Connecticut Department of Energy and Environmental Protection

Connecticut Department of
ENERGY & ENVIRONMENTAL PROTECTION

Public Information Session
Update on Firefighting Foam Releases at Bradley International Airport

Windsor Town Hall
October 30, 2019

Overview of Bradley Airport AFFF Releases

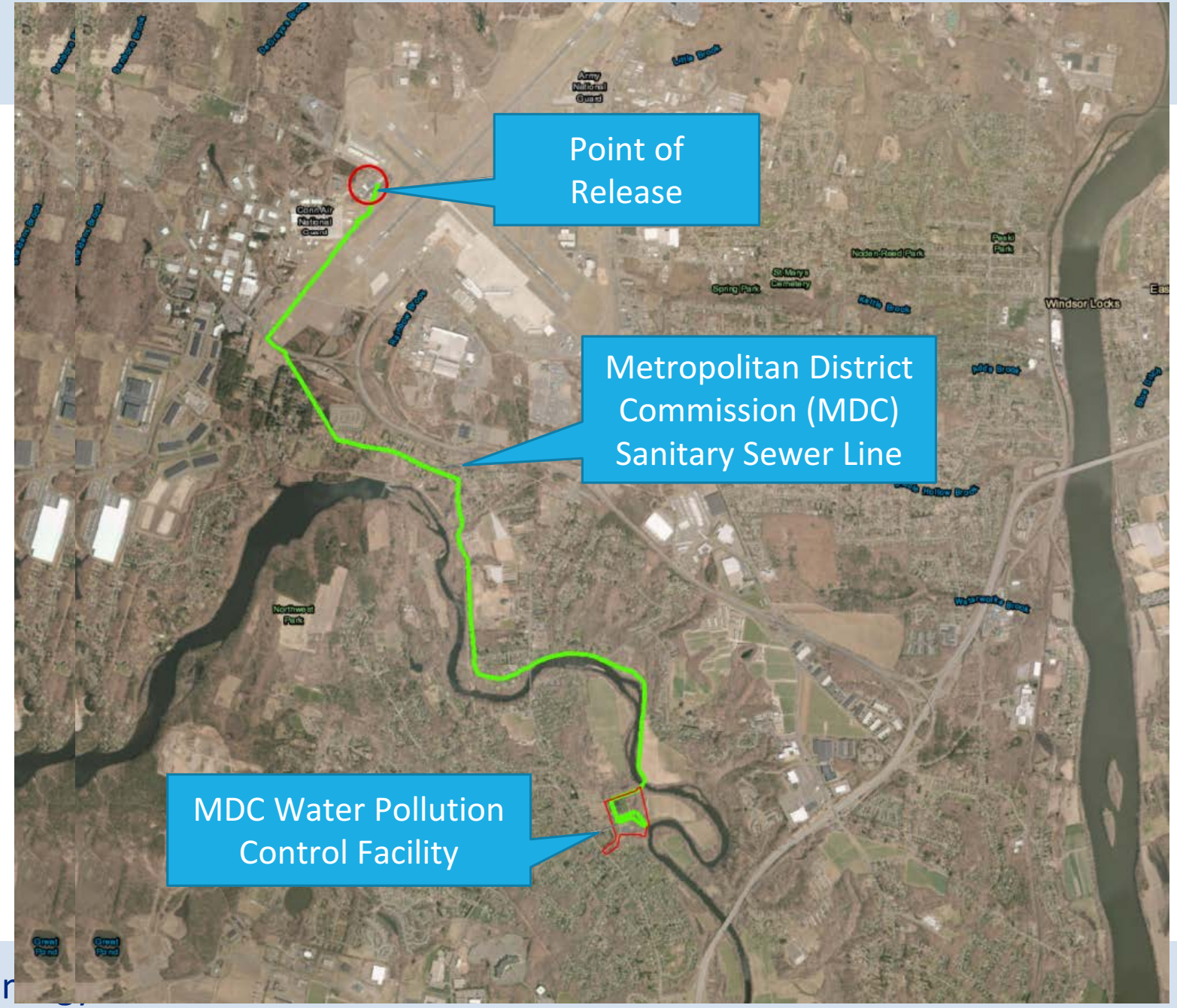
- June 8 – Accidental AFFF discharge at Signature Flight hangar
  - Review of event and emergency response actions
  - Update on environmental impact evaluation

- October 2 – B-17 plane crash response
  - Summary of event and initial emergency response actions
  - On-going environmental assessment

Overview Map

Signature Flight AFFF Release

- Discharge to MDC Windsor waste water treatment plant and Farmington River



Signature Flight Hangar AFFF Discharge Event

- June 8, 2019 - Approx. 2 pm, malfunctioning fire suppression system caused discharge of AFFF inside the hangar for 6 minutes
  - Total foam solution released: ~40,000 gallons
  - Total AFFF concentrate: ~1,500 gallons
- CT DEEP onsite within 45 minutes, Signature Flight immediately took responsibility
- Emergency Contractor onsite 40 minutes later
  - ~15,000 gallons foam solution captured onsite
- MDC notified of release

