parking facility. Client saved over \$ 40,000 on infrastructure costs by the use of LID treatment systems.
- **Holland Joint Venture, LLC** – Bridgewater, Connecticut: Prepared site plan for 28,000 sq.ft. industrial/light assembly use and 140 parking spaces on 10.94 acres. Utilize Environmental Site Design strategies to preserve large portions of site in natural condition, minimize impacts due to site disturbance, and minimize impacts to wetland/watercourse system by access driveway. Designed five Bioretention systems for storm water management and pollutant removal from all impervious areas.
- **Goodhouse Flooring, LLC** – Newtown, Connecticut: Design site to accommodate 8,800 commercial building and associated driveway and parking areas on 1.0 acre site. Designed eight Bioretention systems to handle runoff from all impervious surfaces. Analyze and demonstrate that State of Connecticut water quality goals will be achieved for the site design.
- **Trade Winds Farm** – Winchester, Connecticut: 24 lot Open space subdivision on 104+ acres of land. Performed all civil engineering design work for project. Notable feature of project is the preservation of 64+ acres of the site as dedicated Open Space. Many LID strategies such as Environmental Site Design, site fingerprinting, volumetric reduction and water quality improvements were incorporated into site design. Storm water treatment systems utilized vegetated basins, vegetated swales with gravel filter berms, emergent marsh, Bioretention systems, linear vegetated level spreader, and meadow filter strips.
- **Northern View Estates** – Sherman, Connecticut: Five lot subdivision with private road. Design has no direct wetland impacts and only minor intrusions into defined 100' upland review area. Low Impact Development systems, such as vegetated swales and Bioretention were used to treat post-development runoff while maintaining existing drainage patterns to the maximum extent possible.
- **Mill River** – New Milford, Connecticut: Designed 14 lot open space subdivision on 68 acre site. Performed all civil engineering services for project. LID treatment systems such as a permanent pond/emergent marsh system, linear biofiltration swale, and rain gardens were designed for the site.

- **Byron Avenue Cluster Development** – Ridgefield, Connecticut: Seven lot cluster subdivision on 4 acres. The Stormwater management system consisted of a road with no curbs, grassed swales and constructed wetland with detention to reduce pollutant loads and increases in the peak rate of runoff.
- **The Estates on the Ridge** – Ridgefield, Connecticut: 32 lot open space subdivision on 152+ acres. Over 80 acres of the site will be preserved as Open Space as part of this project. Stormwater will be treated by the use of rain gardens for roof drains, infiltration trenches for footing drains, emergent marsh systems and vegetated swales for conveyance and treatment of road runoff. Designed over 1 mile of proposed road for project. Designed bottomless culverts over several wetlands crossing to minimize direct impact on wetland areas.
- **G & F Rentals, LLC** – Oxford, Connecticut: By utilizing LID stormwater concepts such as grass filter strips, Bioretention in parking islands, Bioretention for roof drains, and infiltration trenches, a total of 54,000 sq.ft. of commercial office space along with 140+ parking spaces was placed on 10 acre site. The project also restored previously degraded inland wetlands on the site.
- **Dauti Construction – Edona Commons** – Newtown, Connecticut: Designed 23 unit affordable housing plan to minimize impacts on delineated wetland areas. Designed three construction wetland systems for the treatment of storm water runoff for water quality renovation.
- **American Dimensions, LLC** – New Milford, Connecticut: Redesigned the storm water treatment systems for a 7 lot residential subdivision. Rain gardens were designed to handle the runoff from all roof areas and proposed driveways. Each rain garden provided the required Water Quality Volume and Groundwater Recharge Volume as specified in the 2004 Storm Water Quality Manual. A Subsurface Gravel Wetland was designed to treat the full Water Quality Volume for runoff from adjacent roads network which drained through the subject property.
- **Molitero Residence** – New Fairfield, CT: Designed five Bioretention systems to mitigate both volumetric increases of runoff and address water quality issues for large building addition to single family residence on Candlewood Lake. Also designed landscape filter strip above lake edge to filter runoff from up gradient lawn area. Bioretention systems fully infiltrated 5” of rain in 24 hours from Hurricane Irene in August of 2011. Project was featured in newsletter of Candlewood Lake Authority to demonstrate the effectiveness of LID treatment systems in a lake environment.
- **Multiple single family residences** – Design Bioretention systems to mitigate volumetric increases of runoff due to increases of impervious cover on the lot for large building additions and new construction including the reduction of volumetric increases up to the 25-yr event (5.7” of rain in 24 hours).

### Residential Subdivisions

- **Stone Ridge Estates**, 59 lot residential open space subdivision, Ridgefield, Connecticut (Town of Ridgefield)
- **Oak Knoll**, 14 lot open space subdivision, Ridgefield, Connecticut (Mike Forbes)
- **Ward Acres Farm**, 12 lot open space subdivision, Ridgefield, Connecticut (Sturges Brothers, Inc.)
- **Horblitz Subdivision**, 13 lot open space subdivision, Ridgefield, Connecticut (John Sturges)
- **McKeon Subdivision**, 14 lot conventional subdivision, Ridgefield, Connecticut (McKeon Family Trust)
- **High Ridge Estates**, 5 lot subdivision in historic district, Ridgefield, Connecticut (Scandia Construction)
- **Millstone Court**, 7 lot conventional subdivision, Ridgefield, Connecticut (Sturges Brothers, Inc.)
- **Cricklewood Subdivision** – 12 lot conventional subdivision, Redding, Connecticut (Jay Aaron)
- **Spruce Meadows Subdivision** – 12 lot conventional subdivision, Wilton, Connecticut (Piburo Builders)
- **Noroneke Estates** – 12 lot open space subdivision, Ridgefield, Connecticut (John Sturges)
- **Lynch Brook Lane** – 7 lot open space subdivision, Ridgefield, Connecticut (Sturges Brothers, Inc.)
- **Ledgebrook Subdivision** – 27 lot conventional subdivision, Southbury, Connecticut (Conte Family Trust, LLC)
- **Seven Oaks** – 19 lot open space subdivision, Ridgefield, Connecticut (Basha Szymanska)

- **Applewoods** – 29 lot conventional subdivision, Bethel, Connecticut (Gene & Joe Nazzaro)

### Third Party Engineering Reviews

- **Groton Open Space Association** – Wal-Mart Super center, Mystic Woods Age Restricted Development, and changes to stormwater standards in the Town of Groton regulations – Groton, Connecticut. Focus of review was on stormwater management plans to address water quality and runoff volumes per the CT DEP 2004 Storm Water Quality Manual as well as the adequacy of the erosion and sedimentation control plan for the proposed development.
- **Town of Tolland Planning & Zoning Commission** – Star Hill Athletic Complex with focus on water quality impacts on existing impaired waterway. Focus was on suggesting changes to stormwater management system to comply with recently adopted Low Impact Development requirements in the Town of Tolland.
- **Town of Newtown Inland Wetlands Commission** – Sherman Woods – 38 lot residential Subdivision with focus on stormwater management and water quality. Review stormwater management plan for compliance with CT DEP 2004 Storm Water Quality Manual to address water quality issues being directed to high quality wetland systems. Also review erosion & sedimentation control plan for adequacy and compliance with CT DEP 2002 Guidelines for Soil Erosion & Sediment Control.
- **Town of Winchester Inland Wetlands Commission** – 30,000 sq.ft. Commercial building with grading and stormwater management within 100-yr flood plain. Plan reviewed focused on impacts to floodway and 100-year flood plain as a result of the placement of significant fill within the flood plain.
- **Town of Southbury Inland Wetlands Commission** – 35,000 sq.ft. Medical office building proposed in close proximity to inland wetlands & watercourses. Review focus on the adequacy of the stormwater management plan to address water quality and runoff volumes prior to discharge into on-site wetland areas.
- **Friends of Litchfield** – Stop & Shop proposal on existing retail site proposing an increase of impervious area of 1 acre directly draining into an aquifer protection area. Focus of review was on adequacy of stormwater management system to address water quality of runoff and prevent further off-site adverse impacts.
- **The Regency at Ridgefield** – Proposal for contractor’s yard on steep slope immediately uphill of existing pond and wetlands. Project proposed removal of over 45,000 cubic yards of earth and rock to facilitate construction of building. Focus of review was on adequacy of erosion control and stormwater management plan to prevent discharges of pollutants to receiving pond.
- **Friends of Oswegatchie Hills Nature Preserve, Inc. and Save the River, Save the Hills, Inc.** – Review of preliminary site plan for 840 unit of affordable housing on a 230+ acre site directly adjacent to the Niantic River submitted for a zone change to the Planning and Zoning Commission. Focus of review was on stormwater management and impacts to down gradient wetlands, including the Niantic River.
- **Town of Brookfield Inland Wetlands Commission** – The Enclave at Brookfield, an affordable housing project with 187 units on 9.8 acres proposing filling of wetland, locating stormwater basin within inland wetland area and a significant increase of impervious. Review focused on adequacy of stormwater management system to address water quality, runoff volume and peak rate changes due to development in accordance with CT DEP 2004 Storm Water Quality Manual and local land use requirements; review of erosion & sedimentation control plan for compliance with CT DEP 2002 Guidelines for Soil Erosion & Sediment Control and local land use requirements.
- **Town of Brookfield Inland Wetlands Commission and Zoning Commission** – The Renaissance, an affordable housing project with 156 units of 5+ acres adjacent to the Still River replacing existing development on the site. Review focused on adequacy of stormwater management system to address water quality, runoff volume and peak rate changes due to development in accordance with CT DEP 2004 Storm Water Quality Manual and local land use requirements; review of erosion & sedimentation control plan for compliance with CT DEP 2002 Guidelines for Soil Erosion & Sediment Control and local land use requirements. Additionally reviewed issues of development in the floodway and 100-year flood plain of the Still River.
- **Branford Citizens for Responsible Development** – Review of development plans for Costco Store and other commercial development on 45 acres in Branford, CT. Review focuses on stormwater management issues, particularly increased runoff volumes and pollutant loads to be generated by development and whether the proposed stormwater management proposal would adequately address the impacts of these two issues. Both the 2004 CT DEP Storm Water Quality Manual and the Branford Inland Wetland Regulations were used to determine if the plans were in compliance with the applicable standards. The erosion control plan was evaluated for compliance with the CT DEP 2002 Guidelines for Soil Erosion & Sediment Control.

## Commercial Site Plans

- **Cannondale Corporation Headquarters** - Bethel, Connecticut
- **Village Bank Headquarters** – Danbury, Connecticut
- **Newtown Hardware** - Newtown, Connecticut
- **Amicus Healthcare Living Centers** – Rocky Hill, Connecticut
- **Nathan Hale Office Building** – Fairfield, Connecticut
- **Ridgefield Recreation Center** – Ridgefield, Connecticut
- **Silver Spring Country Clubhouse & Pool house renovations** - Ridgefield, Connecticut
- **Tiger Hollow Athletic Complex at Ridgefield High School** - Ridgefield, Connecticut

## On-site sewage disposal systems

- **Candle Hill Mobile Home Park** – Design Subsurface Sewage Disposal Systems for individual mobile home units. New Milford, Connecticut.
- **Hemlock Hills Camp Resort** – Expansion of campground, design of gravity sanitary sewer and design of subsurface sewage disposal system to handle 4,800 gpd. Litchfield, Connecticut.
- **Old Field Condominiums** – long term inspection & reporting on the condition of multiple subsurface sewage disposal systems serving 40 unit condominium complex with design flows in excess of 15,000 gpd. Southbury, Connecticut.
- **Thorncrest Farm** – Design of on-site sewage disposal system to handle wastewater from milking operation. Goshen, Connecticut.
- **Silver Spring Country Club** – Design of multiple subsurface sewage disposal systems for private country club with average daily flow of 7,000 gpd during peak usage season.
- **Richter Park Golf Course** – Design subsurface sewage disposal system to replace existing failed system for golf club house and year round restaurant with average daily flow of just under 5,000 gpd.
- **Redding Country Club** - Performed soil testing to design a repair to an existing wastewater management system that was experiencing periodic effluent discharges during high use on very marginal soil conditions. Utilized oversized grease tanks for kitchen waste and septic tanks to increase the clarity of the effluent which was discharged by force main to the subsurface sewage disposal system increase the long term functionality of the system. Discharge rate 4,900 gpd.

## General Civil Engineering Projects

- **Montgomery Residence**, 10,000 sq.ft. residence with 2.5 acre pond, Redding, Connecticut.
- **Neils Different**, Design 1 acre pond, Ridgefield, Connecticut.
- **Anthony DeLuca**, Design 2 acre pond, Redding, Connecticut.
- **Barrett Cram**, Design 0.5 acre pond, Redding, Connecticut.
- **Jay & Eileen Walker Residence**, 27,000 sq.ft. residence, Ridgefield, Connecticut.

## Athletic Facilities

- **Kingdome – East Fishkill, NY**, Prepare comprehensive site plan for the construction of an air-supported structure covering 7.96 acres of land area. Project also includes the design of 303 parking spaces, two full size artificial turf baseball fields and three 54-80 artificial turf baseball fields. Designed all site grading and stormwater management facilities to address water quality volume, channel protection volume as well as peak rate attenuation for the 1-yr, 2-yr, 10-yr, 25-yr, 50-yr and 100-yr rainfall events.
- **Tiger Hollow – Ridgefield High School – Phase I**, Design and site artificial turf competition field and track complex. Design access road to provide access to new building containing locker rooms, concessions, media room, and equipment storage areas. Design all utility connections and obtain local permits.
- **Tiger Hollow – Ridgefield High School – Phase II**, Prepare Conceptual Development plan for reconfiguration of existing athletic fields adjacent to the Tiger Hollow stadium.

- **Joel Barlow High School – Redding, CT**, Provide preliminary Master Plan on pro bono basis for reconfiguration and improvement of existing athletic fields at Joel Barlow in response to Falcon Pride stadium proposal. Plan was provided to Region 9 Board of Education for general discussion purposes.

## Kermit W. Hua, PE, PTOE

KWH Enterprise, LLC

277 Reservoir Avenue

Suite 1101

Meriden, Connecticut 06451

203-807-5482 (office)

203-440-0788 (fax)

<http://www.kwhenterprise.com/index.html>

[kermit.hua@kwhenterprise.com](mailto:kermit.hua@kwhenterprise.com)

With 18 years of experience, Mr. Hua has managed and performed numerous transportation engineering designs and traffic studies for both public and private clients. He specializes in many aspects of transportation engineering and planning, including corridor study, environmental impact study, master plan, traffic impact analysis, traffic signal design, roadway design, parking study, bicycle and pedestrian facilities, traffic calming, public outreach, and geographic information system (GIS). He is also an IMSA-certified traffic signal inspector.

### EDUCATION

Master of Science, Transportation Engineering, University of Cincinnati, Cincinnati, Ohio, 1999

Bachelor of Engineering, Construction Management and Engineering, Tsinghua University, Beijing, China, 1993

### REGISTRATIONS

Professional Engineer #22263, Connecticut

Professional Engineer #50356, Massachusetts

Professional Engineer #10124, Rhode Island

Professional Engineer #94453, Vermont

Professional Engineer #14081, New Hampshire

Professional Engineer #13250, Maine

Professional Engineer #8173061, New York

Professional Traffic Operations Engineer #1422

Traffic Signal Inspector #SI\_97817, IMSA

### PROFESSIONAL ASSOCIATIONS

Member, Institute of Transportation Engineers

### EMPLOYMENT HISTORY

Baoyuan Real Estate Company, Shanghai, China

*Field Engineer*

*September 1993--September 1994*

The Schneider Corporation, Avon, Indiana

*Transportation Engineer*

*April 1997--September 1998*

Vanasse Hangen Brustlin, Inc., Middletown, Connecticut

*Transportation Engineer*

*September 1998--May 2003*

Stantec Consulting Services Inc. (formerly Vollmer Associates, LLP), Hamden, Connecticut

*Project Manager, Transportation Engineer*

*September 2003--November 2010*

KWH Enterprise, LLC, Meriden, Connecticut

*Principal*

*December 2010—Present*

## PROJECT EXPERIENCE

### **Traffic Impact Assessments**

Orville H. Platt High School Renovations and Additions, Meriden, Connecticut

*KWH Enterprise, LLC is the traffic engineer for a study examining the traffic impact from the Orville H. Platt High School renovations and additions project in Meriden, Connecticut. The project will increase building floor space from approximately 240,000 S.F. to approximately 260,000 S.F. The projected enrollment will increase from the current 1,088 students to about 1,128 students.*

CREC Medical Professions and Teacher Preparation Magnet School, New Britain, Connecticut

*Traffic engineer for a new Capital Region Education Council (CREC) Medical Professions and Teacher Preparation Magnet School, a pre-K and 6-12 grade school in New Britain, Connecticut. The firm prepared a traffic analysis and a State Traffic Commission (STC) submission for the project. The school is located in a proposed industrial park, Pinnacle Business Park, in New Britain. When completed, it will occupy 145,000 S.F. of floor space and will enroll 736 students from the Greater Hartford region.*

CREC International Magnet School for Global Citizenship, South Windsor, Connecticut

*Traffic engineer for a new Capital Region Education Council (CREC) International Magnet School, an elementary school to be built in South Windsor, Connecticut. The firm submitted a traffic report detailing the traffic impact of the school and testified at a Town Planning and Zoning Commission hearing for the project. The school is located at the intersection of Chapel Road and Long Hill Road in South Windsor. When completed, it will comprise a 62,700 S.F. building and 165 parking spaces and is designed for 435 students and 65 staff.*

### **Traffic Signals and Signage**

Traffic Signal Designs for Fairfield Metro Center, Fairfield, Connecticut

*This project involved designing traffic signal improvements at eleven intersections for the proposed Fairfield Metro Center, a joint effort by the State of Connecticut, Town of Fairfield and developer Black Rock Realty LLC that encompasses a new train station, a 1,500-space commuter parking lot, and one million square feet of office and commercial developments. Mr. Hua was the project manager responsible for project coordination and traffic signal design.*

### **Transportation Planning**

City of New Haven Two-Way Conversion, New Haven, Connecticut

*KWH was a sub-consultant on a planning project to convert most one-way streets in downtown New Haven to two-way operations. The aim was to slow down vehicular traffic, simplify driver navigation, and*

*improve access. When implemented, the proposed two-way street grid will achieve the Complete Street goal of balancing the needs of all modes of transportation: cars, buses, bicyclists, and pedestrians. Specifically, the plan will include an expanded on-street bicycle network, more direct bus routes, new bus stop amenities, wider sidewalks, additional on-street parking that will help reduce vehicular speed and serve as buffers for pedestrians, and shortened pedestrian crossing distances at intersections.*

Curb Cut Management Plan for Routes 6, 53, 58 and 302, Bethel, Connecticut

*KWH was selected by the Housatonic Valley Council of Elected Officials (HVCEO) and the Town of Bethel to prepare a curb cut management plan for all State roadways in the Town. The plan will guide access management designs with the aim of minimizing traffic conflict for all future developments along these heavily traveled corridors.*

Transportation and Pedestrian Master Plan for Central Norwalk, Norwalk, Connecticut\*

*Assistant Project Manager for a plan to provide detailed recommendations regarding transportation and pedestrian improvements in Central Norwalk. The study analyzed the traffic impacts of developments that are expected to be realized over the next 20 years and devised appropriate roadway improvement strategies and pedestrian circulation improvements. The scope of services included data collection, travel forecast, pedestrian/bicycle access review, traffic analysis and public outreach. A main component of the project involved building a detailed and flexible traffic model to analyze the effects of various development and improvement scenarios.*

**MATTHEW J. POPP**  
**Landscape Architect / Professional Wetland Scientist**

**PROFESSIONAL HISTORY:**

1995 - Present Principal / Landscape Architect / Professional Wetland Scientist  
Environmental Land Solutions, LLC, Norwalk, Connecticut

1987-1995 Landscape Architect / Environmental Analyst  
Environmental Design Associates, PC, Wilton, Connecticut

**EDUCATION:**

1983 The University of Connecticut, Storrs  
Bachelor of Science in Horticulture

1987 The University of Georgia, Athens  
Master's of Landscape Architecture

**LICENSES AND CERTIFICATIONS:**

State of Connecticut: Landscape Architect #630  
State of Connecticut (DEEP): Permit to Collect Wildlife for Scientific /  
Educational Purposes

State of Massachusetts Landscape Architect #4065  
State of New Jersey: Landscape Architect #21AS0013400  
State of New York: Landscape Architect #1509-1  
Society of Wetland Scientists: Professional Wetland Scientist #1322

**AWARDS:**

“2009 Honor Award” - Site Design of Cove Island Wildlife Sanctuary, Stamford,  
Connecticut.  
Outstanding Professional Achievement from the American Society of Landscape  
Architects, CT Chapter.

**PUBLICATIONS AND PRESENTATIONS:**

“Can Tidal Wetlands Really Be Restored? A Case Study of the Science and Law of Tidal  
Wetland Restoration.” Co-author. Wetlands Watch. Vol. 1, No.2. Robinson & Cole,  
Hartford, CT. Spring, 1991.

“Wetland Creation: Problems and Solutions.” Co-author and Presenter at Society of  
Wetland Scientists 12th Annual Meeting, Ann Arbor, Michigan. 1990. Not published.

**PROFESSIONAL AFFILIATIONS:**

Member (1986 to present): American Society of Landscape Architects (ASLA)  
Board Member (1999 to 2008): Audubon Greenwich, CT - President (2002 to  
2005), Secretary (2001)

Board Member (2003 to 2013): Calf Island Conservancy, Inc., Greenwich,  
Treasurer (2012-2013)  
Member (1988 to present): Connecticut Botanical Society  
Member (1991 to present): Connecticut Ornithological Association  
Advisor Board (2015 to present): Friends of Greenwich Point, Greenwich, CT  
Board Member (1995 to 1999): Greenwich Audubon Society, CT - Vice President  
(1998-1999)  
Member (1993 to 2009): Inland Wetlands and Watercourses Agency, Town of  
Greenwich, CT  
Volunteer (2008 to present): Mianus River Fish Ladder Monitor, Town of Greenwich  
Volunteer (1995 to present): Quaker Ridge Hawk Watch, Greenwich, CT - Director  
(1995-2002)  
Member (2002 to present): Society of Wetland Scientists - Professional  
Wetland Scientist

**EXPERIENCE:**

The development of site and landscape plans for a range of projects including parks, educational and health care institutions, commercial developments, housing communities, single-family residences, and wetland restoration and mitigation. Professional Wetland Scientist completing natural resource inventories of plant and wildlife communities. Preparation of environmental assessment reports with evaluation of project impacts and mitigation alternatives for various proposals subject to local, state and federal review. Presentation of testimony at public hearings and meetings in support of projects. Environmental site monitoring for compliance with regulatory permit conditions.

**APPENDIX “B”**  
**Engineering Reviews prepared by**  
**Trinkaus Engineering, LLC**

**KWH Enterprise, LLC**

**Environmental Land Solutions, LLC**



**Trinkaus Engineering, LLC**

114 Hunters Ridge Road  
Southbury, Connecticut 06488  
203-264-4558 (office & fax)  
+1-203-525-5153 (mobile)  
E-mail: [strinkaus@earthlink.net](mailto:strinkaus@earthlink.net)  
<http://www.trinkausengineering.com>

August 11, 2015

Ms. Sharon Fox, Chairman  
Inland Wetlands Commission  
Town of Brookfield  
100 Pocono Road  
Brookfield, Connecticut 06804

RE: The Enclave at Brookfield Center  
854 & 874 Federal Road

Dear Ms. Fox,

At the request of the Inland Wetlands Commission, I have prepared this third party engineering review of the site plans and reports prepared for the above reference application. I have reviewed the following documents as part of this review:

1. Wetland Assessment by Jodi Chase, Ecologist; dated: July 2015
2. Drainage Summary by CCA, LLC; dated: June 29, 2015
3. Drainage area maps by CCA, LLC (3 sheets); dated: 7/2/2015
4. Site Development Maps by CCA, LLC (16 sheets); July 2, 2015
5. Schematic architectural plans

**Executive Summary:**

1. This is a large residential project which is proposes large extents of directly connected impervious areas. The runoff from these impervious areas will have an adverse impact on downstream receiving waters, both from a water quality standpoint as well as increased runoff volumes.
2. The stormwater management plan is not in compliance with the 2004 CT DEP Storm Water Quality Manual as the Water Quality Volume, Groundwater Recharge Volumes and Channel Protection Flow have not been provided.
3. The stormwater management system as proposed will not adequately address increased pollutants to be generated by this project.
4. The application calls for the filling of a portion of a delineated wetland area and not feasible and prudent alternatives have been provided as required by the Brookfield Inland Wetland and Watercourse Regulations.

5. The erosion and sedimentation control plan is very generic in nature and aspects of the plan do not conform to the 2002 CT DEP Guidelines for Soil Erosion and Sediment Control.

**General Comments:**

1. There are two delineated inland wetlands areas on the site. The applicant proposes to fill over a portion of the wetland area in the south central portion of the site, while the remaining portion of this wetland will be part of the stormwater management system. As direct impacts are being proposed to the wetland area, feasible and prudent alternatives must be provided by the applicant. Additionally, it has been and continues to be the policy of the CT DEEP not to use delineated inland wetland areas for the detention of stormwater. The applicant should contact CT DEEP regarding the location of the proposed stormwater basin within a delineated inland wetland area.
2. The Chase reports that "Currently one of the pockets receives storm water runoff". Based upon a review of the existing conditions map and a site inspection, it does not appear that the south central wetland receives stormwater from any other developed area. It only appears to have overland flow from the current wood/brush combination draining to it at this time. There is an existing 12" drainage pipe from the south central wetland to the smaller wetland pocket, located near Federal Road. It appears that this pipe was an attempt to drain the south central wetland area overtime by a previous owner.
3. It is stated in the Soils Report by Roy Shook, Soil Scientist that the wetlands shown on the submitted plans were originally delineated in April 2006, but nonetheless the boundaries were reviewed by Mr. Shook on April 13, 2015 and no changes were noted. During a site inspection by my office in on July 18, 2015, only two wetland flags were found in the field at the south central wetland and the flag numbers did not correspond to the flag numbers shown on the site plans. As the vegetation is extremely dense on this site, the soil scientist should explain how the boundary was reviewed and verified if the original wetland boundary was not reset in the field. Wetland flag numbers shown on the site plan need to match the flags found in the field.
4. The soil types found in the Roy Shook report should be placed on the Existing Conditions Plan by CCA, LLC.
5. During the site inspection by my office, numerous soil test pits were observed on the site. The location and results of these soil tests need to be added to the existing conditions plan.
6. Only peak rate attenuation for changes in runoff is being provided by the applicant. Water quality issues and runoff volumes are not being addressed. More detail will be provided under the stormwater management section of this review.
7. There are several modular block retaining walls proposed for this project. There are no heights provided for any of the retaining walls. Top and bottom wall elevations should be provided for all proposed retaining walls whenever there is a change in height.

**Emergency Access:**

1. Emergency access is shown to be provided through the bowling alley property to the south to the southwest corner of the subject property. It has not been demonstrated that

emergency vehicles, particularly fire trucks, including the aerial fire truck can follow the emergency access easement as shown particularly at the two sets of turns found near the south side of the bowling alley. A vehicle movement plan for the largest fire truck (aerial truck) needs to be provided to demonstrate that the fire trucks can use the proposed emergency easement.

2. Similarly, a vehicle turning movement plan should be provided for the same fire emergency vehicles for the driveways of the proposed project. This plan should also include provisions for backing up or turning an emergency vehicle around within the proposed development.

### **Stormwater Management:**

#### **General Comments:**

1. Watershed delineation for existing conditions is not properly delineated. The watershed boundary shown on the plan crosses several contours whereas the boundary should be perpendicular to the contours.
2. There is a lack of contours and/or spot elevations on off-site properties making the verification of the watershed boundary impossible to define.
3. There are no watershed computations for that portion of the site which drains to the west. The stormwater management report is incomplete without this information.
4. Potential runoff from this area is being diverted under the proposed plan to the east. What is the effect on existing aquatic resources west of this site by this diversion of runoff?
5. The Time of Concentration (Tc) delineation for existing conditions is not correct. It does not correctly follow the existing topographic conditions.
6. Based upon a review of the topographic conditions, this Tc path may not be the "hydrologically longest flow path". Applicant should review and demonstrate that the Tc shown is correct.
7. There are no provisions for the management of snow provided on the plan. In addition to the storage of snow during the typical New England winters, snow melt must not be allowed to bypass the stormwater management treatment system as snowmelt contains very high levels of pollutants. There are no stated provisions as to how winter deicing operations will be done to minimize the discharge of pollutants to the stormwater management system. Deicing agents which contain chlorides are a particular concern as chlorides do not settle out in stormwater management systems nor are they taken up by vegetation, but simply pass through the system. The discharge of chlorides from any area with a large extent of impervious area as proposed here will result in long term adverse impacts to water quality in receiving watercourses.

#### **Design of Stormwater management system:**

1. Virtually the entire property will be covered with impervious area (building roofs, driveways/parking areas/sidewalks), so there will be significant increases in not only the rate of runoff, but also in runoff volume. It has not been demonstrated that the existing DOT system on Federal Road can handle the increased runoff volumes to be generated by this site.

2. Stormwater report calls out the use of a CDS water quality unit, but the location of the unit is not shown on the Grading & Drainage Plan. There are what look to be two manholes shown at DHM 1 on the plan. Is this where the CDS unit is proposed to be?
3. The forebay provided at the north end of the detention pond has not been designed in compliance with the 2004 SWQM. It must provide a minimum of 10% of the full required WQV as a fixed storage volume below the outlet invert elevation. It must have a minimum length to width ratio of 2:1 or a preferable one of 3:1. The depth of the forebay must be between 4 – 6 feet to provide for the trapping of coarse sediments and also prevent the re-suspension of the settled particles. These design requirements are required to allow the forebay to function properly. The depth, length to width ratio and storage volume requirements must be provided as stated in the SWQM and are not an optional item.
4. The Pond Report found in the Drainage Summary states that the available storage volume goes all the way up to elevation 296' from 290'. However a review of Sheet C3 of the plan set shows proposed parking grades in the parking area are proposed at 295.5' so the portions of the parking lot would appear to flood under this scenario as no curbing is shown along the south and east side of the detention basin.
5. The Pond Report also provides a Stage/Discharge graph, but this does not provide necessary information to verify the effectiveness of the basin to attenuate increases in the peak rate of runoff for all analyzed storm events. Some of the Hydrographs (such as the one shown on page 56 of the Drainage Summary show multiple hydrographs, but on a black/white print, they cannot be differentiated from each other. They are also not labelled which makes determining values from them impossible.
6. A routing analysis is missing from the Drainage Summary. A routing analysis which shows the following information needs to be provided to fully verify the claims of peak rate attenuation:
  - a. Inflow rates in the basin during the rainfall event (time),
  - b. Outflow rates from the basin during the same time period as inflow,
  - c. Peak water surface elevations for the peak outflow rate from the basin for each analyzed storm event,
  - d. Volume of storage utilized in the pond for each storm event.
7. A table on page 2 of the Drainage Summary shows the existing and proposed peak rates of runoff for the entire when considering the detention basin. As the data in the report is not easily determined, the values in this table cannot be confirmed. A table should be provided which shows the following information to both the proposed detention basin and the inlet to the Federal Road drainage system for all analyzed storm events.
  - a. Pre-development peak rate,
  - b. Post-development peak rate (w/o detention),
  - c. Post-development peak rate (w/detention),
  - d. Summary of post-development peak rates at the Federal Road Culvert.
8. The proposed stormwater basin is a standard “dry” detention basin as the outlet invert is set at the bottom of the basin and will only address changes in the peak rate of runoff.
9. The applicant proposes to install a 30” diameter pipe from the outlet control structure to the smaller wetland area located near Federal Road however the outlet pipe from the smaller wetland area to the drainage system on Federal Road is only a 24” pipe. You do

not place a larger pipe upstream of a smaller pipe. This is an engineering standard, even if the smaller pipe may have capacity to pass the flow from the larger pipe.

10. As the runoff from this site does reach the Still River in a short distance from the site, the Channel Protection Flow standard needs to be met. This standard found in the 2004 SWQM requires that the post development peak rate of runoff for the 2-year rainfall event be reduced to 50% of the pre development peak rate for the 2-year event. The justification for this requirement is to lower the nominal flow depth for the 2-year event in a stream while extending the flow duration significantly. This minimizes erosion of the stream banks and other changes to stream channel morphology.

### **Water Quality and Runoff Volumes:**

1. Water quality of post-development runoff is a significant concern for developments such as being proposed here due to the extent of directly connected impervious areas. In addition to Total Suspended solids (TSS), Total Phosphorous (TP), Total Nitrogen (TN), Metals (Zn as an indicator for other metals) and Total Petroleum Hydrocarbons (TPH). While nutrient loads are often blamed on the fertilization of lawn areas, which this site does not have, there will be a significant nutrient load created by this development. An often overlooked source of non-point source pollutant is atmospheric deposition. Research reported by North Carolina State University has shown that up to 91% of nitrate loads, 38% of the total nitrogen load found in runoff were the result of atmospheric deposition directly on impervious surfaces. Further studies from Charlotte, NC have found that between 10-13% of phosphorous and total suspended solids along with 30-50% of copper and lead and 70-90% of nitrogen in runoff was the result of atmospheric deposition. As currently proposed, this development will have very high annual pollutant loads due to the extent and the connectedness of the impervious area proposed for this project and these high pollutant loads are not being addressed by the current stormwater management design.
2. In the SWQM, the CT DEP states that the water quality goal is the reduction of TSS loads by 80% for post-development conditions. Based upon the available information at the time the Manual was written in 2000-2002, it was assumed that other pollutants, such as metals, hydrocarbons, phosphorous and nitrogen attached themselves to the suspended solid particles, so if you trap the suspended solids, you would also remove these other pollutants. But based upon 15 years of stormwater monitoring in many parts of the US, it has shown that this assumption is not true. While metals and hydrocarbons have a good affinity to suspended sediment particles (silts and clays), this is not true for nutrients. Nutrients in stormwater are found in both particulate and soluble forms so meeting the TSS removal rate does not equate to the reduction of nutrient loads. Furthermore, according to the US EPA "Too much nitrogen and phosphorus in the water causes algae to grow faster than ecosystems can handle. Significant increases in algae harm water quality, food resources and habitats, and decrease the oxygen that fish and other aquatic life need to survive. Large growths of algae are called algal blooms and they can severely reduce or eliminate oxygen in the water, leading to illnesses in fish and the death of large numbers of fish. Some algal blooms are harmful to humans because they produce elevated toxins and bacterial growth that can make people sick if they come

into contact with polluted water, consume tainted fish or shellfish, or drink contaminated water.” As this site is located in close proximity to the DOT discharge point into the Still River, water quality impacts from this site will have an outsized adverse water quality impact on this aquatic resource.

