



# TOWN OF **WAKEFIELD**

## Phosphorus Source Identification Report

NPDES MS4 Year 4 Report

September 2022

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# TOWN OF WAKEFIELD

DEPARTMENT OF PUBLIC WORKS

Engineering Division

## 1. Introduction

The Town of Wakefield (“the Town”) is subject to the requirements of the US Environmental Protection Agency’s (EPA’s) 2016 Massachusetts Small MS4 General Permit. The permit requires the development of a Phosphorus Source Identification Report to be submitted with the permit year 4 annual report. The following requirements for the Phosphorus Source Identification Report:

1. Calculation of total MS4 area draining to the water quality limited receiving water segments or their tributaries, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to part 2.3.4.6,
2. All screening and monitoring results pursuant to part 2.3.4.7.b., targeting the receiving water segment(s)
3. Impervious area and DCIA for the target catchment
4. Identification, delineation and prioritization of potential catchments with high phosphorus loading
5. Identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment, including the removal of impervious area

Within the four waterbodies listed in the Town of Wakefield listed in the 2018-2020 MADEP 303d integrated water list, **only the Saugus River (segment MA93-34)** is impaired for phosphorus. Saugus River segment MA93-34 is located between Lake Quannapowitt and the Lynn Water & Sewer Commission diversion canal impoundment dam and includes an overall watershed, including associated tributaries, of 372.31 acres. A map of the overall watershed is shown in *Figure 1* below and included as *Attachment 1*.



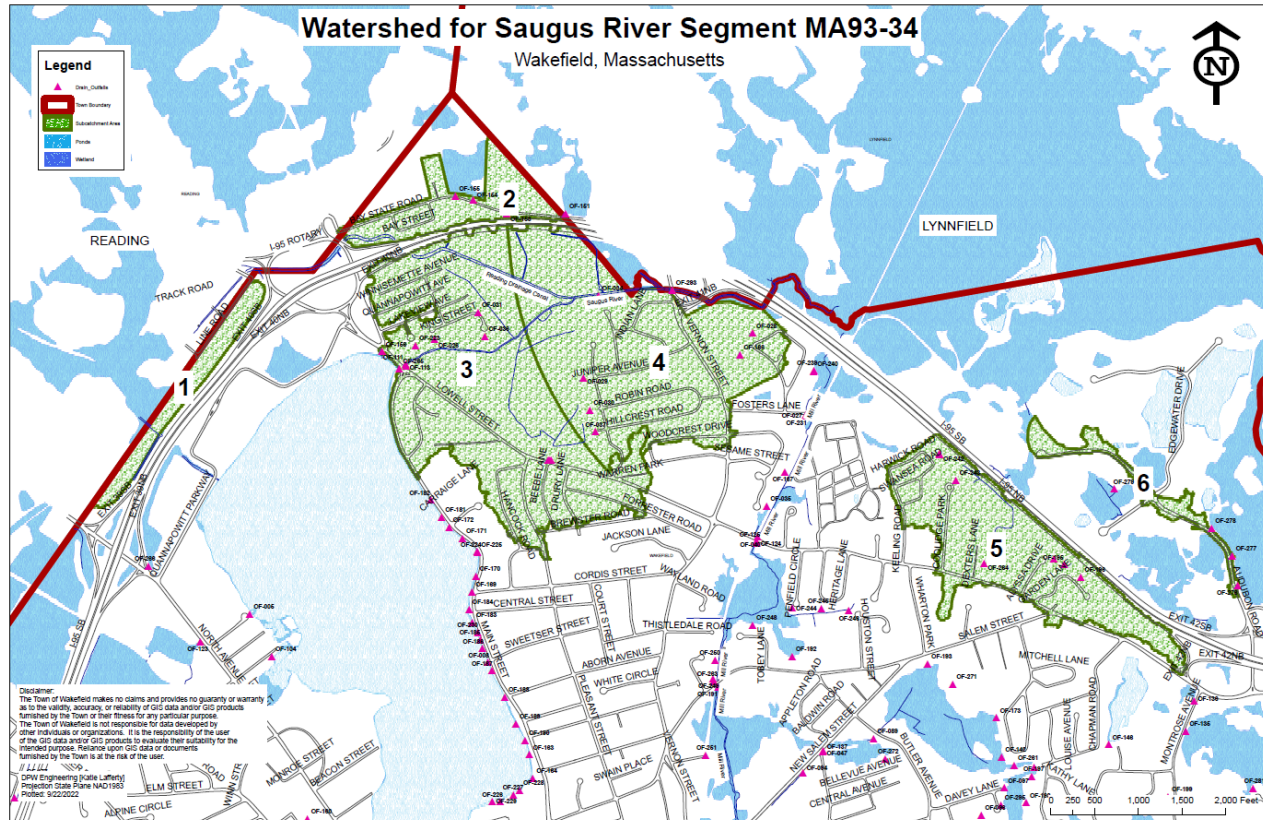


Figure 1 - Watershed for Saugus River Segment MA93-94

Utilizing the developed MS4 catchment delineations from Year 2 of the MS4 permit, the Town has identified six (6) distinct neighborhood sub-catchment areas within the Saugus River segment MA93-34 watershed. Each subcatchment encapsulates a small neighborhood that has been analyzed to determine limits and imperviousness, potential for high phosphorus loading and opportunities for retrofits/encasements for reduce the nutrient load. The 6 subcatchments are as follows:

- Subcatchment 1 – Line Road Neighborhood:
- Subcatchment 2 - Bay State Road/Bay Street Neighborhood
- Subcatchment 3 - Lowell Street/Pleasant Street Neighborhood
- Subcatchment 4 - Vernon Street Neighborhood
- Subcatchment 5 - Lowell Street/Salem Street Neighborhood
- Subcatchment 6 - Audubon Road Area

Outfall screening and monitoring results are included in *Attachment 2*. Due to the lack of rain this year, the Town's consultant for sampling the outfalls has been unable to sample any of the outfalls in the area draining to the segment of Saugus River that is impairing for phosphorus.



## 2. Subcatchment Analysis

### Subcatchment 1 – Line Road Neighborhood

Subcatchment 1 includes the area of the Line Road neighborhood which drains to the Reading Drainage Canal, a tributary to the Saugus River. The subcatchment is bounded by the Reading town line on the northwest side and the MassDOT right-of-way on the other three sides. A map of the subcatchment is shown in *Figure 2* below and included within *Attachment 1*.

Table 1 – Subcatchment Summary	
<b>Total Area (acres)</b>	16.73
<b>Impervious Area (acres)</b>	3.03
<b>% Impervious Area</b>	18%
<b>DCIA (acres)</b>	1.94
<b>% DCIA</b>	12%
<b>Annual P Load (lbs/yr)</b>	5.02

Subcatchment 1 was analyzed for potential retrofit opportunities or opportunities for installation of structural BMPs during redevelopment. The Town owns property at the southern corner of Line Road and Track Road intersection as shown in the map below. This area was identified as a potential location for the installation of a structural BMP. Based on the surrounding topography this appears to be a suitable location for a bio-retention area, but will need to include an overflow connected to Reading's drainage system. The location of the potential BMP is shown in *Figure 3* and Concept Plan 1 in *Attachment 3*.

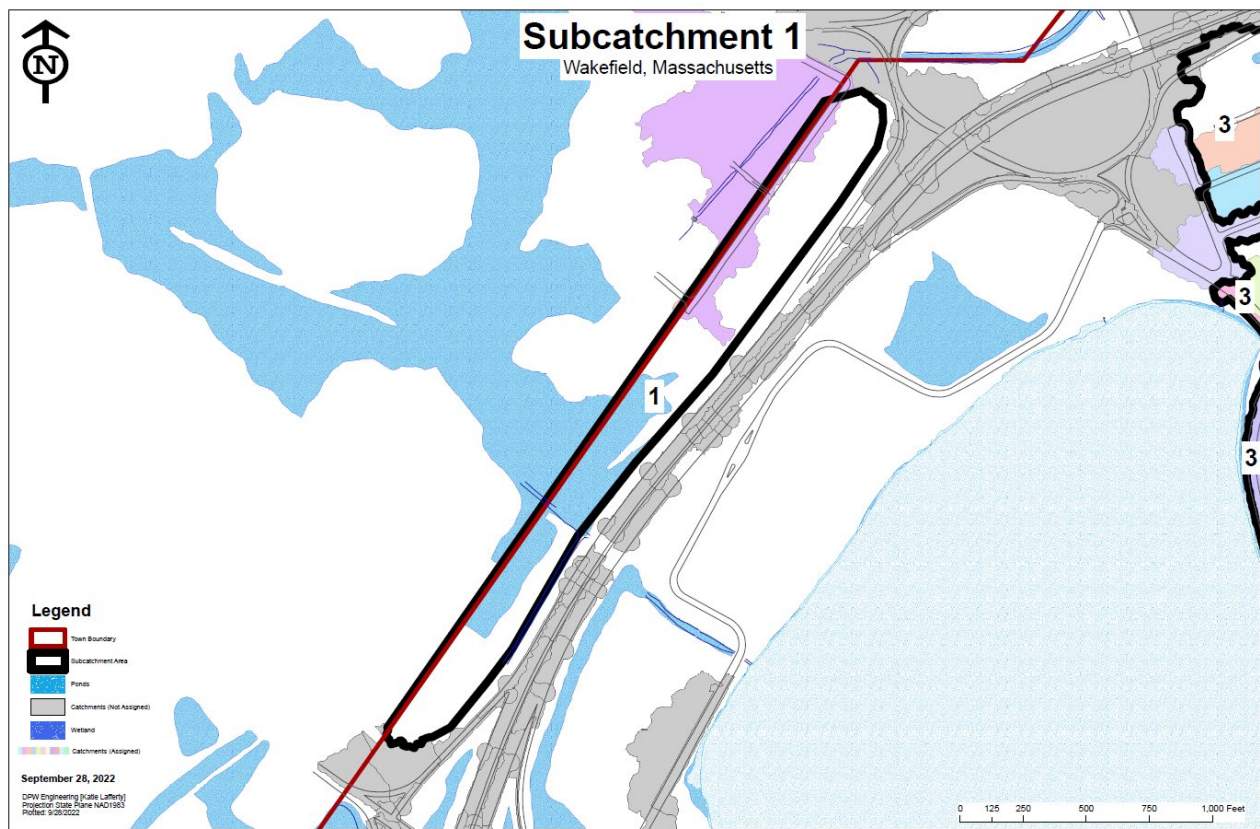


Figure 2 - Map of Subcatchment 1

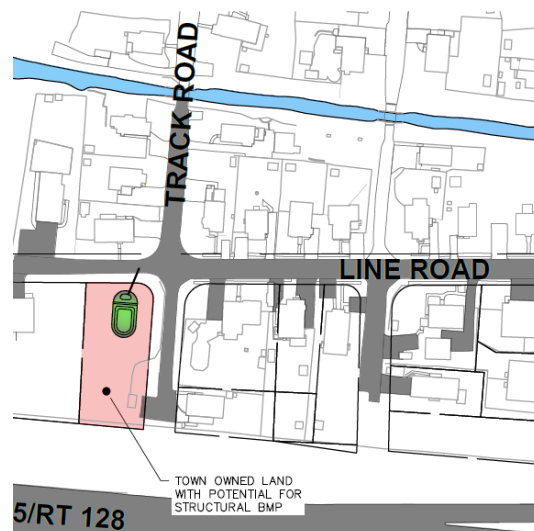


Figure 3 - Potential BMP Location for Subcatchment 1

## Subcatchment 2 – Bay State Road/Bay Street Neighborhood

Subcatchment 2 includes the area of the Bay State Road/Bay Street neighborhood which drains to the wetlands on the northern side of I-95/Rt 128 which connect to the Reading Drainage Canal, a tributary to the Saugus River. The subcatchment is bounded on the northern side by Camp Curtis Guild and the Lynnfield town line, on the western side by the Reading town line, on the southern side by the MassDOT I-95/Rt 128 right-of-way, and on the eastern side by the Lynnfield town line. A map of the subcatchment is shown in *Figure 4* below and included within *Attachment 1*.

