Routine Assessments

Ashley Vande Voort

Monthly Assessments

- On a monthly basis state what upcoming maintenance activities need to be performed

Assessments

NES ECOLOGICAL SERVICES
A Division of Robert E. Lee & Associates, Inc.

Stormwater Facility Inspection Report

Date of Inspection: 08/03/2017	**Inspected By:** AL
Owner: City of Green Bay	**Facility Name:** Barina
Recent Rainfall:	**Purpose of Inspection:** Routine

Stormwater Pond Facility		
		Comments
Algae Present:	Yes	
Other:		
Pond Sediment Accumulation:		

Embankments		
		Date/Action Taken/Comments
Clogging/Debris/Litter:	No	
Slumping/Stability:	No	
Bank Erosion:	No	
Shoreline Erosion:	No	
Burrow/Sink Holes:	No	
Woody Plants:	Yes	
Other:		

Inlet Pipes / Outfall Structures		
		Action Taken / Comments
Clogging/Discharge:	No	
Erosion:	No	
Illicit Discharge:	No	
Structural Integrity:	Poor	
Other Damage:		

Ditches / Storm Sewer		
		Action Taken / Comments
Clogging/Debris/Litter:	No	
Erosion:	No	
Structural Integrity:	Excellent	
Other Damage:		

Native Vegetation Assessment	
Upland:	Yes
Wetland:	Yes
Muskrat or Goose Herbivory:	Yes
Trapping Recommended:	No

Invasive Species Present

Bull Thistle,Burdock,Canada Thistle,Cattail (hybrid),Cattail (narrow-leaved),Multiple Invasives,Phragmites,Queen Anne's Lace,Sweet Clover

Follow Up

Follow Up Task	Follow Up Date	Invasive Species
1)		Phragmites
2) Cut & Pile		
3) Posting		

Additional Comments:

General Information

Date of Inspection: 9/19/2016	
Owner: Green Bay	
Weather Conditions: some rain	

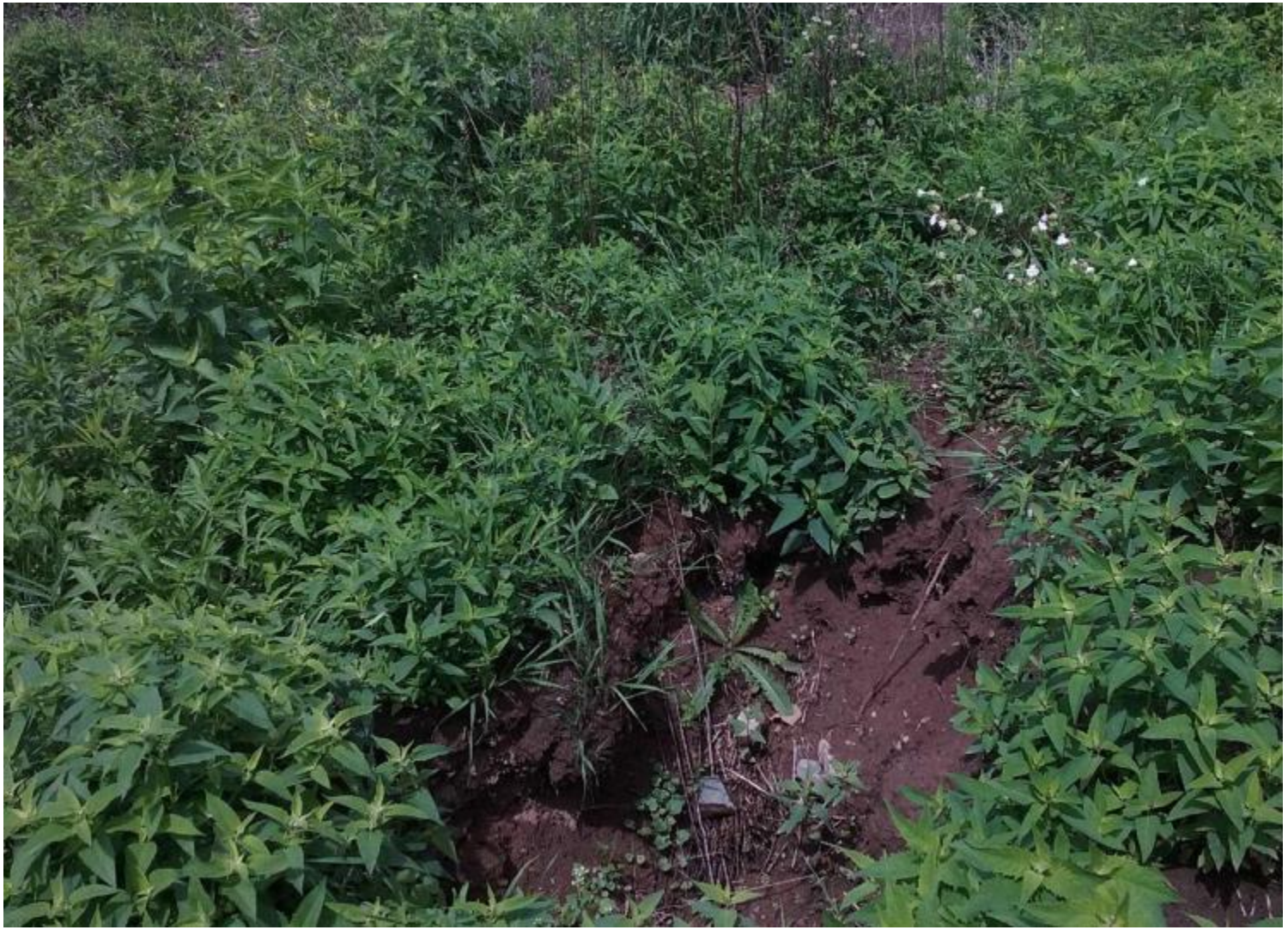
Inspected By: AVV AL
Facility Name: McAuliffe
Purpose of Inspection: Routine