3. The Water Quality Volume (WQV) has been calculated for a drainage area of only 5.37 acres. Entire site area is 9.18 and the total impervious area (building roofs, driveway/parking areas, sidewalks, dumpster pads, etc.) needs to be used for the WQV calculation. This calculation is not in compliance with CT DEP 2004 Storm Water Quality Manual (SWQM).
4. The Water Quality Volume (WQV) is not being “captured and treated” as stated in the SWQM. While the applicant has sized the proposed hydrodynamic separator using the Water Quality Flow (which is based upon the WQV), it does not eliminate the requirement to provide the full WQV as part of the stormwater management system.
5. A CDS unit is considered a Hydrodynamic Separator and is also classified a “secondary treatment practice” by the SWQM as they are not very effective at improving water quality of post-development runoff. If it is located on the main drainage pipe run to the detention basin, it will only remove approximately 30% of the Total Suspended Solids (TSS) in the post-development runoff. This is not close to meeting the CT DEEP goal of 80% reduction of post-development TSS loads.
6. A pollutant loading analysis which determines both the existing annual loads from the site as well as for post-development needs to be prepared for all of the pollutants stated above. In addition, the stormwater management system must be evaluated for its effectiveness to reduce pollutant loads for not only TSS, but TP, TN, Zn, and TPH.
7. There are no calculations for Groundwater Recharge Volume as stated in the SWQM. This is not in compliance with 2004 SWQM. This basis of this requirement is to match pre-development infiltration rates by soil type for the 90% rainfall event (1” of rain in 24 hours).
8. A rain garden is proposed in landscaped island between two of the proposed buildings. There are no sizing calculations or construction details for this proposed rain garden.
9. There are no planting plans for the proposed rain garden.
10. The rain garden will not provide any storage or treatment of runoff as the rim elevations of the proposed catch basins (CB #2-CL and CB #1-CL) are set at 297.5’, which is 0.5’ below the bottom contour of the rain garden.
11. This rain garden will not provide any water quality benefit to the post-development runoff.
12. A note in the erosion narrative states that footing drains will be connected to the stormwater management systems. No footing drains are shown on the site plan. Will the proposed buildings have footing drains?

### **Erosion and Sediment Control:**

1. The applicant proposes pre-formed scour holes at the outlet of stormwater pipes (at inlet of forebay and wetland area near Route 7). Pre-formed scour holes are not appropriate at these locations as they are suitable for discharges which are directed to existing watercourses where the flow is in a concentrated path.

2. Outlet protection aprons designed in accord with 2002 Erosion and Sediment Control Guidelines (Guidelines) shall be used as they dissipate the concentrated flows and spread out the flow over a wider length, thus preventing concentrated flows and reducing flow velocities of the runoff. The outlet pads shall be designed for the peak rates of flow associated with the 25-year rainfall event.
3. The proposed detention basin is proposed to be used as a sediment trap during the construction period. There are no sizing computations to demonstrate that this basin will provide the required sediment and wet storage volumes as required by the 2002 Guidelines.
4. There is also a practical issue with using a permanent stormwater basin as a temporary sediment trap. Once the construction has been completed, the temporary sediment basin will be converted to the permanent stormwater basin and the bottom of the basin will be planted and then be subject to the immediate discharge of stormwater. The discharge will cause siltation to occur and prevent the establishment of the plants in the stormwater basin.
5. Multiple temporary and properly sized sediment traps should be proposed throughout the site to trap sediment during the active construction period, which according to the applicant will be approximately 36 months.
6. This project will require a general permit certification for "Stormwater and Dewatering Wastewaters from Construction Activities" from the CT DEEP. The current general permit requires that the erosion control plans be in full compliance with the 2002 Guidelines and the stormwater management plan also must be in compliance with the 2004 SWQM as the disturbance in total is greater than 5 acres. As part of the general permit, a checklist was developed by the CT DEEP and local soil and water conservation districts and all of this information must be provided on the project plans.
7. The construction narrative shown on Sheet C7 is not in compliance with the form and content provided in the 2002 Guidelines.
8. As an example, the narrative states that the perimeter siltation fence barrier will be installed and then the site will be cleared of vegetation. This is inappropriate as the newly installed silt fence will be knocked down or broken from the falling trees during the clearing operation.
9. A singular siltation fence barrier is proposed as the perimeter control for this large project. Due to the extent of earthwork proposed on the site, a singular erosion barrier is highly likely to be overtopped at some point during the construction period. The applicant should consider the use of redundant erosion control barriers or other systems which are more effective than siltation fence barriers as a perimeter control.
10. According to the narrative on Sheet C7, the entire project is to be disturbed at one time. This is inappropriate and violates the goals stated in the 2002 Guidelines which are to minimize the extent of site disturbance at one time. For the size of this project there are no phasing plans for the construction. A realistic phasing plan needs to be provided for this project. Each phase must also have the specific erosion control measures for the construction proposed within each phase.
11. The information provided on Sheet ES1 is very generic in nature. Erosion and sediment control is a very site specific process and provisions for dust control, temporary and permanent seeding, etc. need to be developed for this specific project and construction process. Generic statements are open to different interpretations by the contractor, the

designer and the regulatory authorities and become unenforceable for a project of this magnitude.

12. There are no provisions for weekly independent inspections of the project for the duration of the project per the guidelines.

Please feel free to contact my office if you have any questions concerning this information.

Respectfully Submitted,  
Trinkaus Engineering, LLC



Steven D. Trinkaus, PE, CPESC, CPSWQ

To: Town of Wallingford,  
Connecticut, Planning and  
Zoning Commission

From: Kermit Hua, PE, PTOE  
KWH Enterprise, LLC  
277 Reservoir Avenue  
Suite 1101  
Meriden, CT 06451  
Phone: (203) 807-5482  
Fax: (203) 440-0788

File:

Date: October 13, 2014

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**Reference: Traffic Peer Review of Outparcel Development, 1094 North Colony Road (Route 5), Wallingford, Connecticut**

This memorandum summarizes a peer review of the traffic study prepared by McMahon Associates for the three newly-proposed fast food restaurants on the outparcel at 1094 North Colony Road (Route 5) in Wallingford, Connecticut.

### **Summary**

- The study shows that levels of service (LOS) D or better can be expected at the intersection level for area intersections after the three fast food restaurants are constructed. Some of the side-street and driveway movements will operate at LOS E with delays and queuing during the Saturday midday peak hour. These LOS and associated delays for side street and driveways are common for commercial corridors such as Route 5, and they will not directly affect the operation of the through traffic on Route 5.
- The traffic analysis of the study covers the weekday afternoon and Saturday midday peak hours. It does not include analysis for the weekday morning and weekday midday peak hours, important periods of operation for fast food restaurants.
- The lane lines and pavement arrows for the Lowe's driveway at the Route 5 intersection should be repainted.
- An additional stop bar and a stop sign are recommended at the northern end of the parking aisle next to the on-site four-way intersection with Chick-fil-A. Proposed landscaping should not block driver sight lines on all approaches of this four-way intersection.
- Directional sign(s) such as "Exit to Route 5 North Only" are recommended on the site to notify drivers that the driveway with Route 5 shared by the four restaurants (including Chick-fil-A) is for right-turn exit to northbound Route 5 only.
- I disagree with the study's approach in estimating parking demand by using data for a general ITE land use code, Shopping Center. Parking rates for specific ITE land uses should be used instead in projecting parking demand.

### **Traffic Study Methods and Findings**

The traffic study examined the traffic impact of the three fast food restaurants by estimating the amount of traffic to be generated by them and by analyzing the levels of service (LOS) and

traffic delays at adjacent intersections under the 2014 existing, 2019 no-build and 2019 build conditions.

The study looked at the weekday afternoon and Saturday midday peak hours of traffic operation, missing the two other important peak hours for fast food restaurants: the weekday morning peak hour and the weekday midday peak hour (see further discussion that follows).

For the two peak hours covered by the study, LOS D or better are projected at intersection levels and on most traffic approaches. On individual approaches, LOS E and long delays are predicted for the following approaches that are directly associated with the development under the 2019 build conditions:

- The westbound driveway at Route 5 shared by the four restaurants including Chick-fil-A will operate at a LOS E with a 40.4-second average delay and a 95<sup>th</sup>-percentile queue of 133 feet, or 5.3 vehicles, during the Saturday midday peak hour;
- The westbound left-turn lane of the Lowe's driveway at Route 5 will operate at a LOS E with a 62.5-second average delay and a 95<sup>th</sup>-percentile queue of 283 feet, or 11.3 vehicles, during the Saturday midday peak hour; and
- The westbound left-and-through lane of the Lowe's driveway at Route 5 will operate at a LOS E with a 60.9-second average delay and a 95<sup>th</sup>-percentile queue of 277 feet, or 11.1 vehicles, during the Saturday midday peak hour.

Long delays and/or queues are also predicted for through movements on Route 5 and on the Old North Colony Road approach at Route 5. Although these are for the most part not attributable to the proposed site development.

Overall, the deficient LOS E and delays at the Lowe's driveway and the right-in-right-out driveway on Route 5 are common for these kinds of commercial corridors. Although visitors to the restaurants can expect some peak-hour delays when exiting the site, the delays will not directly affect the operation of the through traffic on Route 5.

### **Field Observation**

I visited the site on Thursday, October 9, 2014 to observe traffic operations at the nearby intersections on Route 5 and on the project site. The construction of the adjacent Chick-fil-A restaurant is ongoing. The pavement markings on the Lowe's driveway approach of the signalized intersection with Route 5 have faded and have not yet been repainted. The lack of lane striping on the Lowe's driveway can potentially reduce its traffic capacity when drivers take up more than one lane of pavement width. If these driveway markings are not included in the Chick-fil-A project, they should be part of the site work for the three restaurants, preferably applied with a durable material such as epoxy resin that does not wear out easily.

### **Trip Generation**

The study used ITE Land Use 933 (Fast-Food Restaurant without Drive-Through) and 934 (Fast-Food Restaurant with Drive-Through) for the trip generation of the three restaurants. The resulting numbers of trips for the two peak hours (weekday afternoon and Saturday midday) are substantially similar to the output I generated (see the attached Appendices 1 and 2), other than rounding differences. The land use categories and rates used for the two peak hours are reasonable.

I take no objection to the 10 percent reduction for internal trips and 20 percent reduction for pass-by trips described in Table 3 of the study. (Parking is a different matter. I will discuss later that no reduction should be applied in the parking calculation of this development when considering the multiple uses on the site.)

Although the study covers the weekday afternoon peak hour and the Saturday midday peak hour of the restaurants, which correspond to the last two rows of Table 1 that follows, it does not consider the two other peak hours of the restaurants, the weekday morning and the weekday lunch time peaks. Weekday morning and lunch time are peak business periods for most fast-food brands, with the exception of a few such as Wendy's, which does not offer breakfast at most locations. Table 1 shows that the total number of weekday morning peak-hour trips (373) for the three restaurants is higher than that for the weekday afternoon peak hour (247) and lower than that for the Saturday peak hour (474), and the number of peak weekday lunch-hour trips (484) is slightly higher than the corresponding number for the Saturday midday peak hour (474). In other words, the restaurant trips for the two peak hours that are missing are similar to or higher than those for the two peak hours covered by the study.

**Table 1 Peak-Hour Trip Comparisons**

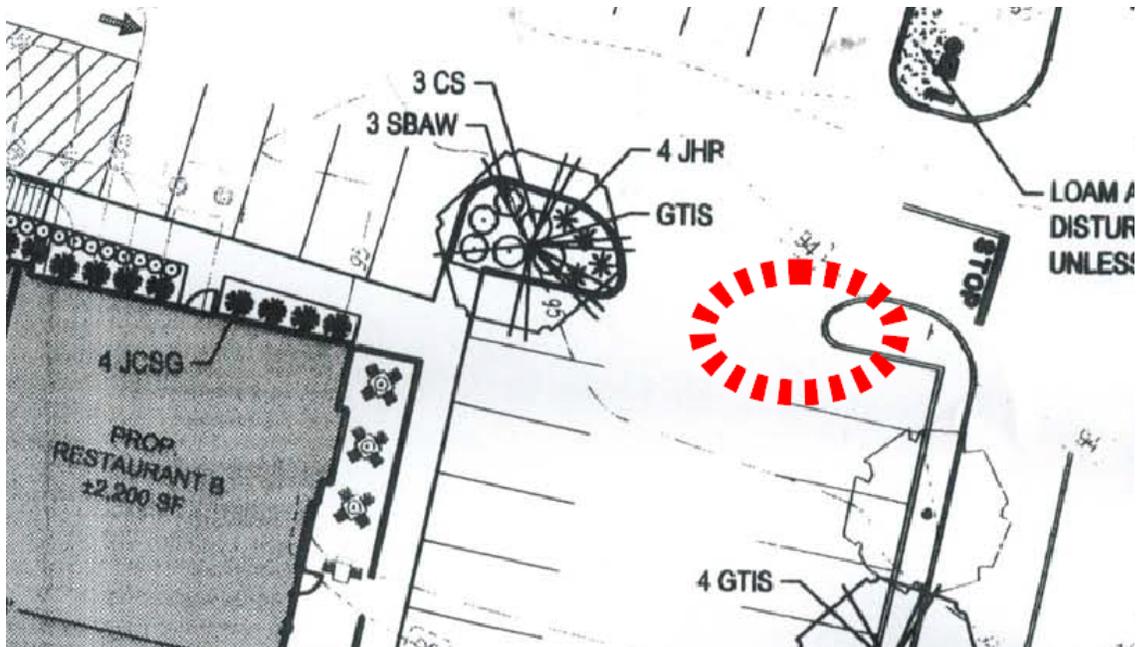
Peak-Hour Trip Rates			
	LU 933, without Drive-Through (3,800 SF)	LU 934, with Drive-Through (4,530 SF)	Total
Weekday AM Peak Hour of Adjacent Street	167	206	373
Weekday AM Peak Hour of Generator (Assumed for Peak Lunch Hour)	241	243	484
Weekday PM Peak Hour of Adjacent Street	99	148	247
Saturday Midday Peak Hour of Generator	207	267	474

I recommend that the study be amended to include the evaluation of traffic impact during the two missing peak hours. This can be achieved in two ways: (1) additional turning count collections and traffic capacity analysis; or (2) if applicable, the study preparer can demonstrate, say using hourly counts of Route 5, that the build traffic volumes for the weekday morning and weekday midday peak hours will be similar to or lower than those for the weekday afternoon and Saturday midday peak hours, in which case the two already-studied peak hours would have covered the worst traffic conditions.

**On-Site Four-Way Intersection**

The on-site four-way intersection that the three restaurants share with Chick-fil-A can be heavily traveled during peak restaurant hours. The site plan proposes stop controls for traffic exiting the four restaurants and free movement for traffic on the shared driveway that intersects with Route 5. It is recommended that any proposed landscaping do not block driver views on all four approaches to this intersection. To help limit the potential for traffic conflicts, a stop bar and a stop sign is recommended at the northern end of the parking aisle highlighted in Figure 1 that follows.

**Figure 1 Recommended Location for Stop Bar and Stop Sign**



### **Directional Signs for Exiting Vehicles**

The driveway shared by the four restaurants is for right-in-and-right-out traffic only at its intersection with Route 5. For patrons who exit to travel south on Route 5 and are unfamiliar with the site, they may end up using this driveway and then discover that they will have to turn right onto northbound Route 5, cross four lanes, and make a U-turn at the Circle Drive intersection to continue traveling southbound on Route 5. To limit the number of this circuitous movement, directional sign(s) such as “Exit to Route 5 North Only” are recommended for exiting drivers before they turn onto the shared driveway towards Route 5.

### **Parking Calculation**

I disagree with the parking calculation method described on page 28 of the study.

The study uses a general Land Use (LU) category, 820, Shopping Center, as the basis for parking calculation. However, the overall development is not characteristic of a shopping center in the form of a shopping mall or a collection of specialty retail stores with anchor stores; the overall site consists of a Lowe’s Home Improvement store, a Mexican restaurant, the Chick-fil-A restaurant currently under construction, and the three proposed fast food restaurants. Shared parking (park once and visit multiple destinations) that is typical of many shopping centers is very unlikely here because of the long walking distance between the Lowe’s and the restaurants along Route 5, the lack of pedestrian amenities on the site, and the fact that typically people do not visit more than one restaurant at a time. In all likelihood, visitors shopping at the Lowe’s and eating at one of the restaurants will park twice, once in front of the Lowe’s and once next to the restaurant, and therefore creating a parking demand for two spaces, not one space that would be the case in many shopping centers. So the prudent approach in estimating the overall parking demand is to add up the individual parking demands of its component parts, not using the rates for the general land use category of Shopping Center.

The specific parking rates for the following land uses from the ITE *Parking Generation, 4<sup>th</sup> Edition* are recommended in the parking demand calculation, with no shared parking deductions:

- LU 862, Home Improvement Superstore;
- LU 932, High-Turnover (Sit-Down) Restaurant;
- LU 933, Fast-Food Restaurant without Driver-Through Window; and
- LU 934, Fast Food Restaurant with Drive-Through Window.

The sum of the parking demands for the whole site can then be checked against the number of post-build spaces to determine the adequacy of parking.

### Other Minor Items

- On page 16 of the traffic study, in the first paragraph, the ITE code for “Fast-Food Restaurant with Drive-Through Window” should be 934, not 943.
- Right-turn-on-red is forbidden by sign on the eastbound approach (the Home Depot driveway) of the signalized intersection with Route 5. So the traffic analysis that allows right-turn-on-red on this approach is incorrect. When this is revised, the intersection-level delay will see a slight increase.



# **Environmental Land Solutions, LLC**

*Landscape Architecture & Environmental Planning*

8 Knight Street, Suite 203, Norwalk, CT 06851

Tel: (203) 855-7879 Fax: (203) 855-7836

January 19, 2016

Patricia Sesto  
Greenwich Inland Wetlands and Watercourses Agency  
101 Field Point Road  
Greenwich, CT 06830

Re: IWWA Application Review  
47 Valley Drive, 1Greenwich, CT

Dear Ms. Sesto:

At the request of Georgetown North Owners Associations, I have reviewed the proposed senior housing development plans located at the above referenced site to evaluate wetland resources and assess potential development-related impacts. To complete this task, I reviewed the site from the surrounding properties on January 9 and 11, 2016 and reviewed the following documents:

1. The following site plans prepared by Rocco V. D'Andrea, Inc., dated 11.19.15, prepared for 47 Valley Drive LLC:
  - a. "Existing Conditions";
  - b. "Development Plan";
  - c. "Erosion Control Plan";
  - d. "Notes & Details";
  - e. "L.I.D. Plan"; and
  - f. "Driveway Profile Plan".
2. Wetland Inventory, Functional Evaluation and Impact Assessment, prepared by Environmental Planning Services, LLC (EPS), dated December 30, 2015 that includes an undated "Conceptual Restoration / Enhancement Plan".

## **Existing Conditions and Wetland Description**

The 2± acre hillside site is located on the eastern side of Valley Drive, adjacent to and south of the Georgetown North Condominiums. The site contains a small roadside 0.1 acre wetland in the northwest corner of the site that extends off the site. The wetland area contains a shallow 2' deep ponding area. The wetland includes a narrow northward flowing watercourse that discharged at the street property line from a culvert that extends across the site's existing driveway to the south. The existing site description and wetland function assessment are generally as described within the EPS report.

## **Plan Review**

Based upon a review of the site documents, the following questions and comments are provided for your consideration:

1. Are the recommended measures stated within EPS report to be included within the IWWA application? The site plans do not incorporate the EPS recommendations.
2. 100' Upland Review Area: This line is not shown on the site plans reviewed.
3. Front Walk: The proposed front yard walk is located 25' from the wetland line at its closest point. Site disturbance will be within this distance. It appears that the proposed front walk can be relocated 15-20' further from the wetland line without a significant change to the overall site plan.
4. Steep Proposed Slopes: The proposed site grading proposes slopes as steep as 1:1 along the east property line and 1:2 to the north of the proposed buildings. Without proper slope stabilization, wetland impacts to downslope resources will likely occur for extended periods of time. Currently these areas are to be seeded with a no-mow seed mix. How are the steeply sloped no-mow areas to be maintained over the long term? A quick germinating native meadow seed mixture specifically designed for steep slopes, cut once per year during the late fall or early winter months, would be more appropriate. Slopes steeper than 1:2 will need additional measures beyond seeding for stabilization.

A retaining wall may be required along the eastern property line where the proposed grades do not meet with the existing contours at the property line.

5. Rain Garden: The site plans indicate that the rain garden will be seeded. Will the rain garden be stabilized with vegetation prior to collecting and retaining surface water?
6. Site Drainage: To maintain water quality within the wetland, stormwater runoff from the new road should be pre-treated prior to being discharged into the rain garden. The proposed drive is steep and will likely have to be heavily sanded during the winter. The four new roadway catch basins currently are proposed with a 2' deep sump. The sumps should be increased to a 4' depth. After passing through the catch basins, the stormwater should then be filtered through a swirl concentrator (or some other treatment measure) to further trap sediments before reaching the rain garden.

The grading shows the new roadway pitched toward the center of the road instead of toward the curb.

7. Snow Removal: How is snow removed from the site? Will snow be stockpiled onsite?
8. Dumpster Location: The dumpster location should be clarified on the site plans.

9. Mitigation Measure: The outlined mitigation measures recommended by EPS, such as habitat plantings, invasive species control, dredging of the pond, and seeding, are desirable and are not formally incorporated on the site plans. Are all of the recommended EPS mitigation measures to be considered part of the IWWA application?  
Section 8.1 of EPS report states no direct wetland impacts are proposed. However, the undated EPS “Conceptual Restoration / Enhancement Plan” indicates that accumulated sediments will be removed from the pond and stream channel.
10. Landscape Plan: It appears that no Landscape Plan has been submitted with the application. Without the Landscape Plan it is unknown to how the wetland and wetland buffer will be vegetated. No limit of lawn is shown on any of the plans reviewed. Without knowing where the maintained landscape areas are an accurate impact assessment of the wetlands cannot be completed.

### **Recommendation**

The following items are recommended to be added to the site plans. These items provide site plan clarifications, measures to reduce wetland impacts, and techniques to enhance the overall function of regulated areas.

1. Add the 100' upland review line to the site plans.
2. Relocate the front yard sidewalk to maintain a 50' or greater distance to the wetland line.
3. Include all of the EPS recommendations on the site plans including, but not limited to, the dredging details for the pond, detailed management notes for the removal of nonnative invasive plant species,
4. Preparation of Mitigation Plan showing the following:
  - a. Identify the limit of proposed lawn areas on the site plan. Maintained lawn areas should not be located within 50' of a regulated area.
  - b. Provide specific information for the proposed planting of the rain garden with a native meadow seed mix and proposed woody plants. The rain garden soils should be stabilized with a dense herbaceous cover prior to it receiving stormwater runoff.

- c. Provide specific information for the proposed planting of the wetland buffer with native trees and shrubs. The number of trees should be twice as many as that removed from the 100' upland review area. The understory should be densely planted with native shrubs.
  - d. Restore a section of the existing piped watercourse channel located to the south of the wetland along the streetscape by removing a 100'± section of the existing drainage pipe and allowing the water to flow overland. The restored watercourse and surrounding area should be planted with a mixture of native trees and shrubs.
  - e. Provide long and short-term management notes for the rain garden.
  - f. Slopes steeper than 1:3 slope shall be seeded with an erosion control meadow seed mix and a note added to the plan stating that these areas shall be cut a maximum of once per year to a 6" height during the late fall or early winter months. A quick germinating nurse seed crop shall be added to all seed mixes proposed on slopes 1:3 or greater and covered with a non-plastic erosion control matting.
  - g. Provide a detailed management plan for proposed removal and control of invasive species.
  - h. Installation of a boulder demarcation wall at the limits of the proposed maintained landscape areas.
5. Provide details for EPS recommended removal of accumulated sediments from the pond and stream channel including if the pond will be temporarily dewatered, identification of stockpile area, proposed pond grading, and proposed replanting.
  6. Road catch basins should have 4' deep sumps per drainage manual.
  7. All road runoff shall pass through a device to remove sediments, such as a swirl concentrator, for pretreatment prior to being discharged into the rain garden.
  8. Site grading:
    - a. It appears that some proposed contours are missing adjacent to the front walk and not matching up with existing grades along the eastern property line.
    - b. Lengthen the travel distance for the surface water discharged from the rain garden to the wetland by adjusting the grading between these areas. This would entail redirecting water discharged from the rain garden's weir toward wetland flag #6 and #7. This would increase the flow distance from the rain garden to the wetland from 40' to 90'±.
  9. The dumpster shall be located on the plan in an area outside the wetland's 100' upland review area if feasible or within the building.
  10. Identify the limit of the underground parking structure on the site plans.
  11. Show the five existing trees within the rain garden to be removed.

12. Silt fencing downslope of grades 1:3 or greater shall be reinforced with staked hay bales or an additional silt fence row.

### **Summary**

The proposed senior housing project is located within the upland review area of an onsite wetland that extends offsite to the north. Project areas are also located on existing and proposed steeply sloped land. Wetland impacts from the project can result from erosion and sedimentation during construction and from water degradation as a result from lawn fertilizers and impervious surfaces. Without the incorporation of the added recommended soil stabilization measure and the recommended mitigation measures stated above, the project will likely have an adverse impact to inland wetlands as a result from erosion and sedimentation from the site's steeply sloped areas and degradation of water quality.

After the mitigation measures recommended by EPS and within this letter are incorporated onto the proposed site plans and documents, the Georgetown North Owners Association should be given sufficient time to review the revised site plans prior to the close of the IWWA public hearing.

Sincerely,

Matthew J. Popp, ASLA  
Landscape Architect / Professional Wetland Scientist  
valley drive 47-greenwich-2016-peer review ltr.wpd



2350 Post Road, Suite 100  
Warwick, RI 02886  
401-773-7880  
www.steereengineering.com

February 29, 2016

Ms. Linda Painter  
Director of Planning and Development  
Audrey P. Beck Municipal Building  
4 South Eagleville Road  
Mansfield, CT 06268

via email:painterlm@mansfieldct.org

**Re: Letter of Interest-Meadowbrook Gardens**

Ms. Painter,

On behalf of Steere Engineering, I am pleased to submit this letter of interest for the expert review of a Special Permit application and Inland Wetlands License for a 36-unit apartment complex known as Meadowbrook Gardens. Steere Engineering, Inc. is a DBE firm which provides highway, environmental, building/structural and bridge engineering services in Rhode Island, Massachusetts and Connecticut. Steere is headquartered in Warwick, Rhode Island. Steere engineers' combine a commitment to quality, responsiveness and experience in a wide range of highway and environmental engineering endeavors to deliver projects that are responsive to our clients' needs, budget and schedule. Founded in 2010, we have grown from a staff of one to twenty-three. In that short period of time, we have established a reputation as a quality-driven, responsive and innovative company. We were awarded the 2014 Innovative Professional Services Company of the year by the Providence Business News.

Steere Engineering Inc. is capable of conducting in-depth reviews with respect to site layout and circulation, traffic impacts, stormwater management, wastewater management, wetland impacts and erosion and sediment control. In the past few years we have worked with many municipal boards on reviewing residential and commercial development for compliance with local bylaws or ordinances, state and federal regulations.

Steere Engineering Inc. will have Deirdre Paiva to be the primary point of contact and Project Manager. Ms. Paiva has a unique training in both stormwater design and an in-depth understanding of industry standards for traffic design. She has provided peer review engineering services on comprehensive community plans, subdivisions, redevelopment and plan unit development (PUD) projects, commercial, retail and industrial projects over 20 years.

We will provide responsive and cost effective professional engineering services to the Town of Mansfield, CT in order to establish and maintain a mutually beneficial relationship with the Town. We thank you for the opportunity to submit this proposal and look forward to working with you. Please call me at 401-773-7880 or email [Patricia.Steere@SteereEngineering.com](mailto:Patricia.Steere@SteereEngineering.com) with any questions.

Very truly yours,

Patricia D. Steere, P.E.  
President

**Steere ENGINEERING INC.**

**Bridge | Structural | Highway | Construction Support | 3D Modeling | NBIS Bridge Inspections | Environmental**

## QUALIFICATIONS OF STAFF PERFORMING THE WORK

Steere Engineering, Inc. has provided peer review services as well as other providing professional engineering services to Town/City in Connecticut, Rhode Island and Massachusetts and for projects involving planning and development, zoning and enforcement, construction administration and inspection.

Our key personnel in each area of expertise are listed below:

- Deirdre Paiva, CPESC, CESSWI – Environmental, transportation and site design  
As a transportation/environmental engineer, Deirdre has extensive technical and managerial experience in civil/site design specializing in stormwater, hydrology, hydraulic design, water quality, transportation and traffic analysis. She also has extensive experience in performing peer reviews.
  
- Steven Baker, PE – Roadway, drainage, Civil/Site design, 3D CAD and CPM scheduling services  
Steve’s highway design experience is extensive, with responsibilities for all aspects of roadway design and (re)construction including conceptual design, initial impact and traffic analysis, complex horizontal and vertical geometry, drainage design, development of specifications and engineering estimates, 3D-CAD, construction administration, CMP scheduling and construction inspection. Mr. Baker also has extensive experience in performing peer reviews and will be responsible for Quality Assurance.

Full resumes are presented at the end of the proposal.

## COST PROPOSAL/FEE SCHEDULE

The following is our man-hour breakdown per task:

Task	SPM	PM	Total
Plan Review		8	8
Stormwater Management report		6	6
Traffic Impact Analysis		4	4
Sanitary Sewer		4	4
Erosion and Sedimentation Control		4	4
Wetlands		4	4
Report	4	6	10
Review revised Plan/report	2	4	6
Public Hearing Attendance		4	4
<b>Total</b>	<b>6</b>	<b>44</b>	<b>50</b>

Title	2016-Rate	Man-hours	FEE
Senior Project Manager	\$125	6	\$ 750.00
Project Manager	\$100	44	\$ 4,400.00
<b>Total Cost for Services</b>			<b>\$ 5,150.00</b>

## APPROACH TO PERFORMING PEER REVIEW

### For MEADOWBROOK GARDENS:

We anticipate a notice to proceed on March 7, 2016. Upon receipt of complete application material we will proceed with our review as follows:

- ❑ **Site Plan Review:** Review of building and parking layout, internal circulation and access to public roadways, and all applicable stormwater and sewer information is adequately depicted on the design plans.
- ❑ **Stormwater Management Review:** Review of the stormwater management report as prepared by the applicant, for compliance with the Town Specifications and the Connecticut Stormwater Quality Manual. The design plans will be review for consistency with the information in the report and ensure that the design will adequately protect the interests of the Town.
- ❑ **Traffic Impact Analysis Review:** Review of a traffic impact analysis. Sight distance, capacity, safety and recommended mitigation measures will be reviewed in accordance with acceptable engineering practices and in accordance with the Town's guidelines and standards.
- ❑ **Sanitary Sewer Review:** Review of the sewer system design and connection into the Town's sewer system and Windham Water Pollution Control Requirements.
- ❑ **Erosion and Sedimentation Controls.** *Review of Erosion and Sedimentation Controls pursuant to Zoning Regulations and 2002 Connecticut Guidelines for Soil Erosion and Sediment Control.*
- ❑ **Wetlands** Review of the potential wetlands impacts and recommended measures to reduce any impacts.
- ❑ **Comment Review Letter:** A comprehensive peer review report will be submitted to the Town on or before March 28, 2016.
- ❑ **Review revised plans and reports** April 15, 2016 to April 27, 2016: We will attempt to resolve outstanding technical issues by providing clear and concise explanation of the elements of the submittal. As issues are resolved our review letter will be modified until all comments and questions have been properly addressed.
- ❑ **Public Hearing:** Ms. Paiva will attend the Public Hearing on May 2, 2016 to present findings/recommendations and answer questions from the Commission.

It is important for the municipality to have complete control of communications during the peer review process, and should always know when dialogue is happening between Steere Engineering and the Applicant. We will deal directly with an Applicant or the Applicant's engineer only if specifically permitted to do so by the Town, and will request that an Applicant get permission from the Town before calling us. When we do speak directly with the Applicant, we will submit a written report of the conversation to the Town. In our experience, the direct dialogue with the Applicant or the Applicant's engineer has center on clarifying technical points raised in our peer review report.

## PROJECT MANAGEMENT

Deirdre Paiva will be the Project Manager for the peer review services for Meadowbrook Gardens. Ms. Paiva has the skills and the ability to manage projects and is adept at working with staff, clients and members of the community. With extensive peer review experience, she will be invaluable in leading the peer review services. She is well-acquainted with the fast-paced requirements of peer reviews and the submittal process for applicants applying for approvals. Reviewing plans and reports comprehensively and as expeditiously and as possible is the utmost important for positive results with board members and applicants. She is well versed in Federal, State and local project regulations and will serve as a liaison to the Inland Wetlands Agent, Windham Water Pollution Control Authority, fully supporting the intentions of the Planning and Development, Public Works/Engineering and Planning and Zoning Commission.

Ms. Paiva has worked on numerous infrastructure and street improvements, stormwater and wastewater inspections and code enforcement issues and would continue to be the review personnel for the Town Council, Zoning Board, Public Works Department, Building and Zoning Official, and other advisory boards as assigned. She has provided years of peer reviews, provided engineering services for various municipal construction projects and provided detailed inspection document and contract administrative services. She has provided research and recommendations on various types of engineering problems and issues ranging from stormwater management and wastewater to roadways.