Table 2 – Subcatchment Summary	
<b>Total Area (acres)</b>	25.56
<b>Impervious Area (acres)</b>	15.04
<b>% Impervious Area</b>	59%
<b>DCIA (acres)</b>	12.39
<b>% DCIA</b>	48%
<b>Annual P Load (lbs/yr)</b>	20.81

As shown in the subcatchment map, most of the area outside of the right-of-way drains away from the Town's MS4 so the contribution to the Saugus River from Town's MS4 catchments is minimal. In subcatchment 2, there is limited opportunity within the Town's right-of-way for retrofits as the roadway isn't excessively wide. The Town doesn't own any properties within the subcatchment that could be used for retrofits. The best opportunity for improvements is if the properties at 81 or 90 Bay State Road, which are currently car dealerships, are redeveloped, there will be opportunity to install structural BMPs and reduce the impervious coverage. The location of the properties are shown in *Figure 5* and Concept Plan 2 in *Attachment 3*.

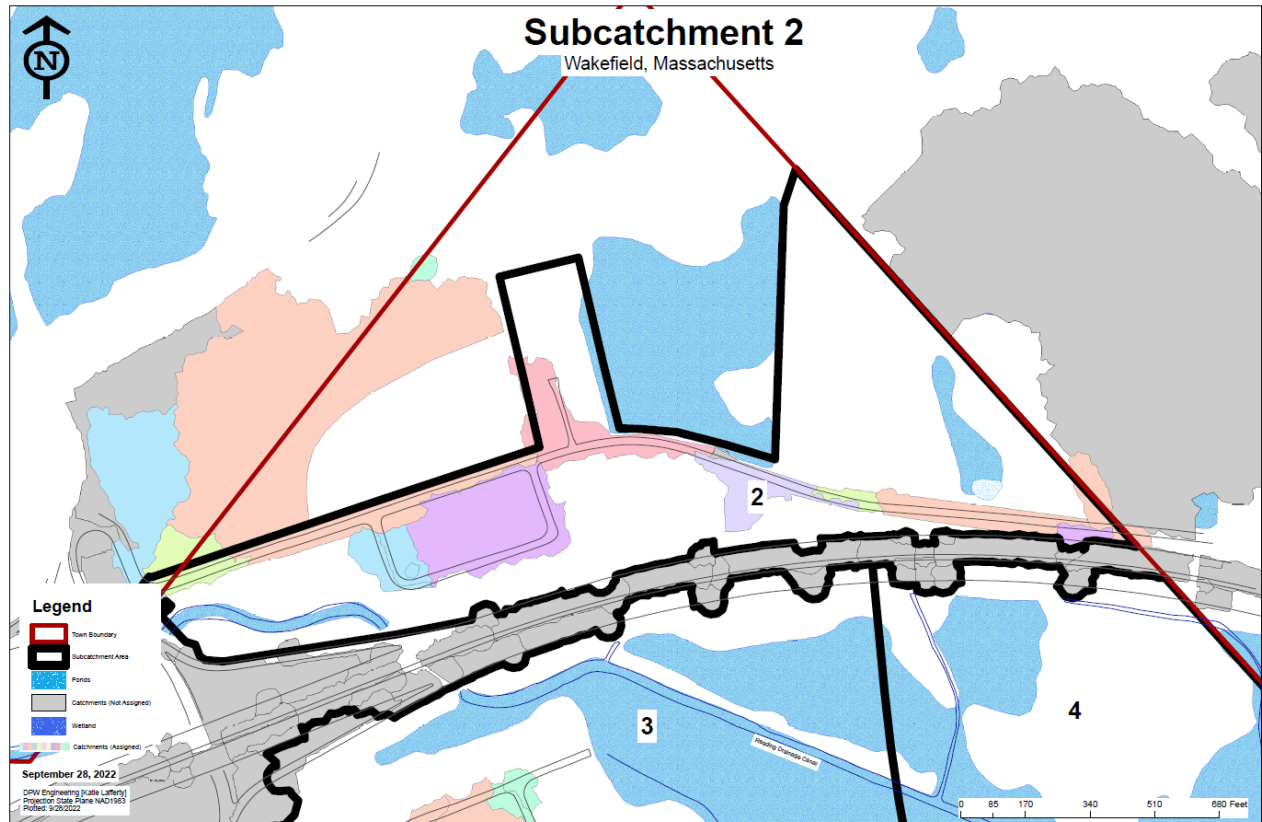


Figure 4 - Map of Subcatchment 2

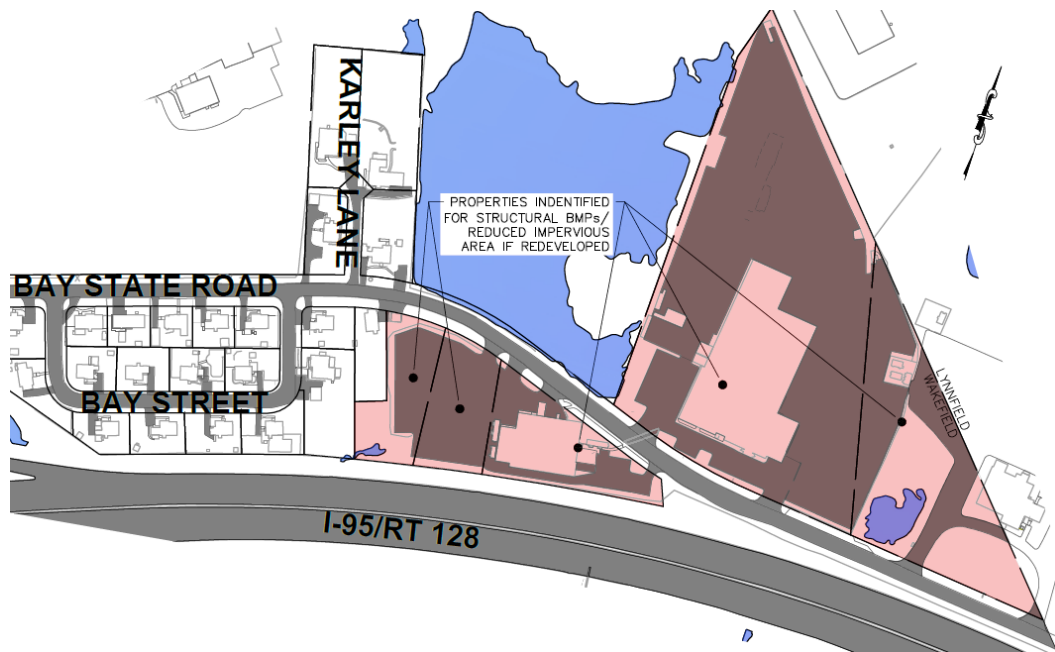


Figure 5 - Potential Location for Structural BMP Retrofits for Subcatchment 2

### Subcatchment 3 – Lowell Street/Pleasant Street Neighborhood

Subcatchment 3 includes the area of the Lowell Street, Main Street, and Pleasant Street neighborhoods that drain to the Saugus River and the wetland to the northeast of Lowell Street and south of I-95/Rt 128 that is tributary to the Saugus River. The subcatchment is bounded on the northern side by the MassDOT I-95/Rt 128 right-of-way, on the western side by Lake Quannapowitt, on the southern side by Brewster Lane, and on the eastern side is adjacent to subcatchment 4 and splits the wetlands north of Lowell Street. A map of the subcatchment is shown in *Figure 6* below and included within *Attachment 1*.

Table 3 – Subcatchment Summary	
Total Area (acres)	132.75
Impervious Area (acres)	38.71
% Impervious Area	29%
DCIA (acres)	25.75
% DCIA	19%
Annual P Load (lbs/yr)	50.68

Most of the roadways in the Lowell Street and Pleasant Street neighborhoods were recently repaved so there isn't opportunity to retrofit the Town owned right-of-way. However there are some opportunities to look at retrofitting cul-de-sacs when repaving the roads in the Winnisimette Ave, Quannapowitt Ave, and Lakeview Ave neighborhood off Main Street. Specifically the cul-de-sacs at the end of Lakeview Circle and King Street are have approximately 40' radiuses which will allow for a small bioretention basin to be installed in the middle while still allowing vehicles to travel around it. The location of the potential BMPs are shown in *Figure 7* and Concept Plan 3 in *Attachment 3*. A sample detail is with the approximate reduction in impervious area (IA) is shown in *Figure 8*.