Stormwater Pond Facility		
Check water levels monthly in the pond and after any rain event greater than 1 inch		
Surface Water Depth (at outfall):		
		Comments
Algae Present:	Yes	small amount by outlet
Other:		
Pond Sediment Accumulation: no		

Inlet Pipes / Outfall Structures		
		Action Taken / Comments
Clogging/Discharge:	No	
Erosion:	No	
Illicit Discharge:	No	
Structural Integrity:	Excellent	
Other Damage:		

Ditches / Storm Sewer		
		Action Taken / Comments
Clogging/Debris/Litter:	No	
Erosion:	No	
Structural Integrity:	Excellent	
Other Damage:		

Assessment- Erosion



Embankments		
		Date/Action Taken/Comments
Clogging/Debris/Litter:	No	
Slumping/Stability:	No	
Bank Erosion:	No	
Shoreline Erosion:	No	
Burrow/Sink Holes:	Yes	Muskrat and groundhog
Woody Plants:	No	
Other:		

Assessment- Muskrat Burrows

Native Vegetation Assessment	
Upland:	Yes
Wetland:	No
Muskrat or Goose Herbivory:	No
Trapping Recommended:	Yes

Invasive Species Present
Reed Canary Grass

Assessment- Muskrat Herbivory

Deer

Follow Up		
Follow Up Task	**Follow Up Date**	**Invasive Species**
1) Seeding Foliar spray		Reed Canary Grass
2)		
3)		

Photos

Aquatic Management

- Permitting and Licensing
- Nuisance Vegetation Identification and Treatment
- Algae Prevention and Control
- Water Quality Monitoring
  - Why Monitor?
- Sediment Accumulation and Dredging
- Proactive Management Practices
  - Bacteria and Enzyme Applications
  - Phosphorus Reduction
- Aeration Systems and Decorative Fountains

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"Providing Professional Resources for Management of Your Lake or Pond"

Permitting and Licensing

- DNR Aquatic Plant Management Permitting – NR107
  - Allows for herbicide and algaecide applications to waterbodies only
  - Common permit holders include, but are not specific to; municipalities, HOA's, golf courses, campgrounds, corporations.
  - DNR approval required on all permit applications
  - Permits typically expire October 1st or November 1st of current year
- Commercial Applicators For Hire
  - Required to have DATCP Category 5.0 to treat waterbodies
  - Required to know labeled rates, restrictions, and safety protocols
- Are you proposing a treatment in a private pond?
  - A body of water located entirely on the land of an applicant
  - A body of water with no surface water discharge, or a discharge that can be controlled to prevent chemical loss
  - A body of water without access by the public
- Do you need any other permits? **YES!**
  - Wisconsin Pollutant Discharge Elimination System (WPDES)
  - WI DNR NR109 permit
    - Alum applications
    - Mechanical removal