Ms. Pavia's past experience working with Cities & Towns includes work for Planning and Zoning Departments, Department of Public Works & Engineering, Wastewater Management, Conservation Commission and has assisted with the following specific service areas:

- Site Plan and Development Plan Review
- Special Use Permits
- Minor Subdivision Preliminary & Final Plan
- Major Subdivision Preliminary & Final Plan
- Low and Moderate Income Housing Plans
- Comprehensive Community Plan
- Commercial/Industrial Development Site Plan Review: Review roadway, parking and stormwater management systems for compliance with standard engineering practices, constructability and conformity to town, state and federal regulations. Reviewing traffic and transportation issues to ensure mitigation to standard engineering practices.
- ConnDOT Design/Constructability Plan Peer Review Roadway Reconstruction projects
  
- Projects reviewed:
  - Pepper Street, Munroe CT
  - Bourne Mill Redevelopment Project
  - Bayview- 10 Buildings 52 Condominium Development Project
  - Sandywoods Planned Residential Development Project
  - Cottrell Farm 68-lot subdivision
  - Delia Drive- 16 Lot subdivision
  - Harbor Ridge-14 Lot subdivision
  - Stafford View Farm 16 Lot subdivision

- Tiverton Heights 305 unit Comprehensive Permit Application
  - Villages at Mount Hope Bay 320 luxury townhouses 55+ community
  - Watuppa 14 Lot subdivision
  - William Barton Reserve 28 Lot subdivision
  - Winterberry Woods 40 Lot subdivision
  - Tiverton Glen (600,000 SF village commercial)
  - Tiverton Public Library
  - CVS, Moose Café, Sip-n- Dip coffee shop, Citizen Bank
  - Lifespan Medical Building
  - Sakonnet Outfitters Gun Range
- Construction Inspections: Inspected all aspects of roadway infrastructure and stormwater improvements, Stormwater Pollutant Prevention Plan (SWPPP) inspections, prepared field inspection reports and corrective action reports on the following projects:
- Bourne Mills
  - Cottrell Farm Subdivision
  - Sandywoods Farm: Roosevelt Avenue, Muse Way, Cornell Road (Town Roads) & all new private roadways
  - Stafford View Farm Subdivision
  - Tiverton Public Library
  - Villages at Mount Hope Bay Phase I-V
  - Watuppa Subdivision- Bull Frog Lane
  - Winterberry Woods
  - William Barton Reserve

The following is a list of municipalities where Mr. Baker's has provided civil engineering services for planning, public works, engineering, wastewater, and stormwater and conservation commission:

- Town of Sutton, MA
- Town of Foxboro, MA
- Munroe, CT

### **Municipal Experience**

Steere staff members have extensive experience providing engineering design and peer review services to municipalities with particular attention given to stormwater management, low impact development practice, traffic impacts and mitigation measures. The following are some example of projects where our staff has provided detailed peer review on site plan submissions and conducted inspection of stormwater and other site amenities as required by the approved plans.

**Tiverton Public Library, Tiverton, Rhode Island**

*Peer Review and Construction Inspections*



The Tiverton Public Library located off of Bliss Four Corners was constructed from 2013-2015. The single-story, shingle-style building is 23,792 square feet located at the intersection of Bulgarmarsh Road and Roosevelt Avenue. The \$10.6 million building site, featuring a distinctive clock tower replaced the long-outdated Essex public library on Highland Road. Peer reviews for the Master, Preliminary and final plan submission with a detail review of the stormwater management design, and traffic impact analysis were conducted for the Town.



Construction inspections were conducted for the duration of the building and site amenities. Stormwater Pollution Prevention Plan (SWPPP) reports were regularly completed and submitted to the General Contractor and recommendations for Best Management Practices (BMP) were identified. The stormwater featured bioretention and infiltration ponds along the north and west side of the library, intergraded in the parking lot and along Roosevelt Avenue to the south tying into the newly constructed Sandywoods Farm.

Inspections included stormwater basins, ponds, ADS piping, catch basins & manholes, parking lot subsurface, binder and top pavement courses, curbing, sidewalk, stamp concrete and landscaping. Daily inspection reports, shop drawings and surety adjustments were prepared.



**Bourne Mill Redevelopment Project**  
*Peer Review and Construction Inspections*

This Bourne Mill is a historic cotton mill that was redeveloped to a residential community providing market rate and affordable apartments along Cook Pond, submitted as a Comprehensive Permit Application to the Town. Bourne Mill 10 buildings were remodeled into 166 residential unit, 99 of which were offered at market rates and 67 designated as affordable units, a mix of lofts, town houses and flats. There was one building that was to be used as a commercial use. Peer review services were provided for the site plan and development plan review including site layout, stormwater design and traffic impact analysis review. The redevelopment of the Bourne Mill Complex under constructed three phase



Construction inspections were provided throughout the phases of construction. Full time on-site inspection of the stormwater, sewer and pump station, waterline, roadway and parking lots were provided with detail daily inspection reports submitted to the applicable authorities. The project consisted of on-site wetlands, high water tables, peat soils, hazardous soil material (cap), old underground leaking tanks, which made construction activities problematic.

**Sandywoods Farm, Tiverton, Rhode Island**  
*Peer Review and Construction Inspections*

Sandywoods Farm is a residential and community center development, with 50 affordable housing 1-3 bedroom cottages 20 single family house lots and four buildings supporting the arts and agriculture. Peer review services consisted of field reviews, master plan submission through final plan submission design review including plan review, stormwater management and traffic impact analysis report review.



Construction inspections were conducted in 2010-2011 for the improvements of Roosevelt Avenue and Muse Way (town roadways), development roadways and upgrades to Cornell Road including stormwater and pavement installation. Review of construction surety and punch list items were conducted.



Soil Erosion and Sediment Control was a key component of during construction. With improper phasing of the clearing and grubbing of the site, Rhode Island was hit with one of the worst storm events it has experience in years. The storm event, which measured over a 200 year storm caused downstream flooding into adjacent neighborhoods. Routine SWPPP inspections were not conducted by the Contractor or the Site's Engineer and weekly SWPPP inspections became part of the consultant inspection contract.



## Villages at Mount Hope Bay Phase I-V, Tiverton, Rhode Island

### *Peer Review and Construction Inspections*

The Villages on Mount Hope Bay initial phase of construction was in 2004, completing 164, luxurious townhouses and midrise condominium for adults 55 and over, the second phase was completed in 2007.

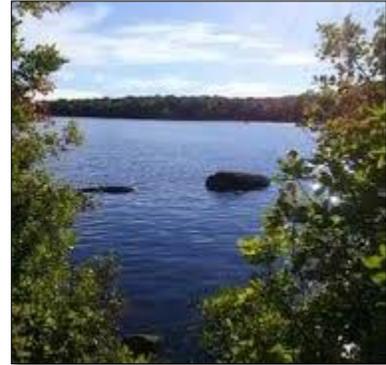
Phase III-V approved plan consisting of 156 dwelling units was later modified to comprise of 66 resident condominium, construction of which began in spring of 2014.

Peer review services were provided for the review of the original Phase I-V design submission including stormwater management and traffic impacts analysis and for the modified Phase III-V design submission through the Planning Board. The applicant's environmental permitting through CRMC was reviewed and details of the conditions of the assent were monitored. Construction inspections were conducted for the infrastructure of the development, roadway, stormwater, and water and sewer installation. In 2014, Phase III construction was monitored and Stormwater Pollution Prevention Plan (SWPPP) reports were prepared for the board and contactor.



**Stafford View Farm, Tiverton, Rhode Island***Peer Review and Construction Inspections*

Stafford View Farm is a subdivision of a 50.4 acre parcel into sixteen (16) single-family lots. A total of approximately thirty-six (36) acres are preserved as open space as submitted as a rural residential development. The 16-lot subdivision located along Bulgarmarsh Road abutting the Stafford Pond is located within the Stafford Pond watershed Protection Overlay District. Peer review services were provided for the review of the master, preliminary and final design submission including stormwater management, traffic impact analysis, soil erosion and sediment control plan and operation and maintenance (O&M) plan and the applicable environmental permits for the Tiverton Planning Board.



The applicant's environmental permitting through RIDEM was reviewed and details of the terms and conditions of the insignificant alteration permit were monitored, during construction of Phase 1 which began in 2014. Construction inspections were conducted for the infrastructure of the development, roadway, stormwater, and water installation. Daily inspection reports and Stormwater Pollution Prevention Plan (SWPPP) reports were prepared for the board and contractor. As required by RIDEM, phosphorus removal and water sampling monitoring was an order of condition in the approved application. The applicant was required to install iron-enhanced sand filtration for stormwater phosphorus removal within the bio-retention ponds. Research was conducted to aid the contractor and engineer in the application of the 5% iron filings. Research studies conducted by the University of Minnesota, St Anthony Falls Laboratory was obtained and distributed to the Contractor. The complete installation of the bio-retention ponds was inspected.

Phase II construction consisting of tree removal began July 2015. Perimeter soil erosion and sediment control applications were being monitored for compliance with the approved plans, approved RI Water Quality Certificate and the SWPPP.



### **Bliss Four Corners, Tiverton RI**

*Peer Assist with Roadway Safety Peer-to-Peer (P2P) Program with Federal Highway Administration*

Ms. Paiva volunteered to serve as an expert serving as a team member for the Roadway Safety Audit (RSA) for the Intersection of Route 81 and Route 177, known as Bliss Four Corners. Prior to the FHWA site visit, Ms. Paiva conducted seven (7) day Automatic Traffic Recorder Counts at the four approaches to the intersection, performed peak hour traffic counts and obtained and analyzed accident data from the Tiverton Police Department. Report documents were created for review during the P2P Program. Short-term and long-term safety improvements were developed including a round-about design for the intersection.



After completion of the RSA, the Town of Tiverton persuaded the RIDOT to redesign the intersection. The intersection is currently being designed as a round-about and is at the 30-percent design phase. RIDOT expected construction will begin in 2016 with a completion in 2017.

### **Delia Drive Subdivision, Tiverton, Rhode Island**

*Peer Review for the Tiverton Planning Board*

During a routine site review of a proposed subdivision in the Town of Tiverton, environmental concerns with the subject property initiated a Phase I Environmental Site Assessment. The property located on South Lake Road included a proposed 14 lot residential subdivision. The property was identified as a potential for petroleum hydrocarbon, heavy metals, acids and suspended solids for contaminants. The project further included a Phase II ESA and then a full clean-up of the project site. Peer review services included the review of the ESA, master and preliminary plan submission including stormwater report, construction surety estimate and final plans.



### **Cottrell Farm, Rhode Island**

*Peer Review and Construction Inspections for Tiverton Planning Board*

Cottrell Farm is a major subdivision located off of Fish Road, just south of Route 24. The project consisted of a three phase 61-lot cluster subdivision. Phase I and Phase II of Cottrell Farm is completed, and the remaining 21 lots under Phase III has been partially cleared of vegetation. The project was designed and approved in 2005. Peer

review services were provided for the review of the master, preliminary and final design submission including stormwater management and traffic impact analysis.



The construction of Phase I and II was paved with a binder course in 2007. Under the former DPW, Phase I was inspected by the Town and in 2007, consultant services were provided to complete the inspection. The binder course remained in place from 2007-2013, at which point the developer wanted to pave the final bituminous surface course. A complete inspection of

the drainage system, review of pavement cores and a punch list, estimate and sequence of construction was prepared for the Town. Full-time inspections were provided for the punch list activities, which included repairs to the ADS pipes, detention pond maintenance, complete leveling course, repairs to the existing bridge, guardrail and other misc. utility repairs.

### **Pawtucket River Bridge**

**Pawtucket, RI**

The \$106M replacement of the Pawtucket River Bridge, I-95 over the Seekonk River was constructed from November 2011 to fall of 2014.

The contract included the replacement of Pawtucket River Bridge, Pleasant Street Bridge, School Street Bridge, George Street Bridge and Garden Street Bridge. Prior to the award of the project, the bridge was structurally deficient and required an 18-ton weight limit. A detailed detour plan and traffic analysis were conducted for the 20% truck traffic traveling on Interstate Route 95 to the local city streets. The traffic analysis and detour plan included modifications to 10 existing signalized intersections, closure of on and off-ramps and extended north-south limits of the City. The affected portion of Pawtucket was modeled with Synchro computer program. In addition to the temporary improvements along the city intersections, traffic signal plans were designed for six (6) intersection using new technology video detection. Interconnection coordination was also provided for the six intersections within the project area and four additional intersections as part of the replacement of two additional bridges over I-95.



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## REFERENCES:

Mr. Marc R. Rousseau, AICP Planner  
Town of Tiverton  
343 Highland Road  
Tiverton, Rhode Island 02878  
[planner@tiverton.ri.gov](mailto:planner@tiverton.ri.gov)

Ms. Kate Michaud, Planner  
Town of Warren  
514 Main Street  
Warren, Rhode Island 02885  
[kmichaud@townofwarren-ri.gov](mailto:kmichaud@townofwarren-ri.gov)

Ms. Jeanne Boyle  
Director of Planning  
City of East Providence  
145 Taunton Avenue  
East Providence, RI 02914  
401.435.7531  
[jboyle@cityofeastprov.com](mailto:jboyle@cityofeastprov.com)

Ms. Wanda M. Bien  
Sutton Conservation Commission  
4 Uxbridge Road  
Sutton, MA 01590  
508.865.8728

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**RESUMES:**

#### YEARS OF EXPERIENCE

*Steere start date: August 10, 2015  
Total: Since 1986*

#### EDUCATION

*BS / 1986 / Civil & Environmental  
Engineering  
University of Rhode Island*

#### CERTIFICATIONS

*Certified Professional in Erosion Sediment  
Control – CPESC #7691*

*Certified Erosion, Sediment and  
Stormwater Inspector - CESSWI #4353*

#### TRAINING

*OSHA 10-Hour Construction  
Safety & Health*

*US Environmental Protection Agency  
Watershed Management Training  
Certificate*

*StormwaterONE*

*Green Infrastructure Solutions for Wet  
Weather*

*Low Impact Development and the Basics of  
Bioretention*

#### PROFESSIONAL SUMMARY

Ms. Paiva is a certified professional in erosion and sediment control and a certified sediment and stormwater inspector. She brings more than 25 years of technical and managerial experience in civil/site design specializing in stormwater, hydrology, hydraulic design, water quality assessment and design, transportation and traffic analysis. As a project engineer/manager, Ms. Paiva has managed and provided technical leadership for numerous transportation design projects, including highway design, intersection improvements and signal design, stormwater and utilities, traffic impacts using simulation models in Vissim & Synchro/SimTraffic. She has also submitted environmental permit applications following Federal, State and local regulations, including hydrologic and hydraulic modeling, water quality assessment and design, National Pollutant Discharge Elimination System (NPDES) permitting and compliance including Small MS4, Stormwater Pollution Prevention Plans (SWPPP), and Maintenance and Operation (O&M). She has provided peer review services and construction inspection for municipal and state projects.

#### REPRESENTATIVE PROJECTS: STORMWATER | ENVIRONMENTAL

**RIDOT | Sakonnet River Bridge No. 250 | Tiverton/Portsmouth, RI:** The project consisted of the design and implantation of various stormwater treatment systems, including remodeling existing detention ponds, installation of two

large detention ponds, four bio-retention ponds and numerous swales, both grass and riprap. As part of on-going quality assurance to the stormwater management to the Sakonnet River, full time inspections of the stormwater were conducted for the State. Also as part of the environmental permitting, CRMC requested the RIDOT to have a certified ECM on-site full time for the duration of the project On-site during construction activities to ensure compliance with the Stormwater Pollution Prevention Plan (SWPPP), i.e., daily, weekly and monthly reports, corrective action logs, punch list items, stormwater inspections and notice of termination procedure.

**RIDOT | Natick Bridge No. 383 | Warwick/West Warwick, RI:** Prepared hydrologic and hydraulic modeling and floodplain compensation calculations supporting the environmental permitting to RIDEM for water quality and wetlands, phase 1 environmental site assessment, modification to RIDEM permit for construction along the riverbank with the use of port-a-dam and temporary sheeting as proposed by the Contractor. Designated environmental compliance inspector for the SWPPP weekly and monthly reports, corrective action logs, punch list items and notice of termination.

**RIDOT | Hurricane Sandy Repairs to Newport Cliffwalk | Newport, RI:** Project construction services included designated environmental compliance inspector for the Stormwater Pollution Prevention Plan (SWPPP) weekly and monthly reports, corrective action logs, punch list items and notice of termination for permitting.

**Nonquit Pond | Tiverton RI:** Nonquit Pond is a RIDEM impaired waterbody and has been placed on the state's 303 (d) List of Impaired Waterbodies for total phosphorus and organic carbon. The Town of Tiverton has adopted a watershed protection overlay district for Nonquit Pond. In order to improve the water quality of the stormwater runoff for the Nonquit Pond watershed, Steere Engineering has been consulting with the Town on large developed areas and has made recommendations to stormwater, wastewater and other mitigation to improve the water quality. Under RIDEM Phase II storm water permit, Tiverton is required to demonstrate that Nonquit Pond is adequately protected from stormwater discharges by the town's stormwater management program.

# Deirdre M. Paiva, CPESC, CESSWI

## Environmental Department Manager

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**Town of Tiverton | Stafford View Farm:** Peer review services were provided for this 16-lot 50.4 acre subdivision located on Stafford Pond. As required by the Town's RIDEM Permit for RIPDES Small MS4, construction inspections were conducted for the infrastructure of the development, roadway, and stormwater and water installation. An additional required for phosphorus removal and dry weather sampling as part of the RIDEM permitting for the project. Daily inspections of the bioretention systems, soil sampling, soil erosion and sediment control inspections and reports were conducted.

**Town of Tiverton | Villages at Mount Hope Bay:** Peer review services were provided for the Villages at Mount Hope Bay a redevelopment of a 98.5 acre former Brownfield site located adjacent to Mount Hope Bay in Tiverton RI. The project comprised of a 290-unit residential community, a waterfront "village" inclusive of public access ways and other public amenities constructed in five phases. Phase I-III were completed in 2008. The current Phase IV and V are under construction with a mitigation plan and a modification from the RI Coastal Resource Management Council (CRMC) application. Construction inspections were conducted for the infrastructure of the development, roadway and stormwater. Daily inspection reports and Stormwater Pollution Prevention Plan (SWPPP) reports were prepared by Steere for the board, developer and contractor in compliance with the Town's Stormwater Management Plan. Repairs to stormwater treatment units were required during the beginning of Phase VI, and compliance performance inspections of all BMP's were noted.

### REPRESENTATIVE PROJECTS: HIGHWAY | TRAFFIC | BRIDGE

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**RIDOT | Washington Bridge No. 700 North | Providence-East Providence, RI:** The Washington Bridge Project consisted of the rehabilitation of the North side of I-195, a total of 17 spans over the Providence River. Steere Engineering was responsible for the portion of the project that encompasses spans 14, 15, 16 and 17 containing splayed geometry and the bifurcation of the on and off ramps on the east side of the river as a consultant to AECOM. Responsibilities included contractor drawings, specifications, quantity take-offs and contract documents.

**RIAC | TF Green Airport Extension of Runway 5 | Warwick, RI:** This project consisted of a 1,534-foot extension to the primary Runway 5-23 at T.F. Green Airport. Development of the horizontal and vertical alignment design of the new airport service road, approximately 0.5 miles, which connected to the existing airport service road as part of the Runway 5 extension 5 project was done. Highway design plans in accordance with RIDOT standards including pavement, curbing, utilities, drainage, traffic maintenance and protection, signing and striping, location, profiles, grading and cross sections were prepared. Contract documents, specifications and distribution of quantities and engineer's estimate are in accordance with the RI Airport Corporation (RIAC) regulations and Rhode Island Department of Transportation (RIDOT) standards were also prepared.

**RIDOT | US Route 44 | Smithfield, Greenville and Chepachet RI:** Roadway design improvements completed over several phases, from Route 295 to the Connecticut State Line. Responsible for design study reports, Plans and construction documents for arterial planning, lane configuration and designations, intersection improvements including interconnection signalization and roundabouts, stormwater management analysis, hydraulic analysis for Greenville Bridge (Slack's Reservoir), stormwater pollutant prevention plan report and field inspections and notice of termination.

**RIDOT | Pawtucket River Bridge No. 550 | Pawtucket, RI:** Development of a traffic modeling network using Synchro for the use of interim repair, I-95 corridor truck detour and timing plans for the final design of ten (10) signals with GPS coordination. Design plan layout for ten signalized intersections and on and off-ramp to I-95 in the City of Pawtucket, as part of the Pawtucket River Bridge 550 replacement project, including George Street, Cedar Street and Marrin Street at I-95 on-ramp, Division Street at Pleasant Street, Water Street, School Street and Prospect Street.

**RIDOT | East Shore Expressway | East Providence, RI:** Traffic Impact Analysis for performance of a queue and delay analysis for the phase construction alternatives using Vissim microscopic traffic flow simulation model for the accelerated bridge construction project and conducting a work zone user cost analysis based on FHWA publications.

**RIDOT | T.F. Green Airport Connector Road | Warwick, RI:** Contract 1- Consist of repairs to the four (4) bridge along Airport Connector Road (ACR); Metro Center, Jefferson Boulevard, Post Road and Railroad. Developed a design study for included

# Deirdre M. Paiva, CPESC, CESSWI

## Environmental Department Manager

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Traffic Impact Memorandum for performance of the capacity, queue and delay during the phase construction alternatives using Synchro-SimTraffic traffic flow simulation model.

**CONNDOT | Winthrop Road Bridge over Fall Rivers | Westbrook, CT:** Responsible for highway design services for the bridge replacement project of the existing concrete substructure and superstructure. The projects is a complete bridge replacement including raising the roadway profile to improve water flow.

**MassDOT | Shawmut Avenue over I-90, Amtrak and MBTA | Boston, MA:** This project is the superstructure replacement and substructure rehabilitation of Bridge No. B-16-080, a major, urban bridge spanning over the Amtrak Northeast Corridor, MBTA Commuter Rail, and MassPike (I-90) in Boston, MA. Steere Engineering developed the Preliminary Structure Report (PSR) summarizing the deficiencies with the existing deteriorated four span structure and providing cost estimates for rehabilitation and replacement options. Constructability and phasing, including a full functional design study report is included as part of the design of the maintenance and protection of traffic and detour plans.

**CONNDOT | Pepper Street | Monroe, CT:** Peer Review of the Semi-Final Design Phase reconstruction plans, traffic signal timing report, drainage analysis and contract documents.

### REPRESENTATIVE PROJECTS: PEER REVIEW | CONSTRUCTION INSPECTIONS

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#### **TIVERTON PLANNING BOARD | PEER REVIEW | Tiverton, RI:**

Review consultant to the Planning Board for the review of subdivision and land development projects, including drainage reports, traffic reports, environmental review statements, soil erosion and sediment control plans and surety estimates.

#### **TIVERTON DEPARTMENT OF PUBLIC WORKS | CONSTRUCTION INSPECTIONS | Tiverton, RI:**

Construction inspection management for the Department of Public Works on numerous subdivision and development projects ensuring and documenting that the projects are constructed in accordance with all contract documents including local, state and environmental permits.

#### **TIVERTON ZONING AND CODE ENFORCEMENT | PEER REVIEW | Tiverton, RI:**

Review consultant to the Code Enforcement Official on various projects regarding zoning ordinances issues including earth removal for active quarries, soil erosion and sediment control plans, watershed protection overly district, special use permits, general auto salvage yards and non-conforming lots.

#### **SWANSEA PLANNING BOARD | PEER REVIEW | Swansea, MA:**

Review consultant to the Planning Board for drainage reports, traffic reports and site plan submissions. Assisting in for numerous subdivision and site development projects

#### **CITY OF CRANSTON | DEPARTMENT OF PUBLIC WORKS | Cranston, RI:**

Design plans for the sewer upgrades on Amanda Street, Clay Street, Warren Avenue and Redfern Drive, construction services included shop drawings, daily inspection reports, quantities, and payment requisition

**YEARS OF EXPERIENCE**

*Steere: Since 2015*

*Total: Since 1989*

**EDUCATION**

*BS / 1989 / Civil Engineering  
University of Rhode Island*

**PROFESSIONAL  
ENGINEERING  
REGISTRATIONS**

*RI 6602, FL 70275*

**PROFESSIONAL  
ASSOCIATIONS**

*ASCE Member*

**CERTIFICATIONS**

*Planning and Scheduling with Primavera P6*

**TRAINING**

*Project Management Professional (PMP)  
Prep Course*

*OSHA 10-Hour Construction  
Safety & Health*

**PROFESSIONAL SUMMARY**

Mr. Baker is a registered professional engineer with over twenty five years of experience designing Transportation projects. He has served as a project manager, construction superintendent and the owners' representative on a number of highway/bridge/rail projects. He is responsible for all aspects of roadway design and reconstruction. He managed and performed engineering design studies and environmental assessments for proposed facilities. He recommended and designed improvements to numerous existing facilities and also undertook the design of minor arterials as well as Interstate interchanges. His responsibilities has ranged from conceptual design, initial impact and traffic analysis, complex horizontal and vertical geometry, BMP/storm water treatment design, subdivision plan reviews, site design, development of specifications and engineering estimates, construction administration/inspection and responsible for project financial aspects. Mr. Baker has also performed CPM scheduling, 4D models, project control monitoring, clash detection, pre-construction planning and constructability reviews.

**REPRESENTATIVE PROJECTS: HIGHWAY | STORMWATER | TRAFFIC | PEER REVIEW**

**CONNDOT | Winthrop Road Bridge over Fall Rivers | Westbrook, CT:** The Project consisted of horizontal and vertical geometry improvements to the existing roadway. It included improvements to the drainage system, riprap swale with composted mulch, guardrail safety improvements, signing, pavement marking and a designated detour route during construction.

**Waterfront Drive | Roadway Design East | Providence, RI:** The project consisted of designing a new transportation facility along a former railroad corridor. It consisted of a new two lane roadway encompassing a new drainage system, roadway lighting, water service, river walkway and stone riprap seawall. This project included a new BMP drainage system, extensive utility relocations, wetland mitigation, salt marsh mitigation, hazardous and contaminated soil removal/remediation, and detour routes. Contract administration included review and process of Contractor's shop drawings and request for information.

**Internal Traffic Assessment | Traffic Analysis | Lincoln, RI:** The Project is part of a Capital Improvement Plan for the William M. Davies, Jr. Career and Technical High School. The Internal Traffic Assessment was in accordance with the RIDE School Construction Regulations. The assessment included the evaluation of existing peak hour turning movements, general campus circulation, bus related operations, parking inventory, pedestrian conflicts, recommended campus improvements and associated costs.

**TF Green Airport Service Road | Roadway Design | Warwick, RI: RIAC | TF Green Airport Extension of Runway 5 | Warwick, RI:** This project consisted of a 1,534-foot extension to the primary Runway 5-23 at T.F. Green Airport. Development of the horizontal and vertical alignment design of the new airport service road, approximately 0.5 miles, which connected to the existing airport service road as part of the Runway 5 extension 5 project was done. Highway design plans in accordance with RIDOT standards including pavement, curbing, utilities, drainage, traffic maintenance and protection, signing and striping, location, profiles, grading and cross sections were prepared. Contract documents, specifications and distribution of quantities

# Steven J. Baker, PE

## Highway Department Manager

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and engineer's estimate are in accordance with the RI Airport Corporation (RIAC) regulations and Rhode Island Department of Transportation (RIDOT) standards were also prepared.

**Reconstruction of Pepper Street | Peer Review | Monroe, CT:** The Project consisted of a Peer review of the Semi-Final and Final Design submissions to the Connecticut DOT and Town of Monroe. The peer review documents consisted of project plans, project specifications, project design report and project drainage report. The Project length is approximately 4,500 linear feet.

**Reconstruction of Routes 116/146 | Improvements to Route 116 | Lincoln, RI:** The project reconfigured the northeast quadrant of the interchange at Route 146 and 116 in Lincoln, Rhode Island. Existing substandard two-way highway ramps were replaced with new one-way ramps designed at current safety standards including the design of a new ramp bridge. Acceleration and deceleration lanes were provided on Routes 146 and 116 to separate vehicles entering and exiting the highway from the flow through traffic. New signals with left turn bays along with auxiliary lanes were provided along Route 116. This project included a temporary drainage system, a new BMP drainage system, extensive utility relocations (gas, sewer, water, above and underground electric), wetland mitigation, historic documentation, temporary ramps, and detour routes. Contract administration included review and process of Contractor's shop drawings and request for information.

**Drainage Improvements | Rhode Island Hospital | Providence, RI:** Designed and provided construction administration for the stormwater improvements within Rhode Island Hospital's main campus parking lot areas in accordance with the Rhode Island DEM Underground Injection Program regulations. Also, reviewed change orders and contractor payment requests.

**Americans with Disabilities (ADA) Compliance Project | Web Application Development for the Statewide ADA Compliance Project for Existing Sidewalk and Signalized Signal Facilities | Statewide Roads, RI:** Project engineer assisting RIDOT with providing guidance to and coordination with the three (3) design engineering consultants who were collecting the ADA data along the entire statewide road system. Responsibilities included assisting the application developers, BETA testing of the Application and addressing comments from the Consultants, preparing presentations for the Owners' stakeholders in order to help them understand the Application, assist with the Application's reporting aspect and coordinating monthly team meetings.

**University of Rhode Island Convocation Center and Ice Rink Facility, South Kingstown, RI:** Traffic impact study for the new facilities. Analysis of existing and future traffic patterns (ingress/egress), develop immediate and future mitigations measures including associated construction costs.

### **REPRESENTATIVE PROJECTS: 4D MODEL (3D AUTOCAD AND PRIMAVERA SCHEDULE)**

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As project manager, the responsibilities included obtaining and converting the engineer of record's 2D plans into 3D objects. The 3D objects were combined with the Primavera P6 construction schedule to develop a 4D Model. The 4D Model identified potential construction related conflicts (clash detection) and required coordination with the engineer of record for resolution. The following lists Projects with 4D Models:

**Rehabilitation of River Street Bridge and Western Avenue Bridge | MassDOT | Cambridge/Boston, MA: 57 Million**

**Pleasant Valley Parkway | RIDOT | Providence, RI: 5.6 Million**

**Atwells Avenue | RIDOT | Providence, RI: 2.5 Million**

**Apponaug Circulator By-Pass | RIDOT | Warwick, RI: 30.1 Million**

**Great Island Bridge | RIDOT | Narragansett, RI: 8.5 Million**

### **REPRESENTATIVE PROJECTS: CPM (P6) SCHEDULING | PROJECT CONTROL MONITORING**

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**1R Improvements to Route 44 – Contract 2B**

# Steven J. Baker, PE

## Highway Department Manager

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Austin Avenue to Danecroft Avenue  
Smithfield, RI  
Rhode Island Department of Transportation

**1R Improvements to Route 44 – Contract 3C**  
Victory Highway to Tourtellot Hill Road  
Glocester, RI  
Rhode Island Department of Transportation

**Improvements to Route 216, Route 3 to Route 91**  
Hopkinton, RI  
Rhode Island Department of Transportation

**1R Improvements to Elm Street, Beach Street and Granite Quarry Bridge No. 854**  
Westerly, RI  
Rhode Island Department of Transportation

**ADA Rehabilitation Park and Ride Lots**  
Rhode Island Department of Transportation

**Improvements to Old River Road (Route 126)**  
Lincoln, RI  
Rhode Island Department of Transportation

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**STATE OF CONNECTICUT  
2016 CONSULTANT PREQUALIFICATIONS**



STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION



2800 BERLIN TURNPIKE, P.O. BOX 317546  
NEWINGTON, CONNECTICUT 06131-7546  
Phone: (860)594-2701

December 29, 2015

Dear Consultant:

Subject: 2016 Consultant Prequalification

I am pleased to inform you that the Commissioner of Transportation has determined that your firm is prequalified to perform professional services for the Department of Transportation in the 2016 calendar year.

The enclosed list contains the discipline(s) for which your credentials have been accepted. If you applied for categories which are not on this list, and you feel the Technical Qualifications Panel may have missed relevant information within your submittal, please contact the Consultant Selection Office at (860) 594-3017, within fourteen days of the date of this letter, and indicate which material would support your request. New or supplemental information, or requests for prequalification in areas not specified in your original submission, will not be accepted.

The enclosed list also contains our record of your firm's name, contact person, who will receive solicitations and correspondence (including emails) from the Consultant Selection Office, and mailing address. Revisions to this information should be directed to the Consultant Selection Office, in writing, to the attention of Mr. David Mancini at the letterhead address.

Information regarding how the Department utilizes the category listings and the responsibilities of candidate firms can be found at: [www.ct.gov/dot/business/consultant/selection](http://www.ct.gov/dot/business/consultant/selection), under the title description Project Selection & Negotiation Requirements (8/11).

You should be aware that your prequalification status may be rescinded if, at any time during the calendar year, the Department obtains evidence that your firm has been involved in unethical or unlawful conduct which, in the Commissioner's opinion, warrants the removal of your prequalification status.

Thank you for your interest in providing professional services to the Department.

Sincerely,

Thomas A. Harley, P.E.  
Chief Engineer  
Bureau of Engineering and Construction

Enclosure

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Tuesday, December 29, 2015

Steere Engineering Inc.  
Patricia Steere  
2350 Post Road  
Suite 100  
Warwick, RI 02886

Your firm has been prequalified for the following services for calendar year 2016:

- Bridge & Structure Inspection
- Bridge and Structure Design
- Environmental Planning Studies & Regulatory Permitting
- Highway Design
- Traffic and Safety Engineering

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## **PROPOSAL**

# Town of Mansfield

Engineering Services for Expert Review of  
Special Permit Application and Inland Wetlands License  
for Meadowbrook Gardens

**Proposal**

February 29, 2016



*Stormwater  
Traffic  
Sanitary Sewer  
Erosion and  
Sedimentation  
Control  
Wetlands*

February 29, 2016

Ms. Linda Painter  
Director of Planning and Development  
Town of Mansfield  
Audrey P. Beck Municipal Building  
4 South Eagleville Road  
Mansfield, CT 06268  
Via email: [painterlm@mansfieldct.org](mailto:painterlm@mansfieldct.org)

300 Winding Brook Drive  
Glastonbury, CT 06033

Tel: 860-652-8227  
800-288-8123

[www.bscgroup.com](http://www.bscgroup.com)

RE: Qualifications to Provide Engineering Services for Review  
of the Meadowbrook Garden Development

Dear Ms. Painter:

BSC Group is pleased to submit our proposal to provide engineering services for the review of the Meadowbrook Garden development. We are familiar with the Town of Mansfield's regulations having led multiple projects on the UConn Storrs campus, as well as having provided site development services for a new day care located in the Town of Mansfield Storrs Center. We are eager to apply this knowledge to the review of the Meadowbrook Garden Special Permit application and Inland Wetland license.

