

# **PROTECTION OF THE GREAT MEADOW TUFTONBORO, NH**

***DECEMBER 14, 2015***



**Dr. Rick Van de Poll**

**Ecosystem Management Consultants**

**Sandwich, NH**

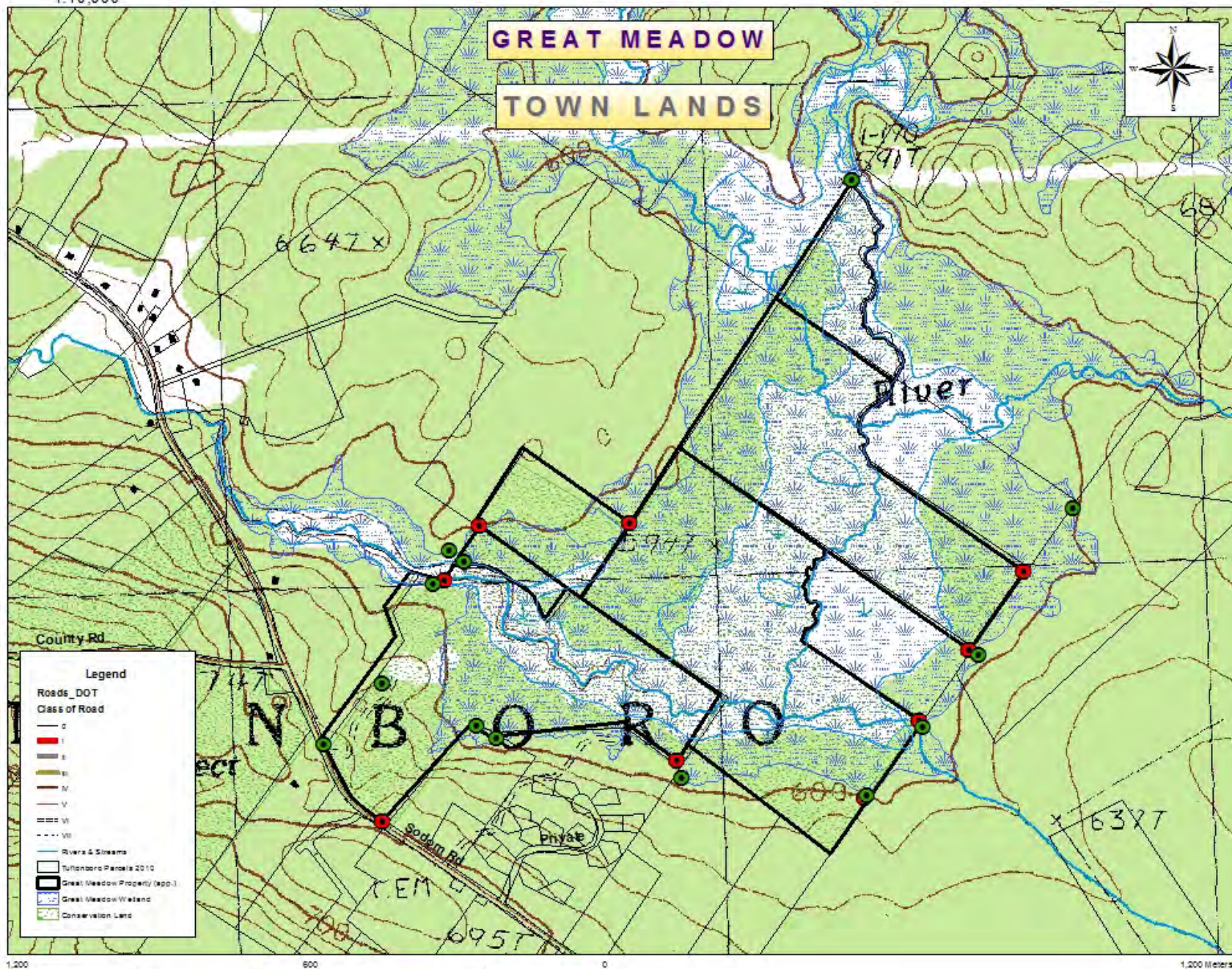
# ATTRIBUTES OF THE GREAT MEADOW PROPERTY

- 6 lots - Tax Map #31-1-3, 31-1-4, 31-1-6, 31-1-7, 31-1-10 & 30-3-4
- ±189 acres of Town land
- 156 acres of wetlands (83%), 33 acres of uplands
- Principal headwaters of Melvin R.
- Largest wetland complex in Tuftonboro (509 acres approx.)
- Site of largest drinking water supply in Region





1:10,000





1:15,000

## GREAT MEADOW



## Legend

Roads\_DOT  
Class of Road

- 0
- I
- II
- III
- IV
- V
- ==== VI
- VII

Rivers &amp; Streams

Tuftonboro Parcels 2010

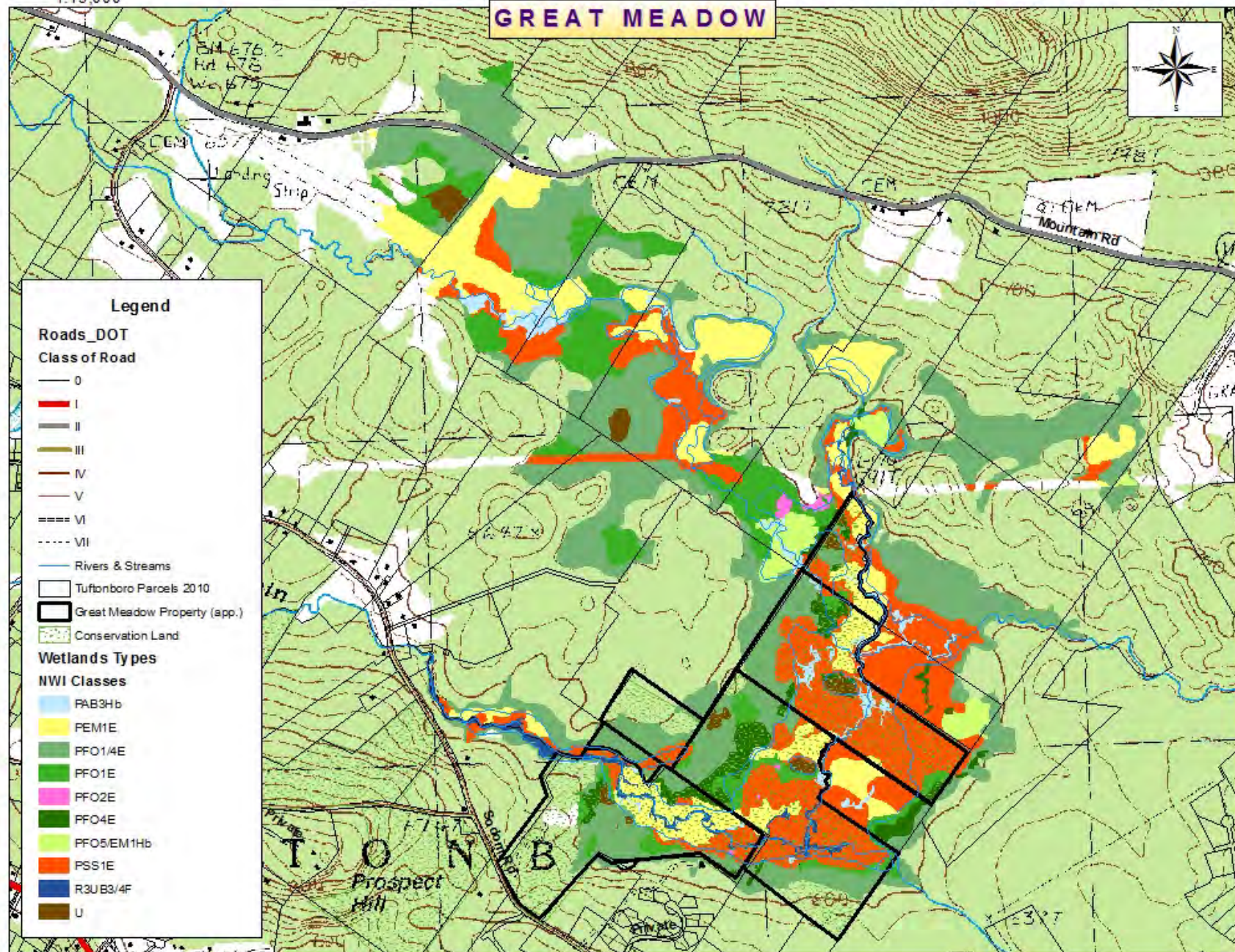
Great Meadow Property (app.)