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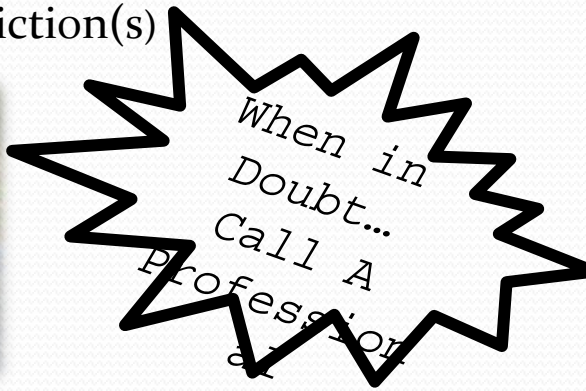
Nuisance Vegetation Identification and Treatment

- Proper Identification
  - Through the Looking Glass: A Field Guide to Aquatic Plants by Susan Borman, Robert Korth and Jo Temte
- Invasive Species Management
  - Eurasian Water Milfoil (*Myriophyllum spicatum*)
  - Curlyleaf Pondweed (*Potamogeton crispus)*
- Pros of Aquatic Vegetation
  - Water Quality Enhancement
  - Habitat and Structure
- Cons of Aquatic Vegetation
  - Biomass Accumulation
  - Obstructed Structures
  - Fish Kills

- Treatment Need to Know
  - Plants Present
  - Product(s) to Use
  - Product Label Rate(s)
  - Product Restriction(s)



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Algae Prevention and Control

- Chemical Treatment Tips
  - Use chelated algaecides
  - Avoid excessive or improper use of algaecides
  - Avoid products such as copper sulfate and Aquazine
  - Treat only half of the pond if full coverage to protect aquatic life
  - Spray in early morning, and on sunny days if possible

- How to Control?
  - Establish Desirable Aquatic Plants
  - Add Aeration
  - Introduce Pro-Active Tools and Products
  - Make Environmental Conditions Unfavorable
  - Eliminate Nutrient Sources
  - Do Not Encourage Waterfowl Usage
  - Maintain a Balanced Fishery

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Water Quality Monitoring

- Why Monitor?
  - Provides valuable information about waterbody health
  - Provides necessary data to prompt and assess management activities
  - Helps establish ecological benchmarks and comply with regulatory thresholds
  - Can indicate if upstream issues of pond(s) is occurring year to year
  - Provides documentation for stormwater owner/manager for future compliance issues/concerns

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Sediment Accumulation and Dredging

- How does this happen?
  - Soil Erosion
  - Rodent damage
  - Excessive algae and weeds
  - Deciduous trees and leaf bearing plants
  - Construction and street runoff
- How can I prevent this?
  - Apply bacteria and enzymes
  - Remove undesirable trees
  - Treat nuisance plants early to reduce biomass
  - Control erosion
  - Remove nuisance animal species
  - Stabilize shoreline
  - Implement BMP for new construction projects

- Worst case Scenario: Dredging
  - Multiple options exist
  - Can be very costly
  - Required in certain circumstances per DNR standards and stormwater maintenance agreements
  - Should be considered in severe cases

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Proactive Management Practices

Bacteria and Enzyme Applications

- Improve Water Clarity
- Reduce Nutrient Loading
- Safe for Fish and Aquatic Life
- Reduce Organic Buildup
- Stimulates Healthy Ecosystem
- Improves Water Quality
- Reduce Pond Odors

- *"Beneficial bacteria and enzymes safely and naturally improve water quality parameters by reducing organic compounds in the water column and sediments"*

- Cory Zickert, President WLPR

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Proactive Management Practices

Phosphorus Reduction Tools

- Polymer Blocks
  - Reduce Phosphorus Levels
  - Lower Total Suspended Solids
  - Reduce Pond Odors
  - Improve Water Clarity
  - Safe for Fish and Aquatic Life

- Phoslock
  - Removes phosphate from water column
  - Creates unbreakable bond between lanthanum and phosphate
  - Continues to bind long after treatment
  - Resistant to resuspension
  - Provides ability to “reset” or “recover” ecosystem health

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Aeration Systems and Decorative Fountains