In addition to our familiarity with your community, we offer strong qualifications to serve your needs, including:

- Experience serving numerous municipal planning boards, departments, and committees to provide plan review services
- Available and committed project manager with extensive experience in site design and site review projects
- Skilled and available project team to provide rapid, thorough, and pragmatic response to review requests

Each of the above strengths is expanded upon in our enclosed proposal in addition to our presentation of a brief project understanding, scope, and associated costs. We recognize the speedy turnaround of this project, and are prepared to meet with you immediately upon selection. Please contact BSC Project Manager, Mr. Will Walter, PE at 860-652-8227 (Extension 4558) or by e-mail at [wwalter@bscgroup.com](mailto:wwalter@bscgroup.com) to answer any questions you may have regarding our submittal.

Very truly yours,

**BSC Group-Connecticut, Inc.**



Kurt A. Prochorena, PE, LEED AP  
Vice President and Principal

Engineers

Environmental  
Scientists

Custom Software  
Developers

Landscape  
Architects

Planners

Surveyors

# BSC Group Engineering Services Proposal

## Hallmarks of BSC's Review Approach

- Recommendations for pragmatic plan changes to support design standards
- Rapid response to review assignments to keep projects on track
- Clearly-documented recommendations
- Adherence to community bylaws and regulations
- Promotion of win-win scenarios to promote outcomes that meet the community's long-term vision

## BSC Group Responds to the Town of Mansfield

BSC Group appreciates the opportunity to provide our approach and qualifications for engineering review services of the Meadowbrook Garden development. We have organized our response to address the requirements of your request:

- About BSC Group
- Project Understanding, Scope and Costs
- Qualifications and Approach to Similar Work
- Proposed Key Personnel
- Client References

## About BSC Group

Founded in 1965, BSC Group, Inc. is an interdisciplinary consulting firm with four New England offices in Glastonbury, Connecticut and Massachusetts. BSC has provided planning, design, permitting, spatial data management and construction phase services for municipal, state, and private sector clients throughout New England for more than five decades. Our broad range of services includes:

- Civil/site engineering design and review
- Environmental analysis, planning, documentation, and regulatory assistance
- Transportation and traffic planning/engineering
- Roadway and intersection planning and design
- Landscape architecture and streetscape design
- Structural design for bridges and other transportation structures
- Surveying, mapping, and geographic information system services

BSC Group has used this interdisciplinary expertise to assist municipalities in their review of proposed development projects within their communities. BSC regularly offers plan review services individually, as well as through a comprehensive, interdisciplinary review process that considers site planning and civil engineering, as well as traffic impacts, landscape architecture, site use, and environmental impacts.

## Project Understanding, Scope and Costs

BSC has prepared the following scope and fee based upon our understanding of your needs and circumstances, summarized as follows.

*BSC Group takes pride in providing a comprehensive review approach to site development projects, promoting positive outcomes for both Mansfield and the project proponent.*

- The Town of Mansfield (the “Town”) is seeking expert review of a Special Permit application and Inland Wetland license for a 36 unit apartment complex known as Meadowbrook Gardens and captured in the plan set entitled “Meadowbrook Gardens, 91-93 Meadowbrook Lane, Mansfield Center, Connecticut 06250,” by Uniglobe Investment, LLC, dated January 8, 2016.
- The project applied for a Special Permit at the February 16, 2016 Mansfield Planning & Zoning Commission meeting.
- In addition to the above-mentioned plan set, the application also included a Traffic Impact Report by FA Hesketh and a Hydraulic Analysis by Civil Engineering Services, LLC. The computations and backup data for these studies was not included in the on-line package. It is assumed that all backup data and computations will be made available to BSC should we be selected to conduct the peer review.
- It is anticipated that the project will apply for an Inland Wetlands license at the March 7, 2016 Inland Wetlands Agency meeting.
- The Town is seeking expert review of the following:
  - Stormwater Design – review of the stormwater management in accordance with Town specifications and the CT DEEP Stormwater Quality Manual.
  - Traffic – review of the Traffic Impact Study, analysis of traffic impacts and applicant recommended mitigation measures.
  - Sanitary Sewer – review of the proposed sewer design and connection pursuant to the Town zoning regulations and the Windham Water Pollution Control (WWPC) requirements.
  - Wetlands – identification of potential wetlands impacts and recommended measures to reduce impacts.

### **Scope of Services**

BSC’s scope of services is presented in the following two phases:

- Phase 1 – Initial Review and Report
- Phase 2 – Follow-on Services

#### *Phase 1 – Initial Review and Report*

BSC Group’s scope of services for this phase will consist of the following:

- We will visit the site to view existing conditions on the site as well as the neighboring property and adjacent right-of-way. Our site visit will consist

*BSC Group professionals visiting the Meadowbrook Gardens site and conducting the existing conditions review are registered Connecticut professionals in the disciplines of engineering, transportation, and soil science.*

of a civil engineer (CT licensed PE), traffic engineer (CT licensed PE) and soil scientist (CT license).

- We will research the Town Inland Wetlands regulations and Town Zoning Regulations that are pertinent to stormwater design, traffic design and construction in regulated areas and correspond with staff as necessary.
- We will review the WWPC requirements and correspond with staff as necessary.
- We will review the plan sets submitted to for Special Permit Application and Inland Wetlands License, as well as the accompanying Traffic Impact Report, Hydraulic Report and Wetlands Impact Study, for adherence to the applicable local and state requirements.
- We will prepare a peer review report that documents our review of the plans and reports and contains our recommendations for any plan modifications we feel are necessary for the applicant to comply with the requirements.

*Phase 2 – Follow-on Services*

Our scope of services for providing follow-on services consists of the following:

- We will review the applicant’s revised plans, that are based on our initial report recommendations.
- We will prepare an updated peer review report that considers the revised plans.
- We will attend meetings with the applicant, Town staff, and/or Town commissions, as requested by Town staff.

**Fee for Services**

BSC will perform the Scope of Services presented for a lump sum fee for Phase 1 and on an hourly basis for Phase 2, as follows:

<b>Basic Services</b>	<b>Fee</b>
▪ Phase 1 – Initial Review and Report	\$10,000
▪ Phase 2 – Follow-on Services	\$150/hour

The fees above are lump sum and include labor and reimbursables.

*BSC Group understands the review turnaround requirements of the Meadowbrook Gardens project and is prepared to thoroughly respond.*

### **Qualifications and Approach to Similar Work**

BSC Group has provided site plan review services to numerous municipalities. We have current on-call contracts to provide plan review services for seven communities including the nearby Town of Tolland. Additionally, we are frequently called upon by municipal boards (Planning Boards, Conservation Commissions, and Zoning Boards of Appeals) to peer review large projects, many of which are industrial, commercial, or mixed-use developments. Importantly, all reviews undertaken by BSC Group have been consistently marked by the following:

- **Interdisciplinary Review Team** - BSC Group applies the expertise of civil engineers, traffic engineers, and ecological scientists to provide a comprehensive review approach to our site plan projects. These professionals work in concert with one another to assure that review comments and proposed amendments/mitigation coalesce with the findings of the other members of the review team. For the review of projects to the Town of Mansfield, the availability of these diversely experienced personnel helps to facilitate an accelerated review process.
- **Ability to Provide Clear and Relevant Guidance to Land Use Boards** - BSC Group has reviewed and interpreted bylaws and regulations for municipalities throughout New England. In providing review services, we effectively and fairly balance long-term community objectives with immediate project needs to promote economic development and carefully managed growth. Many of our staff sit on Planning Boards, Economic Development Commissions, and Conservation Commissions within their home communities, allowing them to review projects with a special understanding of municipal bylaws and the intent behind them.
- **Track Record of Conducting Timely Reviews** - BSC recognizes the necessity of supporting the Town of Mansfield in responding to permit application in a timely fashion. We are able to commit to rapid review and response through our ability to provide seasoned, qualified, and available personnel to provide the review services.
- **Clear, Detailed Review Reports** - The preparation of reports to clearly and concisely identify concerns and potential resolutions is essential to the rapid and successful review of proposed projects. BSC's reports provide adequate detail to allow project proponents a full understanding of any findings, the bylaws/regulations that support them, and potential solutions to meet the requirements.
- **Promotion of Win-Win Outcomes** - The site plan review process offers opportunities for "win-win" outcomes for the community and the project proponent. Effective communication with the project proponent through clearly-communicated goals can help both the Town and the proponent

*BSC Group will apply both our municipal peer review expertise as well as local design experience to the Town of Mansfield's project.*

achieve site plans that result in positive outcomes such as traffic mitigation, recreational open space, utility upgrades, and enhanced stormwater management systems.

- **Appreciation of the Concerns of Neighbors and Abutters** - BSC's plan review services consider the interests of all stakeholders to promote positive outcomes that promote long-term economic development. Our comprehensive review team is skilled in evaluating the impacts of proposed development on local infrastructure, traffic, and overall quality of life. Our review team not only considers impacts but also recommends solutions and mitigation that achieve consensus and project support.

### Highlights of Peer Review Projects

BSC Group is pleased to highlight our most recent peer review work performed on behalf of Connecticut municipalities. These projects represent our work in civil and transportation engineering as well as wetlands and erosion and sedimentation control:

- **RHAM Exterior Facilities Study, Hebron, CT** - BSC provided peer review and design services for the Campus Traffic Review portion of a complete campus assessment. The scope included a review and update of a traffic report that had previously been submitted which documented site traffic circulation and safety issues. BSC transportation engineers investigated site conditions and interviewed stakeholders in order to develop conceptual mitigation plans that were prepared to illustrate recommendations for mitigation of ingress / egress / circulation / drop-off.
- **Rand Whitney Paper Company, Newtown, CT** - BSC conducted a traffic impact study related to the Rand Whitney manufacturing facility located in Newtown, CT. BSC evaluated the traffic impacts associated with the proposed expansion of the Rand Whitney distribution facility. The Traffic Impact Study included a review of existing traffic and roadway condition in the vicinity of the project site, as well as a review of the accident history at study area intersections. The report identified background traffic growth for study area roadways, estimated additional traffic generated by the proposed manufacturing facility and potential traffic impacts to five intersections due to project-generated traffic.
- **University of Connecticut Northwards Apartments, Storrs, CT** - BSC designed improvements to a Uconn residence parking lot and approach roadway. Because the project was targeted under the University's Eagleville Brook Impervious Cover Total Maximum Daily Load (ICY-TMDL), a variety of Low Impact Development methods were applied, including bioswales, rain gardens, and pervious pavements. Additional landscaping was designed to accent key points on the site while attenuating runoff from the buildings' roofs.



**BSC Group's site design for the Charles H. Barrows STEM Academy in Windham incorporated a variety of LID techniques, including rain gardens.**

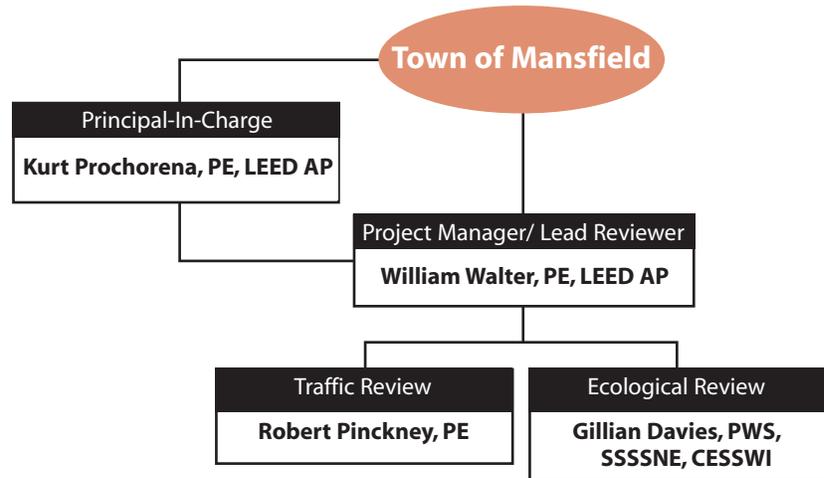
- **University of Connecticut Parking Lot 9 Reconstruction, Storrs, CT** - BSC Group designed the reconstruction of two parking lots at the campus's gateway area. Like the Northwoods Apartments project, the project was targeted under UConn's Eagleville Brook IC-TMDL program, necessitating careful planning and design of stormwater management methods. Following an extensive review of potential approaches to stormwater management, BSC prepared the final design, which includes low impact strategies, such as two rain gardens and vegetated bioretention swale.
- **Charles Barrow STEM School, Windham, CT** - As part of BSC's site plan for a new K-8 public magnet school, BSC incorporated numerous sustainable design solutions. These include two courtyards with "ponds" that collect rain water from the building's roof, a nature path, an outdoor "classroom" complete with natural stone seats selected from the site, and several educational spaces including a vegetable garden, butterfly garden, sensory garden, and sundial. The design also incorporated significant low impact components such as rain gardens and bio infiltration swales. The facility was awarded a Silver LEED Certification.
- **60 Merrimac Street Notice of Intent, Amesbury, MA** - BSC conducted peer review for the redevelopment of an old mill complex on the banks of the Merrimac River. Peer review required analysis of project status under Riverfront Protection Act, as well as Wetlands Protection Act and local Wetlands Ordinance. Project required evaluation of Applicant's requests for waivers from local Ordinance provisions.

### **Key Personnel to Review Meadowbrook Gardens**

BSC's qualifications for this project are demonstrated by the capabilities of our proposed staff. The organization chart on the following page graphically depicts our proposed team. Notably, project manager William Walter, PE, LEED AP will serve as the Town of Mansfield's day-to-day contact, providing direct review responses, as well as overall project oversight. He will be supported by a skilled transportation engineer and environmental scientist, both of whom offer extensive expertise in the key components of this review.

In addition to BSC's technical expertise, this project will have the full support of **Kurt Prochorena, PE, LEED AP, Principal-In-Charge**. Mr. Prochorena will provide corporate-level authority for the review contract. Kurt Prochorena is an engineer with more than 25 years of experience in site design and stormwater management. As principal-in-charge of BSC Group's Glastonbury office, Kurt provides senior oversight all of BSC's projects in Connecticut.

The qualifications of BSC's technical team are summarized on the following page; resumes demonstrating technical expertise conclude our response to the Town of Mansfield.



**BSC Group offers an experienced peer review team of professionals who have worked successfully worked together on previous projects.**

- **William Walter, PE, LEED AP, Project Manager** - A senior associate and manager of civil engineering services at BSC Group Glastonbury with 21 years of experience, Will offers exceptional understanding of stormwater management systems and low impact development. He has provided civil engineering design for numerous municipal projects, including school buildings and public safety buildings, as well as private land development projects that have undergone Planning Board review in their host communities. He regularly applies LID stormwater management solutions to his design projects, including the use of stormwater infiltration swales and rain gardens. Will is familiar with the Town of Mansfield's regulations having served as the project manager for multiple projects on the UConn Storrs campus, as well as a recent project located in the Town of Mansfield Storrs Center.
- **Robert Pinckney, PE** - Offering more than 20 years of experience in roadway and intersection projects for municipalities and state agencies, Mr. Pinckney serves as Manager of transportation services in BSC's Glastonbury office. Mr. Pinckney was responsible for providing transportation review services to both the RHAM exterior facilities study in Hebron as well as for the Rand Whitney Paper Company project in Newtown. He is currently managing the Phase VI Newington Center Streetscape Improvement project that involves more than 2,000 lf of roadway, with utility coordination, installation of sidewalk pavers, installation of street lights and resolutions to vehicle-pedestrian conflicts. Rob is familiar with the Town of Mansfield
- **Gillian Davies, PWS, SSSSNE, CESSWI** - With a graduate degree in environmental studies from Yale University, we are pleased to complete our proposed team with Gillian Davies who offers extensive experience in plan

*BSC Group is pleased to offer these references for the Town of Mansfield's consideration.*

review from an ecological science perspective. She applies her 30 years of professional experience to the review and recommendation of stormwater management systems for municipalities in Connecticut and Massachusetts. Notably, Gillian has recently assume the presidency of the Society of Professional Wetland Scientists.

**References**

BSC Group is proud of our track record of service to our municipal clients, and we are pleased to offer the following references who can attest to our past performance in providing timely, responsive, and cost-effective service.

**Project:** Charles H. Barrows STEM Academy, Windham, CT  
**Contact:** Norman Benjamin  
ARCADIS  
213 Court Street, Suite 700  
Middletown, CT 06457  
Phone: 860-503-1500  
E-mail: norman.benjamin@arcadis-us.com

**Project:** Manufacturing Center Expansion, Newtown, CT  
**Contact:** Chris Oldham  
JM Coull, Inc.  
20 Powder Mill Road  
Maynard, MA 01754  
Phone: 978-793-3691  
E-mail: coldham@jmcoull.com

**Project:** RHAM Master Planning, Hebron, CT  
**Contact:** Joseph E. O'Connor, Facilities Sub-Committee Chair  
PO Box 1438  
Hebron, CT MA 06248  
Phone: 860-228-8944  
E-mail: joconnorhamboe@gmail.com

**Project:** Review Services to the Amesbury ConComm, Amesbury, MA  
**Contact:** John Lopez  
Conservation Administrator  
62 Friend Street  
Amesbury MA 01913  
E-mail: conservation@amesburyma.gov  
Phone: 978-388-8110 x317



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## Will Walter, PE, LEED AP

Manager of Civil Engineering/Senior Associate

### BACKGROUND

Mr. Walter is BSC-Glastonbury's manager of civil engineering with design and project management experience in all aspects relating to land development, including permitting, site demolition, grading and drainage, utilities, erosion & sediment control, and construction phase services. He is experienced in total site design to meet the design criteria and performance standards of numerous local, state, and federal guidelines and requirements, including local zoning and inland wetland requirements, state DOT stormwater design requirements, state DEEP stormwater quality requirements, state DEEP erosion and sediment control requirements, federal NPDES requirements, as well as LEED requirements.

### PROJECT EXPERIENCE

#### **On-Call Peer Review Engineering Services, Tolland, CT**

**Project Manager** for ongoing on-call engineering services to the Town of Tolland, CT. Under this contract, BSC is positioned to provide the Town with as-needed peer review of applications to the local land use commissions.

#### **Rand Whitney Paper Company, Newtown, CT**

**Project Manager** for the design and permitting of an expansion of the existing 100,000 square foot manufacturing building to approximately 300,000 square feet, including associated site features. The site design included overcoming significant grading and drainage challenges, lighting, site circulation and parking, utilities and erosion control. The drainage improvements included on-site detention and water quality treatment. The site design also included renovation of approximately 300 linear feet of the adjacent roadway. The permits included an inland wetlands permit through the Inland Wetlands & Watercourses Commission, a site plan approval through the Planning & Zoning Commission and an administrative decision through the Office of the State Traffic Authority.

#### **Town of Ledyard Middle School, Ledyard, CT**

**Project Manager** for integrated site design services in support of a renovation/expansion project comprised of an expansion and renovation of the 75,000 square-foot renovation to 93,000 square feet. Site design includes parking & circulation, grading & drainage, utilities, landscaping, demolition and erosion control on a 36 acres site. The project also includes an analysis of the existing septic system as well as coordination with the local health department, CT DPH and CT DEEP. Permitting includes local permitting through the Town of Ledyard and the State of Connecticut Department of Education's Office of Schools Facilities (OSF).

#### **Town of Ellington Crystal Lake School, Ellington, CT**

**Project Manager/Lead Civil Engineer** for integrated site design services in support of a renovation/expansion project comprised of a 30,000 square-foot renovation and a 20,000 square-foot addition. BSC designed extensive improvements to the 16 acre

### EDUCATION

**B.S., Civil Engineering**  
Worcester Polytechnic  
Institute

### REGISTRATIONS

**Professional Engineer  
in CT**  
**LEED Accredited  
Professional**

### AFFILIATIONS

**U.S. Green Building  
Council (USGBC)**

site, including revised grading, new access drives, parking, and bus loading/unloading areas, four new athletic fields, four new play areas, a walking path, and two wetlands crossings. The team was responsible for stormwater management, traffic/parking, landscape improvements, design of the new athletic and playground facilities, design of the walking path, and site permitting through the Town of Ellington and the State of Connecticut Department of Education's Office of Schools Facilities (OSF).

**Charles H. Barrows STEM Academy, Windham, CT**

**Project Manager** for survey, civil engineering and landscape architecture for design and permitting of a new 600 student magnet school serving grades pre-K through 8. Working with the project architect, the BSC team is designing all site aspects related to the new school facility, including site layout planning, a comprehensive traffic study to assess effects of the new facility on local vehicular movements, the design of new utilities, drop-off and parking facilities, athletic fields, and stormwater management systems. The design also incorporates significant LID components, and will be targeted for LEED certification.

**University of Connecticut Basketball Complex, Storrs, CT**

**Project Manager** for the site design associated with the 75,000 square foot men's and women's basketball practice facility on the University's Storrs Campus. Site design involved utility planning, utility design, grading & drainage, demolition, erosion control, surveying and permitting through CT DEEP. The project achieved LEED Silver status.

**Mercyknoll, West Hartford, CT**

**Project Manager** for site design of a 94-bed addition to continuing care facilities, including design and oversight of survey, wetlands delineation, site demolition, permitting, drainage, utilities, and erosion control. The project included immediate design and permitting of the 94-bed addition, as well as master planning for the entire 53-acre campus.

**On-Call Engineering Services, New Britain, CT**

**Civil Engineer** for ongoing on-call engineering services to the City of New Britain, CT. Under this contract, BSC provided the City with comprehensive engineering services to effectively and economically develop, utilize, and maintain its varied infrastructure and facility assets.

**Shelley Lane Subdivision, Glastonbury, CT**

**Civil Engineer** for design support of all aspects of civil design for a 37-lot subdivision, including lot layout, roadway design, stormwater management, utility design, and erosion and sediment control. Stormwater management was designed to 2004 DEP Stormwater Quality Manual. Erosion control was designed to 2002 Connecticut Erosion and Sedimentation Guidelines.



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## **Robert Pinckney, PE**

Manager of Transportation Services/Associate

### **BACKGROUND**

Mr. Pinckney is manager of the transportation services group in BSC's Glastonbury, CT office. Mr. Pinckney has over 20 years of experience serving both as Project Manager and as Project Engineer on a multitude of roadway and intersection projects for municipalities and state agencies.

Mr. Pinckney is well versed in highway geometrics and design practices as well as constructability and traffic control during construction. His experience includes a wide variety of projects such as drainage design, maintenance and protection of traffic designs, geometric design of highways, and design of 3D surface models.

Mr. Pinckney uses a wide variety of drainage design applications and methods to determine the most appropriate design solution for each scenario, including both open and closed drainage system design, as well as the design and implementation of Best Management Practices. He also has considerable experience and understanding of construction practices and specifications.

### **PROJECT EXPERIENCE**

#### **RHAM Exterior Facilities Study, Hebron, CT**

Transportation Engineer that provided peer review and design services for the Campus Traffic Review portion of a complete campus assessment. Reviewed and updated a traffic report that had previously been submitted which documented site traffic circulation and safety issues. Investigated site conditions and interviewed stakeholders in order to develop conceptual mitigation plans that were prepared to illustrate recommendations for mitigation of ingress / egress / circulation / drop-off.

#### **Traffic Impact Study for Rand Whitney Paper Company, Newtown, CT**

**Project Manager** for transportation services related to the Rand Whitney manufacturing facility located in Newtown, CT. BSC evaluated the traffic impacts associated with the proposed expansion of the Rand Whitney distribution facility. The Traffic Impact Study included a review of existing traffic and roadway condition in the vicinity of the project site, as well as a review of the accident history at study area intersections. The report identified background traffic growth for study area roadways, estimated additional traffic generated by the proposed manufacturing facility and potential traffic impacts to five intersections due to project-generated traffic.

#### **Pratt Street Boulevard, Meriden, CT**

**Project Manager** for the survey, final design and contract plans for 4,500 LF of Pratt Street. The project transforms the project corridor into a gateway to the ongoing redevelopment of downtown Meriden by adding a center median and other streetscape elements. This project aims to improve and enhance the identity and economic vitality of downtown Meriden by drawing people to shop, live, and work. The design team is investigating multi-modal transportation choices through

### **EDUCATION**

**B.S., Civil Engineering**  
Clarkson University

### **REGISTRATIONS**

**Professional Engineer,**  
**CT / NH / ME**

### **AFFILIATIONS**

**American Society of**  
**Civil Engineers (ASCE)**

a "Complete Streets" design approach that safely and comfortably provide for the needs of all users by accommodating cars, bicyclists, and pedestrians. Highlights include safety improvements for all users as well as the reconfiguration of two intersections within the project area. BSC is also aiding the City with the LOTCIP Application for project funding. Therefore the design process is following the ConnDOT LOTCIP Guidelines manual published in 2013.

**Newington Center Streetscape Improvement Program, Newington, CT**

**Project Manager** for the survey, design, contract plans and documents, construction inspection and contract administration services for the Phase VI of the Newington Center Streetscape Improvement program. This project results in the improvement of approximately 2,000 feet of Constance Leigh Drive and Lowrey Place in Newington Town Center. Phase VI of the program is being funded by a Main Street Investment Fund grant administered by the State of Connecticut Department of Housing (DOH). The project addresses issues such as vehicle-pedestrian conflicts, landscaping, utility coordination, the installation of sidewalk pavers, and street lights along portions of both sides of Constance Leigh Drive and Lowrey Place. The project team worked with the Town of Newington to investigate several options for the corridor. BSC utilized a "complete streets" approach to analyze various users and topics including roadway reconstruction and realignment, intersection reconfiguration options, and bicycle and pedestrian accommodations. The project also included presentations for public information as well as to the Town Council.

**Route 31 Reconstruction for Connecticut Department of Transportation, Coventry, CT**

**Transportation Engineer** for the design of Route 31 realignment through Coventry Village to eliminate a dangerous, substandard curve. The project includes aesthetic enhancements to the roadway as a measure to encourage business development in Coventry Village. The project also includes significant streetscape and drainage improvements brought about in a context-sensitive solutions process. Another aspect of this project is the careful coordination with local businesses and residents to assure satisfaction with the proposed improvements. BSC prepared and presented a three-dimensional video model to demonstrate proposed improvements and earn widespread project support.

**Route 156 and Sound View Bike Path and Improvements, Old Lyme, CT**

**Transportation Engineer** for planning and design services for improvements to the Sound View Beach area and the design of associated bicycle accommodations linking to other shoreline areas. The BSC project team completed an assessment of existing facilities, creation of a master plan for new facilities, and the preparation of conceptual designs. This included enhanced parking in a dedicated lot, defined on-street parking, kiosk-type parking meters, pedestrian walkways, "green spaces" for picnicking and passive recreation, and bathroom facilities. BSC is currently designing a shoreline bicycle route from the Sound View Beach area to the vicinity of Interstate 95, a route of approximately 4.5 miles on town and state roads.



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**Gillian T. Davies, PWS, SSSSNE,  
NHCWS, CESSWI**

Senior Ecological Scientist

**EDUCATION**

**M.E.S., Environmental Studies  
1991**

Yale University

**B.A., Psychology 1985**

Williams College

**Certificate of Completion in the  
New England Regional Soil Science  
Certificate Program**, University of  
Massachusetts

**REGISTRATIONS**

**Professional Wetland Scientist,  
Society of Wetland Scientists**

**Registered Soil Scientist, Society of  
Soil Scientists of Southern New  
England**

**Certified Wetland Scientist,  
State of New Hampshire**

**Certified Erosion, Sediment, and  
Storm Water Inspector,  
Envirocert International, Inc.**

**AFFILIATIONS**

**Society of Wetlands Scientists –  
International**

Current Position: President Elect

**New England Chapter**

Current Position: Past President

Past Positions: President, Vice  
President

**Association of Massachusetts  
Wetlands Scientists**

Past Positions: Past President,  
President, Vice President

**BACKGROUND**

Ms. Davies is a senior wetland/soil scientist in the Worcester office of BSC Group, and brings a broad range of experience to her position. She has managed and participated in numerous natural resource projects as a private consultant working for consulting companies and also as an independent contractor. Her consulting work encompasses state and federal permitting, wetland delineation including difficult wetland soils analysis, impact analysis, wildlife habitat evaluation, endangered/threatened species issues, mitigation planning, design and monitoring, expert witness, and environmental construction/post-construction inspection. She has worked on projects in Massachusetts, Maine, Connecticut, New York, Maryland and North Carolina.

Ms. Davies currently serves as President-Elect of the Society of Wetland Scientists and will assume responsibilities as President in June 2016. She also serves as Past President of the New England Chapter of SWS. In her work for SWS, she chaired the program committee for the 2015 international SWS Annual Meeting, themed “Changing Climate. Changing Wetlands”. Ms. Davies has served on the MA Executive Office of Energy & Environmental Affairs (EEA) Adaptation Subcommittee to the Global Warming Solutions Act Implementation Advisory Committee. In addition, she served as Chair of the Inland Wetlands Adaptation Subcommittee to the Natural Resources and Habitat Subcommittee to the EEA Climate Change Adaptation Advisory Committee. In this capacity, she worked with other natural resource professionals to craft an advisory document that identified the specific vulnerabilities of inland wetland resources to anticipated changes in Massachusetts climate, and adaptive strategies for managing wetland resources as these changes occur. The findings in this document have been incorporated into the Massachusetts Climate Change Adaptation Report (September, 2011) that is intended to guide climate adaptation policy in the Commonwealth of Massachusetts.

Ms. Davies has been working as a wetland scientist since 1991, is a Professional Wetland Scientist (Society of Wetland Scientists); a Registered Soil Scientist (Society of Soil Scientists of Southern New England); a Certified Wetland Scientist in the State of New Hampshire; and a Certified Erosion, Sediment, and Stormwater Inspector with EnviroCert International, Inc.

**PROJECT EXPERIENCE**

**Polylok Inc. Site, Wallingford, CT**

**Senior Wetland/Soil Scientist** delineated wetlands on highly disturbed site in accordance with state and local regulations.

**East Haddam Road, East Hampton, CT**

**Senior Wetland/Soil Scientist** reviewed eight-acre site for potential hydric soils and watercourses in accordance with state and local regulations. Two watercourses were identified.

**Ashford Realty Trust, Ashford, CT**

**Senior Wetland/Soil Scientist** performed hydric soils/wetland delineation on 90-acre site in accordance with state and local regulations. Site was heavily forested with thick understory and stony soils.

**Vona Property, East Haddam, CT**

**Senior Wetland/Soil Scientist** delineated areas containing hydric soils on 41-acre site in accordance with state and local regulations and conducted wildlife habitat evaluation. Property contained meadow, shrub/scrub and forested areas.

**Peer Review Services to the Amesbury Conservation Commission, Amesbury, MA**

**Project Manager/Senior Wetland/Soil Scientist** for the review of applications before the Amesbury Conservation Commission. Representative task assignments are described below.

GOVERNMENT SERVICE

**MA Executive Office of  
Energy and Environmental  
Affairs Adaptation  
Subcommittee to the  
Global Warming Solutions  
Act Implementation  
Advisory Committee (2013)**

**MA Executive Office of  
Energy and Environmental  
Affairs Natural Resources  
and Habitat Subcommittee  
to the Climate Change  
Adaptation Advisory  
Committee (2009)**

**Chairperson, Inland  
Wetlands Adaptation  
Subcommittee to the  
EOEEA Natural Resources  
and Habitat Subcommittee  
(2009)**

**MA DEP Wetlands &  
Waterways Circuit Rider  
(1999-2003)**

**Stow Conservation  
Commission (1992-1994)**

**Massachusetts DEP,  
Trainer, Wetland  
Delineation Training  
(1995-1996)**

*127 Kimball Road NOI.* Conducted peer review for site improvements to lakeshore property at Lake Attitash. Project included a local wetlands ordinance waiver request, as well as review under the Massachusetts Wetlands Protection Act.

*Locke Hill Lane Subdivision NOI Peer Review, MA DEP Appeal Process Peer Review, and Construction Monitoring.* Reviewed project NOI and represented Conservation Commission throughout the MA DEP appeal process. Project plans were modified as a result of both the NOI peer review and appeal processes. Construction of subdivision required crossing a wetland and constructing a wetland mitigation area. Managed team of Environmental Monitors during construction phase. Monitoring effort included monitoring success of the constructed wetland mitigation area, as well as erosion and sedimentation control for site with steeply graded topography.

*157 Congress Street ANRAD Peer Review and Representation in MA DEP appeal process.* Reviewed wetland resource area delineations, including Riverfront Area, on forested property, and represented the Conservation Commission during the MA DEP appeal process. Wetland resource area delineation that was approved following BSC peer review was upheld during MA DEP appeal process.

*60 Merrimac Street NOI.* Conducted peer review for project to redevelop an old mill complex on the banks of the Merrimac River. Peer review required analysis of project status under Riverfront Protection Act, as well as Wetlands Protection Act and local Wetlands Ordinance. Project required evaluation of Applicant's requests for waivers from local Ordinance provisions.

*Woodsom Farms Soccer Field Wetland Delineation.* Conducted winter review of wetland delineation in mowed fields, based on assessment of soils.

*CVS, Macy Street ANRAD, NOI and Environmental Monitoring.* Conducted peer review of ANRAD and NOI for a mixed-use redevelopment project. Abutter and Conservation Commission concerns were incorporated into peer review, and project resulted in improved stormwater management, mitigation wetland creation for buffer

zone impacts, and a long-term invasive species management plan for the site. Following peer review of project permit applications, is providing environmental monitoring services for construction and post-construction phases, including monitoring of construction of wetland mitigation area.

*Bailey's Pond NOI.* Conducted peer review of NOI, including Riverfront delineation following beaver activity and assessment of site for status as previously developed, degraded site. Provided consulting services to Amesbury Conservation Commission through MassDEP appeal process, where Commission decision was successfully defended.

*Lion's Mouth Road ANRAD and NOI.* Conducted peer review of ANRAD and NOI, including addressing abutter concerns, evaluating onsite stream for perennial/intermittent status, and Bordering Vegetated Wetland delineation. Following erosion and sedimentation violations during construction phase, provided assessment of damages and remedial actions necessary.