Conservation Land

## Wetlands Types

## NWI Classes

- PAB3Hb
- FEM1E
- PFO14E
- PFO1E
- PFO2E
- PFO4E
- PFO5/EM1Hb
- PSS1E
- R3UB3/4F
- U



1,800 900 0 1,800 Meters



1:15,000

# GREAT MEADOW



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Rivers & Streams

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Great Meadow Property (app.)

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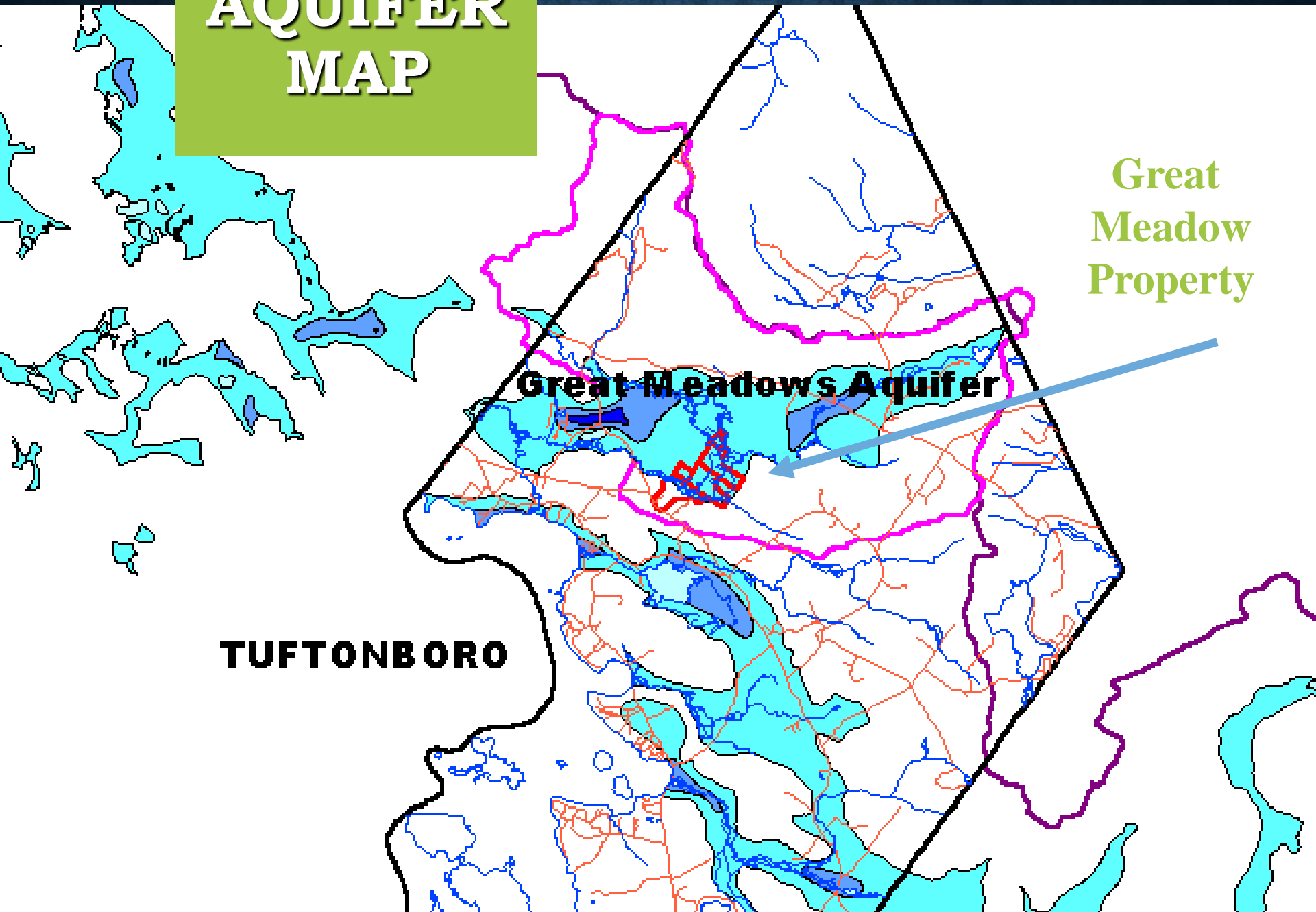
#### NWI Classes