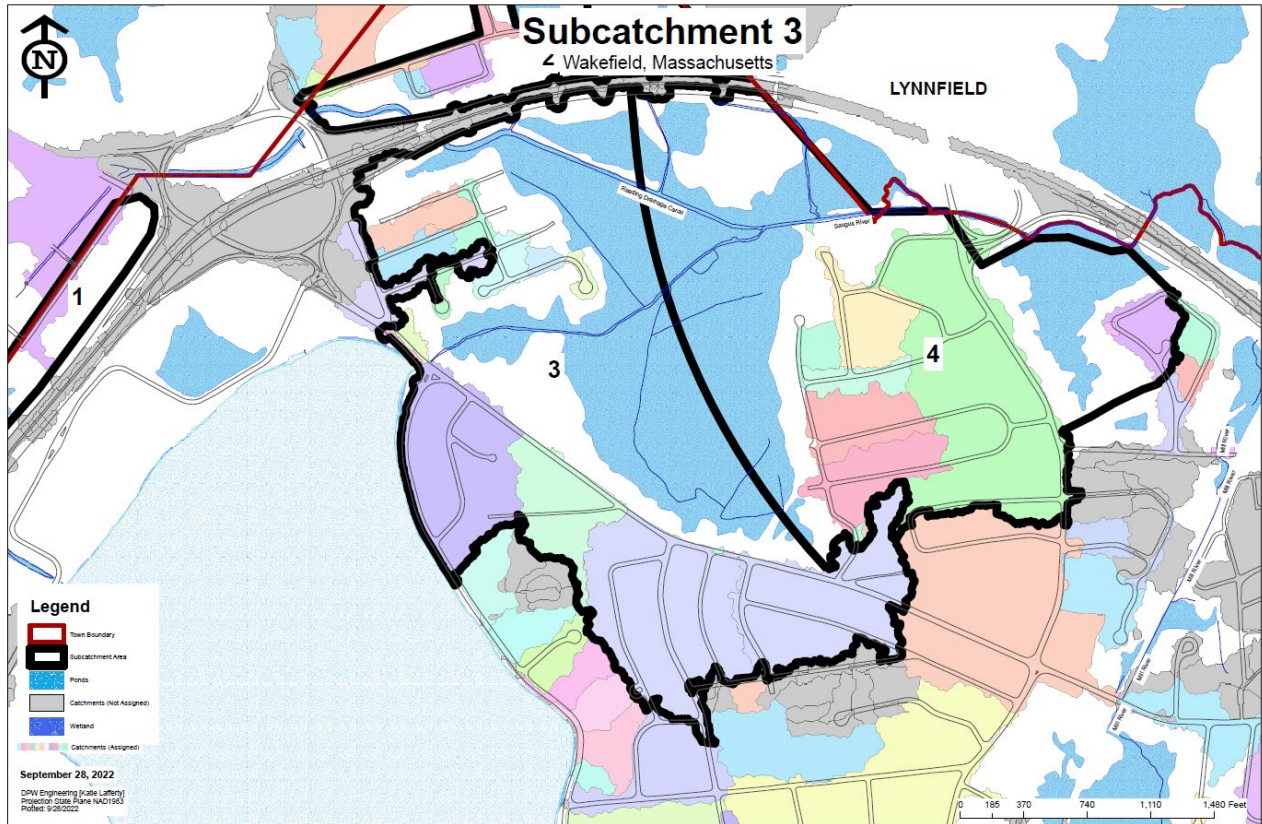


Figure 6 - Map of Subcatchment 3

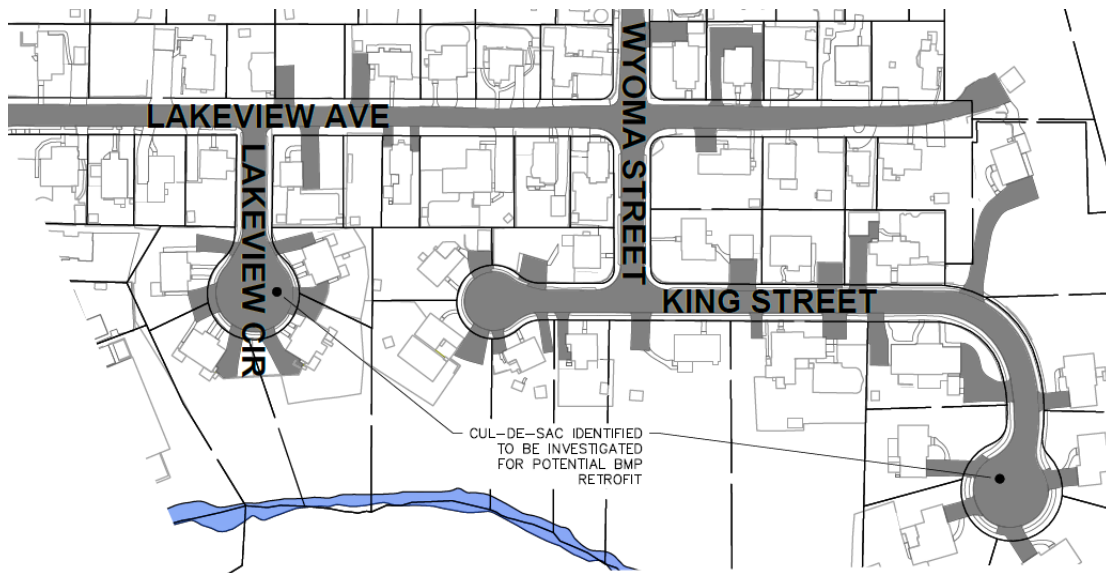


Figure 7 - Potential Location for BMPs in Subcatchment 3

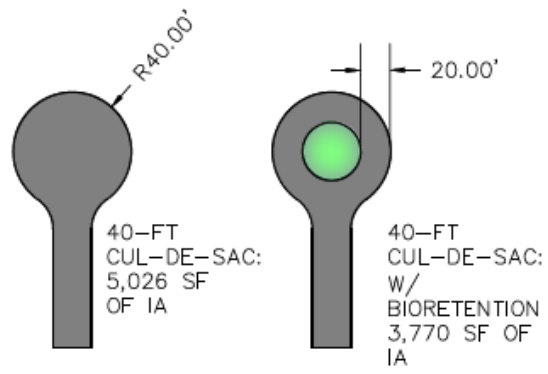


Figure 8 - IA Reduction in Cul-de-sac



#### Subcatchment 4 – Vernon Street Neighborhood

Subcatchment 4 includes the area of the Vernon Street neighborhoods draining to the Saugus River and wetlands tributary to the Saugus River. The subcatchment is bounded on the north by the MassDOT I-95/Rt 128 right-of-way, on the western side by subcatchment 3 splitting the wetlands north of Lowell St, on the southern side by Woodcrest Drive, and on the eastern side it splits the Paon Boulevard neighborhood. A map of the subcatchment is shown in *Figure 9* below and included within *Attachment 1*.

Table 4 – Subcatchment Summary	
Total Area (acres)	114.71
Impervious Area (acres)	23.01
% Impervious Area	20%
DCIA (acres)	14.10
% DCIA	12%
Annual P Load (lbs/yr)	42.28

In the analysis of subcatchment 4, it was determined the Town owned-property at the northeast corner of the Indian Lane and Vernon Street intersection as shown in the map below is the best location for a potential BMP. Based on the surrounding topography this appears to be a suitable location for a bio-retention area to treat the runoff from Indian Lane. The location of the potential BMP is shown in *Figure 10* and Concept Plan 4 in *Attachment 3*.

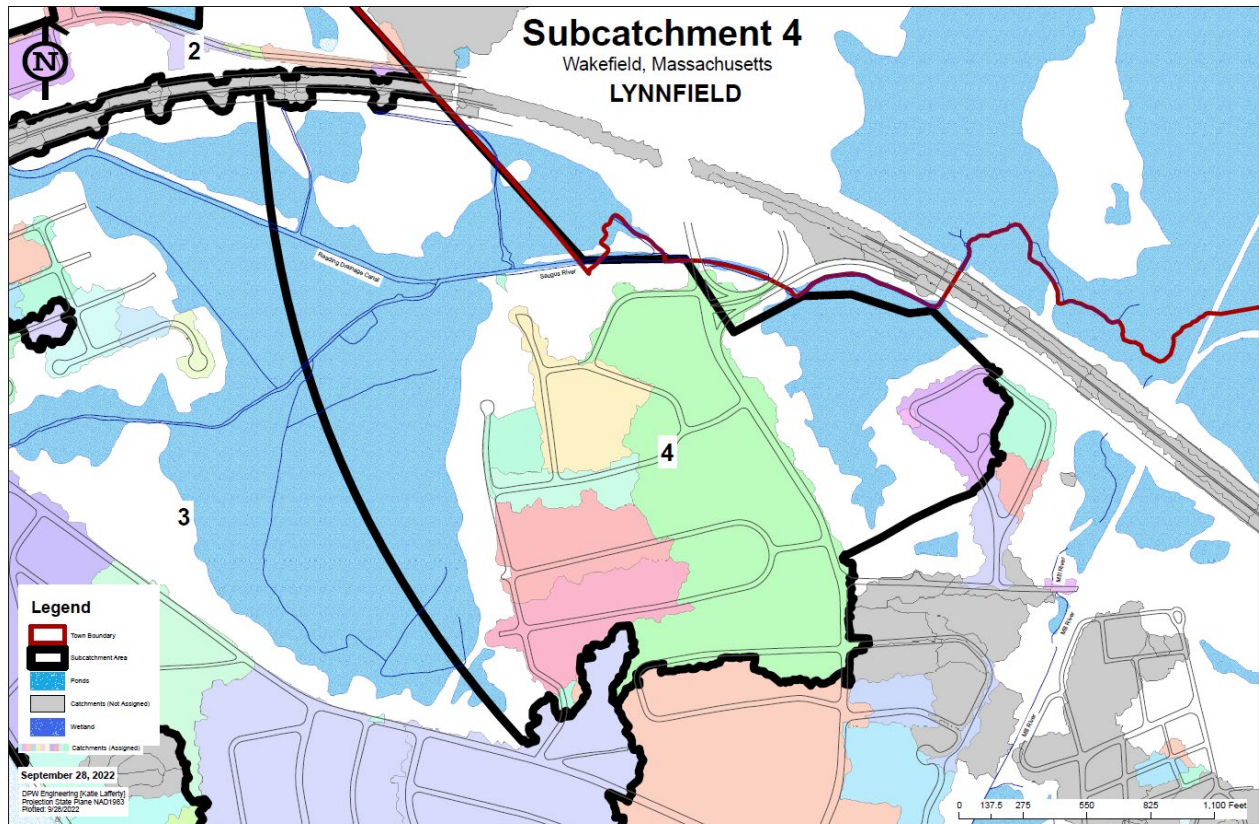


Figure 9 - Map of Subcatchment 4

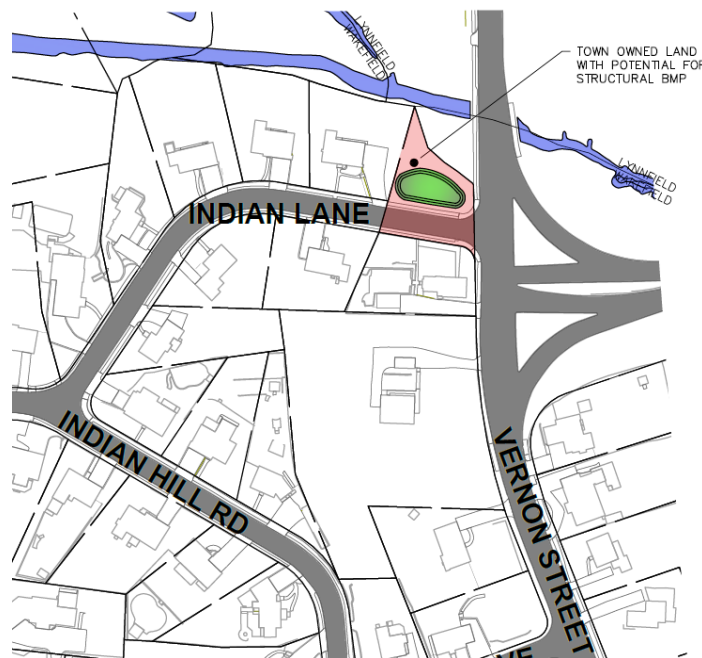


Figure 10 – Location for potential BMP in Subcatchment 4

### Subcatchment 5 – Lowell Street/Salem Street Neighborhood

Subcatchment 5 includes the area of the Lowell Street and Salem Street neighborhoods that drains to the MassDOT I-95/Rt 128 right-way tributary to the Saugus River. The subcatchment is bounded on the northern and eastern sides by the MassDOT I-95/Rt 128 right-of-way, on the western side by Keeling Road, on the southern side by Lowell Street and Salem Street. A map of the subcatchment is shown in *Figure 11* below and included within *Attachment 1*.

Table 5 – Subcatchment Summary	
<b>Total Area (acres)</b>	67.49
<b>Impervious Area (acres)</b>	22.51
<b>% Impervious Area</b>	33%
<b>DCIA (acres)</b>	15.73
<b>% DCIA</b>	23%
<b>Annual P Load (lbs/yr)</b>	33.54

In subcatchment 5 the intersection of Salem Street and Lowell Street was identified as a location where the impervious area could be reduced by realigning the curb and adding green space. This location was part of the Town's 2022 Roadway Improvements paving contract and during the design phase plans were developed to realign the intersection and construct a bioretention area. The construction is expected to be completed next year. The site plan for the Lowell Street and Salem Street intersection is shown in *Figure 12* and the Bioretention Area Plan in *Attachment 4*. In addition to the planned intersection improvements, there are multiple commercial properties within the subcatchment that would create opportunities for the installation of structural BMPs if they are redeveloped.