*Meadowbrook Estates DEIR.* Conducted peer review of DEIR documents for land development project.

*Macy Street Mixed Use Development.* Provided peer review services for both the Conservation Commission and Planning Board for a mixed use development consisting of retail, commercial office, and residential components. Reviewed wetland delineations, Notice of Intent application and site design for compliance with the Massachusetts Wetlands Protection Act, local bylaws and regulations, and general engineering standards.

**Potential Wetland Violation Investigation, City of Newton Utilities Department, Newton, MA.**

**Project Manager/Senior Wetland/Soil Scientist** evaluated ditch dredging activity to determine whether a violation of MA Wetlands Protection Act had occurred and met onsite with Utilities Department and Conservation Commission staff to resolve issues.

**Georgetown Conservation Commission, Georgetown, MA**

**Project Manager/Senior Wetland/Soil Scientist** providing as-needed peer review services to the Georgetown Conservation Commission. Representative assignments are described below.

**1 Industrial Way Fill Violation, Georgetown, MA.** Conducted assessment of wetland boundary that had been buried by several feet of fill material. Evaluation of buried soils led to identification of large wetland area that had been filled.

**Turning Leaf NOI, Georgetown, MA.** Peer review of this NOI for a 24 unit subdivision required several rounds of review in order to bring the proposed project into compliance with the Georgetown Wetlands Protection Bylaw. Regulated resources included Bordering Vegetated Wetland, Vernal Pool/Isolated Vegetated Wetland, Bordering Land Subject to Flooding, and Buffer Zones.

**Georgetown Middle/High School NOI, Georgetown, MA.** Reviewed NOI documents, Bordering Vegetated Wetland boundary, Land Subject to Flooding and Riverfront Area boundary. BSC evaluated Applicant's request for waivers to the Georgetown Wetlands Protection Bylaw, and compliance with provisions of the

Riverfront Protection Act, as well as compliance with local and state wetlands regulations.

**0 East Main Street, Georgetown, MA.** Conducted peer review of ANRAD on an approximately 25-acre site with difficult-to-analyze soils. Wetland delineation required substantial revision as a result of peer review process.

**Sunfield Solar 12 Megawatt Solar Array, Spencer Conservation Commission, Spencer, MA**

**Senior Wetland/Soil Scientist and Certified Erosion, Sediment and Storm Water Inspector** provided Environmental Monitoring services for construction project to install large solar array in close proximity to wetlands.

**81 Russell Street ANRAD review, Carlisle Conservation Commission, Carlisle, MA**

**Project Manager/Senior Wetland/Soil Scientist** conducted peer review of ANRAD wetland resource delineation that included evaluation of Bordering Vegetated Wetlands, Riverfront Area, Certified Vernal Pools, Bordering Land Subject to Flooding, and area of illegal fill placed on top of Bordering Vegetated Wetlands.

**Westford Conservation Commission, Westford, MA**

**Senior Wetland/Soil Scientist** providing as-needed peer review services to the Westford Conservation Commission. Representative assignments are described below.

*Cornerstone Square Commercial Center ANRAD, NOI, DEIR, FEIR Peer Review.*

Performed peer review for a 31-acre site commercial development proposal, reviewed wetland resource area boundaries for compliance with state and local regulations, reviewed and provided comments on DEIR and FEIR, evaluated NOI for compliance with state and local regulations. Issues included vernal pools, infringement into locally-regulated no work/build zones, development of substantive alternatives analysis, compliance with local bylaw, cumulative impacts, evaluation of impacts to wetland functions and values (especially wildlife habitat functions).

*Town of Westford Master Plan.* Assisted the Town of Westford in development of the Natural Resources section of the town's Master Plan.

**TEACHING/EDUCATION**

**Massachusetts Department of Environmental Protection,  
Clearwater Estates Revision**

**Co-Editor** for revision and development of training modules for the Clearwater Estates Development Simulation Reference Manual and Training Program.

**Charles River Watershed, Merrimac River Watershed, SuAsCoShaw Rivers  
Watersheds, Conservation Commission Networks, Massachusetts**

**Circuit Rider** coordinated monthly wetlands training and networking meetings for Conservation Commissions on a watershed basis. Conducted presentations for some of the trainings, organized guest speakers for others. Provided technical advice on MA DEP wetlands regulations.

**Presentations**

(Representative)

National Academies of Sciences, Engineering & Medicine Transportation Research Board 95<sup>th</sup> Annual Meeting, Washington, D.C., poster presentation, “Using and Interpreting IRIS Tubes to Assess Wetland Mitigation Success and Development of Hydric Soils in Created Wetlands: Massachusetts Department of Transportation Case Study in Lincoln, MA, 2016.

Chigu Center International Forum on Coastal Wetlands, Tainan County, Taiwan, presenter, “Wetlands and Climate Change – Wetlands, Climate Change and the Carbon Cycle”, 2015

National Taiwan Normal University, Taipei, Taiwan, presenter, “Wetlands and Climate Change – Wetlands, Climate Change and the Carbon Cycle”, 2015

Massachusetts Association of Conservation Commissions, presenter, “Current Science on Wetlands and Climate Change: Impacts, Carbon Mitigation, and Adaptation”, 2015

Boston Bar Association, co-presenter, “Advising Municipalities and Developers on Climate Change and Adaptation”, 2015

Massachusetts Association of Conservation Commissions, co-presenter, “Wetlands and Climate Change: Their Functions, Roles, and Protecting Your Community’s Resiliency”, 2014

Association of Massachusetts Wetland Scientists, co-presenter, “U.S. Field Indicators of Hydric Soils in Massachusetts”, 2012

Association of Massachusetts Wetland Scientists, co-presenter, “Difficult Inland Wetland Delineations”, 2006 and 2007

Massachusetts Association of Conservation Commissions, co-presenter, “Soil Science- Field Skills Workshop”, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013

Massachusetts Association of Conservation Commissions, co-presenter, “Hydric Soil Workshop: Field Identification, Documentation, and Delineation”, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013

Massachusetts Association of Conservation Commissions, Annual Environmental Conference: co-presenter, Hydric Soils (Advanced Credit Course), 2001, 2002, 2003, 2004, 2005, 2006, 2007

University of Massachusetts, Lowell, guest-lectured a one-evening graduate level class on soils for “Wetland Ecology” course, 2001, 2003

Boston University Metropolitan College, Department of Urban Affairs and Planning, Lecturer, Spring semesters, 1997 & 1999. Taught graduate level course surveying current global environmental issues associated with population growth and resource consumption. Organized several guest speakers.



Alfred Benesch & Company  
90 National Drive  
Glastonbury, CT 06033  
[www.benesch.com](http://www.benesch.com)  
P 860-633-8341  
F 860-633-1068

February 29, 2016

**Linda Painter**  
**Director of Planning and Development**  
**Town of Mansfield**  
Audrey P. Beck Municipal Building  
4 South Eagleville Road  
Mansfield, CT 06268

Re: **Request for Proposal**  
**Meadowbrook Gardens Application Review**

Dear Ms. Painter:

Alfred Benesch & Company (Benesch) is very pleased to respond to your Request for Proposal (RFP) for the review of the Planning & Zoning Special Permit application submitted by Uniglobe Investment, LLC for the Meadowbrook Gardens multifamily housing project. We have prepared the attached proposal for the work involved in the review of the application.

Benesch has a long history of on-call work with municipalities and have current on-call engineering contracts with East Hartford, Hartford, Wethersfield, New Britain, West Springfield, Springfield, Litchfield for the IWWC, and Mansfield for Survey. Many of these towns have requested that we review applications presented to their Planning & Zoning and Inland Wetlands Commissions. We have recently completed a review of an affordable housing project in Litchfield that involved significant wetland buffer impact and a large retail development on the Rentschler Field property for East Hartford that included traffic studies, roadway construction, and large drainage systems.

Included with this proposal are resumes of four Benesch staff members who have significant experience in application reviews. I will be acting as project manager. Russ Cyr and Ryan Scrittorale are two of our top site plan development engineers, and Steve Ulman is our traffic engineer who has over 30 years of traffic analysis experience.

For our references, I have listed representatives of both East Hartford and Litchfield who we have most recently completed application review work with the staff listed above.

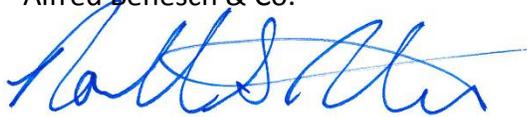
M. Denise Horan, P.E.  
Town Engineer  
Town of East Hartford  
[Dhoran@easthartfordct.gov](mailto:Dhoran@easthartfordct.gov)  
(860) 291-7384

Dennis Tobin, PhD  
Land Use Administrator  
Town of Litchfield  
[zoningadmin@townoflitchfield.org](mailto:zoningadmin@townoflitchfield.org)  
(860) 567-7565

Linda Painter  
Page | 2

If you have any questions regarding any of the material in this proposal, please feel free to contact me at your convenience.

Very truly yours,  
Alfred Benesch & Co.

A handwritten signature in blue ink, appearing to read "Robert S. Newton".

Robert S. Newton, P.E., LEED AP  
Senior Project Manager

P1607176

**SCOPE OF SERVICES AND FEE ESTIMATE**  
**Meadowbrook Gardens Application Review**  
**Uniglobe Investment, LLC**  
**Special Permit Application #1284-3**  
**Mansfield Center, CT**

**PROJECT UNDERSTANDING**

Alfred Benesch & Company (Benesch) is pleased to provide this proposal for consulting services for the review of application documents of the proposed Meadowbrook Gardens multifamily housing development submitted to the Mansfield Planning and Zoning Commission on February 9, 2016 as a Special Permit Application. The development property is located at 91& 93 Meadowbrook Lane in Mansfield, CT. The general scope of the services is to review the application documents provided by the Town for conformance to the Planning and Zoning requirements and general industry standards. Our focus will be related to the Stormwater management, Traffic impacts, Sanitary Sewer design, Erosion and Sedimentation Controls, and potential impacts to the Wetlands.

The documents that have been provided by the applicant include:

1. Special Permit Application dated February 9, 2016.
2. Meadowbrook Gardens Project Statement of Use, dated January 25, 2016.
3. Meadowbrook Gardens Plan Set dated January 8, 2016 (10 sheets):
  - 1) Cover Sheet
  - 2) Boundary Survey
  - 3) Existing Topographic Survey (not included in the application)
  - 4) Demolition Plan
  - 5) Site Plan
  - 6) Erosion, Sedimentation & Maintenance Plan
  - 7) Detail Sheet
  - 8) Detail Sheet
  - 9) Landscape-Lighting-Sign Plan
  - 10) Landscape-Lighting-Sign Details
4. Meadowbrook Gardens Traffic Impact Report, dated August 14, 2015, Prepared by F.A. Hesketh.
5. Design Statement Drainage Calculations & Hydraulic Analysis, dated February 5, 2016, Prepared by Civil Engineering Services, LLC.
6. Meadowbrook Gardens Affordable Housing Plan, dated February 2016.

**SCOPE OF SERVICES**

1. Benesch will become familiar with all documents supplied by the Town.
2. Review application documents to ensure they conform to the Town's Planning & Zoning requirements.
3. Review provided environmental review documents for consistency with industry practices.
4. Review drainage calculations for accuracy and conformance to Town requirements.

5. Review sanitary sewer design and connection for conformance with the Town's and Windham Water Pollution Control requirements.
6. Provide opinion of impact of the proposed development on the environmentally sensitive areas located on the property.
7. Prepare letter report of our findings and recommendations.
8. Review revised documents from applicant if required and prepare updated letter report.

### **EXCLUSIONS AND ASSUMPTIONS**

- Independent mapping of wetland limits is not included.
- On-site investigation of environmentally sensitive species is not included.
- On-site archeological investigation is not included.
- Attendance at Inland Wetlands Commission meetings and public hearings. If attendance is requested it can be provided for an additional fee.
- Review of applicant responses to comments listed in letter report will be completed within two weeks of receipt of the applicant responses.
- Preparation of opinion letters for the Commission to vote upon are not included.

### **SCHEDULE**

Benesch will provide review letter report within 3 weeks of notice to proceed.

### **FEE ESTIMATE**

Benesch will review the application based on our hourly rates listed in the rate table attached and subconsultant fees if required. We anticipate the review of the provided documents can be completed for \$2,800.00. If additional work is required, Benesch will notify the Town prior to completion of those services.

We appreciate the opportunity to provide the Town of Mansfield this proposal for the review of the Meadowbrook Gardens application.

# RESUMES

Rob Newton has over 20 years of civil engineering experience. A majority of his career has been spent working on site and roadway design and hydraulic analyses for municipalities, private entities, the Connecticut Department of Transportation (CTDOT), and the Massachusetts Department of Transportation (MassDOT). He is well versed in all aspects of site and roadway design, including site planning, drainage design, stormwater management, site utility design, sedimentation and erosion control plans, and local and state permitting. His expertise includes inspection and maintenance of flood protection systems, development of campus master plans, design of roadway/walkway patterns, recreational facilities, and proposed subdivisions.

He has also provided hydraulic analyses for site development studies and roadway and parking lot storm drainage networks and has analyzed and designed retention basins for stormwater management. Rob is also skilled in the presentation of designs at public forums and to local commissions and approval agencies.

### On-Call Project Experience

**Connecticut Department of Construction Services (CT-DCS) On-Call Engineering Services – Various Locations throughout Connecticut.** Project Manager. Assignments have included Project Management of the State's surplus property program. Tasks included identifying which services would be required to ensure proper sale of the property to an outside interest. On-Call assignments include:

- 25 Sigourney Street Construction Administration Services
- 55 Elm Street Building Study
- Central Connecticut State University (CCSU) Maintenance Facility – New Britain
- Connecticut Army National Guard – Camp Hartell General Infrastructure Improvements
- Connecticut Army National Guard – Camp Hartell New Entry Point Facility Design
- Connecticut Army National Guard – Camp Hartell Sewer Improvement
- Connecticut Army National Guard Vehicle Staging Area Expansion – Norwich
- Connecticut State Library/Supreme Court Drainage Improvements
- Connecticut Valley Hospital Storm and Sewer System Evaluation
- Eastern Connecticut State University (ECSU) Knight House Parking Improvements
- Eastern Connecticut State University (ECSU) Sidewalk Improvements
- Eastern Connecticut State University (ECSU) Student Center – Willimantic
- Garner Correctional Institution Water System Improvements
- H.H. Ellis Technical High School Track Replacement and Drainage Improvements
- Regional Farmers Market Access Improvements
- SSDS Renovations/Repairs at five (5) DMR Group Homes – Eastern Connecticut
- Uncas-on-Thames Hospital Sidewalk Improvements
- Uncas-on-Thames Sewer Evaluation
- Veterans Home Campus Survey – Rocky Hill

**On-Call Engineering Services – East Hartford, CT:** Project Manager. Overseeing completion of several assignments including:

- Carport Structure Evaluation
- Environmental Evaluation & Remediation - 1006 Silver Lane
- Evaluation of Meadow Lane Farm Environmental Report

#### Education

BSCe, Union College

Years of Experience: 22

#### Registrations and Certifications

Professional Engineer Registration: CT (#002662); MA (#49276); NY (#86513)

#### Associations

American Society of Civil Engineers

U.S. Green Building Council

- Flood Protection System Benefit Cost Analysis
- Flood Protection System Inspection and Repairs
- GIS Wetland Mapping Conversion
- Governor Street Reconstruction – Geotechnical and Traffic Engineering, Retaining Wall Design
- Hockanum River FEMA Flood Insurance Rate Map revision
- Inspection of Single–Arm Cantilever Sign Support
- LOMR Request Preparation for FEMA - Hillside Street/Burnside Avenue Parcel
- Main Street Master Plan
- Orchard Street Drainage Improvements
- Pedestrian Foot Bridge Replacement- Burnside Avenue to Labor Field
- Peer Review of CVS Traffic Analysis
- Phase I Environmental Site Assessment - Hilltop Farms/Barbara Drive
- Phase I Environmental Site Assessment - Short Reach/Hillside Avenue
- Public Safety Complex – Access Improvements
- Rentschler Field Shoppes
- Roberts Street Pavement Evaluation
- Scour Evaluation - Bridge No. 04496 and No. 05826
- Stormwater Pollution Prevention Plan for Transfer Station
- Town Hall HVAC upgrades
- Town Hall Pavement Evaluation
- Traffic Counts / ADT Development – Various Roadways

### Education

BSCE, Union College

Years of Experience: 22

### Registrations and Certifications

Professional Engineer Registration: CT (#002662); MA (#49276); NY (#86513)

### Associations

American Society of Civil Engineers

U.S. Green Building Council

**On-Call Engineering Services – Hartford, CT:** Project Manager. Overseeing completion of several assignments including:

- Capitol Avenue Streetscaping
- Cronin, Rocky Ridge and Sigourney Square Parks Improvements
- Downtown Parking Study
- Elizabeth Park Tennis Courts Improvements
- Flood Control System Structural Inspection
- Hudson Street Geotechnical Investigations
- Keeney Park Bridge Improvements
- Newington Avenue Drainage Feasibility Study
- Pratt Street Streetscape Improvements
- Walnut Street Rehabilitation - Topographic Survey
- Woodland Street Reconstruction - Retaining Walls Design

**On-Call Engineering Services – New Britain, CT:** Project Manager. Benesch is providing surveying, structural and utility engineering, parks improvements, traffic and transportation engineering, construction services, roadway / intersection design and site design services as part of this on-call assignment, which includes the following projects:

- Alden Street Drainage Improvements
- Allen Street Drainage Study
- East Street Water Main Relocation
- Franklin Square / Elm Street Improvements
- Hart Street Extension
- Interstate 84 Water Main Relocation
- John Downey Drive Sidewalk Study

- McClintock Street Roadway Improvements
- New Municipal Dog Pound
- St. Clair Street / Lester Street Reconstruction
- Stanley/Chestnut Street Intersection Improvements
- Stanley Golf Course Drainage Improvements
- Overlook/Sealander Streets Drainage Improvements
- Water Main Analysis under Interstate 84

### Education

BSCE, Union College

Years of Experience: 22

### Registrations and Certifications

Professional Engineer Registration: CT (#002662); MA (#49276); NY (#86513)

### Associations

American Society of Civil Engineers

U.S. Green Building Council

**On-Call Engineering Services – Town of Westbrook, CT:** Project Manager. Reviewed zoning applications for conformance with Town Regulations and general engineering practices. Represented the Planning Commission during public hearings, as requested. Projects we have provided assistance for include:

- Built Right Homes – 1961 Boston Post Road (Zoning and IWWC)
- Hill Farm Development
- Kinsella Apartments – Chapman Beach Road
- Lakebrook Medical Center
- Multi-family home – 891 Boston Post Road
- Pilot's Point Marina Expansion
- Robinson, Wright & Weymer Funeral Home
- The Lee Company Expansion
- Walgreens
- Waters Edge Expansion
- Westbrook Ambulance
- Westbrook Toyota

**On-Call Engineering Services – Town of Wethersfield, CT:** Project Manager. Overseeing completion of the following assignments:

- Cottone Field Lighting Improvements
- Fire House Boiler Replacement
- Wethersfield High School Traffic Evaluation

**On-Call Engineering Services – Springfield, MA:** Project Manager. Overseeing completion of several assignments including:

- 2011 Tornado Damage Assessment
- 2011 Tornado Cleanup – FEMA Monitoring Assistance
- Central Street Corridor Improvements
- Design Improvements to the Allen Street / Bicentennial Highway Corridor
- Dwight Street Extension Improvements
- Flood Protection System ACOE Accreditation
- Flood Protection System FEMA Comprehensive Inspection
- Flood Protection System Design Improvements
- Flood Protection System Maintenance Deficiency Correction Plan
- Flood Protection System Quarterly Inspections
- Main Street Reconstruction and Streetscape Improvements
- Riverside Road Sinkhole Evaluation
- Tapley Street & St. James Avenue Intersection Improvements

**On-Call Engineering Services - West Springfield, MA:** Project Manager. Overseeing completion of several assignments including:

- Bernie Avenue Culvert Repairs
- Elm Street/Kings Highway Intersection Improvements
- Elm Street Parking & Pedestrian Improvements
- Flood Protection System ACOE Accreditation
- Flood Protection System Design Improvements
- Flood Protection System FEMA Comprehensive Inspection
- Flood Protection System Maintenance Deficiency Correction Plan
- Memorial Avenue/Bresnahan Street Intersection Design
- Mittineague Bridge Analysis
- Morgan/Sullivan (Route 147) Bridge and Traffic Study
- Piper Road Crosswalk Study
- Route 20/Route 5 Rotary Study
- Route 20 Vehicular Speed/Signal Study
- School Zone Traffic Signal Study
- Town Green Power Improvements
- Veteran's Park Parking Improvements
- Westfield Street/Second Street/Chestnut Street Intersection Improvements

### Education

B SCE, Union College

**Years of Experience:** 22

### Registrations and Certifications

Professional Engineer Registration: CT (#002662); MA (#49276); NY (#86513)

### Associations

American Society of Civil Engineers

U.S. Green Building Council

Steve Ulman has a unique blend of traffic signal system hardware and intersection design experience. Prior to joining Alfred Benesch & Company (Benesch), he served as a signal systems engineer with Automatic Signal Division, a Mark IV Company. Steve has utilized his computer expertise to write several custom programs for traffic engineering applications. He has also assisted in the customization of Benesch's AUTOCAD environment for use in roadway and traffic design.

During his tenure with Automatic Signal—a leading manufacturer of traffic signal controllers—Steve designed intersection control systems, controller cabinets, special sequence logic and system integration strategies. He also assisted customers throughout the country in meeting sequencing and systems coordination needs and in interfacing Automatic Signal equipment with computerized signal systems. Steve also participated in the research and development of the company's plans and specifications to develop computerized signal systems.

Steve Ulman has served in Project Management and Project Engineering roles for traffic capacity and parking analyses, evaluation of existing signal equipment, and design of traffic signal and geometric improvements at intersections throughout Connecticut and Massachusetts. He has experience using signal system analysis programs and has analyzed numerous signal systems—existing and proposed—in conjunction with various projects.

### Education

BEEE – Manhattan College

### Years of Experience: 37

### Registrations and Certifications

Professional Engineer Registration: CT (#0018591), MA (#48468)

### On-Call Services - Connecticut Department of Public Works - Traffic Engineer.

- Eastern Connecticut State University Master Plan
- Long Lane School Traffic Study
- Mansfield Training School Traffic Study
- Middletown Court House Traffic Study
- New Britain Government Center Traffic Study
- Southern Connecticut State University Parking Study
- Uncas-on-Thames Campus Traffic Study

### On-Call Services - Town of East Hartford, CT - Traffic Engineer.

- Replacement of incandescent signals with led signals
- Reviewed traffic study for a proposed CVS pharmacy

### On-Call Services - Town of Groton, CT - Traffic Engineer.

- Feasibility Study for the Closure of Vergennes Court at Fort Hill Road
- Redesign and Signalization of Fort Hill Road at Harry Day Drive
- Signal Design - Crystal Lake Road at Military Highway
- Traffic Signal Review/signal Removal Study at 4 Locations

### On-Call Services - City of Hartford, CT - Traffic Engineer.

- Capitol Avenue Pedestrian Lighting
- Gateway Signs
- Maple Avenue Pedestrian Lighting
- Morgan Street Parking Garage
- New Britain Avenue Pedestrian Lighting
- Weston Street Connector Signal Design

### On-Call Services - City of New Britain, CT - Traffic Engineer.

- Chestnut Street and Stanley Street Signal Warrant Analysis
- Elm Street Improvements
- Franklin Square Traffic Improvements

### On-Call Services - City of Springfield, MA - Traffic Engineer.

- Allen Street/Bicentennial Highway Reconfiguration and Reconstruction – Realignment of Bicentennial Highway and Replacement of three (3) signals
- Main Street Corridor Intersection Improvements; 5 Locations
- Reconstruction of Central Street

### On-Call Services - Town of Westbrook, CT - Traffic Engineer.

- Reviewed numerous traffic studies for proposed developers

### On-Call Services - Town of West Springfield, MA - Traffic Engineer.

- Elm Street Improvements
- Franklin Square Traffic Improvements
- King's Highway/Elm Street Signal Design
- Memorial Avenue/Signal Street Intersection Design
- Piper Road Pedestrian Crosswalk Signalization
- Route 20/Route 5 Rotary Study
- Route 20 Vehicular Speed/Signal Study
- School Zone Traffic Signal Study
- Second Street/Chestnut Street Signal Design
- Senior Center Pedestrian Crosswalk

### On-Call Services - Town of Windsor, CT - Traffic Engineer.

- Signal Revisions for Day Hill Road at Northfield Drive

## Traffic Studies

**Connecticut Public Health Lab Traffic Study - Rocky Hill, CT:** Traffic Engineer. Provided traffic engineering services associated with this new \$50 million, 110,000 SF Public Health Laboratory. The new facility—which will replace the antiquated laboratory in Hartford—is to be located on a 22-acre site adjacent to the Veterans' Home, in Rocky Hill, Connecticut. Benesch also designed site access roads and parking for over 200 vehicles; designed stormwater systems and required retention / detention areas to comply with local, state and federal requirements; and obtained all applicable permits from local, state and federal agencies, along with a state traffic commission certificate. In association with FLAD Associates.

**Foxwoods Resort Traffic & Parking Study - Mashantucket, CT:** Traffic Engineer. Performed a comprehensive Traffic Impact Study for the resort. Scope items included: studying existing conditions, traffic volumes, parking facilities and access points; conducted turning movement counts and future condition capacity analyses at 13 locations; and obtained existing condition 24-Hour counts and accident data from the State of Connecticut and the Towns of Preston, Ledyard, Mashantucket and North Stonington. A determination of new trips generated by the Tanger Outlets was made, along with the anticipated approach

### Education

BEEE – Manhattan College

### Years of Experience: 37

### Registrations and Certifications

Professional Engineer Registration: CT (#0018591), MA (#48468)

routes of motorists accessing the site, and the distribution of site generated traffic to the surrounding roadway system. Services also included review of traffic impacts associated with other developments in the area; identification of off-site improvements and proposed improvements to the roadway network in the area.

**Milford Crossing Traffic Study, STC Certificate and Roadway Improvements – Milford, CT: Traffic Engineer.** Provided traffic engineering services supporting a modification to the existing State Traffic Certificate (STC), which was required due to a change in the development mix for the 400,000 SF retail development with 1,965 parking spaces. Completed a traffic study for the entire project area, collecting existing condition traffic data and preparing proposed / future condition analyses for review by the City of Milford and the Connecticut Department of Transportation (CTDOT). Analyzed three (3) traffic signals, controlling ingress/egress to the site, along Route 1. Recommended modifications to the three (3) existing traffic signals along Route 1; inclusion of two (2) new traffic signals along Roses Mill Road; and widening/modifications to the site frontage along Route 1.

**Rentschler Field Transportation and Traffic Planning Services – East Hartford, CT: Project Manager.** Provided traffic and transportation planning and analysis services for the proposed 8 million square-foot mixed-use development at the Pratt & Whitney property in East Hartford, CT. Services included coordination with local officials, analysis of existing condition traffic and transportation issues and recommendations for phased improvements to local and state roadway systems that surround the site. Prepared implementation schedules and cost estimates were also completed. In association with Baystate Environmental Consultants.

**Rainmaker Casino Expansion - Mashantucket, CT: Traffic Engineer.** Prepared a Traffic Impact Study associated with the Expansion of the Rainmaker Casino and Parking Garage at Foxwoods Resort. The total increase in building space encompasses 127,321 SF. A new 2,100 car garage replaces the existing 468-space valet parking lots for a net increase of 1,632 parking spaces. Services also included traffic analyses and designs for signalized intersections along the new Route 2 Bypass which was being constructed during the time of the casino expansion.

**Route 7 and Route 15 Interchange Traffic Simulation Study - Norwalk, CT: Traffic Engineer.** Provided revised interchange design plans and re-analyzed traffic flow patterns throughout the corridor. Gathered all necessary traffic data, analyzed existing and proposed condition traffic flows, prepared numerous roadway / interchange layouts and prepared traffic simulation analyses. Presented findings at various stakeholder group meetings. Traffic analysis consisted of determining pre- and post-construction volumes for the existing ramp configuration to remain, as well as the new off-ramps from Route 15 to Route 7 north and south bound and the Route 15 on ramps from both Route 7 north and south bound.

**Route 20/Route 5 Rotary Traffic Control Study – West Springfield, MA: Project Manager.** Reviewed the functionality of the congested 6-legged rotary, developed numerous traffic management plans and created a master plan for streetscaping and traffic calming. Results and recommendations were presented to the Town of West Springfield and the Pioneer Valley Planning Commission.

### Education

BEEE – Manhattan College

Years of Experience: 37

### Registrations and Certifications

Professional Engineer Registration: CT (#0018591), MA (#48468)

**The Shoppes at Farmington Valley – Traffic Study & Roadway Improvements - Canton, CT:** Project Manager. Conducted Traffic Impact Study for this new 380,000 SF retail development. The traffic study was used to obtain Town and State Traffic Commission Certificates. Replaced/modified traffic signals at three (3) locations in two (2) towns; developed new traffic signal for site design; and presented traffic analysis to Local Planning & Zoning Commission. Following the study’s completion, Benesch prepared designs for improvements to two miles of Route 44, including four (4) traffic signals. Approximately 4,000 feet of Route 44 in Canton was also reconstructed per the requirements for the STC certificate for the retail development.

**Education**

BEEE – Manhattan College

**Years of Experience:** 37

**Registrations and Certifications**

Professional Engineer Registration: CT (#0018591), MA (#48468)

Russell N. Cyr has over 30 years' experience as a Civil Engineer with consulting engineering firms. He has extensive experience managing and designing fueling systems for municipal and private clients; sanitary sewers and pump stations; water main distribution systems; and underground utilities. His experience also includes site and roadway engineering, from initial concept planning through site investigation and survey, design, approvals and construction. As Project Manager on numerous substantial developments, Russ has had a great deal of experience permitting complex developments.

### Education

BSCe, University of New Haven

Years of Experience: 33

### Registrations and Certifications

Professional Engineer Registration: CT  
(# 13205)

## DEVELOPMENTS & FACILITIES

**Landworks Powder Forest Parcels 5 & 6 - Simsbury, CT:** Project Manager. Managed engineering design services associated with site permitting and construction for this multi-family residential development. Scope items included coordination with an environmental consultant, review of master plans, layout evaluation related to drainage and utility design, grading, and vehicular movement. A drainage analysis, stormwater management system, utility plan, sedimentation and erosion control plans were prepared. Details for various stormwater, utility and sedimentation and erosion controls were also prepared for use during construction.

**184 Windsor Avenue – Windsor, CT:** Project Manager. Benesch provided civil engineering and survey services associated with the renovation of an existing 79,000 SF building, approximately half of which will be occupied by the Connecticut Department of Social Services. A new A-2/T-2 survey for the project showing current improvement with utilities and topography was prepared. Site plan review and design encompassed preparation of a grading and drainage plan, a sedimentation and erosion control plan, hydrologic analysis, preparation of a storm drainage report for submission to reviewing agencies, and liaison with utilities. Additional services included preparation of site landscaping and lighting plans and construction administration services.

**Farmington Savings Bank – Manchester, CT:** Project Engineer. Provided civil engineering services associated with this proposed 2,000 SF banking facility, including a drive-thru teller arrangements. Services included client meetings to discuss concept plan and revisions required to obtain CONTINUE FROM HERE 70241

**Sunrise Assisted Living Facility - Stamford, CT:** Project Manager for the design of this new assisted living facility site. Handled site design and permitting for new facility on undeveloped land. Design included site layout and design of site grading, stormwater management and utilities. (TO Design LLC)

**The Summit at Lehigh Valley/Forest City Development- Bethlehem Township, PA:** Project Engineer for this 500 acre mixed use development involving the construction of a new municipal sanitary sewage pump station within the site and the decommissioning of an existing upstream pump station. The project included the construction of 4,000 linear feet of interceptor sewer within the site that contained karst soil geology and was extensively regraded. Russ prepared site grading, sedimentation and erosion control, and stormwater management plans. (TO Design LLC)

**Swiss Bank North American Headquarters - Stamford, CT:** Project Engineer for 1.2 million square foot major trading facility that included two office towers, a 1,200 space parking garage, two surface parking lots and an urban park. The design involved the abandonment of city streets, decommissioning of utilities, reconstruction of North State Street and Washington Boulevard (SR 493), grading drainage and redundant utility services to the complex. (TO Design LLC)

**Shelton Heights Industrial Park/Shelton Heights Joint Venture - Shelton, CT:** Project Engineer for a 500 acre industrial park including the design of a major arterial roadway and stormwater management system, site grading, water distribution main, sanitary sewers and other utilities. Russ designed new sanitary sewage pump station to serve the development and to provide future service to unsewered portions of the Town. (TO Design LLC)

**Stamford High School Addition - Stamford, CT:** Designed site improvements for addition to the Stamford High School including, site grading, stormwater management system, sanitary sewerage and sedimentation and erosion control. Russ assisted in local and state approvals and provided construction phase engineering services. (TO Design LLC)

**Municipal Swimming Pool- New Canaan, CT:** Designed site grading, stormwater management and utilities for the Town of New Canaan municipal swimming pool including an on-site sanitary sewage pump station and subsurface stormwater infiltration system. Russ assisted in the acquisition of permits from the State of Connecticut Health Department. (TO Design LLC)

**Bayer Corporation - West Haven, CT:** Project Manager for the Bayer Corporation 128,000 square foot research building within their 112 acre campus straddling the Orange and West Haven town line. The design included the relocating an existing driveway while maintaining on-site traffic circulation and new mains for storm water, sanitary sewer and other utilities. (TO Design LLC)

**Westport Country Playhouse - Westport, CT:** Project Engineer. Designed sitework for this project, involving the complete reconstruction of this 100-year old theater facility. Renovations included selective demolition and preservation of the existing historic structure to accommodate new building construction, complete utility upgrade, new sanitary sewage pump station, subsurface stormwater infiltration system and reconstruction of the entire parking lot. (TO Design LLC)

**Scalzi Park Phase 2 - Stamford, CT:** Project Engineer. Prepared roadway plans, profiles and grading for an 1,800 LF roadway system and grading and drainage plans for several parking areas within the park. Conducted a feasibility analysis for alternates for gravity sanitary sewer and sanitary pump station to serve one of the three new rest room buildings. Also prepared design plans for new water services for the three new rest room buildings. (TO Design LLC)

### Education

BSCE, University of New Haven

### Years of Experience: 33

### Registrations and Certifications

Professional Engineer Registration: CT  
(# 13205)

As a Senior Project Engineer, Ryan Scrittorale has a background in all aspects of civil engineering and site design. He provides design, drafting and project management support for a wide array of engineering tasks. Ryan has recently been re-appointed as an alternate member of the City of Bristol's Zoning Commission. As a resident of Bristol, Ryan looks forward to getting involved with his community in this way.