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1,500 900 0 1,500 Meters

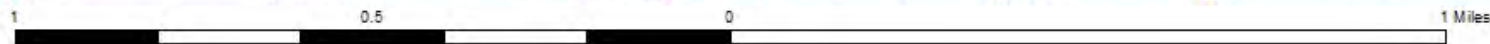
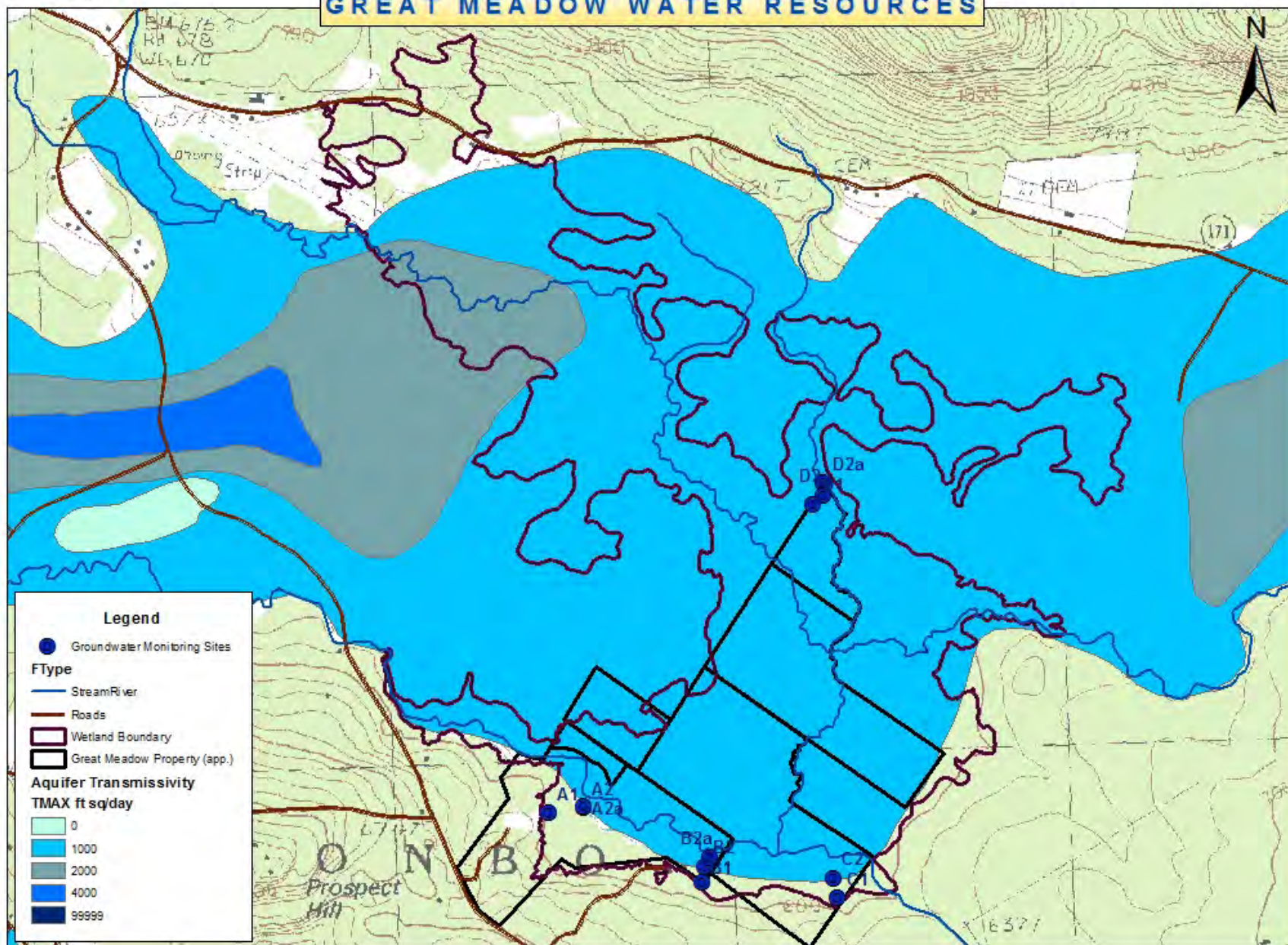


# AQUIFER MAP



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# GREAT MEADOW WATER RESOURCES



# GREAT MEADOW PROPERTY





# ECOLOGICAL INVENTORY 2001-2

- **GIS Map Preparation**
- **Tax Parcel Identification**
- **GPS survey of features**
- **Qualitative Plant & Animal Surveys**
- **Wetland Delineation/Assessment**
- **Groundwater Monitoring Wells (GWMW) establishment**
- **Water quality monitoring**





# FINDINGS

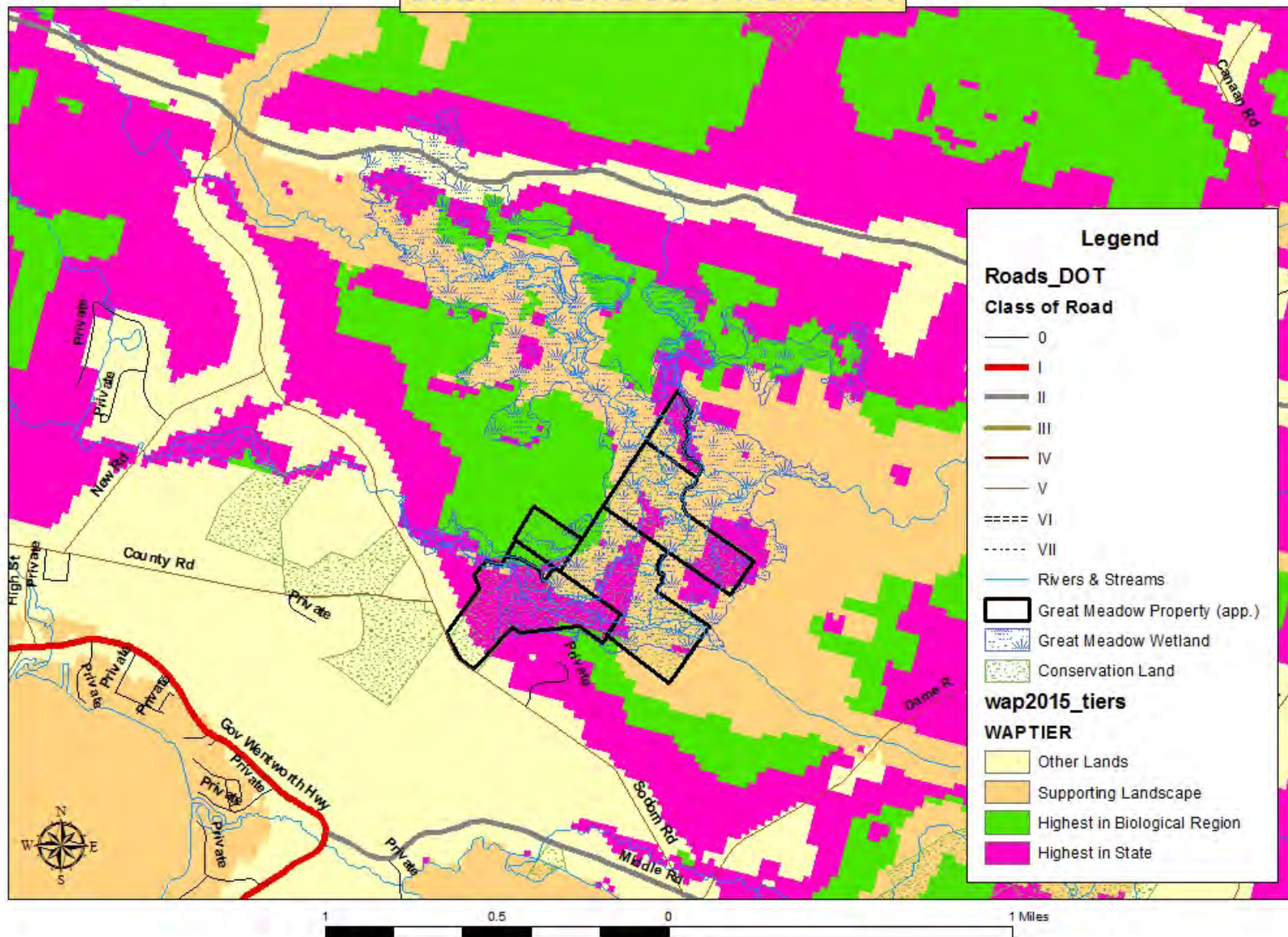
- Resident populations of bear, moose, deer, bobcat, fisher, otter, beaver, muskrat, and raccoon
- High quality groundwater seepage areas throughout
- Scattered old growth forest patches
- Historic rare plant records
- Very high flood retention and groundwater use value
- Excellent hunting & fishing opportunities
- >50% within Tier 1 or Tier 2 WAP habitat