- Why Aerate Your Pond?
  - Improves water quality
  - Promotes beneficial bacteria growth and activity
  - Prevents fish kills
  - Improves aesthetics
  - Removes stagnation
  - Reduces organic sediment
  - Reduces foul tastes and odors
  - Creates unfavorable environment for certain plant and algal species
- Aeration vs. Fountains
  - Both remove stagnation
  - Aeration is used for 90% management ant 10% aesthetics
  - Fountains are used for 30% management and 70% aesthetics
  - Aeration turns over the water regardless of depth; Fountains only turn over shallow ponds
  - Aeration Systems provide more options for management (i.e. metering systems, polymer blocks) whereas fountains do not

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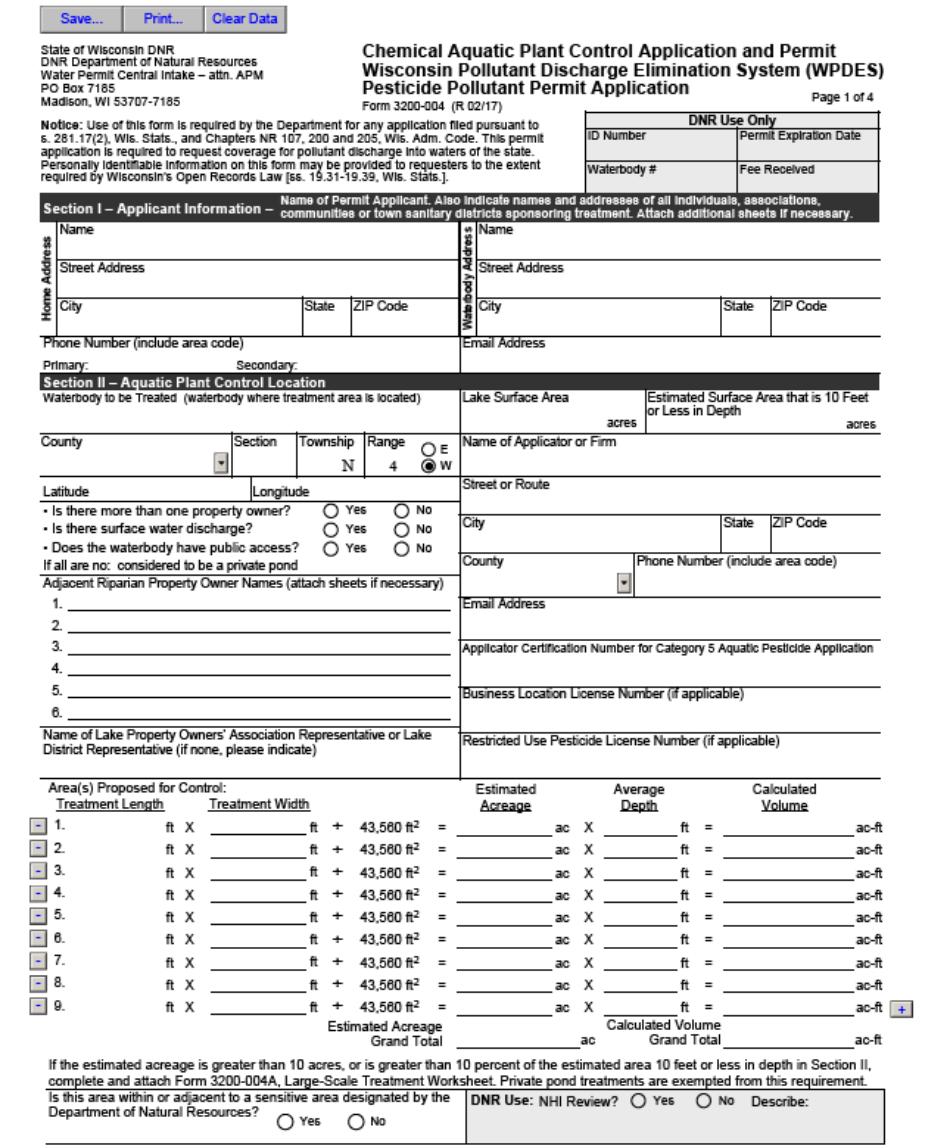
Emergent Vegetation Management

Ashley Vande Voort

Site Prep

Aquatic Permit Application



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State of Wisconsin DNR
DNR Department of Natural Resources
Water Permit Central Intake – attn. APM
PO Box 7185
Madison, WI 53707-7185

Chemical Aquatic Plant Control Application and Permit
Wisconsin Pollutant Discharge Elimination System (WPDES)
Pesticide Pollutant Permit Application

Form 3200-004 (R 02/17) Page 1 of 4

Notice: Use of this form is required by the Department for any application filed pursuant to s. 281.17(2), Wis. Stats., and Chapters NR 107, 200 and 205, Wis. Adm. Code. This permit application is required to request coverage for pollutant discharge into waters of the state. Personally identifiable information on this form may be provided to requesters to the extent required by Wisconsin's Open Records Law [ss. 19.31-19.39, Wis. Stats.].