**On-Call Engineering Services - New Britain, CT:** Project Manager. Benesch will provide the City of New Britain with On-Call Engineering Services encompassing engineering reports and studies; design; construction support; survey and geotechnical engineering. Awaiting first assignment.

**Central Street Corridor Improvements - Springfield, MA:** Project Engineer for this gateway roadway reconstruction and realignment project located in an urban neighborhood. Designed roadway, met with municipal staff, coordinated with utilities. Project scope includes schematic and final design; survey, environmental and geotechnical engineering, traffic services; right-of-way; and bidding and construction administration. The project includes two signalized and eight stop-controlled intersections.

**Broad Street Phase II Reconstruction - New Britain, CT:** Project Engineer responsible for all civil engineering aspects of this seven block roadway rehabilitation. The project included roadway design, the design of a new 14" water main with associated cross connections for intersecting streets, storm sewer evaluation analysis and design, and coordination with utility companies.

**Nelton Court - Hartford, CT:** Ryan acted as a Staff Engineer then a Project Engineer/Manager responsible for all civil engineering associated with the complete reconstruction of this urban 7.5 Acre Hartford Housing Authority site. Specific tasks included sanitary sewer main and lateral design, water main design, storm sewer design and phased erosion and sedimentation control plan. Working closely with the MDC, Ryan designed dedicated storm and sanitary sewer improvements so the project could be constructed in areas previously served by combined sewers.

**Corbin Heights - New Britain, CT:** Ryan acted as a Staff Engineer then a Project Engineer/Manager responsible for all civil engineering and site design associated with the complete reconstruction of this urban 27 acre affordable housing complex. Specific tasks included sanitary sewer main and lateral design, water main design, storm sewer evaluation, analysis and design and roadway re-alignments.

**Dillon Stadium Redevelopment - Hartford, CT:** Ryan is working with the Project Team to bring Major League Soccer to Hartford. As Project Engineer II, he is involved in all civil engineering aspects associated with the renovation of Dillon Stadium into a soccer facility.

**Willow Street Park - New Britain, CT:** As Staff Engineer, Ryan was responsible for the civil engineering requirements for the construction of this park in a former HUD housing neighborhood. A major challenge was the environmental cleanup of the site. Specific tasks included working with environmental and geotechnical engineers to remediate contaminated soils and stabilize steep slopes, drainage design with extensive underdrain system due to high groundwater and poor soils, and the design of a water system for

### Education

MS, Engineering, University of Hartford

BS Civil and Environmental Engineering, University of Connecticut

Years of Experience: 9

### Registrations and Certifications

Professional Engineer Registration: CT (#0028064)

extensive park water features. (TO Design LLC)

**Lebanon Senior Center - Lebanon, CT:** Ryan served as Staff Engineer responsible for the design of the civil engineering components of this new 6,600 SF facility. Specific tasks included roadway design, drainage design with water quality/detention basin, CT-DEEP Community Water System, and septic system design with sanitary sewer pump station. (TO Design LLC)

**South Windsor Fire & Ambulance Facility - South Windsor, CT:** As Staff Engineer, Ryan was responsible for the civil engineering design of this new 24,000 SF facility. Specific tasks included plans and profiles for reconstruction of a portion of town road, water main extension, and drainage design with water quality swales and detention basin. (TO Design LLC)

**Groton Senior Center - Groton, CT:** Ryan served as Design Engineer responsible for handling all civil engineering components of the 21,587 SF addition. Specific tasks included upgrading the storm water management system with an above ground detention basin dealing with high groundwater and silty soils. In addition to local municipal approvals, State Traffic Commission permits were obtained along with complete analysis of the State's storm water infrastructure on Route 117. (TO Design LLC)

**Pulaski Mall - Hartford, CT:** Ryan served as Senior Civil Engineer responsible for handling all civil engineering components of the urban pedestrian mall in Downtown Hartford. Specific tasks included the design of an outdoor water feature within the tight constraints of the former right-of-way, design of all water services and coordination with The Metropolitan District. (TO Design LLC)

**Sigourney Square Park Improvements - Hartford, CT:** Ryan served as Senior Civil Engineer responsible for handling all civil engineering components of the restoration of one of Hartford's urban gems. Specific tasks included the design of a spray pool environment, design of all water services and coordination with The Metropolitan District. (TO Design LLC)

**Renbrook School - West Hartford, CT:** Ryan acted as Staff Engineer responsible for the civil engineering associated with this \$80 million capital improvement project. Challenges included steep slopes, rocky soils, high bedrock and high groundwater, as well as solving drainage issues that were more than a decade old. He was also responsible for the renovation/redesign of a 10' detention pond and outlet structure. (TO Design LLC)

**Miracle Field - West Hartford, CT:** Ryan acted as Staff Engineer responsible for the civil engineering associated with a new accessible baseball field for the Miracle League. The field is designed to allow physically and mentally challenged children to play baseball. Project challenges included high groundwater and limited access to outlet points. (TO Design LLC)

**Martha Hart Park - New Britain, CT:** As Staff Engineer, Ryan was responsible for the civil engineering associated with the Little League softball field and basketball court. Project challenges included limited depth to groundwater and proximity to wetlands. (TO Design LLC)

### Education

MS, Engineering, University of Hartford

BS Civil and Environmental Engineering, University of Connecticut

Years of Experience: 9

### Registrations and Certifications

Professional Engineer Registration: CT (#0028064)



**ANCHOR**  
ENGINEERING SERVICES, INC.



## STATEMENT OF PROPOSAL

ENGINEERING SERVICES FOR  
EXPERT REVIEW OF A SPECIAL PERMIT APPLICATION  
& INLAND WETLANDS LICENSE FOR  
MEADOWBROOK GARDENS

PREPARED FOR  
THE TOWN OF MANSFIELD



PREPARED BY

**ANCHOR**  
ENGINEERING SERVICES, INC.



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41 Sequin Drive • Glastonbury, CT • 06033

February 29, 2016

Ms. Linda Painter  
Director of Planning & Development  
Town of Mansfield  
4 South Eagleville Road  
Mansfield, CT 06268

Re: Request for Proposals – Engineering Services

Dear Ms. Painter:

Anchor Engineering Services, Inc. is pleased to present our proposal to the Town of Mansfield for engineering services related to the review of a Special Permit application and Inland Wetlands License for a 36-unit apartment complex (Meadowbrook Gardens).

We understand the types of services requested by virtue of similar services provided on other projects throughout the State.

Please read through our qualifications and feel free to speak with our enclosed references. We are confident that we can provide the Town of Mansfield with a team committed to fulfilling the needs of this project. We look forward to discussing our qualifications and interest further.

Sincerely,

Marek L. Kement, P.E., L.S.  
Associate/Project Manager

Mark M. Zessin, P.E.  
President

Enc.



# COST PROPOSAL

Anchor proposes the following costs for the items outlined in the Scope of Services provided by the town on February 16, 2016.

**Task 1: Initial Consultant Review**

*Scope includes expert review of the Special Permit application focusing on Stormwater, Traffic, Sanitary Sewer, Erosion & Sedimentation Control, and Wetlands as outlined in the RFP. Pricing includes report submittal with recommendations for changes to the plans/conditions of approval.*

<b>Fees:</b>	<b>Consultant</b>	<b>\$ 2,750.00</b>	<b>(Lump Sum)</b>
	<b>Traffic Review</b>	<b>\$ 800.00</b>	<b>(Lump Sum)</b>
	<b>Soil Scientist</b>	<b>\$ 600.00</b>	<b>(Lump Sum)</b>

**Task 2: Supplemental Consultant Review (if required)**

*Scope includes expert review of any updated reports and/or revised plans submitted by applicant after initial review process. Pricing includes supplemental report submittal.*

<b>Fees:</b>	<b>Consultant</b>	<b>\$ 114.80</b>	<b>(Per Hour)</b>
	<b>Traffic Review</b>	<b>\$ 151.90</b>	<b>(Per Hour)</b>
	<b>Soil Scientist</b>	<b>\$ 75.00</b>	<b>(Per Hour)</b>

**Task 3: Public Hearing Attendance (if required)**

*Scope includes attendance at IWA and/or PZC meetings, if required, to present findings/recommendations and answer questions from the Commission(s).*

<b>Fees:</b>	<b>Consultant</b>	<b>\$ 123.00</b>	<b>(Per Hour – 3 Hour Minimum)</b>
	<b>Traffic Review</b>	<b>\$ 162.75</b>	<b>(Per Hour – 3 Hour Minimum)</b>
	<b>Soil Scientist</b>	<b>\$ 75.00</b>	<b>(Per Hour – 3 Hour Minimum)</b>





**MAREK L. KEMENT, P.E., L.S.**  
ASSOCIATE, PROJECT MANAGER. SENIOR ENGINEER

**PROFESSIONAL PROFILE**

Marek is a Senior Engineer and Project Manager with over 20 years of experience in civil engineering and land surveying and over 30 years involvement in the construction industry. He has worked on numerous residential, commercial, and municipal projects from inception through completion. These projects incorporate project management, cost estimates, land records research, boundary and topographic surveying, site analysis and feasibility studies, site layout, roadway and storm drainage design, sewer and utility design, meetings with clients and regulatory agencies, bid assistance and contract administration, construction stakeout and as-built surveys, and construction inspection. His construction background and private sector project experience offers him insight into the needs of the client and he has developed an excellent working relationship with various municipal and utility agencies.

**WORK EXPERIENCE**

- 2013 – Present: **Anchor Engineering**, Associate, Project Manager, Sr. Civil Engineer
- 1995 – 2013: **Sanderson & Washburn**, Owner, Civil Engineer, Land Surveyor
- 2012 – 2013: **Paganelli Construction Corporation**, Project Engineer
- 1995 – 1995: **Independent Materials Testing Lab**, Construction Inspector
- 1985 – 1995: **Kement & Son Construction, Inc.**, Laborer, Operator, Supervisor

**SELECTED PROJECT EXPERIENCE**

**Quarry Meadows, East Windsor, CT**

Project Manager, Engineer, and Surveyor for the layout and design of a 48-lot (8 Phase) single family residential subdivision. The project also included wetlands mitigation, dual municipal approvals, public water & sewer layout, storm water management, 4550 linear feet of road, drainage & utility stakeout, construction inspection, and as-built mapping.

**Kingshire, East Windsor, CT**

Project Manager, Engineer, and Surveyor for the layout and design of a 38-lot (5 Phase) single family residential subdivision. The scope also included soil investigations for sub-surface disposal systems, wetlands & endangered species review, multiple utility agencies approvals, storm water management, 3400 linear feet of road, drainage & utility stakeout, plot plans, construction stakeout, and as-built mapping.

**Tower South Sewer Separation (MDC Project No. 2011-29), Hartford, CT**

Project Engineer providing construction administration for a multi-million dollar MDC storm water & sewer separation project located on Cleveland Avenue. The scope included, but was not limited to, construction estimates, monthly updating CPM schedules, construction inspection, shoring & by-pass pumping design, trench box certifications and as-built documentation.

**Upper Albany Avenue East Side Sewer Separation (MDC Project No. 2011-33), Hartford, CT**

Project Engineer providing construction administration for an MDC storm water & sewer separation project covering a multiple road network. The scope of services also included construction estimates, CPM monthly schedule updates, shoring design, construction inspection, and as-built documentation.

**BRD LLC, East Windsor, CT**

Engineer and Surveyor for the layout and design of a Volume Reduction Facility for processing of wood/brush products. The scope also included municipal and state approvals, storm water management, and traffic analysis. This project was an outcome of a major winter storm event across the northeast that resulted in an official State of Connecticut Emergency (EM-3342).

**Brewer Road Pavement Rehabilitation (CT Project No. 41-116/FAP 1041(106)), East Hampton, CT**

Chief Construction Inspector providing administration and inspection services for a State of Connecticut and Federal funded project. The scope included field monitoring, inspection of the work of others insuring compliance with drawings and specifications, and daily record keeping.

**EDUCATION**

- B.S., Civil Engineering 1995  
University of Rhode Island
- A.S., Civil Engineering Technology 1992  
Hartford State Technical College

**REGISTRATION**

- Licensed Professional Engineer CT
- Licensed Land Surveyor CT
- Amtrak Safety License 2015-2016

**YEARS EXPERIENCE**

- 2 with Anchor
- 30 in Industry

**AFFILIATIONS**

- Chi Epsilon (Civil Engineering Honor Society) URI Chapter Honor Member
- Fraternal Member of Zeta Beta Tau
- Recipient of the Gates-Scarpa Highway Engineering Award 1992
- Associated General Contractors of Connecticut (AGC) Scholarship
- Former Member of the Planning & Zoning Commission, East Windsor
- Active Member of the East Windsor Society for Detecting Thieves and Robbers

**MAREK L. KEMENT, P.E., L.S.**  
ASSOCIATE, PROJECT MANAGER. SENIOR ENGINEER

**Replacement of Tanguay Road Culverts Over West Aspetuck River, Kent, CT**

Construction Inspector providing administration and inspection services for the Town of Kent, CT. The scope included daily record keeping, field monitoring, and inspection of the work of others insuring compliance with drawings and specifications.

**Cannon Property Gravel Pit, Suffield, CT**

Project Manager and Engineer for the permit renewal of an earth excavation operation located in a recreational community adjacent to Congamond Lake. The project also included the re-alignment of a minor road servicing a sensitive communal area; specific attention to groundwater protection, screening, vehicular traffic, and pedestrian safety.

**Jubrey Drive, Windsor, CT**

Engineer and Surveyor (post subdivision approval) for the field layout of the road, drainage system, sewer, water, utility, and individual building lots associated with the approved subdivision. The scope also included municipal approval for an additional building lot, road & utility construction stakeout, plot plans, final road & lot pinning, and as-built mapping.

**Town of Simsbury, CT – Tariffville School**

Surveyor for the property survey associated with the expansion of Tariffville School. The scope also included land records research, A-2 boundary survey, right-of-way & easement determinations, topographic & location surveys with detailed attention to athletic fields and recreation areas, and property monumentation.

**Town of East Windsor, CT – Scantic Road (±86 acres)**

Surveyor for the property survey associated with prospective acquisition of land for the preservation of open space and farmland under the N.J. Green Acres Program, which included land records research, GPS positional location & control, A-2 boundary survey, right-of-way & easement determinations, and property monumentation.

**Rehabilitation of Batchelder Road, Windsor, CT**

Project Manager for the design and administration of a road rehabilitation project for the Town of Windsor. The project included replacement of deteriorated pavement along the road, associated grading/drainage improvements, street lighting upgrade, retaining wall design, and sidewalk construction to improve and facilitate the pedestrian network near the town center and Loomis Chaffee School.

**Bascom Road Rehabilitation, Lebanon, CT**

Project Manager and Engineer for the design and administration of a road rehabilitation project for the Town of Lebanon. The project involved the road reclamation of 5,500 linear feet of deteriorated pavement, sub-surface drainage investigation and evaluation, vertical re-alignment of the road, and associated grading.

**Plainfield Renewable Energy, Plainfield, CT**

Surveying services provided for an ALTA survey of multiple properties located in the northeast section of the state. The scope of work included field surveying, location & measurements in the field, and legal description preparation.

**West Main Street, Town of Cheshire, CT (RFP 1415-16)**

Engineering and Surveying services provided for the design of sidewalks improvements along West Main Street for the Town of Cheshire. The scope included initial conceptual design and interview prior to project award, site investigation and drainage evaluation, review of sidewalk and retaining wall placements, and provide evaluation regarding existing utility alignments.

**Town of East Haddam, CT (Old Middle School Property)**

Engineering and Surveying services provided for the development and design of athletic fields adjacent to the Old Middle School property for the Town of East Haddam. The work included initial conceptual design, wetlands review, site investigation, drainage evaluation, and overall design exploration & review.

**TESTIMONY FOR THE PUBLIC RECORD**

**Jean Bach vs. Louis Bach, ETAL (TTD-CV-08-5003158-S)**

Expert Witness retained for testimony to provide professional opinion concerning the review of the public land records, regulations, maps, and surveys; and provide opinion on how subject property could be used and subdivided in order to give all parties an independent equitable distribution from the entire tract.

**SJK Properties, LLC vs. Town of East Windsor (HHD-CV-15-6057864-S)**

Provided witness testimony regarding the design, layout, and validity of a project in connection with a tax auction case and property tax issues.



**MARK M. ZESSIN, P.E.**  
PRESIDENT, SENIOR ENGINEER

**PROFESSIONAL PROFILE**

Mr. Zessin has been responsible for planning, design and project management on a broad set of publicly and privately developed projects. Mr. Zessin has thirty years of engineering design experience and he is licensed to practice engineering in four states. He has gained considerable insight into the requirements of municipal and state regulatory agencies for environmental and controversial projects.

**WORK EXPERIENCE**

1993 – Present: **Anchor Engineering**, President, Principal Engineer  
1991 – 1993: **Connecticut Resources Recovery Authority (CRRA)**, Senior Environmental Engineer  
1988 – 1991: **Fuss and O’Neill, Inc.**, Project Engineer  
1984 – 1988: **CT Department of Transportation**, Transportation Engineer

**SELECTED PROJECT EXPERIENCE**

**Isabella’s Court, 90+ Units of Residential Development Stafford Springs, CT**  
Principal-In-Charge, Project Manager for the design of 92 units of detached age restricted residential units on an 18 acre steeply wooded hillside. Project included over 3000 feet of sewer, water supply, and storm drains, a water pump station, detention basins, underground utility layout and easement mapping, permitting, construction stake-out and condominium document certifications.

**The Hill’s at Riverview, 169 Units of Residential Development Norwich, CT**  
Principal-In-Charge for the design of 169 units of multifamily residential units on a 44 acre wooded hillside. Project includes 17 residential buildings, a clubhouse, 430+ parking spaces, sewer, water supply, and storm drains, a water pump station, detention basins, underground utility layout and easement mapping, permitting, construction stake-out, and subcontracted architectural and traffic consultants.

**Integrated Waste Resources, 20,000 sq. ft. Industrial Building, Deep River, CT**  
Principal-In-Charge, Project Manager and Designer for the design, permitting, construction oversight, special inspection, and operations monitoring for a recycling and construction and demolition debris volume reduction facility.

**Private Waste Complex, Eastern Connecticut**

Principal-In-Charge, Project Manager and Designer over a 22 year period for the design, permitting, construction oversight, special inspection, operations monitoring, water discharge monitoring, and air monitoring for a recycling operations, construction and demolition debris volume reduction operations, and municipal solid waste transfer station operations, Services have included consultation with the owners, permit related services that have included several of each of the following regulatory approvals inland wetlands, flood management, Solid Waste Permits, & Stormwater Discharges.

**Route 17 over Long Hill Brook, Middletown, CT**

Principal-In-Charge for the replacement of 14 ft. span cast-in-place concrete slab bridge using Accelerated Bridge Construction (ABC) methods.

**TESTIMONY FOR THE PUBLIC RECORD**

Mr. Zessin has provided testimony for the public record before many agencies including the following: The CTDEEP for several applications and over fifty other local boards and commissions. These boards and commissions include: Board of Selectman, Board of Finance, Zoning Board of Appeals, Inland Wetlands Agencies, Conservation Commissions, Water Pollution Control Authorities, Municipal Planning Commissions, Zoning Commissions, the Greater Hartford Flood Commission and combined commissions

**EDUCATION**

M.A., Public Policy Studies  
Trinity College

B.S., Civil Engineering  
University of Connecticut – Storrs

**REGISTRATION**

Licensed Professional Engineer CT,  
MA, NY, OH

Commissioner, New England Interstate  
Water Pollution Control Commission

Former Commission Member of  
WPCA – Town of Glastonbury

**YEARS EXPERIENCE**

22 with Anchor  
31 in Industry



**KEVIN R. GRINDLE, ASLA**  
ASSOCIATE, PROJECT MANAGER, SR. LANDSCAPE ARCHITECT

**PROFESSIONAL PROFILE**

Mr. Grindle is a Senior Landscape Architect with over 14 years of experience involved in and responsible for privately and publicly funded projects throughout the State of Connecticut. These projects include numerous landscape architecture, feasibility/planning, site development, building rehabilitation and construction projects. His responsibilities have included preliminary site investigations, preparation of design plans, cost estimates, regulatory permit applications and contract documents, construction administration and the coordination with clients, engineers, contractors and sub-consultants. Mr. Grindle has represented clients before numerous regulatory boards, commissions, town meetings and public outreach sessions.

**WORK EXPERIENCE**

2011 – Present: **Anchor Engineering**, Associate, Project Manager, Sr. Landscape Architect  
2002 – 2011: **Anchor Engineering**, Staff Landscape Architect  
2001 – 2002: **Anchor Engineering**, Entry Level Landscape Architect

**SELECTED PROJECT EXPERIENCE**

**Haddam Transfer Station, Haddam, CT**

Siting study, site design, permitting, inspection & construction administration for municipal landfill closure and residential transfer station.

**Springhill Suites, Southington, CT**

Site layout, landscape design, permitting and construction administration for 119-room hotel.

**Homewood Suites, Southington, CT**

Site layout, landscape & wetland planting design and permitting for 110-room hotel

**Tyler Field Athletic Complex, Lebanon, CT**

Site feasibility analysis, regulation Little League field layout and design, permitting

**Vintage at the Grove, Manchester, CT**

Site layout, landscape, roadway & utility design, permitting, construction administration & stormwater compliance inspection for 322-unit luxury apartments

**Hop River Trail Estates, Babcock Hill Road, Coventry, CT**

Site layout, design & permitting for 8-lot conservation subdivision

**BJ's Plaza, Manchester, CT**

Site layout, landscape design and permitting for commercial/retail site

**Heron Pond, Truebe Road, Essex, CT**

Site layout, design, streetscape planting and permitting for 14-lot open space conservation subdivision

**Isabella's Court, Stafford, CT**

Active Adult Community; Site Layout including roadway design, stormwater management, landscape and erosion control plans. Construction inspection and stormwater inspections performed

**The Hills at River View, Norwich, CT**

Site layout, landscape & utility design, permitting and construction administration for multi-family townhouse community

**EDUCATION**

B.S., Landscape Architecture  
University of Connecticut - Storrs

**REGISTRATION**

Professional Landscape Architect CT

American Society of Landscape  
Architects

**YEARS EXPERIENCE**

14 with Anchor  
14 in Industry

**AFFILIATIONS**

Member of the American Society of  
Landscape Architects



**DENISE P. LORD, P.E.**  
SENIOR CIVIL ENGINEER

**PROFESSIONAL PROFILE**

Ms. Lord is a Senior Civil Engineer with over 28 years of engineering experience spanning numerous State and local infrastructure projects as well as private residential, commercial and industrial site development projects. Her experience on these projects includes roadway design, traffic control plans, comprehensive storm drainage design and studies, subdivision and site development layout and grading, utility layout, regulatory agency permitting, project cost estimating, development of construction specifications and contract documents, and construction inspection. She has significant experience in roadway design, trail design, hydraulic analysis, site layout design and permitting, sanitary sewer and water main design, storm drainage and detention basin design and analysis. Her public and private sector project experience provides insight into the needs of the client.

**WORK EXPERIENCE**

1997 – Present: **Anchor Engineering**, Senior Civil Engineer  
1991 – 1997: **Town of Windsor**, Project Engineer  
1986 – 1990: **Alford Associates, Inc.**, Design Engineer

**SELECTED PROJECT EXPERIENCE**

**Four Municipal Bridges, Lebanon, CT**

Hydrologic & Hydraulic analysis, design and Roadway design

**Brookside Avenue Bridge over Wintergreen Brook, New Haven, CT**

Roadway and Storm Drainage design, ACOE Permit Determination, DOT Flood Management Certification application and Construction Contract Documents

**Boston Neck Road Bridge over Stony Brook, Suffield, CT Route 302 over Unnamed Brook, Newtown, CT**

Roadway and Storm Drainage design, ACOE Permit Determination, Construction Contract Documents and Chief Construction Inspector

**U.S. Route 202 Bridge Nos. 06656 and 06657 over Unnamed Brook, Litchfield, CT**

Roadway, Stage Construction and Storm Drainage analysis and design

**CT Route 302 Bridge No. 03271 over Unnamed Brook, Newtown, CT**

Roadway, Stage Construction and Storm Drainage analysis and design

**U.S. Route 1 Bridge No. 00315 over Noroton River, Stamford, CT**

Roadway, Temporary Road, Stage Construction and Storm Drainage analysis and design

**Addison Road Bridge No. 04121 over Salmon Brook, Glastonbury, CT**

Roadway and Storm Drainage design, DOT Flood Management Certification application, Local IWWC permit and Construction Contract Documents

**Hillhouse Avenue Bridge, New Haven, CT**

Roadway design, Contract Documents & Construction Administration

**Reconstruction of Elm Street, Windsor, CT**

Roadway and Storm Drainage design & contract documents

**The Hills at River View, Norwich, CT**

Site layout, grading and utility design, Storm Drainage analysis, report and design, DOT State Traffic Commission Permitting

**Reservoir Road Drainage Study, Newington, CT**

Hydraulic analysis study and Storm Drainage design

**EDUCATION**

B.S., Civil Engineering  
University of Maine, Orono

**REGISTRATION**

Licensed Professional Engineer, CT

**YEARS EXPERIENCE**

18 with Anchor  
29 in Industry

# James S. Sipperly

Soil Scientist & Municipal Employee  
21 Case Street, Norwich, CT 06360 | p. 860.334.7073

## Education

**B.S. Geology, Eastern Connecticut University**  
**M.P.A., University of Hartford**  
**Soils Science Classes, University of Connecticut**

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## Experience

**Planning/Environmental Resource Specialist**  
**Deputy Director of Planning Conservation & Development Department**  
**City of Middletown, CT**  
**(1997 - Present)**

**Environmental Resource Specialist**  
**City of Middletown, CT**  
**(Current)**

**Wetland Agent**  
**Town of Portland, CT**  
**(Current)**

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## Additional Experience

**Geologist, Soil Scientist, Land Surveyor with a Private Engineering Firm**  
**(4 Years)**  
**Environmental Planner, Town of Cheshire, CT**  
**(6 Years)**



# ANCHOR

ENGINEERING SERVICES, INC.



## ON-CALL CONSULTANT SERVICES

- Construction Administration
- Construction Inspection
- Environmental Monitoring
- Environmental Site Assessments
- Federal, State, & Local Permitting
- Inland Wetland & Watercourse Commission Reviews
- Master Planning
- Planning & Zoning Commission Reviews
- Property & R.O.W. Surveys
- Stormwater Management Improvements



*Anchor provides municipal clients with a wide range of consultant services to assist their on-going development, improvement & maintenance projects. Our team of professionals is capable of providing services for projects of any scope and size, from plan reviews for regulatory commissions & minor drainage improvements to full-scale emergency bridge replacements. We respond to elected officials, staff & commission needs quickly with solutions that meet their limited budgets & schedules.*



# ON-CALL CONSULTANT SERVICES



Our firm provides on-call engineering, land surveying, environmental & construction services to various Connecticut municipalities. Our municipal projects include roadway & bridge reconstruction, drainage & culvert improvements, review & support services for regulatory commissions, solid waste management, monitoring, utility extensions, public facility improvements & easements.

## Representative Projects



### **On-Call Consultant, Lebanon**

Serving Board of Selectman & Public Works Department since 2007  
Surveying, civil & environmental engineering, construction admin, inspection

Serving Planning & Zoning and Inland Wetlands Commissions since 2007  
Plan & application review, site investigations, regulation assistance

### **On-Call Town Engineer, East Hampton**

Serving Planning & Zoning and Inland Wetlands Commissions since 2012  
Plan & application review, site investigations, regulation assistance, surveying, civil & environmental engineering, construction admin, inspection



### **Engineering Department Assistance/Plan Review, Windsor**

Consultant civil and environmental services for Town Engineering Dept.  
Stormwater management design, culvert design, plan reviews, inspections

### **On-Call Consultant, Kent**

Serving Board of Selectman, DPW & Regulatory Commissions since 2007  
Road & drainage improvements, plan reviews, inspections

### **On-Call Consultant, New Britain**

Serving Town Engineering Department since 2009  
Structural analysis and design, bid assistance, inspections

### **On-Call Consultant, Waterford**

Environmental consultant for Town and/or Town-regulated projects  
Assessment & monitoring for DPW, Planning/Zoning & Board of Education

### **On-Call Consultant, Bozrah**

Serving Board of Selectman since 2001  
Surveying, bridge & culvert design, structural analysis, septic analysis & design

### **On-Call Consultant, Waterbury**

Serving City Engineer since 2011  
Monitoring, assessments, remediation, UST removal, permitting



## ON-CALL CONSULTANT SERVICES





# SANITARY SEWER SYSTEMS



Our firm has years of experience assisting clients with planning, design & construction of various sanitary sewers systems. These projects include feasibility studies for large scale industrial developments, pump station & force main design, sewer main extension and combined sewer overflow separation. Our familiarity with CTDEP and CTDPH regulations & design standards allows us to provide innovative and cost effective designs.