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# GREAT MEADOW PROPERTY





# WETLAND FINDINGS

- Delineation included soil test pits, wetland plant identification, completion of data forms at each GWMW
- Assessment used the NH Method (Version 1)
- High to very high ranks for each function (highest in region)

SUMMARY SHEET FOR THE N.H. METHOD			
Wetland name or code <u>Great Meadow</u>		Total area of wetland <u>512.8 ac.</u>	
County <u>Carrroll</u>	Town <u>Tutton boro</u>	Date <u>June 28, 2002</u>	
Investigator(s) <u>R. Vande Poll</u>			
A Functional Value	B FVI From Data Sheets	C Size of Evaluation Area (Acres)	D Wetland Value Units B x C
1. Ecological Integrity	.96	512.8	492.3
2. Wetland Wildlife Habitat	.95	512.8	487.2
3. Finfish Habitat:			
Part A - Rivers and Streams	.88	7.6	6.7
Part B - Ponds and Lakes	0	0	0
4. Educational Potential	.62	.6	.37
5. Visual/Aesthetic Quality	.9	10	9.0
6. Water-based Recreation	.71	1.5	1.1
7. Flood Control Potential	1.0	512.8	512.8
8. Ground Water Use Potential	.88	512.8	448.7
9. Sediment Trapping	.77	512.8	395
10. Nutrient Attenuation	.73	512.8	371.8
11. Shoreline Anchoring and Dissipation of Erosive Forces	.92	7.6	7.0
12. Urban Quality of Life			
B: Wetland Wildlife Habitat			
C: Educational Opportunity	N/A		
D: Visual/Aesthetic Quality			
E: Water-based Recreation			
13. Historical Site Potential (see note)	0	0	0
14. Noteworthiness	1.0	512.8	512.8



# GROUNDWATER MONITORING WELLS (GWMW'S)

- 60" x 2" pvc, screened
- 2 Established along 4 transects in different soil types
- Monitored bi-weekly in fall & spring, monthly in winter
- T (°C), DO, pH, EC, TDS, Turbidity
- 2 Ambient monitoring stations added in winter

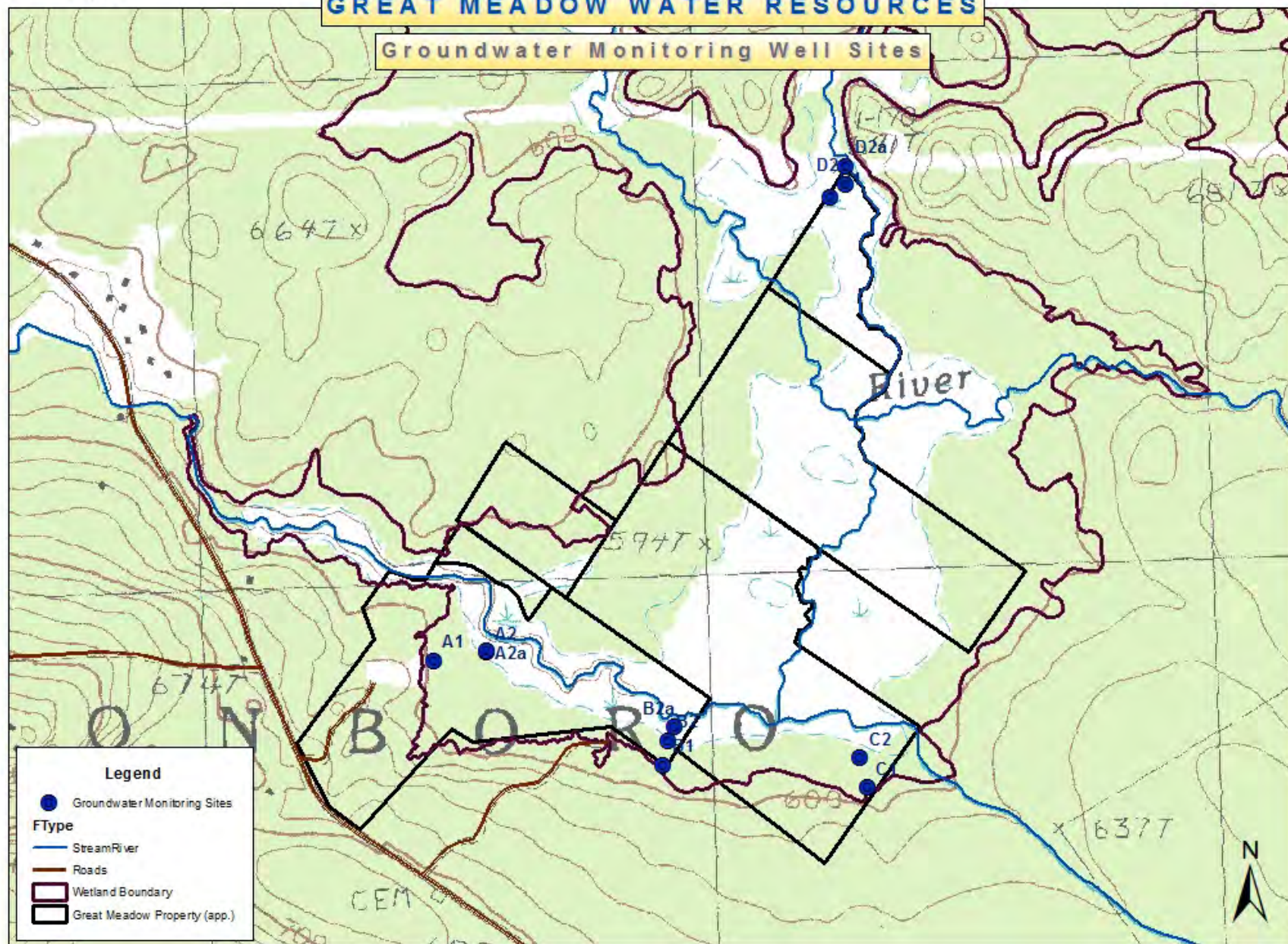




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# GREAT MEADOW WATER RESOURCES