DNR Use Only

ID Number	Permit Expiration Date
Waterbody #	Fee Received

Section I – Applicant Information – Name of Permit Applicant. Also indicate names and addresses of all individuals, associations, communities or town sanitary districts sponsoring treatment. Attach additional sheets if necessary.

Home Address: Name; Street Address; City; State; ZIP Code

Waterbody Address: Name; Street Address; City; State; ZIP Code

Phone Number (include area code) Primary: Secondary:

Email Address

Section II – Aquatic Plant Control Location

Waterbody to be Treated (waterbody where treatment area is located)

Lake Surface Area acres

Estimated Surface Area that is 10 Feet or Less in Depth acres

County | Section | Township N | Range 4 ○ E ◉ W

Latitude | Longitude

- Is there more than one property owner? ○ Yes ○ No
- Is there surface water discharge? ○ Yes ○ No
- Does the waterbody have public access? ○ Yes ○ No

If all are no: considered to be a private pond

Adjacent Riparian Property Owner Names (attach sheets if necessary)

1.
2.
3.
4.
5.
6.

Name of Lake Property Owners' Association Representative or Lake District Representative (if none, please indicate)

Name of Applicator or Firm

Street or Route

City | State | ZIP Code

County | Phone Number (include area code)

Email Address

Applicator Certification Number for Category 5 Aquatic Pesticide Application

Business Location License Number (if applicable)

Restricted Use Pesticide License Number (if applicable)

Area(s) Proposed for Control:

	Treatment Length		Treatment Width			Estimated Acreage		Average Depth		Calculated Volume
1.	ft	X	ft	+ 43,560 ft² =		ac	X	ft	=	ac-ft
2.	ft	X	ft	+ 43,560 ft² =		ac	X	ft	=	ac-ft
3.	ft	X	ft	+ 43,560 ft² =		ac	X	ft	=	ac-ft
4.	ft	X	ft	+ 43,560 ft² =		ac	X	ft	=	ac-ft
5.	ft	X	ft	+ 43,560 ft² =		ac	X	ft	=	ac-ft
6.	ft	X	ft	+ 43,560 ft² =		ac	X	ft	=	ac-ft
7.	ft	X	ft	+ 43,560 ft² =		ac	X	ft	=	ac-ft
8.	ft	X	ft	+ 43,560 ft² =		ac	X	ft	=	ac-ft
9.	ft	X	ft	+ 43,560 ft² =		ac	X	ft	=	ac-ft

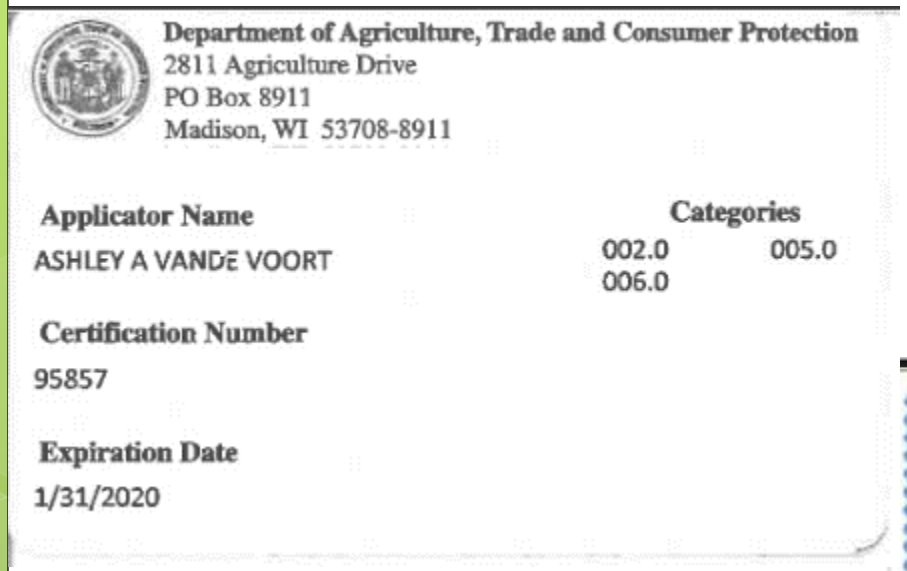
Estimated Acreage Grand Total ac | Calculated Volume Grand Total ac-ft