## Representative Projects



### **Sewer & Water Main Extension Feasibility Study, Suffield**

*Potential extension of sewer and water mains for service along CT Route 75  
Data compilation, sewer/water flow projections, layout, cost estimation*

### **Vintage at the Grove, Manchester**

*Design and construction of 322-unit luxury apartment development  
Gravity sewer, pump station & force main design, construction administration*

### **Plainfield Renewable Energy, Plainfield**

*13,000' Force main for cooling water supply discharge & sanitary pump station  
Route determination, main layout & design, pump station design, permitting*

### **Isabella's Court, Stafford**

*3000'± Utility layout for 92-unit active adult community  
Gravity sewer main layout & design, construction administration & inspection*



### **Pamela Way, Waterford**

*1000' Gravity sewer for the Waterford Water Pollution Control Authority  
Sewer layout & design, shop drawing review, construction administration*



## Design Services:

- Master Planning & Feasibility Studies
- Gravity Sewer Design
- Low-Pressure Sewer Design
- Pump Station & Force Main Design
- Combined Sewer Overflow Separation
- Subsurface Wastewater Absorption Systems
- Cost-Benefit Analysis
- Construction Administration & Inspection

## UTILITY IMPROVEMENTS





# STORMWATER MANAGEMENT

LOT 4



*Anchor provides innovative stormwater management systems to meet our client's budget while complying with an increasingly strict regulatory environment. Our staff has a comprehensive knowledge of current standards, such as the CTDEP Water Quality Manual and Guidelines for Soil Erosion and Sedimentation Control as well as State & local permitting requirements. We also have a good working relationship with DEP & local regulatory staff.*

## Representative Projects



### **100 Washington Street Parking Lot Reconstruction, Hartford**

*Parking lot reconstruction & drainage improvement project  
Combined sewer overflow separation, storm drainage system design*

### **Elm Street, Windsor**

*Reconstruction of 1200' of local urban roadway  
Storm drainage system analysis and design*

### **Plainfield Renewable Energy, Plainfield**

*Construction of 37.5MW Biomass Power  
13-acre stormwater recharge and infiltration, 5000GPM stormwater pump station*



### **Automated Waste Disposal, Danbury**

*Drainage reconstruction on 7-acre industrial site  
Collection system & culvert design, Vortechs Model 11000 treatment system*

### **BJ's Plaza, Manchester**

*Commercial and retail site rehabilitation project  
Domestic & fire water service design, public sewer relocation, stormwater*

## Design Services:

- Drainage Analysis & Design
- Detention/Retention and Infiltration Analysis & Design
- Stormwater Treatment Systems Design
- Erosion & Sedimentation Control Plans & Reports
- Stormwater Operations & Management Plans
- Stormwater Pollution Control Plans & Prevention Plans
- Monitoring Programs & Training Assistance
- Comprehensive Site Compliance Evaluations



## UTILITY IMPROVEMENTS





# STORMWATER MANAGEMENT

*Anchor Engineering provides innovative stormwater management systems that meet our client's budget while complying with an increasingly strict regulatory environment. Our staff has a comprehensive knowledge of current standards, such as the Connecticut DEEP Water Quality Manual and Guidelines for Soil Erosion and Sedimentation Control as well as State and local permitting requirements. We also have a good working relationship with DEEP and local regulatory staff.*

## Supporting Services

- Drainage Analysis & Design
- Detention/Retention and Infiltration Analysis & Design
- Stormwater Treatment Systems Design
- Erosion & Sedimentation Control Plans & Reports
- Stormwater Operations & Management Plans
- Local, State and Federal Permitting Assistance
- Stormwater Pollution Control Plans (SPCP)
- Stormwater Pollution Prevention Plans (SWPP)
- Monitoring Programs & Training Assistance
- Comprehensive Site Compliance Evaluations



## ENVIRONMENTAL SERVICES





# TRANSPORTATION SAFETY

*Anchor Engineering is experienced with the development and integration of transportation safety enhancements into a variety of roadway projects ranging from private development to rural local roads and major arterial roadways. Our team of designers is knowledgeable with current State and Local regulatory standards and ADA Standards for Accessible Design.*

## Supporting Services

- Traffic Impact Analysis
- Accident Report Evaluation
- Sidewalk Replacement
- Crosswalk Design & Installation
- Traffic Calming Devices
- Handicap Accessibility Improvements
- Pedestrian Bridge Design
- Retaining Wall Design
- Guiderail Improvements
- Pedestrian Protection Enhancement
- Traffic Signal Plans



## ROADWAY DESIGN





# MUNICIPAL REFERENCES

## Town of Lebanon

**Brandon J. Handfield, *Acting Town Engineer/Former DPW***

- Replacement of Tobacco Street Bridge (860) 367-7264
- Replacement of Waterman Road Bridge
- Rehabilitation of the Hoxie Road Bridge
- Tyler Field Athletic Complex
- Design of Alden Tavern/Historic Lebanon Green Parking
- On-Call Engineering Services

## Town of East Hampton

**Michael Maniscalco, *Town Manager***

- Airline State Park Trail Extension (860) 267-4468
- Sears Park Improvements
- North Main Street Culvert Replacement
- On-Call Engineering Services

## City of New Haven

**Larry Smith, P.E., *Assistant City Engineer***

- Hillhouse Avenue Bridge Rehabilitation (203) 946-8099
- Prospect Street Bridge Rehabilitation
- Transfer Station Design

## Town of Windsor

**Victoria Houle, P.E., *Project Engineer***

- Reconstruction of River Street (860) 285-1804
- STP-Urban Grant Applications
- Groundwater Reclassification through CTDEP
- Reconstruction of Elm Street
- On-call Site Plan Reviews
- Highway Garage, Parks , & Recreation Audits, Stormwater Pollution Prevention Plan

## Town of Waterford

**Kristin Zawacki, *Director of Public Works***

- Bulky Waste Transfer Station Site Study & Design (860) 444-5864
- Landfill Closure Plan
- Pamela Way Sanitary Sewer Design

**J. Rick Osborne III, *Highway Foreman***

## Town of Kent

**Bruce K. Adams, *First Selectman***

- Final Design of Macedonia Road Bridge Rehabilitation (860) 927-4627
- Preliminary Design of Replacement of Two Bridges in Macedonia Brook State Park
- Evaluation of Bridges and Culverts
- Prepare Draft Revision to Zoning Regulations





# MUNICIPAL REFERENCES

## Town of Old Lyme

**Bonnie Reemsnyder, *First Selectwoman***

- Transfer Station Permit Application (860) 434-1605
- Landfill Closure Plan
- Consent Order Assistance

## Town of Manchester

**Mark Carlino, *Director of Public Works***

- Manchester Landfill Permitting and Monitoring Service (860) 930-3963
- CREOC Household Hazardous Waste Collection Facility
- Transfer Station Permit Application Assistance

## Town of Windham

**Joseph Gardner, P.E., *Town Engineer***

- Design & Inspection of Landfill Closure (860) 456-3043
- Willimantic Reservoir Bathymetric Survey
- Design of Bikeway Bridge Rehabilitation over the Nauchaug River

## Town of Hampton

**Alan Cahill, *First Selectman***

- Sand Hill Road Bridge Replacement (860) 455-9132
- Windham Road Bridge Replacement
- Old King's Highway Bridge Replacement





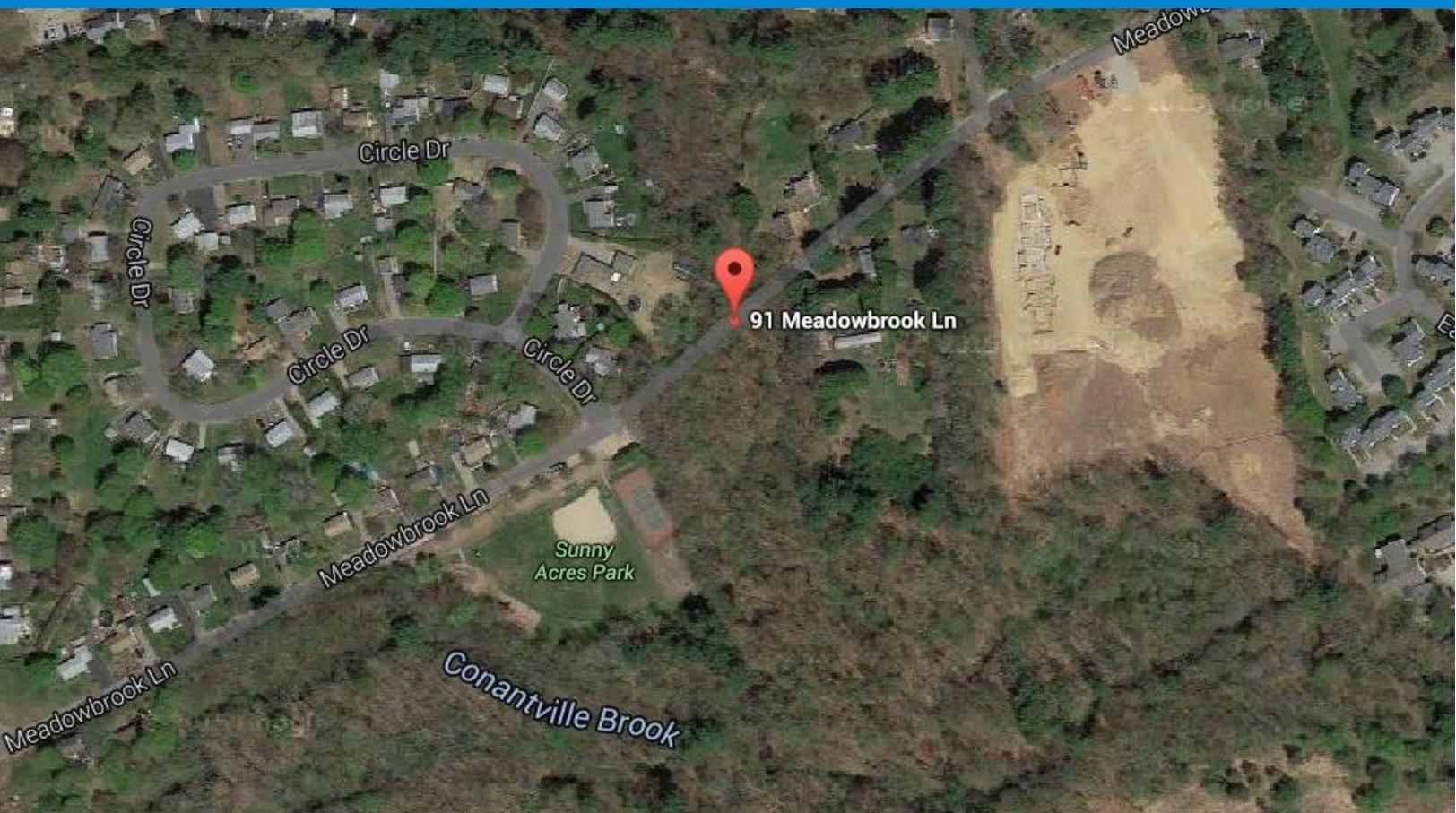
Prepared for:  
TOWN OF MANSFIELD

Response to

# Request for Proposal

Engineering Services: Expert Review of Special Permit Application and Wetlands license for proposed 36-unit multifamily complex Meadowbrook Gardens

Submission Deadline: Monday, February 29, 2016 -- 4:30 p.m.



860 928 7848



860 928 7846



info@cmeengineering.com



**CME ASSOCIATES, INC.**  
32 Crabtree Lane | P. O. Box 849  
Woodstock, Connecticut 06281

[www.cmeengineering.com](http://www.cmeengineering.com)



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## Letter of Interest



Architecture  
Engineering  
Planning  
Land Surveying  
Environmental  
Services

February 29, 2016

Linda Painter, AICP, Director of Planning & Development  
Town of Mansfield  
Audrey P. Beck Municipal Building  
Four South Eagleville Road  
Mansfield, Connecticut 06268

RE: **Engineering Services: Special Permit and Wetlands license application review  
91-93 Meadowbrook Lane (Meadowbrook Gardens)**

To Ms. Painter and the Selection Committee,

CME Associates, Inc. is pleased to submit this response to your Request for Proposals for the comprehensive review of permit application materials for the construction of a new 36-unit apartment complex at 91-93 Meadowbrook Lane. We have recently worked with the Town to provide a review of an Inland Wetlands application at 101 East Road and successfully worked with Town staff for the review of a contentious project.

CME's experienced staff will provide a valuable and insightful review of this project. Our staff works together every day on complex projects which require knowledge of local land use regulation, civil engineering, traffic, water resources and environmental science.

If you should have questions or require further explanation, please contact us. Our team looks forward to the opportunity to discuss our expertise and approach with you and the Selection Committee.

Thank you for your consideration.

Sincerely,

Chuck Eaton, P.E., LEED-AP  
Director of Municipal Services

CONTACT INFORMATION:

Chuck Eaton, P.E., LEED-AP  
Director of Municipal Services

Or

Richard Canavan, Ph.D.  
Senior Environmental Scientist

333 East River Drive, Suite 400, East Hartford, CT 06108  
P: 860-290-4100

## Cost Proposal

Below is a breakdown of project tasks and associated costs

Application Materials Review .....	\$ 19,682.00
**May 2 Public Hearing Meeting Attendance (est.).....	\$ 1,400.00

### SCOPE

The project costs are based on the scope of services outlined in the RFP. This includes:

- expert review of application materials submitted to the Agency/Commission as of February 29<sup>th</sup> for project
- one engineering and wetlands site walk
- one written review report of the application materials
- review of revised application material and applicant comment response
- second written review report of response materials
- meeting attendance on May 2, 2016

This fee does not include review of additional submissions beyond the two defined in the RFP scope, additional meetings with the developer and town staff, review of any third party or intervener reports or the attendance of additional meetings beyond those included in the scope. If work beyond the proposed scope will be required CME will notify the Town of Mansfield and provide an additional cost estimates for hourly work. CME understands that the applicant will be responsible for the review fee and will work with Town Staff to ensure that fee payment to the Town occurs before review work is conducted.

*\*\* Estimated hourly cost. CME will work with town staff to determine which CME staff is needed for Agency/Commission meetings.*

*Additional meetings will be billed at our standard hourly rates.*



## Standard Hourly Rates

### Architecture

Director	\$155
Architect	\$130
Senior Designer/Drafter	\$85
Designer/Drafter	\$70

### Engineering

Specialty/Expert Engineering	\$225
Principal Engineer	\$175
Director	\$155
Senior Professional Engineer	\$140
Professional Engineer 2	\$125
Professional Engineer 1	\$115
Engineer 2	\$100
Engineer 1	\$90
Senior Designer/Drafter	\$85
Designer/Drafter	\$70

### Environmental Science/Planning

Licensed Environmental Professional	\$130
Senior Compliance Specialist	\$120
Senior Environmental Scientist	\$150
Environmental Scientist II	\$100
Environmental Scientist I	\$85
Senior Planner	\$125
Permitting Specialist	\$90

### Land Surveying

Professional Land Surveyor	\$120
Field Crew (2-man, no L.S.)	\$135
Party Chief	\$85
Instrument Person	\$50
Robotic Total Station w. Operator	\$115

### Project/Program/Construction Management

Senior Project Manager	\$130
Project Manager	\$115
Project Administrator	\$90
Senior Construction Inspector (PE, NICET IV)	\$140
Construction Inspector 2	\$120
Construction Inspector 1	\$100

### Administrative

IT Specialist	\$95
Graphic Artist	\$85
Clerical	\$70

### Ancillary Service Rates:

#### Document Printing:

Black & White, Letter  
(8.5" x 11") \$ 0.09 / pg.

Color, Letter  
(8.5" x 11") \$ 0.24/ pg.

Black & White,  
Large Format \$ 0.50/ l. f.

Specialty Printing cost

Delivery / Courier cost

Mileage \$ 0.56/ mi.

## Staff Qualifications

All communication between the Town and CME's supporting team will be channeled through Charles Eaton, Project Director. He will be responsible for coordinating and assigning tasks, providing status updates, compiling comments and preparing the final report.

### Roles & Experience

CME proposes the following individuals to serve as key contributors on this contract. A brief career synopsis has been included to describe each individual's ability to perform tasks related to this project.

#### **Charles Eaton, PE, LEED-AP, NICET**

Role: Project Director / *Civil Engineer, Water Quality/Stormwater Management/Sanitary Sewer/Erosion & Sedimentation Controls*

Mr. Eaton is an environmental and civil engineer who leads CME's Municipal Services Group. He served as a committee member to revise and update the State of Rhode Island Sedimentation and Erosion Control Handbook and specializes in storm water management and erosion and sediment control. Mr. Eaton recently served as Interim Town Engineer for Tolland, Connecticut. Under that contract, he reviewed and testified on numerous residential and commercial land use applications dealing with the design and construction of roadways, sanitary sewers, water mains, stormwater quality and drainage, wetland impacts, and utility services. Mr. Eaton worked directly with the Town WPCA, Planning and Wetlands Commissions as Interim Town Engineer. Mr. Eaton provides similar town engineering services for the Town of Webster, Massachusetts.

A copy of Mr. Eaton's résumé can be found on page 11.

#### **Richard W. Canavan, PhD**

Role: *Environmental Scientist, Wetland Permitting*

Dr. Canavan is CME's Senior Environmental Scientist. He is an expert in wetland resources and Registered Soil Scientist. He routinely provides review to municipalities for wetland permit applications. He uses his knowledge of wetland science, water chemistry, and wetland regulations to permit a variety of development and transportation projects.

A copy of Dr. Canavan's résumé can be found on page 13.

#### **J. A. Koolis, Jr.**

Role: *Traffic Engineer*

Mr. J. A. Koolis, Jr is Traffic Engineering Manager at CME. He is a traffic engineer with specialization in traffic impact analysis and mitigation and has been responsible for the preparation of studies, construction plans, and contract documents for a wide range of traffic and transportation engineering projects.



Project of Note: Mr. Koolis provided Peer Review & Testimony on behalf of the Town of Longmeadow as part of the MGM Casino project in Springfield, MA. MGM Casinos is proposing to construct a 500,000 square foot \$850 million resort casino in downtown Springfield, MA. Under a condition of the Massachusetts Gaming Commission application, MGM was required to identify the impacts that the proposed casino would have on adjacent towns. MGM had concluded that the impacts on nearby Longmeadow, MA would be minimal and thus require no immediate improvements to roads in the town. Longmeadow contested this finding and engaged a consultant to perform a traffic impact peer review of the MGM application and provide expert testimony before an arbitration commission. Mr. Koolis lead this effort and provided expert testimony before the commission which resulted in Longmeadow being awarded a lump sum payment of \$850,000 for roadway improvements, reimbursement of legal and consultant fees, minimum annual payments of \$275,000 and a total of \$687,500 toward future studies of the impacts of the proposed casino.

A copy of Mr. Koolis' résumé can be found on page 17.

**Peter M. Parent, PE, NICET, CESSWI**

Role: *Civil Engineer*

Mr. Parent has a Bachelor's degree in Architectural Building Technology and has over 10 years of experience in the field of Civil Engineering. He has a Professional Engineer license issued by the State of Connecticut and has achieved certification in the following specialties: NICET level II (Highway Construction, Water & Sewer Underground Utilities), NETTCP (Soils & Aggregate, Hot Mix Asphalt, Concrete), ACI Level I Field Technician, Certified Erosion, Sediment & Stormwater Inspector, and he is a Certified Professional in Storm Water Quality. Mr. Parent has performed peer review services for many land use commissions.

A copy of Mr. Parent's résumé can be found on page 19.

## Registration

Licensed Professional Engineer  
CT, MA, NH, NY & RI

LEED-Accredited Professional  
United States Green Building Council

Competent Person  
Trenching and Excavation Operations

NICET Level II Inspector

NETTCP Certified Inspector  
Hot Mix Paving - Concrete - Soils &  
Aggregate

ACI Concrete Field Testing Technician

Technical Service Provider,  
U.S.D.A. / N.R.C.S.

## Education

B.S., Civil and Environmental  
Engineering, 1996  
University of Connecticut

B.S., Natural Resources  
Management and Engineering, 1996  
University of Connecticut

## Professional Affiliations

Soil and Water Conservation Society  
Association of State Dam Safety Officials

Hebron Inland Wetlands  
and Conservation Commission,  
Board Member  
1995-1996, 2001-2006

## Past Experience

Engineer  
Weston & Sampson Engineers, Inc.  
Glastonbury, CT

Project Manager  
Redniss & Mead, Inc.  
Stamford, CT

Hydrologic Technician  
Department of the Interior  
United States Geological Survey



## Charles E. Eaton, PE, LEED-AP, NICET II

Director of Municipal Services

### General Qualifications

Mr. Eaton is a Professional Engineer with nearly 20 years of experience in civil engineering. He is an expert in municipal engineering, including site, roadway, storm water, ADA access, building maintenance and construction. Project experience includes the design and construction of roadways, sidewalks, storm water management and treatment systems, water and sewer mains, pump stations, town engineer services, horizontal and vertical construction administration, construction inspection and grant administration.

As the leader of the Municipal Services Group, he is experienced in providing a full array of support to towns, cities and municipal organizations. He once served as the Town Engineer for Killingly and Tolland, Connecticut and currently serves as the Town Engineer for the Towns of Webster and Sturbridge, Massachusetts and Griswold, Connecticut and Consulting Engineer for the Town of Hebron and City of New London, Connecticut. Tasks undertaken as Town Engineer include: review of plans and applications submitted to town boards and commissions, providing expert testimony at public hearings and board and commission meetings, preparation of plans, specifications and bidding documents for municipal building and infrastructure projects, providing public bidding, administration and inspection, contractor pay request review and approval, grant administration,.

### Services

#### Municipal

- Plan and project review and administration (peer review)
- Building roof and infrastructure maintenance, repair and replacement; municipal buildings, DPW facilities, schools, sewer and water treatment
- Municipal building programming; fire stations & DPW facilities
- Grant administration (USDA, DECD, STEAP, CDBG, ARRA)
- Peer review of applications & plans to boards and commissions
- ADA accessibility evaluation & review
- Town Engineer/On-Call consulting services
- Sanitary sewer studies and evaluations
- Board and commission agent and representative

#### Environmental

- State and local permitting for storm water, treated waste water, public wells/water systems
- Non-illicit discharge certification
- Sanitary sewer system review and design
- Storm Water Pollution Prevention Plans (SWPPP)
- Sediment and erosion control plans
- UST removal and replacement

#### Storm Water

- Drainage system analysis and design
- Expert witness and legal representative for storm water reviews and litigation
- LID analysis, design, plan review and construction inspection
- Storm water management and treatment system design and review
- Analysis of public works storm water management and preparation of storm water ordinances
- Speaker, storm water management and treatment & public works maintenance of storm water systems

## Services, cont.

### Grant &

#### Construction Administration

- Horizontal and vertical construction administration & inspection
  - Grant Preparation, Administration & Coordination (USDA, DECD, STEAP, CDBG, ARRA)
  - Public Hearings & Public Information Meetings
- Public procurement & bidding of municipal projects
- Coordination of construction reporting via daily reporting, email & web updates
  - Review & approval of contractor submittals, certified wages, & pay requests

## Special Experience

Presenter,

Storm Water Management & Maintenance  
International Erosion Control Association  
2014 Conference

Presenter,

Municipal Storm Water: Regulation  
Compliance  
& Effective Maintenance  
Connecticut Conference of Municipalities  
Workshop, 2014

Presenter,

Storm Water Management & Maintenance  
NEIWPPC 2014 Non-Point Source  
Pollution Conference

Co-writer,

Rhode Island Erosion & Sediment Control  
Handbook 2013

## Charles E. Eaton, PE, LEED-AP, NICET II

### Horizontal Construction

#### *Roadway & Streetscape:*

- Numerous Roads & Intersections, Webster, MA (CDBG funded)
- Numerous Roads, Groton Long Point, CT
- Sidewalk replacements, Franklin Co., MA (CDBG funded)
- Providence Road Streetscape - Constr. Admin, Putnam, CT (CDBG funded)
- Mountain Brook Road reconstruction, Sturbridge, MA
- Canterbury Turnpike reconstruction, Norwich, CT (CT DOT funded)
- Witches Woods Tax District gravel road improvements, Woodstock, CT
- Birch Island culvert replacement, Webster, MA (MassDOT funded)

#### *Water Main:*

- Southbury Training School, Southbury, CT
- Route 66, Hebron, CT

#### *Public Sewer & Septic:*

- Route 171 to Woodstock Academy, Woodstock, CT (USDA funded)
- Matulaitis Nursing Home, Putnam, CT (USDA funded)
- Inn at Woodstock, Woodstock, CT

#### *Drainage & Storm Water Management:*

- Webster Lake - study and design, Webster, MA (MassDEP funded)
- Harkness Greenhouse and Potting Shed drainage, Waterford, CT
- Palmer Memorial Hall drainage and parking, Woodstock, CT

#### *Site Improvements:*

- Shetucket Village Senior Housing improvements, Sprague, CT
- Simonzi Park - streambank stabilization / improvements, Putnam, CT
- FedEx Distribution Center - roadway access / parking, Willington, CT
- JFK Middle School - slope stabilization / improvements, Enfield, CT

#### *Athletic & Recreational:*

- Bentley Athletic Fields, Woodstock Academy, Woodstock, CT (USDA funded)
- Webster Memorial Field, Webster, MA

#### *Environmental:*

- Sayles Elementary School - UST replacement, Sprague, CT
- Willimantic White Water - UST removal, Willimantic, CT (DECD funded)
- J B Hunt - Storm Water Pollution Prevention Plan (SWPPP), Putnam, CT
- Brothers Quality, LLC - Non-Illlicit Discharge Permit & SWPPP, Stafford Springs, CT
- Crabtree & Evelyn / Windham Manufacturing - SWPPP, Woodstock, CT

### Vertical Construction

- Resident Engineer, UST Replacement ConnDOT Maintenance Garage Facilities. Wallingford & Stratford, CT
- Quinebaug Fire Station new building construction inspection, Thompson, CT
- Sterling Memorial School roof replacement and handicap accessible bathroom remodel, Sterling, CT
- Crabtree & Evelyn, 94,000 s.f. warehouse roof replacement Woodstock, CT
- Webster Town Hall slate and shingle roof replacement, Webster, MA
- Filmer School roof replacement and UST removal, Webster, MA
- Bartlett High School flooring replacement, Webster, MA
- Chester C. Corbin Public Library slate roof, skylight replacement and UST removal, Webster, MA
- Webster Senior Center EDPM roof replacement, masonry repointing and life safety systems upgrades, Webster, MA
- Thompson Road Fire Station EDPM roof replacement, Webster, MA
- Woodstock Department of Public Works facility, new construction, Woodstock, CT, (DECD funded)
- Riverview Marketplace, Farmers Market pavilion, Putnam, CT (USDA funded)
- Hebron Department of Public Works facility programming, Hebron, CT
- Tolland Emergency Operations Center and Fire Department programming, Tolland, CT

## Registration

Professional Wetlands Scientist  
PWS # 2147  
SWS

Registered Professional Soil Scientist  
SSSSNE

Technical Service Provider –Wetlands  
TSP-10-6618  
USDA / NRCS

40 hr. HAZWOPER

Municipal Inland Wetland Agency Training  
Connecticut Department of  
Energy and Environmental Protection

## Education

Ph.D., Biogeochemistry, 2006  
Utrecht University, Netherlands

M.S., Soil Science, 1997  
Cornell University

B.A., Botany, 1993  
Connecticut College

## Professional Affiliations

Connecticut Federation of Lakes  
Vice President, Board of Directors

Connecticut Association of  
Wetlands Scientists

Association of Massachusetts  
Wetlands Scientists

## Richard W. Canavan, PHD

Senior Environmental Scientist

### General Qualifications

As a Senior Environmental Scientist at CME, Dr. Canavan directs environmental permitting for transportation and development projects. He is a professional wetland scientist and registered soil scientist who delineates wetlands in accordance with federal and state regulations and has successfully designed and implemented wetland restorations. He provides expert review and guidance for projects in the areas of water quality and natural resources.

Dr. Canavan's previous experience includes research projects in a variety of settings, he has studied lake water quality in Connecticut; nutrient cycling in waste compost additions to agricultural soils in New York State; industrial stormwater compliance in the San Francisco Bay area; and freshwater sediment biogeochemical responses to salinization in the Netherlands. He also has experience as an educator and as an environmental consultant working on transportation corridor study Environmental Impact Statements.

### Relevant Experience

#### Natural Resource Management

Rare species mitigation, Enfield CT

Obtained an Incidental Take approval under the CT ESA. Prepared and directed a mitigation plan which included the transplantation of two state listed plants and habitat enhancement efforts for state-listed invertebrate host plants.

Surface water diversion, Putnam WPCA, Putnam, CT

Developed surface water diversion management based on the results of an Instream Flow Study of fisheries habitat. Prepared mitigation plans for filter backwash water reuse and bypass flow at a water plant.

Expert Review, Water Chemistry, Various locations CT

Provided review and testimony for projects under review for local approval or in litigation. Described/quantified nutrient fluxes associated with development in: the coastal zone, freshwater lake shores and public drinking water supply watersheds.

Ecological Study, US Army Corps of Engineers, CT & MA

Managed ecological study of five flood control facilities including vernal pool mapping, documenting state listed species and natural community areas, and invasive plant species mapping. Final report included GIS mapping and management recommendations.

### Expertise

- Soil and Water Quality Assessment
- Wetland delineation
- Wetland restoration and mitigation
- Wetland Functional Assessment
- Lake & Watershed Management
- Vegetation Mapping
- Stormwater Management
- Expert Witness
- Wetlands & Stormwater Permitting
- Environmental Impact Statements



## Selected Publications & Presentations

### Ecological Design Case Studies

Guest Lecturer  
at RISD Landscape Architecture  
May 2013

### Biogeochemical Modeling of Sediment Phosphorus Release in Response to Salinization

Presented at the 2009 North American  
Lakes Management Society meetings,  
Hartford CT

### Trace Metal Geochemistry in a Fresh Water Lake Sediment

presented at the 2006 European  
Geoscience Union meetings  
Vienna, Austria

### Review of Stormwater Monitoring Results and Evaluation of Permit Effectiveness

presented at the  
1998 Society for Risk Analysis meetings  
Phoenix, AZ  
with R.M. Rollins & K.K. Chellman

### Phosphorus Additions in Compost Amended Cultivated Soils

presented at the 1996 N.E. Branch  
American Society of Agronomy meetings  
Ithaca, NY  
with J.H. Peverly

### Connecticut Lakes: A Study of the Chemical and Physical Properties of

Fifty-Six Connecticut Lakes  
R. W. Canavan and P. A. Siver, 1995  
Connecticut College Arboretum,  
New London, CT

## Richard W. Canavan, PHD

### Selected Project Experience

#### Wetland Delineation, Restoration and Permitting

##### Lyman Viaduct, Colchester, CT

Obtained DEEP Inland Wetlands and Cat. II USACE approvals for a culvert repair. Work included coordination with DEEP inland fisheries for channel stabilization design.

##### Town of Webster MA, Conservation Commission

Acting wetlands agent performing Wetland Protection Act application reviews including site meetings and public hearings.

##### US EPA Superfund Remediation Action, Willington CT

Conducted a wetland delineation, designed a wetland restoration to meet regional USACE guidance, prepared bid specifications, and directed mitigation construction on site.

##### Residential Dock, Ledyard, CT

Conducted coastal wetland delineation and obtained a CTDEEP OLISP dredging, structures and fill permit for a residential dock on the Thames River.

##### Xtra Mart, Guilford CT

Directed a wetland restoration planting and conducted post construction vegetation monitoring. Successfully created a cattail marsh to exclude the non-native invasive plant *Phragmites australis*.

##### Woodstock Academy Athletic Fields, Woodstock, CT

Prepared a successful permit application to USACE and CTDEEP, including state and federal wetland delineation, functions and values assessment, and mitigation plans. Directed mitigation work in the field, conducted post-construction monitoring and reporting.

##### Bridge Replacement Project, Wilmington, Tewksbury, & Billerica, MA

Delineated Bank and BWV under the Wetlands Protection Act, prepared Notice of Intent applications and obtained approvals for the replacement of a flood damaged bridge over the Shawsheen River.

#### Transportation Environmental Permitting

##### MassDOT, Bridge replacements, multiple locations in Massachusetts

Environmental documentation and permitting including wetland delineation, applications under 401 Water Quality Certification and NEPA (Categorical Exclusions) for nine bridge replacement projects

##### RIDOT, Laurel Avenue bridge replacement, Coventry, RI

Obtained approval under the Fresh Water Wetlands Act for a design-build bridge replacement project including reconstruction of flood damaged structures in a river channel. Rapid response to meet design-build schedule.

##### Pedestrian/Recreational Trails

Wetland delineation and state and local permitting for trail projects in Putnam, CT and Sturbridge, MA

Richard W. Canavan, PHD

### **Watershed & Water Quality Assessment**

Lake Watershed Plan, Killingly, CT

Prepared watershed plan for Alexander's Lake Homeowners Association including a review of existing water quality monitoring data, help establish citizens water quality monitoring and providing data analysis.

Environmental Monitoring, CT Resource Recovery Authority, Hartford, CT

Managed the collection of water quality samples of ground, surface and stormwater and landfill leachate at a solid waste landfill and the interpretation of results.

Remedial Action, Municipal Highway Garage, Woodstock, CT

Developing monitoring plan of off-site private drinking water wells and analysis of results. Stormwater permit compliance.

### **Soil Science**

New York City Dept. of Environmental Protection, Fountain Avenue Landfill

Provided expert review services for a sampling plan, soil chemistry results, and mitigation plan for acid producing sulfide soils in landfill cap with a native grassland cover

Compost Comprehensive Nutrient Management Plan, Monroe, CT

Prepared a comprehensive nutrient management plan for a nursery and composting agricultural facility. The plan reviewed site management practices, volume of material on site and was submitted to CTDEEP.

Local Board of Health, Essex CT

On-call review for board of health town staff for the interpretation of soil test pits.





## Education

B.S., Civil Engineering Technology, 1978  
Roger Williams College

## Professional Affiliations

Institute of Transportation Engineers  
Connecticut Chapter, Past President  
New England Chapter, Legislative Committee

Intelligent Transportation Society of CT  
Past President, Founding Director,  
Program Committee Chair

ITS America State Chapters Council  
2008 ITS World Congress  
Local Arrangements Committee  
ITS-CT Grand Central Terminal Reception Chair

## Honors & Awards

Institute of Transportation Engineers  
Connecticut Chapter  
2010 Transportation Achievement Award

Intelligent Transportation Society of CT,  
2007 Presidential Service Award

Institute of Transportation Engineers  
Connecticut Chapter  
2001 Chapter Service Award

Institute of Transportation Engineers  
Connecticut Chapter  
2000 Past President's Award

## J. A. Koolis, Jr.

Traffic Engineering Manager

### General Qualifications

Mr. Koolis is a traffic engineer with specialization in traffic impact analysis and mitigation and has been responsible for the preparation of studies, construction plans, and contract documents for a wide range of traffic and transportation engineering projects. He is a recognized expert in traffic impact and safety analysis, intelligent transportation system planning and design, traffic control signal design, maintenance and protection of traffic, roadway and highway design, and providing expert testimony on traffic related matters. He has prepared multiple project qualification and cost proposals, managed staff and served as Project Manager on a number of high-profile projects.

### Publications

Author: *Maintaining Advanced Traffic Management System During Reconstruction of I-95 in New Haven, CT*, PB Network, March 2003

Author: *Maintaining Incident Management System During Reconstruction of I-95 in Bridgeport, CT*, PB Network, 4th Quarter 1998

Author: *Incident Management System Impacts*, Institute of Transportation Engineers 1997 Compendium of Technical Papers

Founding Editor: *ITS-CT Newsletter*, 1999-2002

### Expertise

#### Traffic Engineering

- Traffic Studies
  - Volume
  - Impact Analysis
- Traffic Safety
  - Studies
  - Calming Measures
  - MPT
- Signalization

#### Roads & Highways

- Alignments
- Intersections / Interchanges

#### Intelligent Transportation System Engineering

- ITS Planning & Design
- Traffic Monitoring
- Traffic Control
- Traffic Diversion, Detours
- Public Communication:
  - Advisory Messaging
  - Signage

#### Expert Testimony



J. A. Koolis, Jr.

## Relevant Experience

### Traffic Engineering:

Route 34 Urban Boulevard/Downtown Crossing, New Haven, CT

Supervising traffic engineer for one of the state's most unique and exciting transportation projects. The City of New Haven is eliminating approximately one mile of urban expressway that divides its central business district from its rapidly growing medical district, replacing it with a pedestrian and bicycle-friendly urban boulevard. The goal of the project is to reconnect the original urban grid of the city and open up the area for new development within the footprint of the original highway. Responsible for the development of a comprehensive study and traffic model of 32 intersections and for the development and evaluation of alternative designs for the project. In addition, also responsible for the development of traffic control signal plans and specifications for the first phase of the project which is anticipated to be completed in 2015 and preliminary design for the second phase of the project.

MGM Springfield Casino Peer Review & Testimony, Longmeadow, MA

MGM Casinos is proposing to construct a 500,000 square foot \$850 million resort casino in downtown Springfield, MA. As part of the Massachusetts Gaming Commission application, MGM was required to identify the impacts that the proposed casino would have on adjacent towns and had concluded that the impacts on nearby Longmeadow, MA would be minimal and thus require no mitigating measures. Longmeadow contested this finding and engaged Parsons Brinckerhoff to perform a traffic impact peer review of the MGM application and provide expert testimony before an arbitration commission. Jay lead this effort and provided expert testimony before the commission's arbitration panel which resulted in Longmeadow being awarded a lump sum payment of \$850,000 for roadway improvements, reimbursement of legal and consultant fees, minimum annual payments of \$275,000 and a total of \$687,500 toward future studies of the casino impacts.

Blue Back Square, West Hartford, CT

Supervising Traffic Engineer for this highly successful 1,000,000 square foot mixed-use, transit-oriented extension of West Hartford Center. Responsible for assistance in the project's application for a Major Traffic Generator Certificate from the Connecticut State Traffic Commission; traffic engineering peer reviews; traffic impact analyses; and traffic modeling and simulations services, as well as providing expert testimony on traffic-related matters. Also provided the design of traffic control signal plans and off-site roadway improvements. A year after the project's opening, prepared a comprehensive evaluation of traffic and operating conditions for the project including traffic, pedestrian, roadway improvement and traffic control considerations.

Whalley Avenue Corridor Study, New Haven, CT

Supervising traffic engineer for a study to identify improvements to a major urban arterial corridor that would provide necessary access and mobility functions while improving transit, pedestrians and bicycles and addressing the contextual relationship with business districts and neighborhoods. Study included analysis of traffic conditions using SYNCHRO software and review of accident history to develop conceptual intersection and cross-sectional improvements.