## Groundwater Monitoring Well Sites



0.7

0.35

0

0.7 Miles



# WATER QUALITY FINDINGS

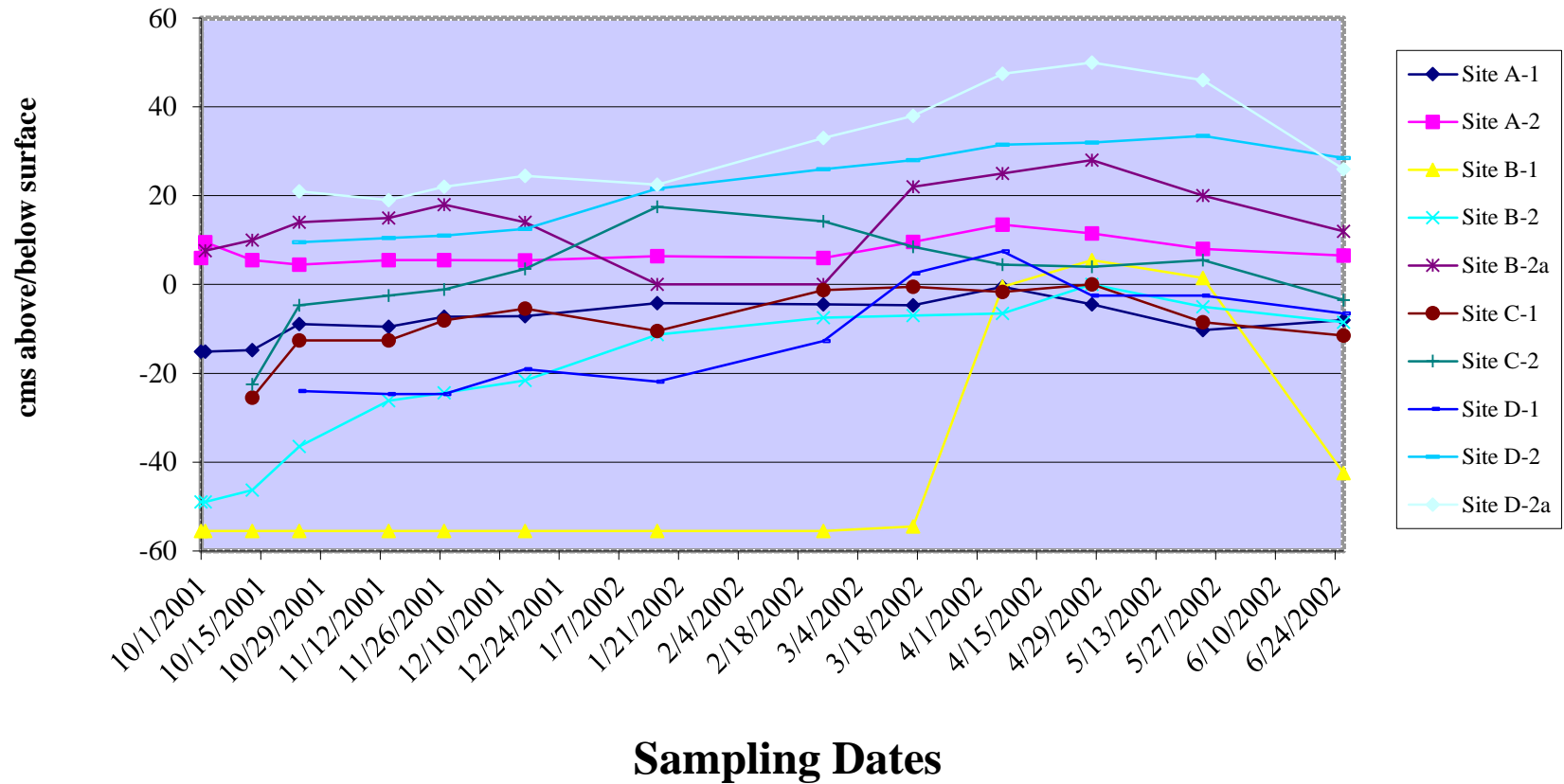
- **Soils mainly hydric spodosols, shallow histosols**
- **Water quality very high**
- **Some WQ concerns below town garage at old dump**
- **No unusual GWMW readings except at A-1, A-2**
- **> 300 spp. of plants, 31 spp. of mammals, 13 spp. of amphibians & reptiles, 83 spp. of birds, 2 spp. of fish**





# WATER LEVEL

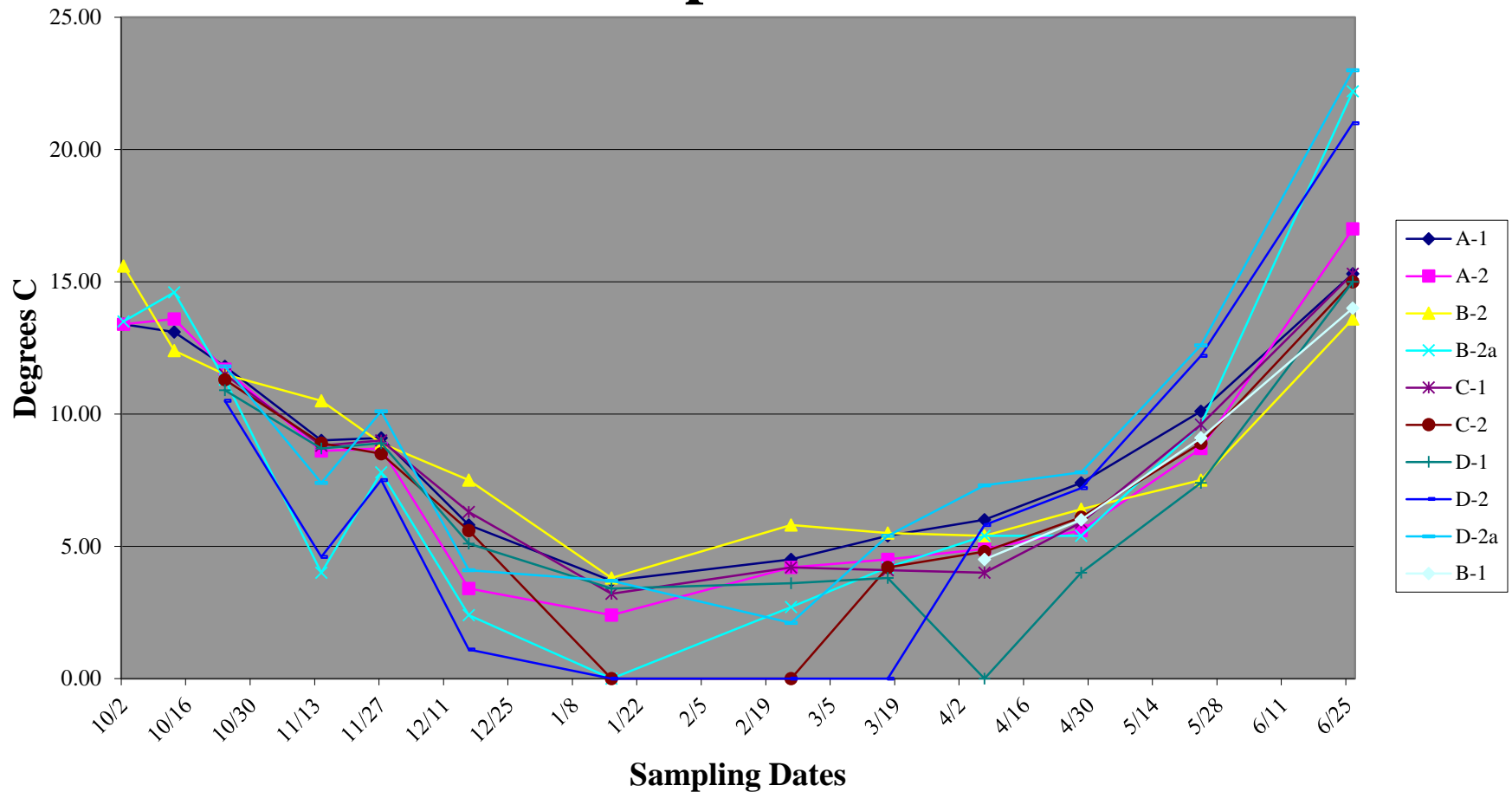
## Great Meadow GWMW Summary Data: Water Level