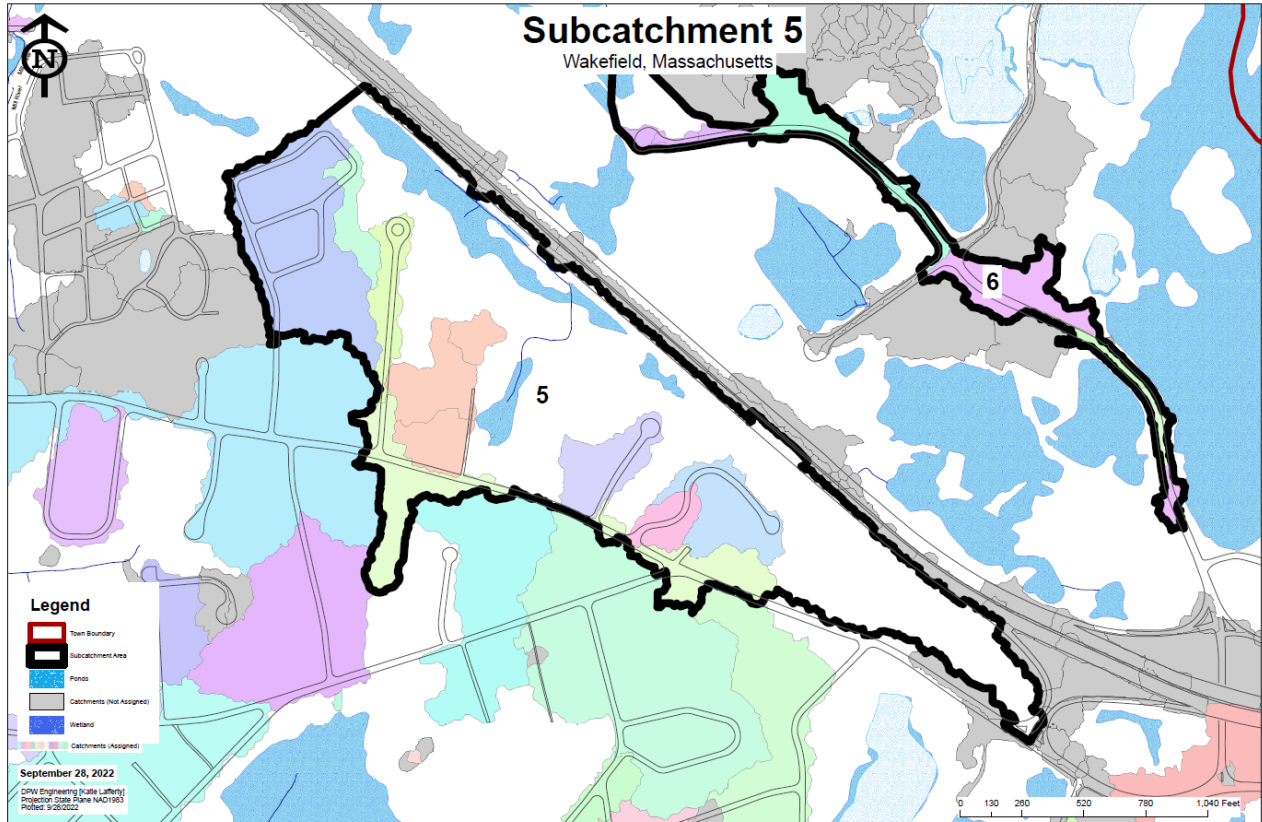


Figure 11 - Map of Subcatchment 5

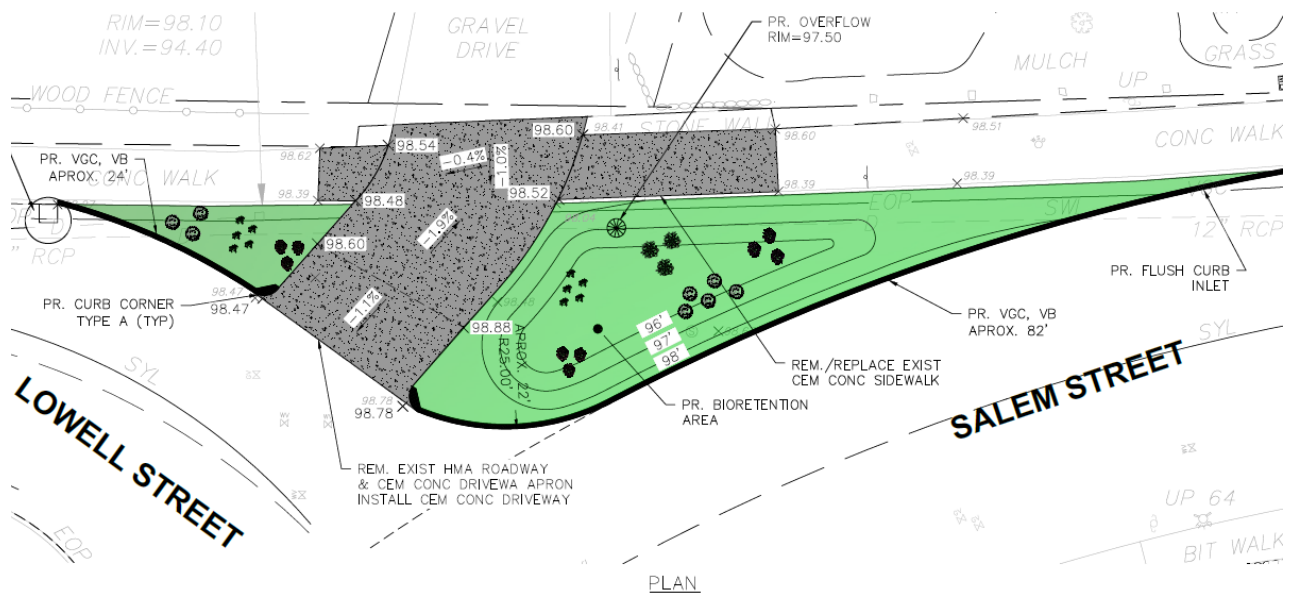


Figure 12 - Lowell St and Salem St Realignment

### Subcatchment 6 – Audubon Road Area

Subcatchment 6 includes the area of the Audubon Road right-of-way that drains to the Reedy Meadows wetlands tributary to the Saugus River. A map of the subcatchment is shown in *Figure 13* below and included within *Attachment 1*.

Table 6 – Subcatchment Summary	
Total Area (acres)	15.07
Impervious Area (acres)	5.12
% Impervious Area	34%
DCIA (acres)	3.30
% DCIA	22%
Annual P Load (lbs/yr)	8.35

There are a couple of opportunities to retrofit Audubon Road. The first opportunity is at the end of Audubon Road there is a cul-de-sac which appears to no longer be in use. There is potential to remove the superfluous paving at the cul-de-sac so a structural BMP can be installed to treat the runoff from a section of the roadway. The second option is through public/private partnership at outfalls 276, 277, and 278 shown on the subcatchment map. Through a collaboration between the Town and the abutting land owners, there is potential to add small water quality cells to treat the runoff. The location of the potential BMP at the cul-de-sac is shown in *Figure 14* and Concept Plan 5 in *Attachment 3*.



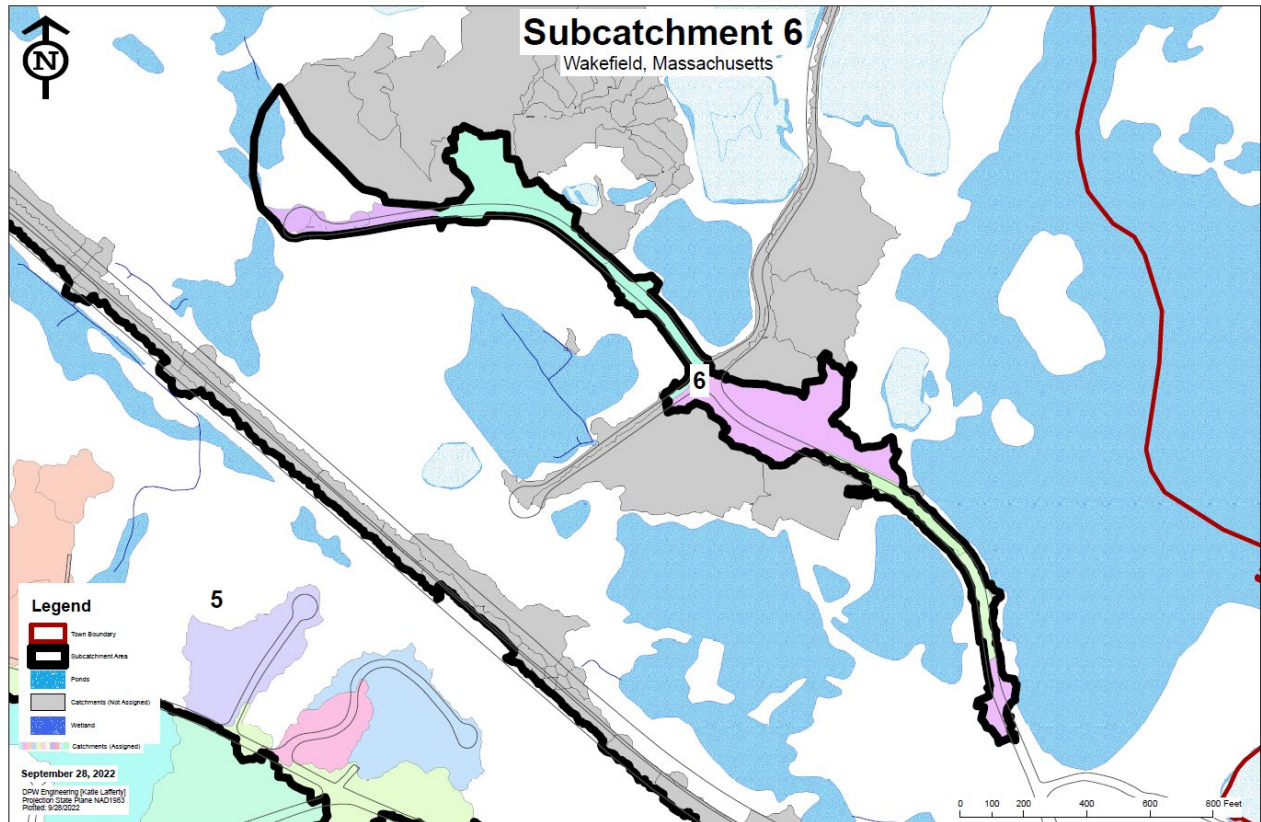


Figure 13 - Map of Subcatchment 6

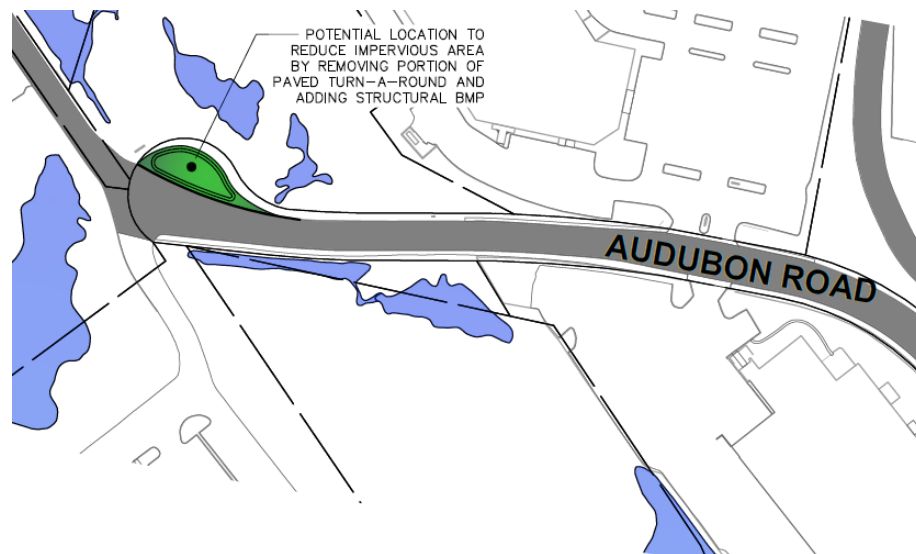


Figure 14 - Potential Location for BMP in Subcatchment 6

Attachments:

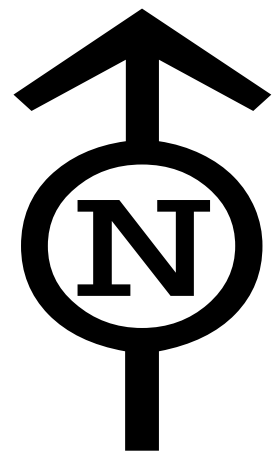


## Attachment 1 – Catchment Maps



# Watershed for Saugus River Segment MA93-34

Wakefield, Massachusetts



**Legend**

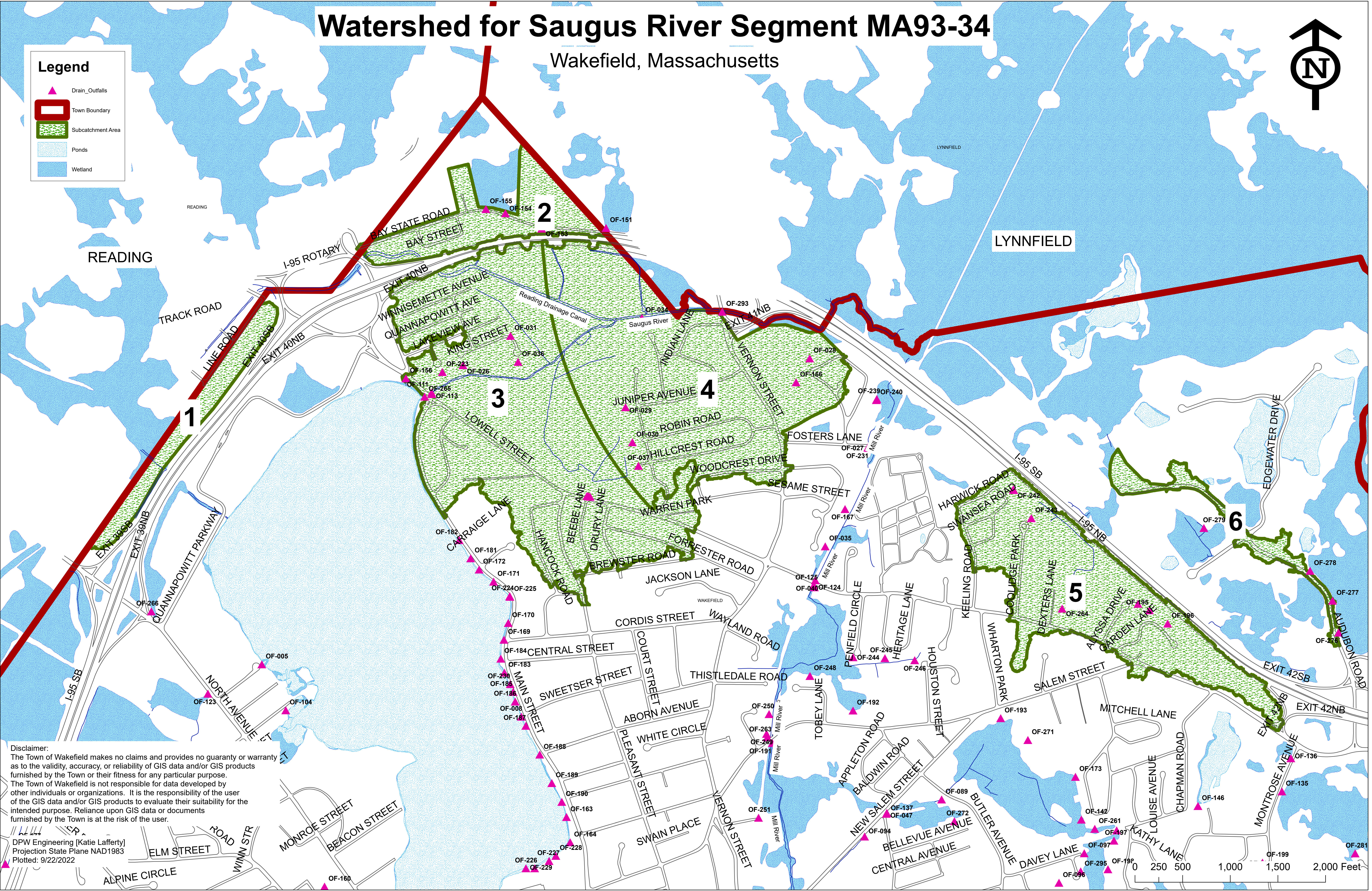
Drain\_Outfalls

Town Boundary

Subcatchment Area

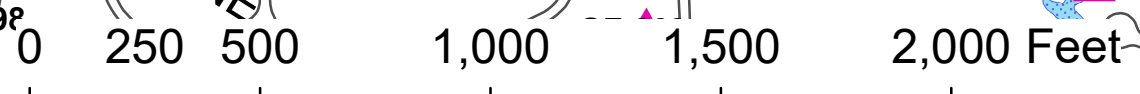
Ponds

Wetland

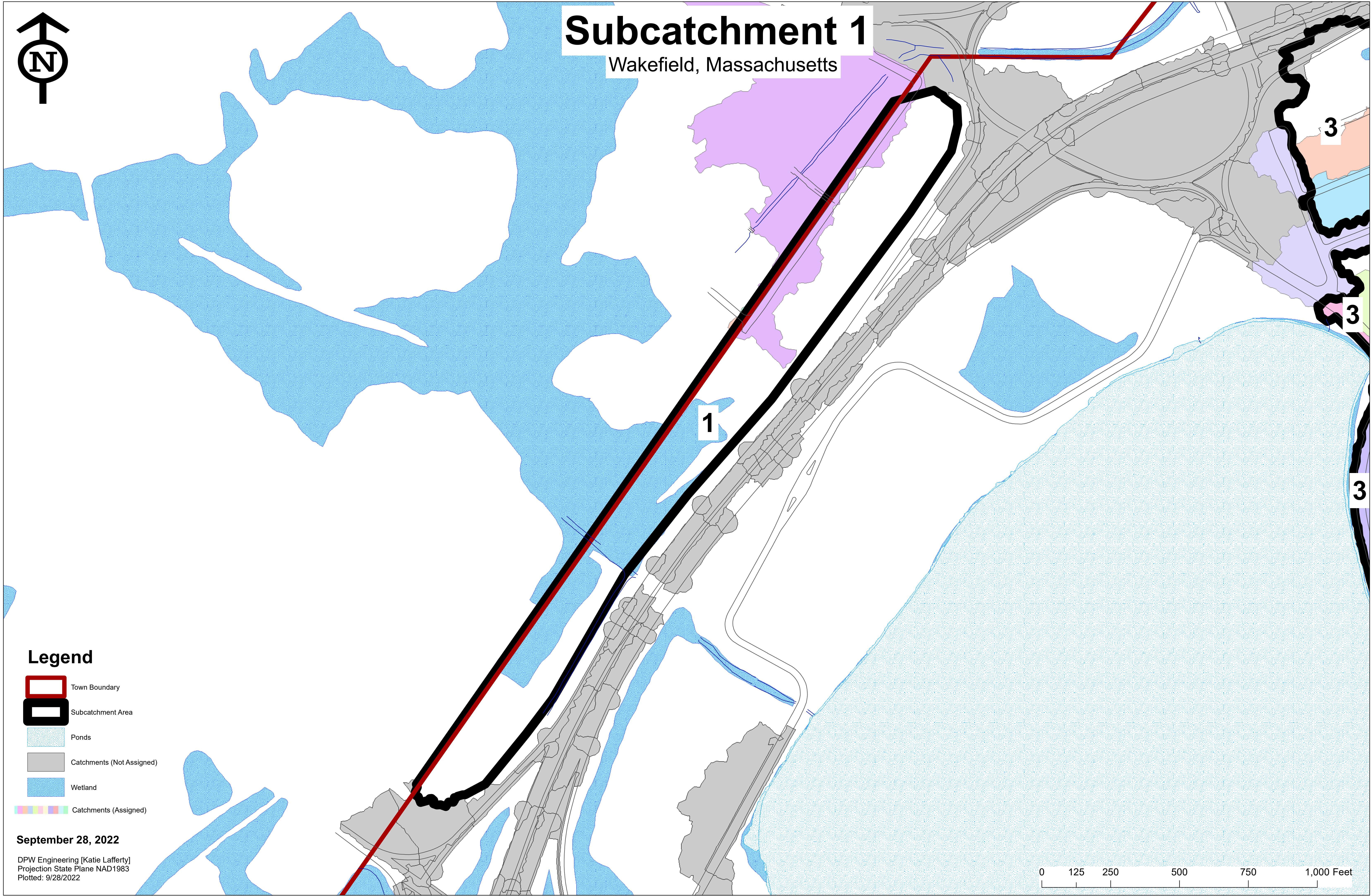


Disclaimer:  
The Town of Wakefield makes no claims and provides no guaranty or warranty as to the validity, accuracy, or reliability of GIS data and/or GIS products furnished by the Town or their fitness for any particular purpose. The Town of Wakefield is not responsible for data developed by other individuals or organizations. It is the responsibility of the user of the GIS data and/or GIS products to evaluate their suitability for the intended purpose. Reliance upon GIS data or documents furnished by the Town is at the risk of the user.

DPW Engineering [Katie Lafferty]  
Projection State Plane NAD1983  
Plotted: 9/22/2022