If the estimated acreage is greater than 10 acres, or is greater than 10 percent of the estimated area 10 feet or less in depth in Section II, complete and attach Form 3200-004A, Large-Scale Treatment Worksheet. Private pond treatments are exempted from this requirement.

Is this area within or adjacent to a sensitive area designated by the Department of Natural Resources? ○ Yes ○ No

DNR Use: NHI Review? ○ Yes ○ No Describe:

Aquatic Applicator License



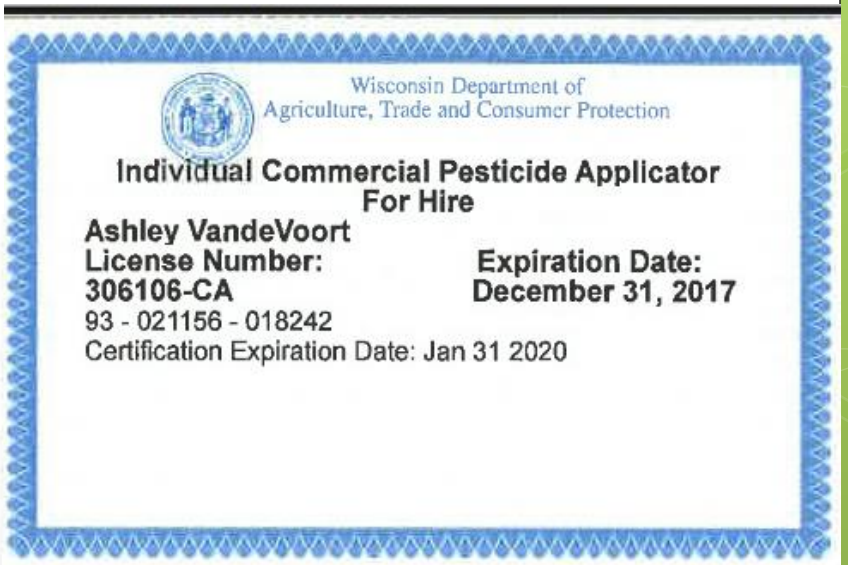
Department of Agriculture, Trade and Consumer Protection
2811 Agriculture Drive
PO Box 8911
Madison, WI 53708-8911

Applicator Name
ASHLEY A VANDE VOORT

Categories
002.0 005.0
006.0

Certification Number
95857

Expiration Date
1/31/2020



Wisconsin Department of
Agriculture, Trade and Consumer Protection

Individual Commercial Pesticide Applicator
For Hire

Ashley VandeVoort
License Number: **Expiration Date:**
306106-CA **December 31, 2017**
93 - 021156 - 018242
Certification Expiration Date: Jan 31 2020

Planting

Minimal Herbicide

Cut Stem

http://crcwma.org/index.php/2015/09/07/techniques-chemical-control/

http://www.usplastic.com/catalog/default.aspx?catid=875

Handwicking

http://lib.znate.ru/docs/index-20715.html?page=2

Invasive Species Control

- Phragmites
- Cattail
- Purple loosestrife

Before- 2014

After- 2017

Phragmites

2015

Electric Pumps

Backpack Sprayers

Remove Dead Material

2016

2015

2016

Cut Stem Treatment

Foliar Treatment

http://crcwma.org/index.php/2015/09/07/techniques-chemical-control/

2017

Before- 2014

After- 2017

Cattail

2014

Foliar Treatment

Handwicking

http://lib.znate.ru/docs/index-20715.html?page=2

Hand-pulling

2016

Purple Loosestrife

Cut and Bag Flower Heads

Foliar Treatment

Purple Loosestrife Beetle

Woody Species Removal

Cut-stump treatment

avandevoort@releeinc.com

NES
ECOLOGICAL SERVICES