# TEMPERATURE

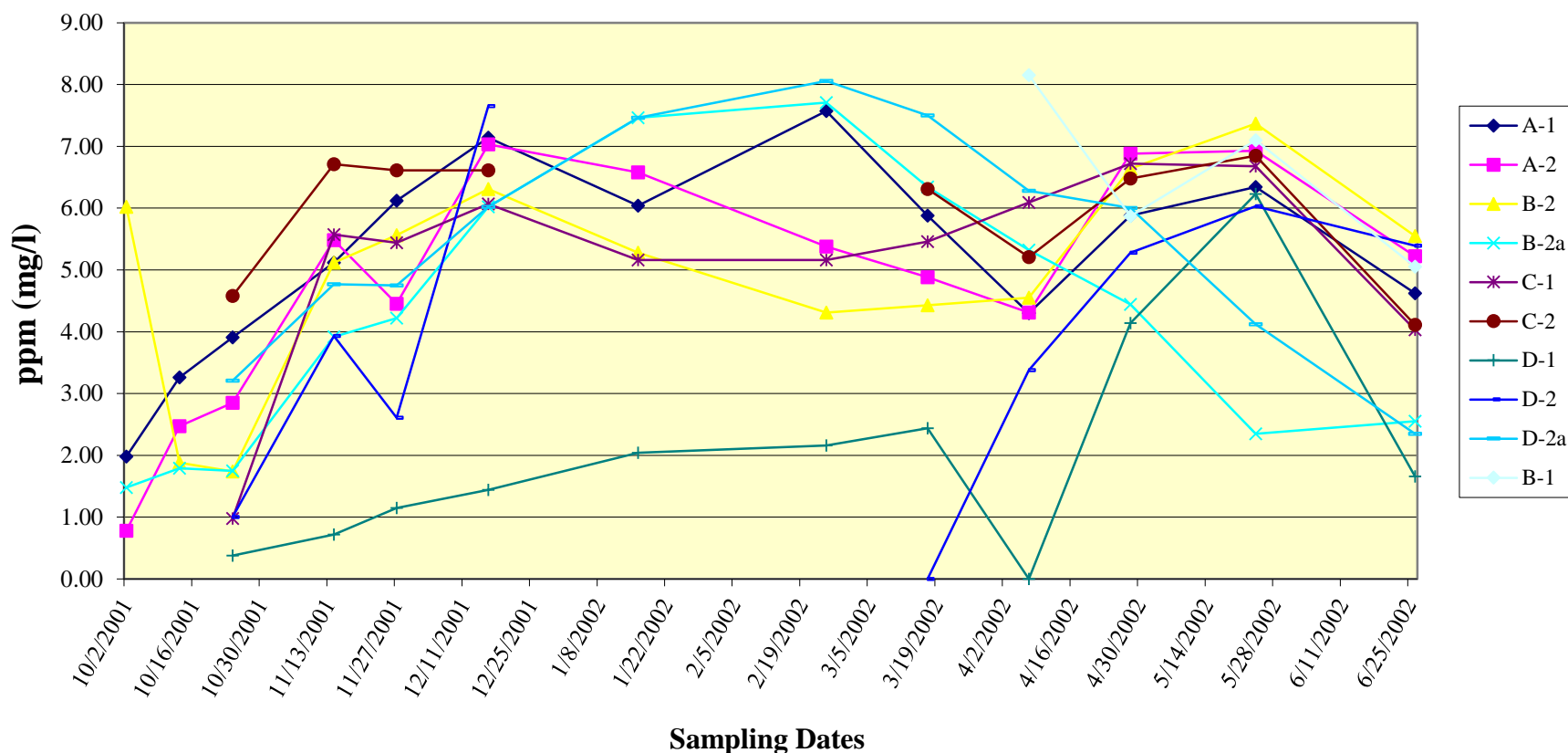
## Great Meadows GWMW Summary Data: Temperature





# DISSOLVED OXYGEN

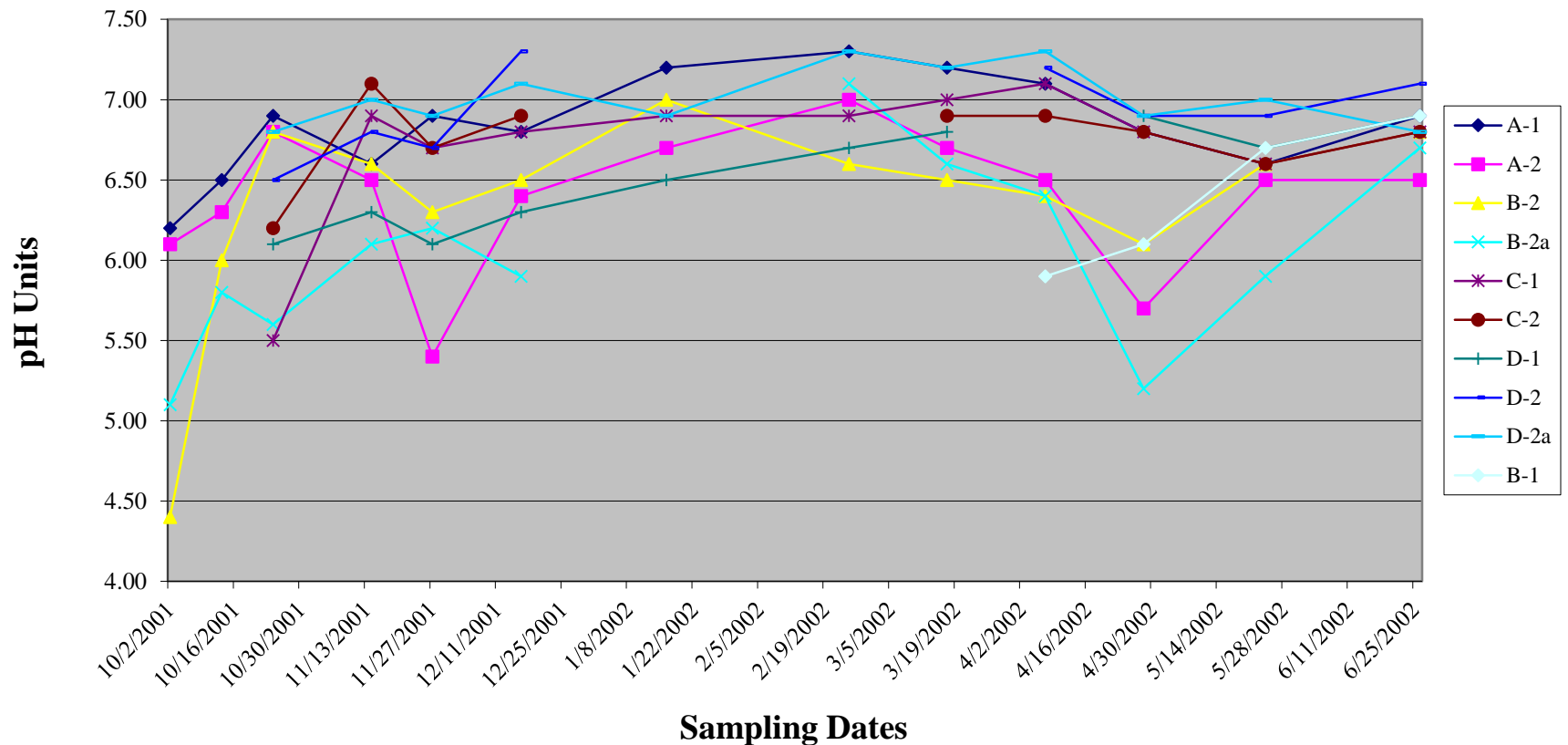
## Great Meadows GWMW Summary Data: Dissolved Oxygen