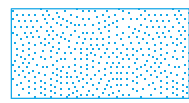

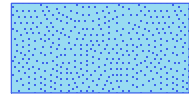





# Subcatchment 1

Wakefield, Massachusetts

## Legend

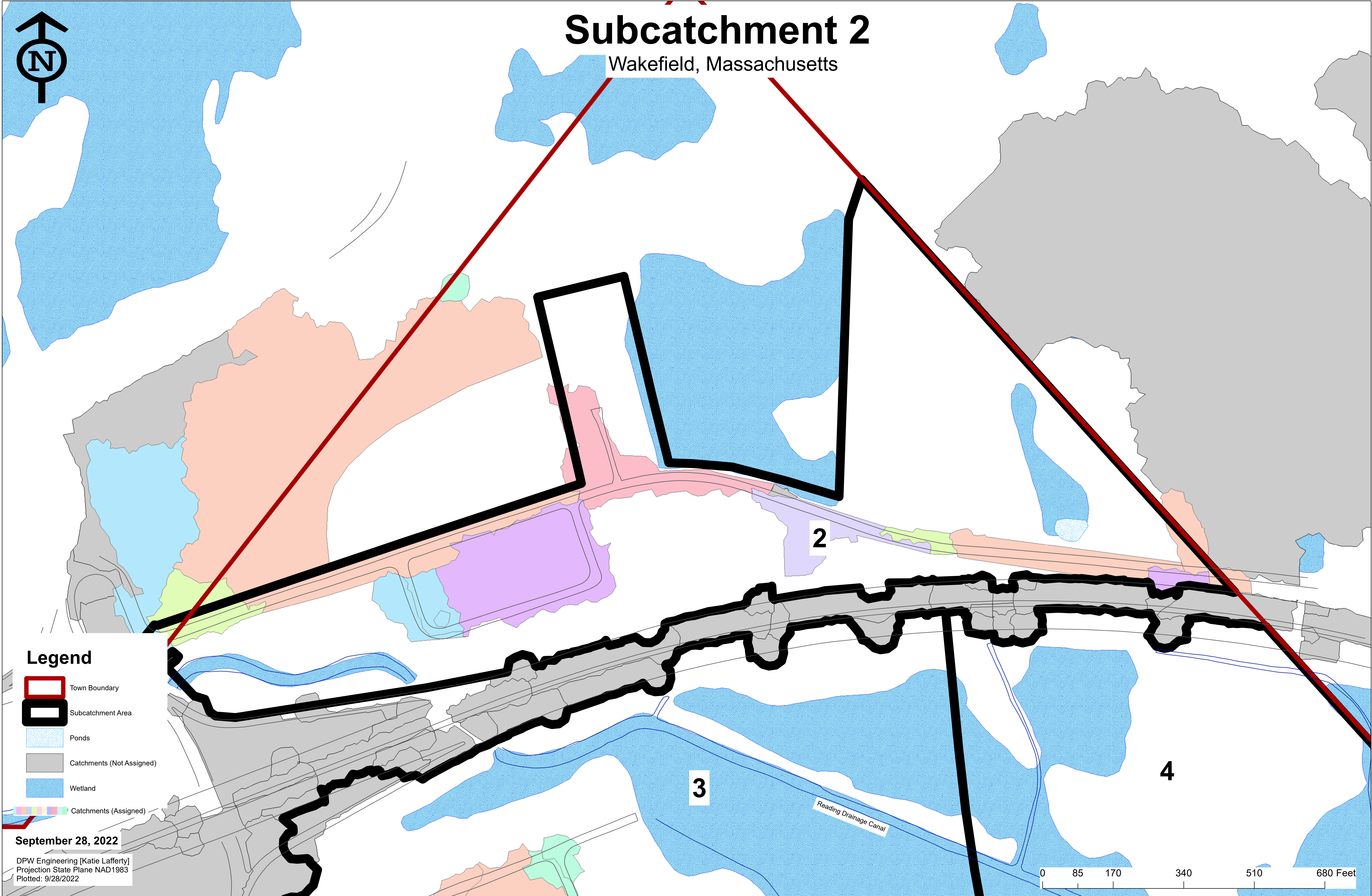
-  Town Boundary
-  Subcatchment Area
-  Ponds
-  Catchments (Not Assigned)
-  Wetland
-  Catchments (Assigned)

September 28, 2022

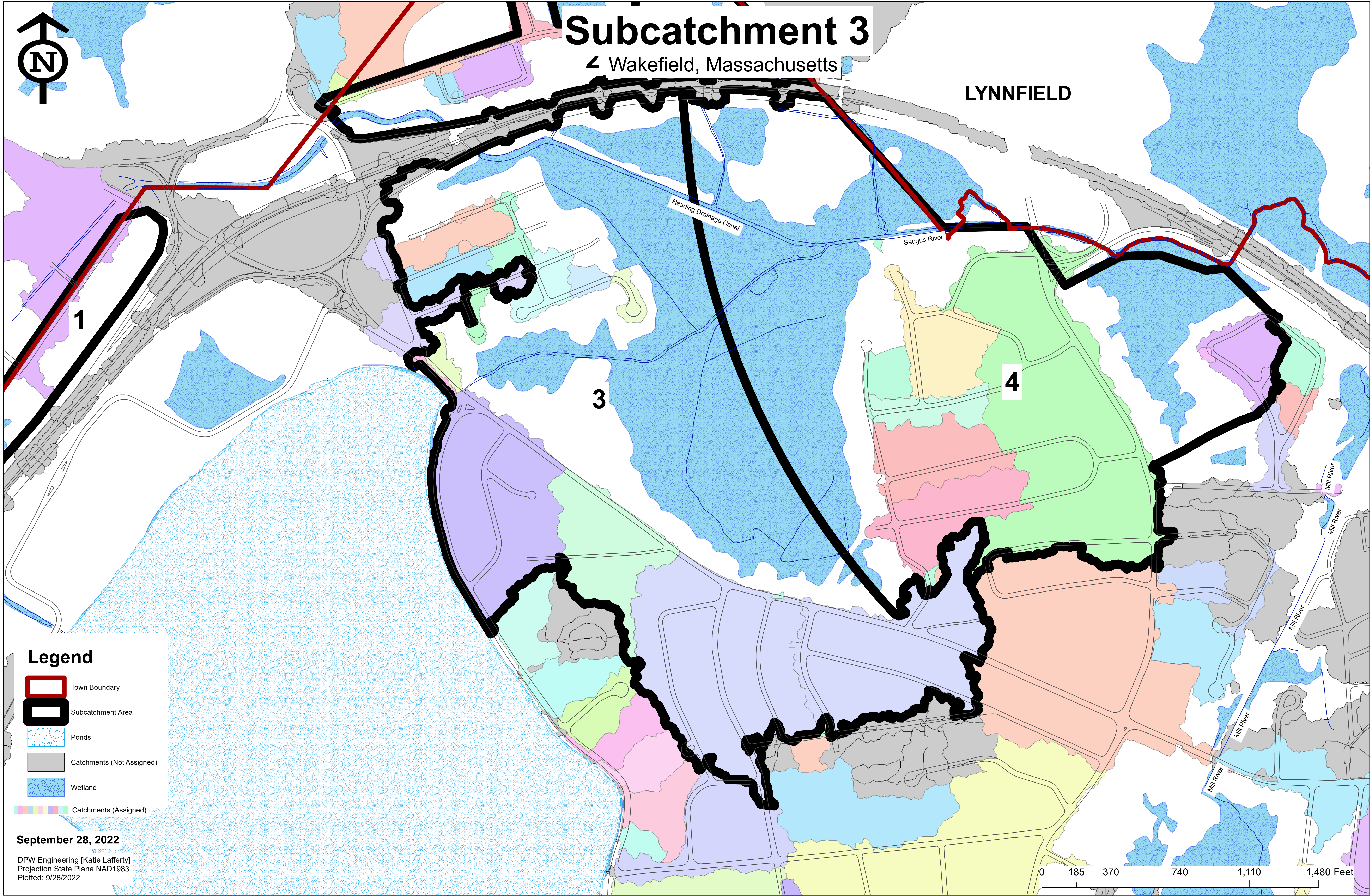
DPW Engineering [Katie Lafferty]  
Projection State Plane NAD1983  
Plotted: 9/28/2022

0 125 250 500 750 1,000 Feet









# Subcatchment 3

Wakefield, Massachusetts

LYNNFIELD

**Legend**

- Town Boundary
- Subcatchment Area
- Ponds
- Catchments (Not Assigned)
- Wetland
- Catchments (Assigned)

September 28, 2022

DPW Engineering [Katie Lafferty]  
Projection State Plane NAD1983  
Plotted: 9/28/2022

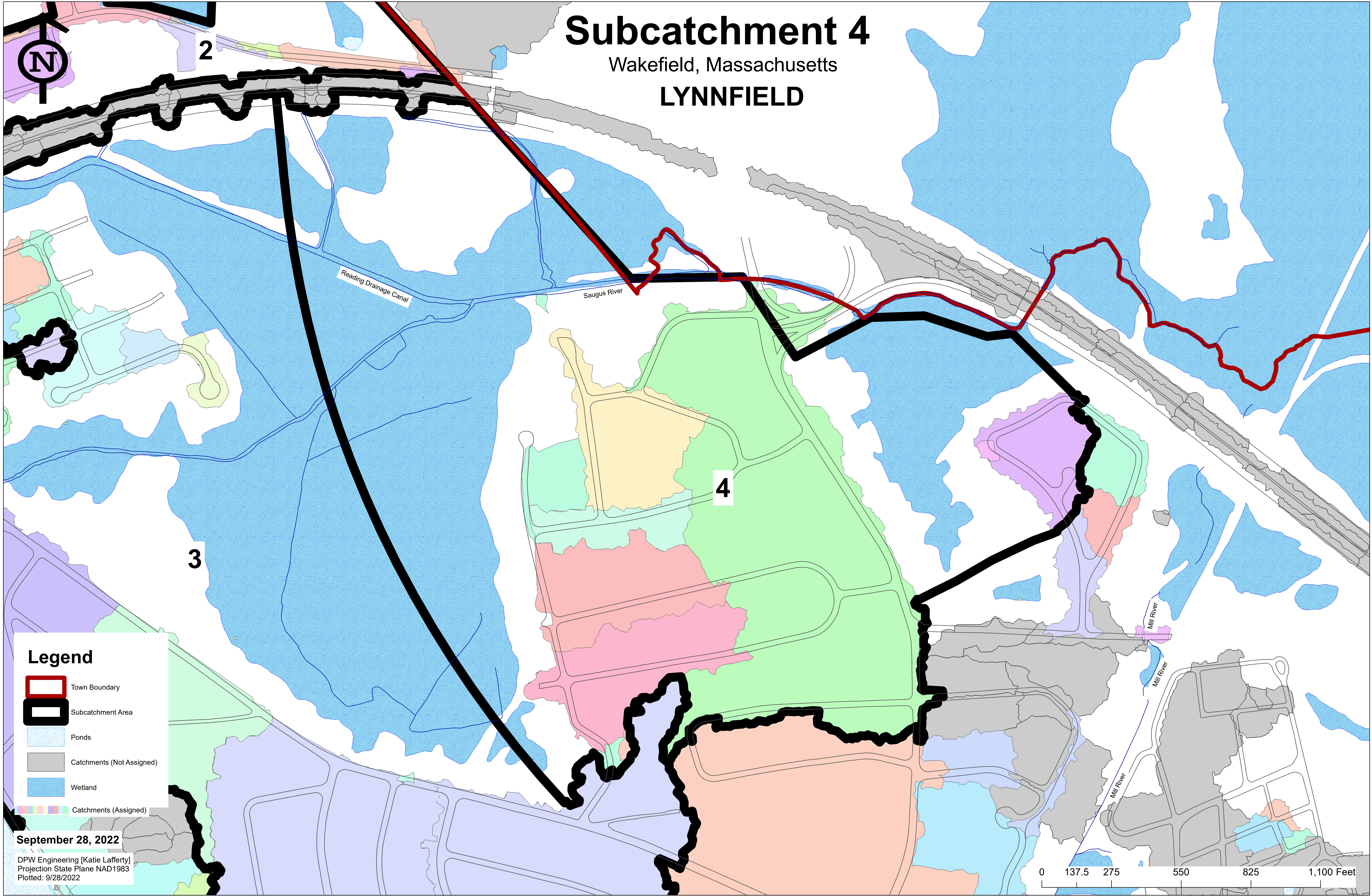
0 185 370 740 1,110 1,480 Feet



# Subcatchment 4

Wakefield, Massachusetts

## LYNNFIELD



### Legend

- Town Boundary
- Subcatchment Area
- Ponds
- Catchments (Not Assigned)
- Wetland
- Catchments (Assigned)