Fairfield Metro Center, Fairfield, Connecticut

The project involved preparation of a detailed traffic impact analysis for the redevelopment of an abandoned industrial site into a nearly 1 million square foot mixed-use development with a Metro-North Commuter Railroad station and 1,500 space commuter-rail parking facility. This unique project involved a cooperative effort between a private developer, the Town of Fairfield and the Connecticut Department of Transportation. The study involved analysis of 22 key intersections in the vicinity of the site, identifying mitigating measures (roadway improvements, traffic signals, etc.) to accommodate traffic generated by the project and provision of expert testimony before local and state agencies responsible for approval and funding of the project. The work included preparing a complete application to STC and the development of signal plans for the site access road..

## Registration

Licensed Professional Engineer  
CT

N.I.C.E.T. Level II Certified Inspector  
Highway Construction •  
Water & Sewer Lines •

N.E.T.T.C.P. Certified Inspector  
Soils & Aggregate •  
Hot Mix Asphalt •  
Concrete •

ACI Level I Field Technician

Certified Erosion, Sediment  
& Storm Water Inspector

Certified Professional in Storm Water  
Quality

OSHA 30 Hour Training

## Education

B.S., Architectural Building  
Technology, 2004  
New England Institute of Technology

A.S., Nuclear Engineering  
Technology, 2001  
Three Rivers Community College

## Expertise

Construction Services

Daily Inspection -  
Supervision -  
Reports -

Design & Drafting

Drainage Systems -  
Storm Water Quantity & Quality -  
Roadways -

Sanitary Sewers -  
Septic Systems -  
Water Mains -

Sediment & Erosion Control Plans -  
Specification Preparation -

## Peter M. Parent, PE, NICET II

Civil Engineer / Construction Inspector

### General Qualifications

Mr. Parent is a Professional Civil Engineer with over 10 years of experience. Mr. Parent provides design and construction services in support of infrastructure and site improvement projects. He possesses in depth understanding of the unique requirements of various state and federal grant programs to ensure compliance in reporting and work quality.

### Relevant Experience

#### Infrastructure Improvements

CTfastrak Program Management Services: Connecticut Department of Transportation  
Hartford to New Britain, CT

Review & Compilation of Specifications Submitted by Multiple Design Teams, Review of  
Busway Station Plans, Generation of Design Initiated Change Orders

Roadway Improvement and Reconstruction, Webster Office of Community Development,  
Webster, MA

Design and specification preparation, daily on-site inspection and supervision for projects  
consisting of full-depth roadway reconstruction and replacement of existing water, sanitary  
sewer, and storm drainage utilities. (Projects include: Fifth Avenue, Lyndale Avenue, Davis  
Street, Poland Street, Negus Street, New Street, and Elm Street)

Drainage & Storm Water Treatment Design: Webster Department of Public Works  
Webster, MA

Provided design, specification preparation, daily on-site inspection and construction  
supervision for water quality improvement projects (installation of storm water BMPs) at  
multiple sites around Webster Lake. (Projects include: Kenneth Avenue, June Avenue,  
Colonial Road, and Union Point Road)

Roadway Improvement and Reconstruction, Groton Long Point Association  
Groton, CT

Projects focused on improved drainage for community along Long Island Sound  
susceptible to storm surge and flooding. Provided design, specifications and construction  
inspection and administration. (Projects include: East Shore Avenue, Sound Breeze Avenue,  
Oak Street, Cove Street and West Shore Avenue, Atlantic Avenue)

Southbury Training School Water Main Extension, Southbury, CT -- Connecticut Department  
of Developmental Services

Design and technical specifications for the replacement/relocation of approximately 2,000  
feet of water main, including a pressure reducing valve and building service connections.

Water Main Extension, Sturbridge Technology Park  
Sturbridge, MA

Design and specifications for the extension of public water to a new technology park in  
Sturbridge and inspection during the installation of the 4,650 LF water main.



Peter M. Parent, PE, NICET II

## Additional Design & Construction Experience

### *Roadway & Streetscape:*

Connecticut Department of Transportation, Signage Installation Inspection Services, Various sites, Connecticut

Putnam Technology Park Road – Design, Specifications, and Construction Administration for new access road to serve a new technology park, Town of Putnam, Putnam, CT

Providence Road Streetscape – Construction Administration for improvements to sidewalks, plantings, and other features, Putnam, CT (CDBG funded)

Canterbury Turnpike reconstruction and improvements, Norwich, CT (CT DOT funded)

Witches Woods Tax District gravel road and drainage improvements, Woodstock, CT

Birch Island culvert replacement, Webster, MA (MassDOT funded)

### *Public Sewer & Septic:*

Extension of public sewer lines along Route 171 to Woodstock Academy, Woodstock, CT (USDA funded)

Extension of 2,800 LF of water main along Route 66 to Route 316, Drake Petroleum, Hebron, CT

Inn at Woodstock, Woodstock, CT

### *Site Development & Improvements:*

IPG Photonics Industrial Facility – site design, drainage design, and sub-surface sewage disposal system for large manufacturing facility, Oxford, MA

Ryder Trucking site, access road and parking improvements, Hartford, CT

New Pre-K thru 8 School – design of drainage, site, and utilities, Sterling School Sterling, CT

Simonzi Park - streambank stabilization & water quality improvements, Putnam, CT

FedEx Distribution Center – improvement to access roadway, parking and design for expansion, Willington, CT

New DPW Facility – site design, specifications, and construction administration, Town of Woodstock, Woodstock, CT

Marianapolis Athletic Fields – design, specifications, and construction administration for field improvements and installation, Marianapolis Preparatory School Thompson, CT

### *Environmental:*

Sayles Elementary School – Construction Administration services for UST replacement, Sprague, CT

Connecticut Department of Transportation – UST Replacement, Inspector, Wallingford & Stratford, CT

Stormwater and water quality study and improvement plan including design of improvements and construction administration, Webster Lake, Webster, MA

## Similar Work

### **On-Call Engineering and Technical Services, Peer Review – Town of Tolland, Connecticut.**

CME Associates provided on-call services to the Town of Tolland. We have been able to support the Town with a wide-range of municipal assignments. Our services included guidance and interaction with potential developers and applicants whose projects involved sediment and erosion control, LID, stormwater management and treatment, wetland impacts, sanitary sewer designs (WPCA) and additional municipal infrastructure and utility services. CME provided written reviews of applications to land use commissions and testimony at various commission meetings. Our work included interaction and coordination with the Town Manager's office, Department of Public Works, Water Pollution Control Authority, the Inland Wetlands and Watercourses Commission, and the Planning and Zoning Commission.

### **On-Call Engineering and Technical Services, Peer Review – Planning Board & Conservation Commission (Wetlands Commission), Town of Webster, Massachusetts**

CME reviews applications and provides review comments to Board Members, Commissioners and applicants based on the permit submittals and regulations. CME helped the Commission with an application for a marina and commercial paddle wheel boat proposed on the lake. This application elicited emotional responses from the public. CME helped with the public hearing process, holding meetings with the Town Manager and Town Attorney, with the applicant and their design team. We provided engineering and environmental reviews of multiple submissions and provided the Commissioners with draft approval and denial documents.

In addition to large and controversial projects, CME has aided in the review of dozens of private, commercial & industrial developments, and lakeshore residential projects providing review comments and guidance, site walks, water services, sanitary sewer designs and stormwater system & erosion control inspections.

### **Peer Review: Permit Application – Planning and Zoning Commission & Inland Wetlands Commission, Town of Griswold, Connecticut**

Review of materials for land use applications to Planning & Zoning and Inland Wetland Commissions. Design reviews included sanitary sewer, parking, roadway, stormwater management and treatment, wetland delineation and impact, and sedimentation and erosion controls. The latest land use review was a submission of a Section 8-30g 25-unit assisted housing application on Taylor Hill Road that included the design review of sanitary sewers, stormwater conveyance and treatment, traffic, parking, driveway access, and sediment and erosion controls. This project was an expansion of an existing assisted housing project. The overall project area was 6.5 acres.





## References

Listed below are clients for whom we have provided similar services.

Linda Farmer, AICP, *Town Planner (Retired)*

Town of Tolland

P: 860-247-8363

E: [lindafarmer2000@gmail.com](mailto:lindafarmer2000@gmail.com)

Beverly Bellody, *Director of Human Services*

Town of Tolland

21 Tolland Green, Tolland, Connecticut 06084

P: 860-871-3611

E: [bellody@tolland.org](mailto:bellody@tolland.org)

Paul LaFramboise, *Planning Board Chairman*

Town of Webster

350 Main Street, Webster, Massachusetts 01570

P: 860-508-0773

E: [paul@thewaterexperts.com](mailto:paul@thewaterexperts.com)

Jennifer S. Kaufman, *Natural Resources and Sustainability Coordinator / Inland Wetlands Agent*

Town of Mansfield

4 South Eagleville Road, Storrs-Mansfield, Connecticut 06268

P: 508-949-3835 ext. 4004

E: [KaufmanJS@MANSFIELDCT.ORG](mailto:KaufmanJS@MANSFIELDCT.ORG)

Mario J. Tristany, Jr., *Town Planner*

Town of Griswold

28 Main Street, Jewett City, Connecticut 06351

P: 860.376.7084 ext. 111

E: [townplanner@ct-griswold.org](mailto:townplanner@ct-griswold.org)





# Department of Planning and Development

**Date:** March 2, 2016

**To:** Mansfield Inland Wetlands Agency

**From:** Jennifer Kaufman, Inland Wetlands Agent

**Subject:** Receipt of New Application for Wetlands License  
Bicentennial Pond (IWA File #W1563)  
Bicentennial Pond, Assessor's Parcel ID 23.60.7  
Description of work: Aquatic Weed Management and Sediment Removal

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## **Project Description**

To improve the recreational use and overall ecological health of Bicentennial Pond, the Town of Mansfield proposes to manage approximately 2.6 acres of nuisance aquatic species and remove accumulated soft organic matter and from the swimming area of Bicentennial Pond.

*Organic Matter/Sediment Removal-* Natural eutrophication and sedimentation deposited from surface runoff along with organic material buildup has accumulated in the beach area at Bicentennial Pond, requiring remediation to restore natural bottom depth and quality of the pond's recreational function. The work will be accomplished by using a compact, hydraulic sediment removal system (the "dredge"). The dredge is equipped with a trash pump that will extract the accumulated sediment from the pond bottom and pump it to a nearby dewatering area. The spoils will be dewatered using geotextile fabric tubes, which retain spoils material while filtering the water before it is returned to the pond in a clarified state. Once the spoils are completely dewatered they can be extracted from the containment membrane and hauled off-site for disposal. Approximately 15,000 square feet of the pond will be disturbed during the excavation and it is estimated that no more than 30 cubic yard of sediment and organic matter will be removed from the pond.

*Nuisance Aquatic Weed Management-*To improve the recreational experience and overall health of the pond, the Town of Mansfield proposes to work with a licensed contractor (All Habitat Services, Inc.) to complete an herbicide treatment to manage a population and of non-native, invasive Water Chestnut and other native nuisance aquatic weed species. This work will be conducted in accordance with a CT DEEP Aquatic Pesticide Use permit and state, and federal regulations.



# Department of Planning and Development

- The project includes work in wetlands.
- The project includes work in the 150 foot upland review area.
- The project is located in a Public Water Supply Watershed.

## Application Fees and Notifications

- The applicant has paid the required application fee
- The applicant has submitted copies of the notice mailed to neighbors and a list of abutters to be notified. Certified mail receipts must be submitted prior to action on the application.

## Receipt Motion

\_\_\_\_\_ MOVES, \_\_\_\_\_ seconds to receive the application submitted by Bicentennial Pond, Assessor's Parcel ID 23.60.7 (IWA File #W1563) under the Wetlands and Watercourses Regulations of the Town of Mansfield for Aquatic Weed Management and Sediment Removal on property located at Bicentennial Pond as shown on a map dated 10/27/2015 and as described in application submissions, and to refer said application to staff and the Conservation Commission for review and comments.

**APPLICATION FOR PERMIT  
MANSFIELD INLAND WETLANDS AGENCY  
4 SOUTH EAGLEVILLE ROAD, STORRS, CT 06268  
860-429-3015x6204 (DIRECT) TEL: 860-429-3330 OR  
FAX: 860-429-6863**

FOR OFFICE USE ONLY

File #

W \_\_\_\_\_

Fee Paid \_\_\_\_\_

Official Date of Receipt \_\_\_\_\_

*Applicants are referred to the Mansfield Inland Wetlands and Watercourses Regulations for complete requirements, and are obligated to follow them. For assistance, please contact the 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 \_\_\_\_\_ Town of Mansfield, Parks and Recreation \_\_\_\_\_

Mailing Address \_\_\_\_\_ 10 South Eagleville Road, Storrs-Mansfield, CT \_\_\_\_\_

\_\_\_\_\_ Zip \_\_\_\_\_ 06268 \_\_\_\_\_

Phone \_\_\_\_\_ 860-429-3015x6109 \_\_\_\_\_ Email \_\_\_\_\_ VincenteCA@MansfieldCT.org \_\_\_\_\_

**Title and Brief Description of Project**

Aquatic Weed Management and Sediment Removal \_\_\_\_\_

Location of Project \_\_\_\_\_ Bicentennial Pond \_\_\_\_\_

Intended Start Date \_\_\_\_\_ Late April/Early May 2016 \_\_\_\_\_

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

Name \_\_\_\_\_ Same \_\_\_\_\_

Mailing Address \_\_\_\_\_

\_\_\_\_\_ Zip \_\_\_\_\_

Phone \_\_\_\_\_ Email \_\_\_\_\_

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

Signature \_\_\_\_\_ 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**)

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  
see attached

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- 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

a.) 15,000 ft<sup>2</sup>  
b.) none

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- 3) Describe the type of materials you are using for the project: For Aquatic Weed Management: selective applications of the herbicides Rodeo, Clipper, Platoon, and Nautique. For sediment removal: Hydraulic sediment removal system, geotechnical fabric membrane for sediment dewatering, and Biopolymer conditioning agents for coagulation and flocculation

- a) include ***type*** of material used as fill or to be excavated Soft Organic Sediment  
b) include ***volume*** of material to be filled or excavated 30 cubic yards
- 
- 

- 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 sediment is contained in a geotechnical fabric membrane. Dewatering leachate discharge will be returned to the pond via a suitably protected outlet. Discharge water quality subject to construction discharge BMP's. CT 2002 Erosion Control Guidelines and BMP's are incorporated into operational work plan.

**Part D - Site Description**

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

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## 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.

The hydraulic dredger will cause the least disturbance. Other options would include using an excavator but this would cause more disturbance. Weeds could be hand pulled but this is only a temporary solution, would be very labor intensive and costly. Also, often times all of the root is not removed using this method causing the weeds to spread further.

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## 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)**

2) Applicant's map date and date of last revision 10/27/2015

3) Zone Classification RAR 90

4) Is your property in a flood zone?  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) Attach list of abutters, name, and address

2) **Proof of Written Notice to Abutters.** You must notify abutting (neighboring) property owners (any property immediately contiguous with the subject property, including those across the street) 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.** To generate an abutters list go to <http://www.mainstreetmaps.com/CT/Mansfield/>

## Part I - Additional Notices, if necessary

Notice to Windham Water Works and CT Department of Public Health is attached. If this application is in the public watershed for the Windham Water Works (WWW), you must notify the WWW and the Department of Public Health 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.

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.

The Statewide Reporting Form 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**

Application fees shall be in accordance with the current Mansfield Code of Ordinance fee Schedule, pursuant to Section 8-1c of the Connecticut General Statutes. The fee schedule includes provisions for applicant-funded consultant studies and reports. The current fee schedule is available in the Planning and Zoning office.

*Note: The Agency may require additional information about the upland review area 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.*

**Certification**

I hereby certify that:

- I am familiar with the information contained in this form and that such information is true and correct to the best of my knowledge.
- I understand the penalties for obtaining a permit through deception or through inaccurate or misleading information.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

**Authorization to Enter Property**

The undersigned hereby consent 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 issued by the Agency.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

## **Project Description**

### *In the Wetlands*

To improve the recreational use and overall ecological health of Bicentennial Pond, the Town of Mansfield proposes to manage approximately 2.6 acres of nuisance aquatic weeds and remove accumulated organic matter and sediment from the swimming area at Bicentennial Pond. A detailed pond assessment and project description is attached.

### *Organic Matter/Sediment Removal*

Natural eutrophication and sedimentation deposited from surface runoff along with organic material buildup has accumulated in the beach area at Bicentennial Pond, requiring remediation to restore natural bottom depth and quality of the pond's recreational function.

The work will be accomplished by using a compact, hydraulic sediment removal system (the "dredge"). The dredge is equipped with a trash pump that will extract the accumulated sediment from the pond bottom and pump it to a nearby dewatering area. The spoils will be dewatered using geotextile fabric tubes, which retain spoils material while filtering the water before it is returned to the pond in a clarified state. Once the spoils are completely dewatered they can be extracted from the containment membrane and hauled off-site for disposal.

### *Nuisance Aquatic Weed Management*

To improve the recreational experience and overall health of the pond, the Town of Mansfield proposes to work with a licensed contractor (All Habitat Services, Inc.) to complete an herbicide treatment to manage a population and of non-native, invasive Water Chestnut and other native nuisance aquatic weed species. This work will be conducted in accordance with a CT DEEP Aquatic Pesticide Use permit and state, and federal regulations.

In October 2015, Parks and Recreation Staff identified a small population of the non-native, aquatic invasive, Water Chestnut. Water Chestnut is a highly competitive plant that is capable of rapid growth and spread. Water Chestnut displaces native species, reduces biodiversity, hampers recreational uses, reduces real estate value and diminishes aesthetic values. It is especially hazardous in swimming areas because the sharp ½" barbs can penetrate shoes with leather soles and pose a hazard to swimmers and beach visitors.

In addition to this, species 13 other aquatic plant species were identified in the swimming area. While these species are native, several of them can become a nuisance, negatively impacting recreational use and the overall pond ecosystem.

### *In the Upland Review Area*

While the project will be staged in the upland review area but there will be no site disturbance. All sediment will be placed in a "roll off" dumpster and will be removed from the site. The sediment will be brought to a location determined by Mansfield Department of Public works, dried out, and reused.



CT DEP # B-2020  
NYSDEC# 13326

P.O. Box 231 Branford, CT 06405  
Phone:203.245.1212  
Fax:203.245.2981  
www.allhabitat.com

November 13, 2015

Jennifer Kaufman  
Natural Resources and Sustainability Coordinator  
Inland Wetlands Agent  
Town of Mansfield  
10 South Eagleville Road  
Storrs-Mansfield, CT 06268

Dear Jennifer,

Thank you for your interest in All Habitat Services, LLC for managing the aquatic vegetation at Bicentennial Pond in Mansfield. We are pleased offer the following proposal for your consideration.

#### **Scope of Services**

The objective of this proposal is the management of the nuisance aquatic species in Bicentennial Pond in Mansfield for the purpose of improved recreational use and overall health of the pond.

Our inspection of Bicentennial Pond on October 27, 2015 identified fourteen species present including: Watershield (*Brasenia schreberi*), Water Starwort (*Callitriche* species), Coontail (*Ceratophyllum demersum*), Spikerush (*Eleocharis* species), Western Waterweed (*Elodea nuttallii*), Duckweed (*Lemna minor*), White Water Lily (*Nymphaea odorata*), Ribbon-leaf Pondweed (*Potamogeton epihydrus*), Robbin's Pondweed (*Potamogeton robbinsii*), Arrowhead (*Sagittaria* species), Burreed (*Sparganium* species), Water Chestnut (*Trapa natans*), Cattail (*Typha* species), and American Eelgrass (*Vallisneria americana*). A map of the location of these species is provided.

Of the fourteen identified species, the only invasive species present was the Water Chestnut, which has begun to infest the northern end of the pond. Water Chestnut is a highly competitive species that can form dense floating mats which will out-compete native vegetation and cause reduced oxygen levels, increasing the potential for fish kills. If left unmanaged, this infestation will spread and continue to negatively impact native species diversity, water quality and the overall aesthetic and recreational value of the park pond. Remediation is required to restore normal function to this valuable water resource.

The pond is also experiencing an abundance of Watershield and White Water Lillies as well as the beginning stages of a Duckweed infestation in the pond. While these species are native, they can become a nuisance, which, can also affect recreational use and also harm the overall structure of the pond ecosystem. Duckweed in particular has a tendency to create an unsightly covering across the entire surface of the water, thus causing a reduction of photosynthesis to any other submerged plants. Without control this plant can also reduce the oxygen levels of the water body and can result in complete oxygen depletion of the pond system.

Other vegetation that may be considered for management includes: the Western Waterweed, Robbin's Pondweed, Ribbon-leaf Pondweed, American Eelgrass and Water Starwort. These species were found along the beach area and are the primary contributors to the reduction in recreational use of the swim area. Management of these species will restore the recreational use and improve aesthetics of the beach area.

This proposal offers two phases for management of the nuisance vegetation in the pond. The first phase is to consider control of the approximately 1.4 acre area of vegetation associated with the beach (Beach Management Area), which is primarily used for recreational purposes. The second phase proposes management of the vegetation in the approximately 1.2 acre area in the northern end of the pond (North End Management Area). Management in the northern end of the pond will likely prove beneficial for longer-term control to prevent species spreading. It is also in the northern end that the invasive species, Water Chestnut, was found. In particular, this highly prolific invasive requires immediate management before it has the opportunity to spread throughout the rest of the pond. We offer the following herbicide management options below.

### **Herbicide Management**

For the management of the Water Chestnut infestation, we prescribe a surface application using a tank mix of the aquatic labeled herbicides Rodeo<sup>®</sup> (Glyphosate) and Platoon<sup>®</sup> (2,4-D) at a rate of 3 quarts and 2.8 gallons per surface acre respectively, to deliver an effective concentration for control of the Water Chestnut present in the north end treatment area. Rodeo<sup>®</sup> is a non-selective herbicide that disrupts synthesis of a primary amino acid essential to chlorophyll production. Platoon<sup>®</sup> is a dicot selective herbicide, which alters the photosynthetic cycle and disrupts regulated cell division affecting vital plant tissues and nutrient production. Affected vegetation will begin to decompose in a 2 to 3 week period following treatment. Should any Water Chestnut show signs of recovery after the initial treatment, a second treatment may be necessary.

For the treatment of the Watershield and White Water Lilies, we also recommend a surface application of Rodeo<sup>®</sup> at a rate of 3 quarts per acre. The treatment should be applied when the lillies are actively growing for best results. Following treatment, plants will gradually wilt, yellow and die after approximately 2 weeks.

To manage for the American Eelgrass, Ribbon-leaf Pondweed and Robbin's Pondweed, we recommend an application of Nautique<sup>®</sup> (Copper Carbonate) at a rate of 1.0 ppm. Nautique<sup>®</sup> is a chelated copper formulation that works on contact to impede growth of target vegetation. Treatment is most effective when applied at first signs of growth and to actively growing vegetation. Results of treatment will occur within two to four weeks after application.

For the Western Waterweed and Water Starwort, we suggest a submersed application of Clipper<sup>®</sup> (Flumioxazin) at a rate of 200 ppb. Clipper<sup>®</sup> is a fast acting contact herbicide that interferes with a plant's ability to produce chlorophyll. Treatment should be conducted at the beginning of the season and should be followed by additional applications 5-10 weeks apart, as necessary, to maintain the desired level of control throughout the season.

For the management of Duckweed throughout the pond, we recommend a selective spot surface application of Clipper<sup>®</sup> (Flumioxazin) across the entire pond. Clipper<sup>®</sup> is a fast acting contact herbicide that interferes with a plant's ability to produce chlorophyll. Treated plants will respond quickly and decompose. An initial treatment will be applied at a rate of 12 ounces per surface acre. Control of Duckweed can be rather difficult and may take several applications. Follow-up applications may be necessary throughout the season to manage any re-infestations and may be applied 28 days following the initial application.

As a qualified municipality, these services are available under the terms and conditions of the State of Connecticut DAS Procurement Services Contract 13PSX0212. All Habitat Services, LLC will provide all chemicals, labor and equipment for the application(s) as requested. Specific, mutually agreeable date(s) for this chemical treatment will be scheduled with you in advance. The application will be performed by All Habitat Services, LLC's CT DEEP Licensed Applicator's, in accordance with the product label and the CT DEEP Aquatic Pesticide Use Permit. All Habitat Services, LLC will post the shoreline with printed signs, restricting the above water uses immediately prior to treatment. All Habitat Services, LLC carries workmen's compensation, liability and property damage insurance, which will remain in effect throughout the duration of this Agreement.

We hope that this proposal meets with your approval. Please feel free to contact us again if we may be of further assistance.

Best Regards,

David Roach S-3538  
General Manager  
All Habitat Services, LLC



## **Plan for Swim Area Cleaning at Bicentennial Pond**



**Prepared By:  
All Habitat Services, LLC  
P.O. Box 231  
Branford, CT 06405  
203.245.1212  
March 1, 2016**

## Overview

The objective of this project is the removal of accumulated insitu sediment from the swimming area of Bicentennial Pond. Natural eutrophication and sedimentation deposited from surface runoff along with organic material buildup has accumulated in this area; requiring remediation to restore natural bottom depth and quality recreational function.

The work will be accomplished by using a compact, hydraulic sediment removal system (the “dredge”). The dredge is equipped with a trash pump that will extract the accumulated sediment from the pond bottom and pump it to a nearby dewatering area. The spoils will be dewatered using geotextile fabric tubes, which retain spoils material while filtering the water before it is returned to the pond in a clarified state. Once the spoils are completely dewatered they can be extracted from the containment membrane and hauled off-site for disposal.

## Equipment and Process Design



The dredge is equipped with a 16.5-hp gasoline engine, which hydraulically powers the suction and discharge hoses. The dredge pump and agitator pump are mounted on a flotation platform made of a tubular steel base and upper structure with high density polyethylene pontoons. The 20 foot suction hose, which is powered by the two pumps, is lowered to the desired depth by the dredge operator. The sediment material is fed into the impeller of the suction hose where it is vacuumed up by the pump and conveyed through a 4-inch discharge hose suspended along the

water’s surface by floats to the dewatering area. A 4-inch boost pump and additional pipe can extend the distance to the dewatering site if necessary.



Piranha Dredge

The operator will manually move the dredge throughout the swimming area area extracting all of the sediment up to 4’ deep on each pass. A series of these parallel swaths will continue until the entire area is covered. The dredge is equipped with a sonar-mapping device and a GPS guided parallel swathing navigation system to assist the operator in determining which areas are dredged.

The sediment and water forms a slurry (approx. 15% solids / 85% water) as it is pulled through the pump’s impeller and discharged to the dewatering system. The discharge is piped into a geotextile tube where the solids are decanted and dewatered as the leachate passes through the tube’s fabric wall. Each geotextile tube will progressively contain more spoils and less water until there is insufficient volume to support pumping capacity.



Geotextile Tube Dewatering



Where necessary, the dewatering and sediment storage area is prepared by removing all ground obstructions that could puncture the geotextile fabric. If needed, the area is graded to a level grade 0° across the width and not more than 0.5% slope along the length of the tube to provide directional flow. The geotextile tube is then installed on top of an impervious geotechnical fabric liner to

improve stability of the drainage surface area, as well as, to ensure the leachate water is returned to the pond in a clarified state. The perimeter of the dewatering area is surrounded by sediment control measures to avoid any unnecessary, non-directional runoff. The leachate water flowing from the tubes is then returned to the pond either by pump or gravity flow system. In cases where there is a small amount of sediment to be removed, the dewatering geotextile membrane is placed in a roll off container. This is an efficient dewatering option as it minimizes site preparation and disturbance. The dewatered spoils are easily hauled away for disposal.

## **Preferential Methodology**

Using a hydraulic dredging technique to remove sediment is a proven successful approach and, in this case, it is the best available method. The dredging process can be time consuming and methodical; it drives water dependent species from the active work area well in advance of the dredge's approach and provides egress to safe refuge areas elsewhere in the water body. Hydraulic dredging is compatible with the inhabiting wildlife species. It presents the least amount of disruption to the water body system including vegetation, fish, reptiles, amphibians, waterfowl and other species.

## **Project Scope**

### Preconstruction Planning and Permitting

A formalized site-specific dredging plan is developed to define the appropriate scope of work to be conducted, and also to facilitate compliance with the relevant regulatory permitting requirements. For this project, the scope requires removing a small volume of soft sediment present on the sandy bottom of the swimming area at Bicentennial Pond. The project area is the limit of the approximately 300' length of shoreline out approximately 50' or a maximum water depth of 4.5'.

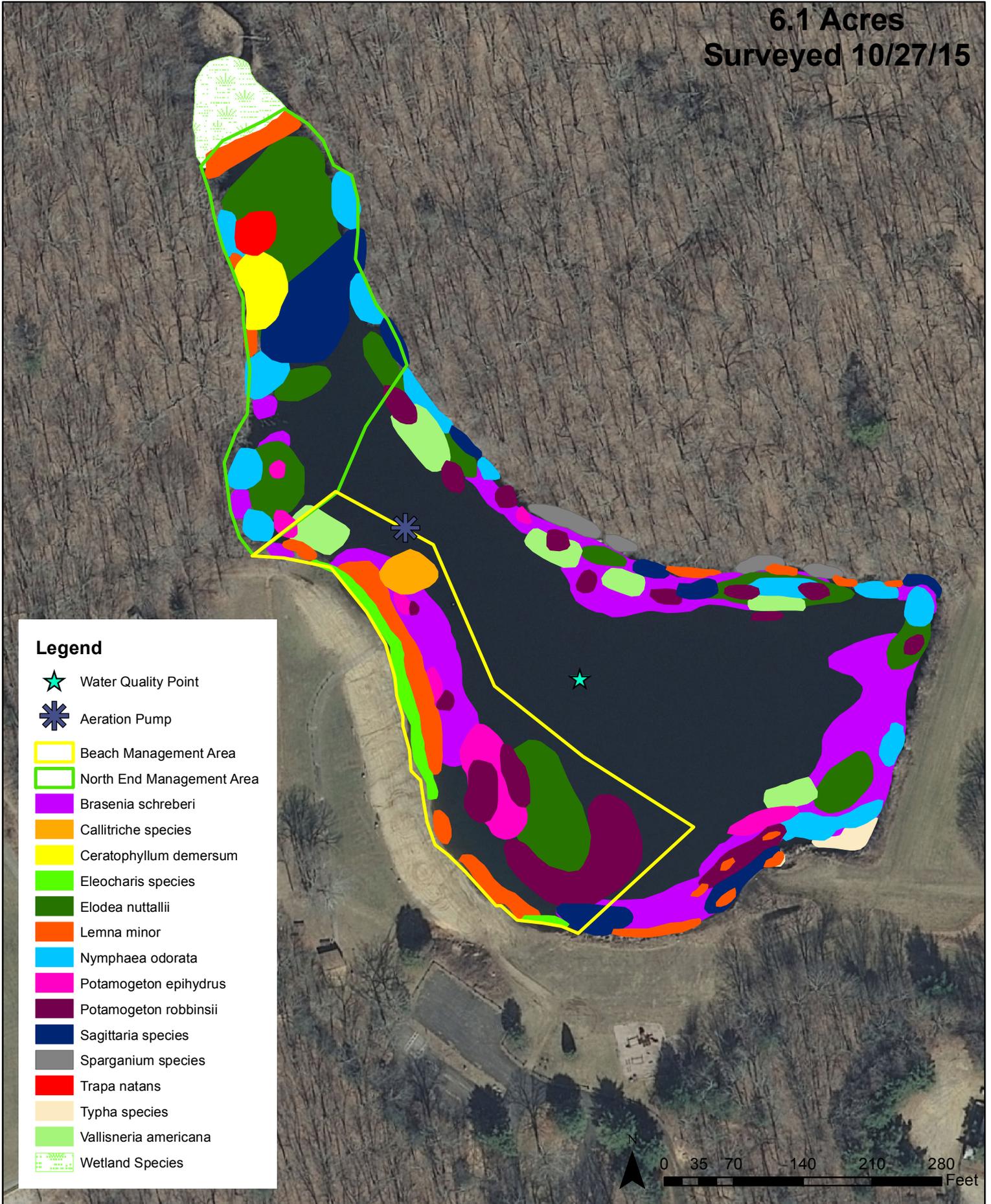
The physical properties of several composite sediment samples will be analyzed to characterize the ratio of soft organic silt and loam sediments to the coarse, sandy sediment horizon, to estimate dewatering consolidation rates. A composite wet sediment sample is screened against a battery of coagulants and flocculants to determine a goodness of fit for conditioners selected to assist consolidation during the dewatering process.

If required by the CT DEEP, a series of additional composite samples would be laboratory screened for the presence of heavy metals, extractable total petroleum hydrocarbons, polycyclic aromatic hydrocarbons, PCB's, pesticides and herbicides, to provide an environmental characterization of the sediment in determining its suitability for reuse or handling for disposal.

Should higher than normal background levels of contaminants be found and verified during the testing of the composite wet sediment testing, All Habitat Services would suspend further mobilization efforts pending discussions with the owner on how to best proceed. This is to avoid disturbance of contaminants currently at rest. Copies of any potentially required sediment sample test would be provided to the owner. Additionally, All Habitat Services will take reasonable efforts to assure that all fuels, oils and grease material used during dredging operations do not enter the pond.

At this time, there does not appear to be any permitting for this project beyond local requirements. However, in the event that permitting is determined to be required for the completion of this project, please note that costs of permitting would be the responsibility of the owner. Permitting is a two-tier process; All Habitat Services would notify and register with the CT DEEP describing the planned sediment removal operation for Bicentennial Pond. DEEP acknowledgement of the project registration would be provided to the owner. Should permitting be necessary, the permitting process would take place during the first 30 days following the signing of the contract.

6.1 Acres  
Surveyed 10/27/15



**Legend**

-  Water Quality Point
-  Aeration Pump
-  Beach Management Area
-  North End Management Area
-  *Brasenia schreberi*
-  *Callitriche* species
-  *Ceratophyllum demersum*
-  *Eleocharis* species
-  *Elodea nuttallii*
-  *Lemna minor*
-  *Nymphaea odorata*
-  *Potamogeton ephedrus*
-  *Potamogeton robbinsii*
-  *Sagittaria* species
-  *Sparganium* species
-  *Trapa natans*
-  *Typha* species
-  *Vallisneria americana*
-  Wetland Species