# PH

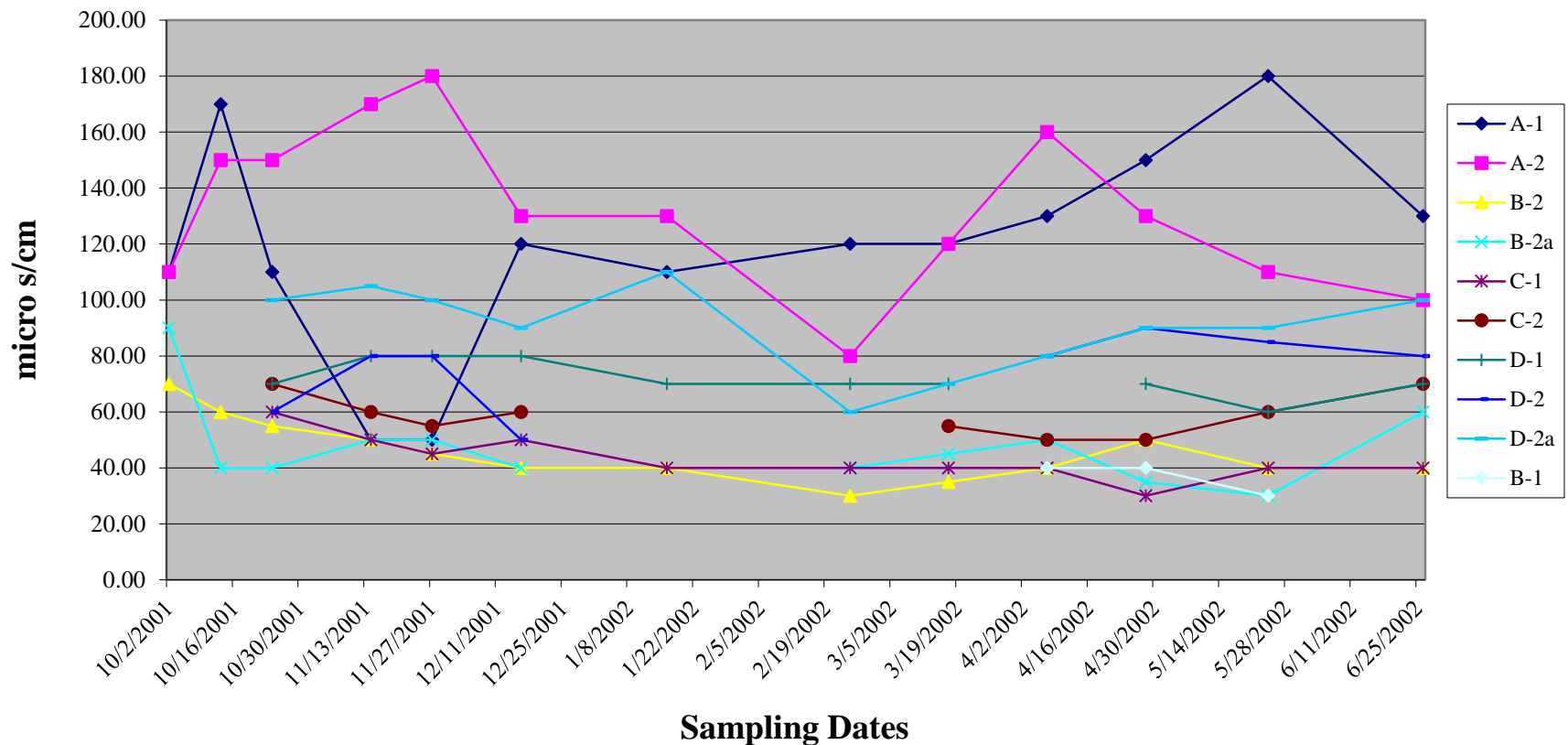
## Great Meadows GWMW Summary Data: pH





# CONDUCTIVITY

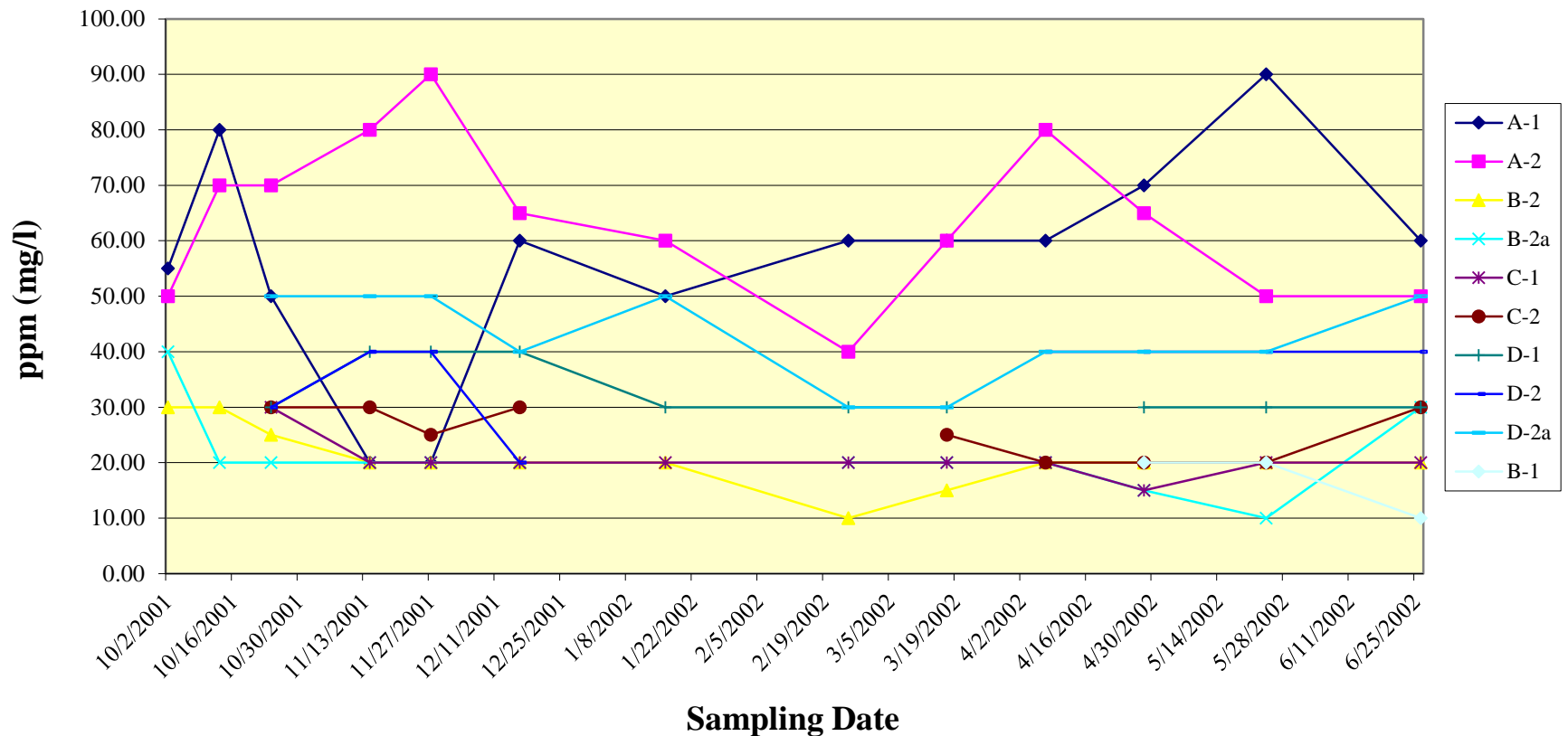
## Great Meadows GWMW Summary Data: Conductivity





# TOTAL DISSOLVED SOLIDS

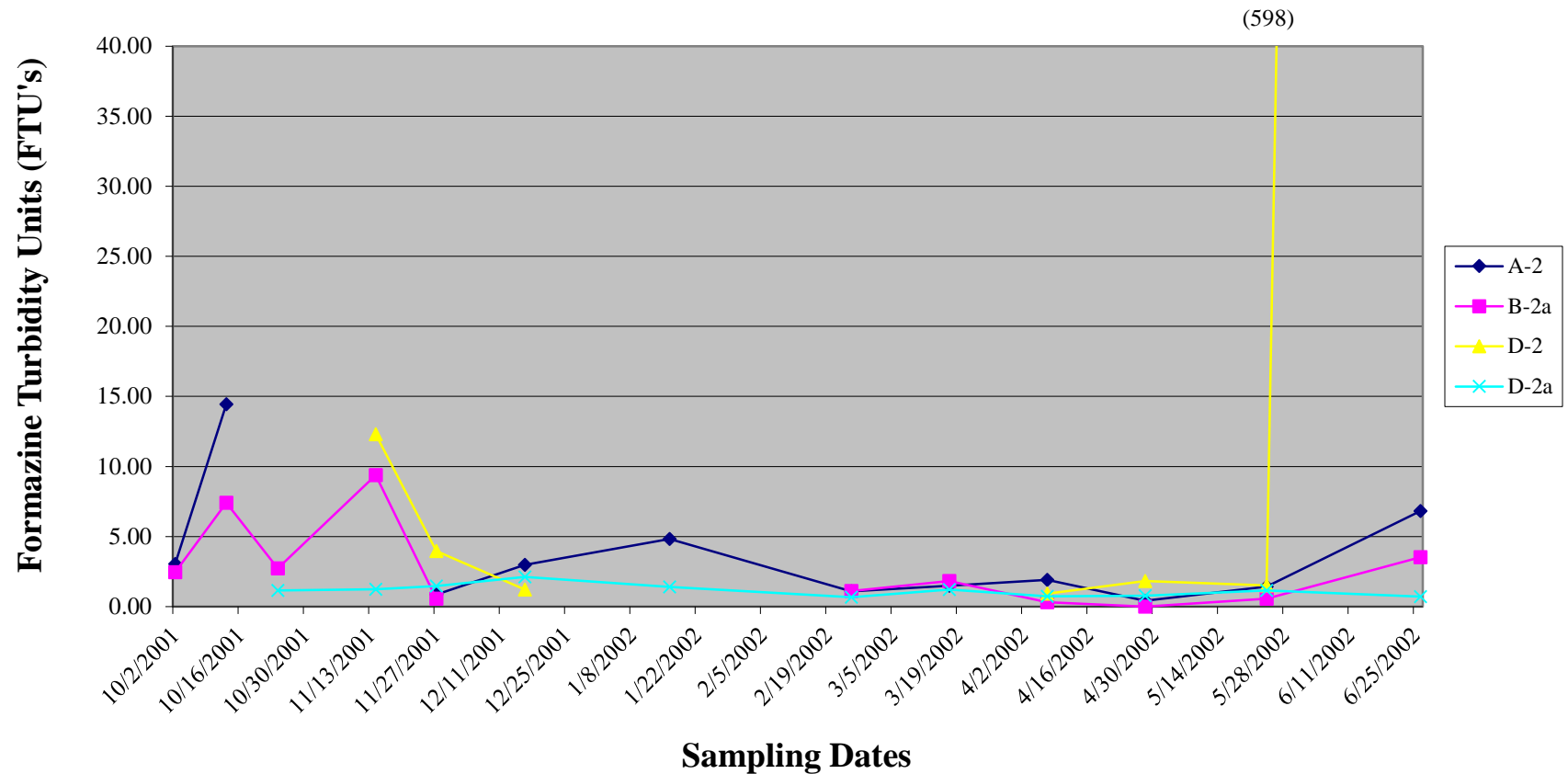
## Great Meadows GWMW Summary Data: Total Dissolved Solids





# TURBIDITY

## Great Meadows GWMW Summary Data: Turbidity





# **BENEFITS OF CONSERVATION**



- **Prevention of conversion to development**
- **Permanent protection of drinking water supply**
- **Protection of Tier 1,2 wildlife habitat (best in state, region)**
- **Assurance for long-term recreational use of property**
- **Enhancement for adjacent conservation initiatives**



# REMAINING STEPS

- Identify Target conservation properties nearby
- Conduct needed inventories to identify critical conservation areas
- Initiate conversations with abutting landowners about further easement protection
- Secure funding for additional easement areas



# **FURTHER RECOMMENDATIONS**

- **Encourage adjacent property owners to cooperate in protecting the remaining aquifer and wetland areas**
- **Establish protective legislation for both the aquifer and the wetland area – consider conservation zoning of these resources**
- **Continue long-term monitoring program of the Great Meadow aquifer**
- **Establish protective easements or covenants on remaining parcels owned by the Town**