September 28, 2022

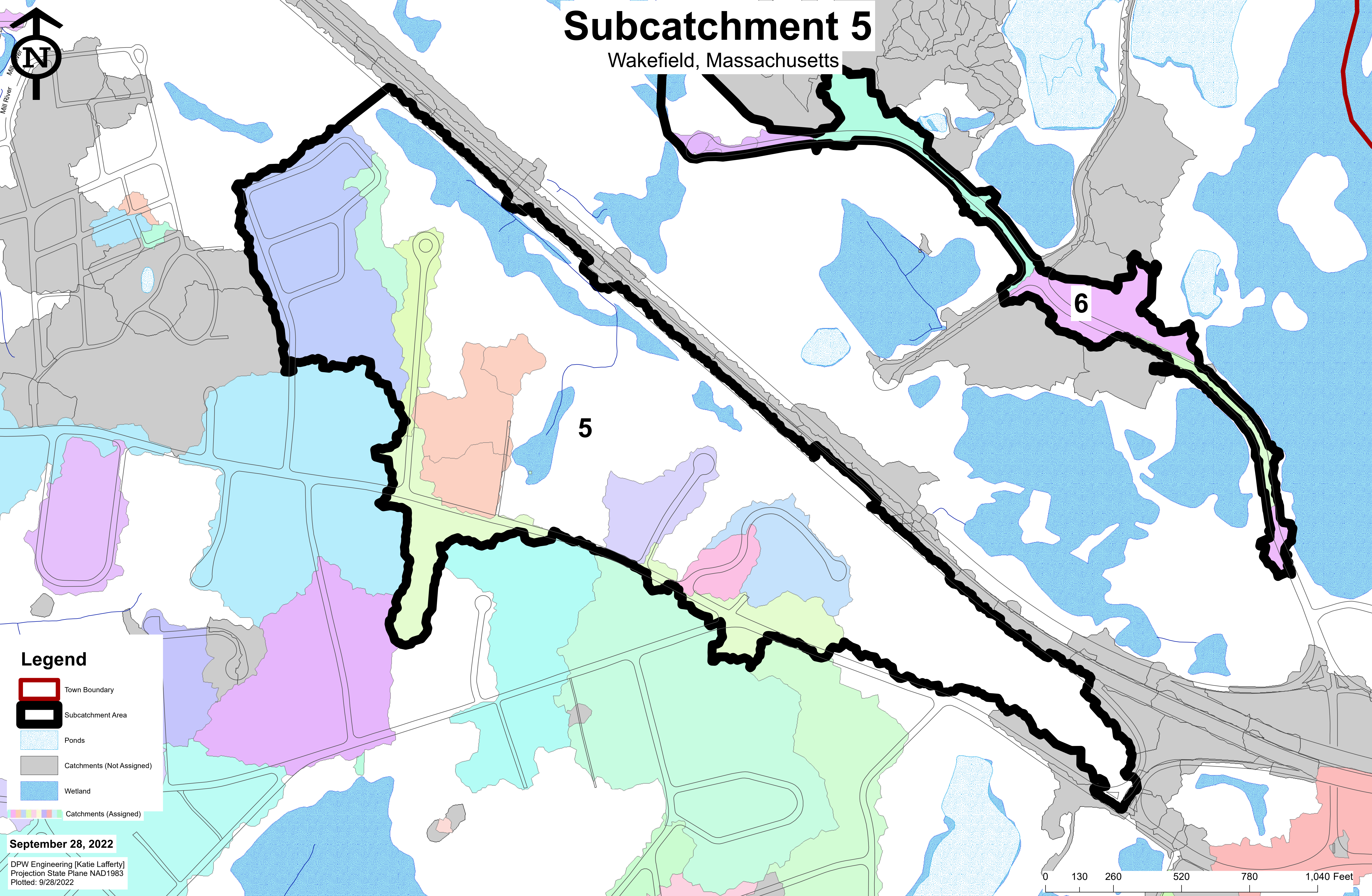
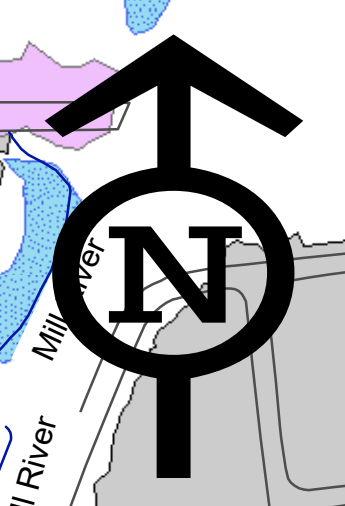
DPW Engineering [Katie Lafferty]  
Projection State Plane NAD1983  
Plotted: 9/28/2022

0 137.5 275 550 825 1,100 Feet



# Subcatchment 5

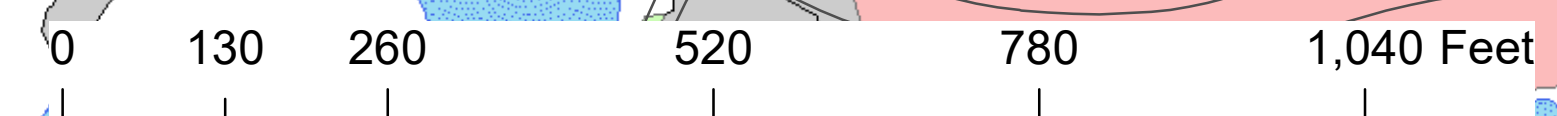
Wakefield, Massachusetts



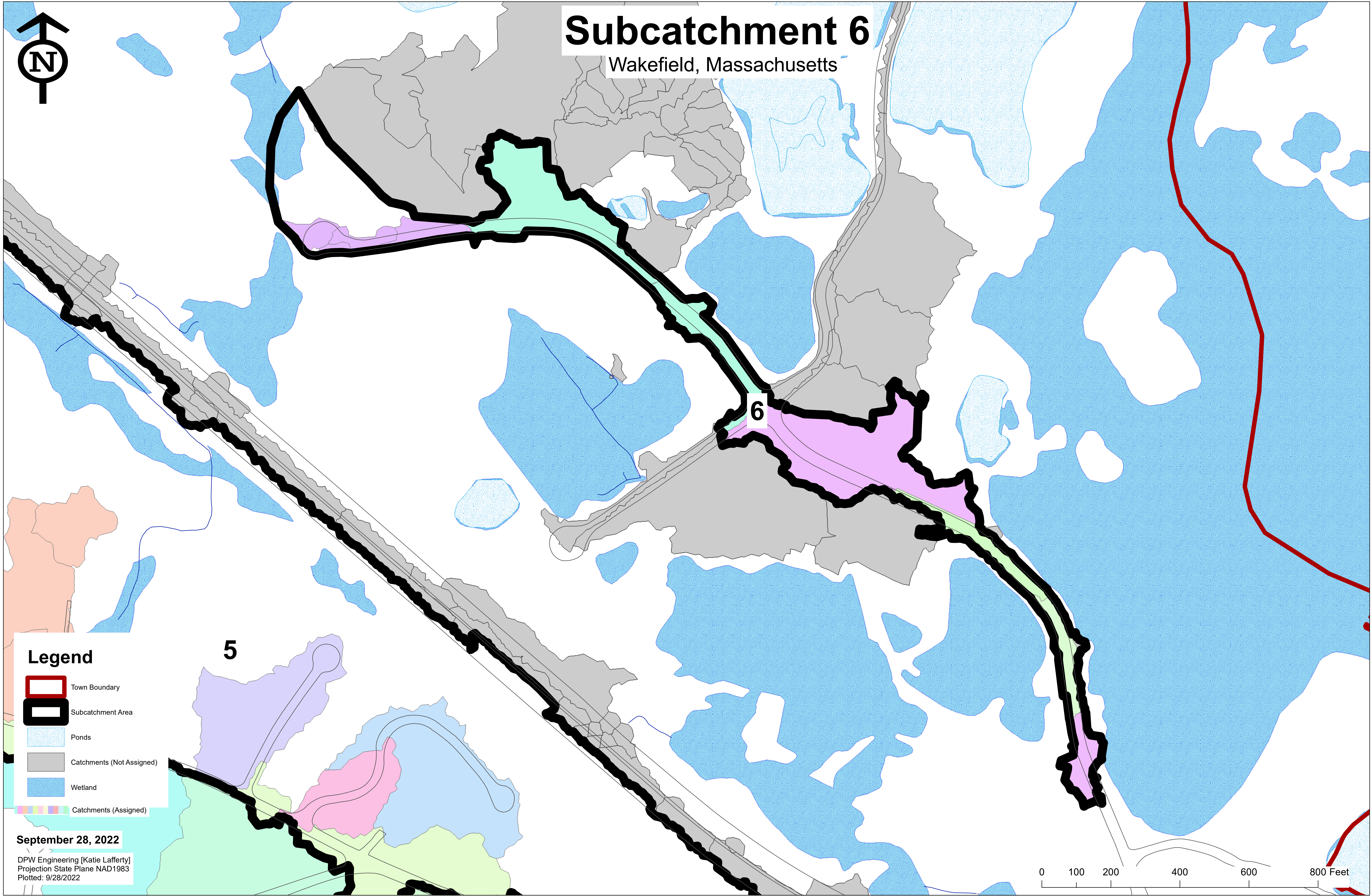
**Legend**

-  Town Boundary
-  Subcatchment Area
-  Ponds
-  Catchments (Not Assigned)
-  Wetland
-  Catchments (Assigned)

**September 28, 2022**  
DPW Engineering [Katie Lafferty]  
Projection State Plane NAD1983  
Plotted: 9/28/2022





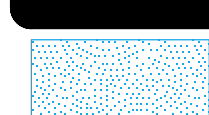
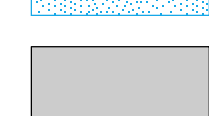
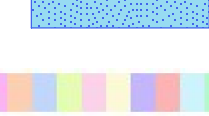




# Subcatchment 6

Wakefield, Massachusetts

## Legend

-  Town Boundary
-  Subcatchment Area
-  Ponds
-  Catchments (Not Assigned)
-  Wetland
-  Catchments (Assigned)

September 28, 2022

DPW Engineering [Katie Lafferty]  
Projection State Plane NAD1983  
Plotted: 9/28/2022

0 100 200 400 600 800 Feet



## Attachment 2 – Screening and Monitoring Results

					Priority Ranking Criteria																					
					Outfall inspections and sample results		GIS Maps		Town Staff	Impaired Water	Land Use/GIS Maps, Aerial Photography	Land Use Information, Visual Observation	GIS and Storm System Maps													
Outfall ID	STREETNAME	Waterbody Discharge	Impaired	Watershed	Previous Screening Results Indicate Likely Sewer Input? <sup>1</sup>		Discharging to Area of Concern to Public Health?		Past Discharge Complaints & Reports (SSO Data)		Receiving Water Quality <sup>3</sup>	Density of Generating Sites <sup>4</sup>	Age of Development/ Infrastructure <sup>5</sup>	Culverted Stream <sup>8</sup>	Criterion Score	Initial Ranking	UPDATED Ranking	INSPECTOR	INSPECTION	WEATHER	Dry Weather Flow	STAINING	FLOATABLES	OILSHEEN	ODOR	
OF-111	LOWELL STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	Yes	Yes	No	No	3	High		Coneco	6/24/2021 0:00	Clear		No	No	No	No	
OF-113	LOWELL STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	9/23/2021 15:14	Clear		No	No	No	No	
OF-265	LOWELL STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	6/24/2021 0:00	Clear		No	No	No	No	
OF-293	VERNON STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/18/2021 16:05	Clear		No	No	No	No	
OF-026	KING STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	7/13/2021 15:29	Cloudy		No	No	No	No	
OF-028	PAON BOULEVARD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/16/2021 17:35	Clear		No	No	No	No	
OF-029	WOODBRIAR ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	8/25/2021 16:27	Clear		No	No	No	No	
OF-030	WOODBRIAR ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/16/2021 0:00	Clear		No	No	No	No	
OF-031	KING STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	7/13/2021 15:37	Cloudy		No	No	No	No	
OF-034	PIERCE AVENUE	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/16/2021 0:00	Clear		No	No	No	No	
OF-036	KING STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	7/13/2021 15:45	Cloudy		No	No	No	No	
OF-037	HILL CREST ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/16/2021 0:00	Rain		No	No	No	No	
OF-139	LOWELL STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	7/13/2021 16:10	Cloudy		No	No	No	No	
OF-140	LOWELL STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	7/13/2021 16:12	Cloudy		No	No	No	No	
OF-141	LOWELL STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	7/13/2021 16:15	Cloudy		No	No	No	No	
OF-143	LOWELL STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	7/13/2021 16:17	Cloudy		No	No	No	No	
OF-151	BAY STATE ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	Yes	No	No	No	2	High		Coneco	3/16/2021 0:00	Clear		No	No	No	No	
OF-153	BAY STATE ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	Yes	No	No	No	2	High		Coneco	3/16/2021 0:00	Clear		No	No	No	No	
OF-154	BAY STATE ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	Yes	No	No	No	2	High		Coneco	3/17/2021 0:00	Clear		No	No	No	No	
OF-155	BAY STATE ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	Yes	No	No	No	2	High		Coneco	3/17/2021 0:00	Clear		No	No	No	No	
OF-157	LOWELL STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Beta	8/21/2018 0:00	Clear		No	No	No	No	
OF-166	PAON BOULEVARD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/16/2021 17:55	Clear		No	No	No	No	
OF-194	ALYSSA DRIVE	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/17/2021 0:00	Cloudy		No	No	No	No	
OF-195	GARDEN LANE	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/17/2021 0:00	Clear		No	No	No	No	
OF-196	GARDEN LANE	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/17/2021 0:00	Clear		No	No	No	No	
OF-223	LAKEVIEW CIRCLE	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	7/13/2021 15:57	Cloudy		No	No	No	No	
OF-241	HARWICK ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/17/2021 0:00	Clear		No	No	Yes	No	
OF-242	HARWICK ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/17/2021 0:00	Clear		No	No	No	No	
OF-243	HARWICK ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	Yes	No	No	2	High		Coneco	3/17/2021 0:00	Clear		No	No	No	No	
OF-264	LOWELL STREET	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/17/2021 0:00	Clear		No	No	No	No	
OF-276	AUDUBON ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	Yes	No	No	No	2	High		Coneco	3/23/2021 0:00	Clear		No	No	No	No	
OF-277	AUDUBON ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/23/2021 0:00	Clear		No	No	No	No	
OF-278	AUDUBON ROAD	Saugus River (MA93-34)	Yes	North Coastal	Beta	No	No	No	No	Yes	No	No	No	No	1	High		Coneco	3/23/2021 0:00	Clear		No	No	No	No	

## Attachment 3 – Conceptual Sketches



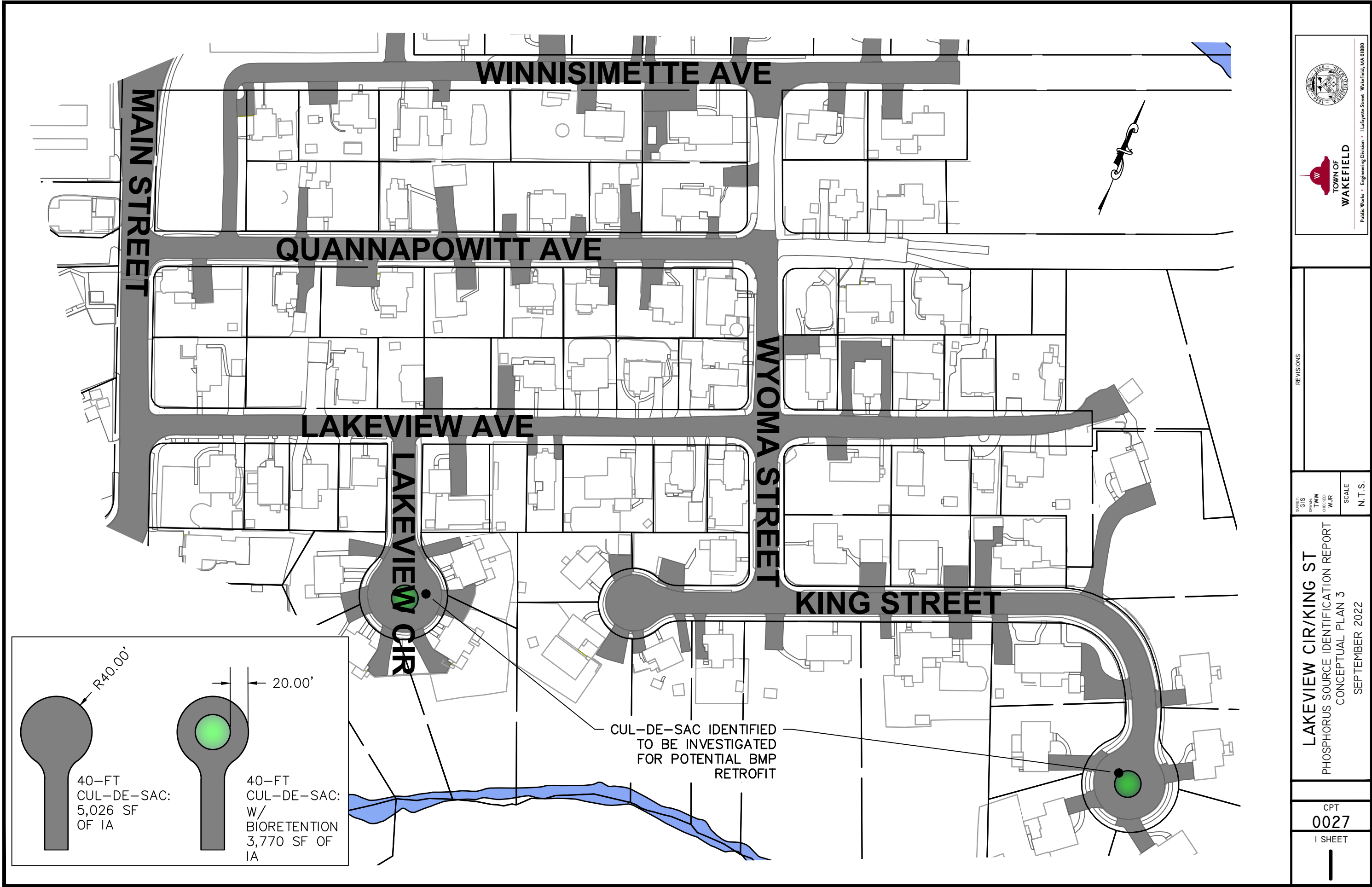


**BAY STATE ROAD**  
 PHOSPHORUS SOURCE IDENTIFICATION REPORT  
 CONCEPTUAL PLAN 2  
 SEPTEMBER 2022

CPT  
**0027**  
 I SHEET


SCALE  
 N.T.S.

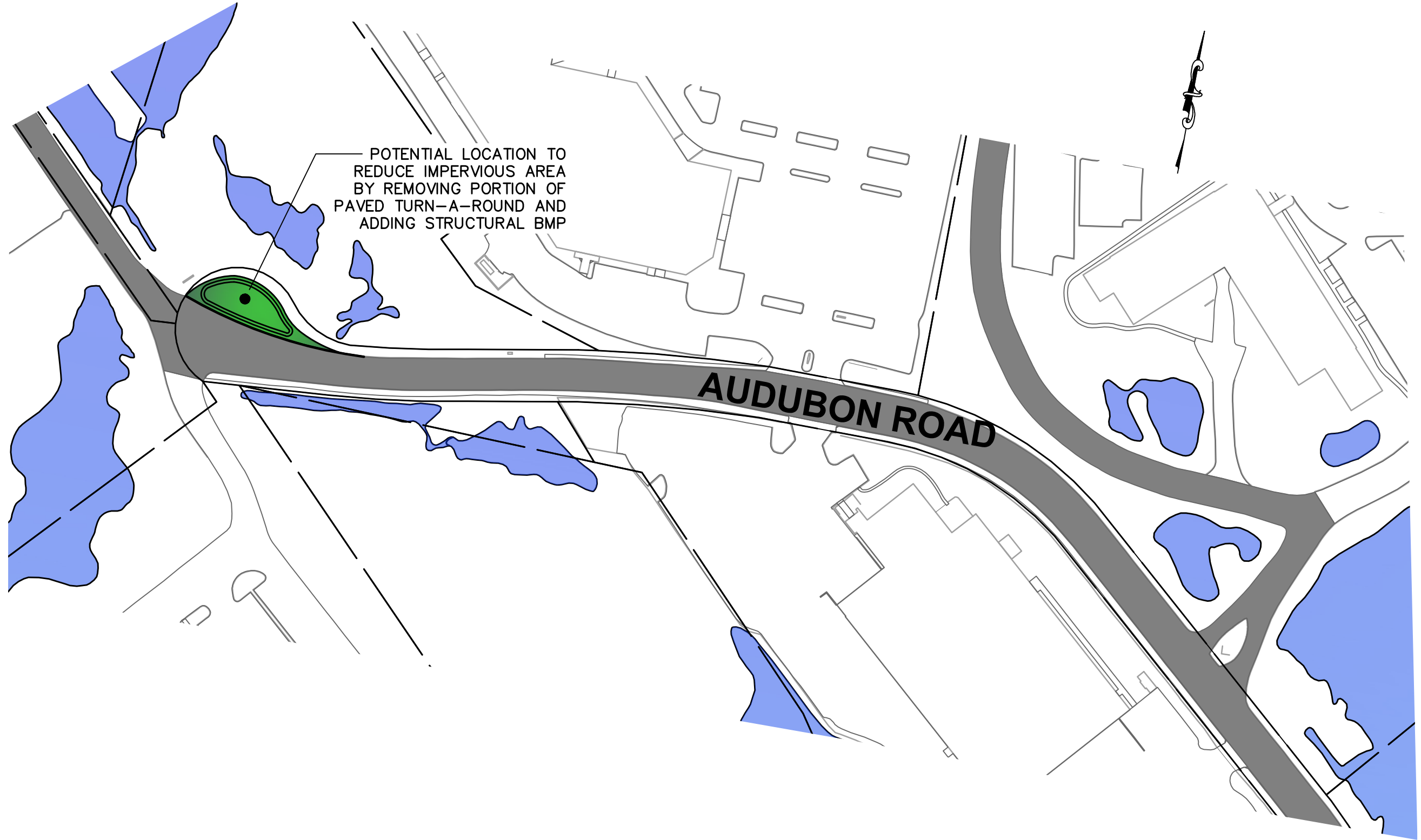
REVISIONS







 <b>TOWN OF WAKEFIELD</b> <small>Public Works • Engineering Division • Lafayette Street • Wakefield, MA 01880</small>	
REVISIONS	
INDIAN LANE PHOSPHORUS SOURCE IDENTIFICATION REPORT CONCEPTUAL PLAN 4 SEPTEMBER 2022	
SURVEY GIS DATE TWW CHECKED WJR	SCALE N.T.S.
CPT 0027 I SHEET	



**AUDUBON ROAD**  
PHOSPHORUS SOURCE IDENTIFICATION REPORT  
CONCEPTUAL PLAN 5  
SEPTEMBER 2022

CPT  
**0027**  
I SHEET


SURVEY: GIS  
DRAWN: TW  
CHECKED: WJR  
SCALE: N.T.S.

REVISIONS

## Attachment 4 – Bioretention Area Plan



PLAN  
SCALE: 1" = 10'

 <b>TOWN OF WAKEFIELD</b> <small>Public Works • Engineering Division • Lafayette Street • Wakefield, MA 01880</small>	
REVISIONS	
SURVEY: GCG DRAWN: TWW CHECKED: WJR	SCALE: AS NOTED
<b>LOWELL ST/SALEM ST</b> 2022 ROADWAY IMPROVEMENTS BIORETENTION AREA PLAN SEPTEMBER 2022	
10245 CON	
1 SHEETS 