Signature Flight Hangar AFFF Discharge Event

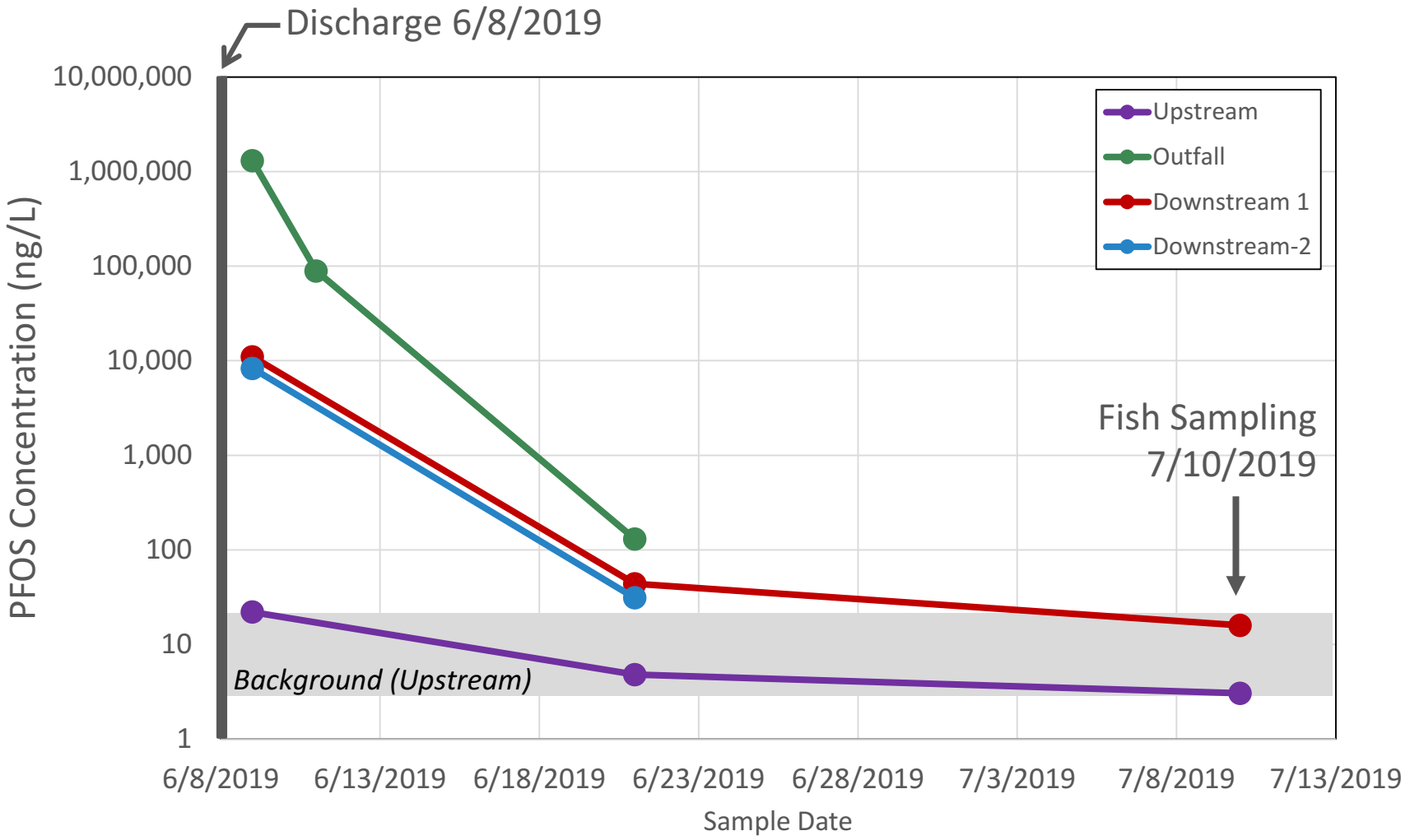
- Approx. 7:30 pm, foam observed exiting sewer manhole on Rainbow Road
  - Emergency Contractor removed foam from vented manhole
- Foam entered MDC Plant ~ 12 am and the Farmington River in the early morning (5:30-7:30 am) of June 9
- Booms deployed at outfall to contain foam
  - ~5,000 gallons of contained foam pumped from the river
- Surface water samples collected
- DPH advises no contact with foam/do not eat fish

Surface Water Sampling

- 4 sampling events
  - June 9
  - June 11 (Outfall only)
  - June 21
  - July 10 (Upstream & Downstream-1 only)
- 4 locations
  - Upstream
  - Treatment plant outfall
  - Downstream-1 at I-91(0.6 mi.)
  - Downstream-2 at boat launch/Palisado Ave. (3 mi.)

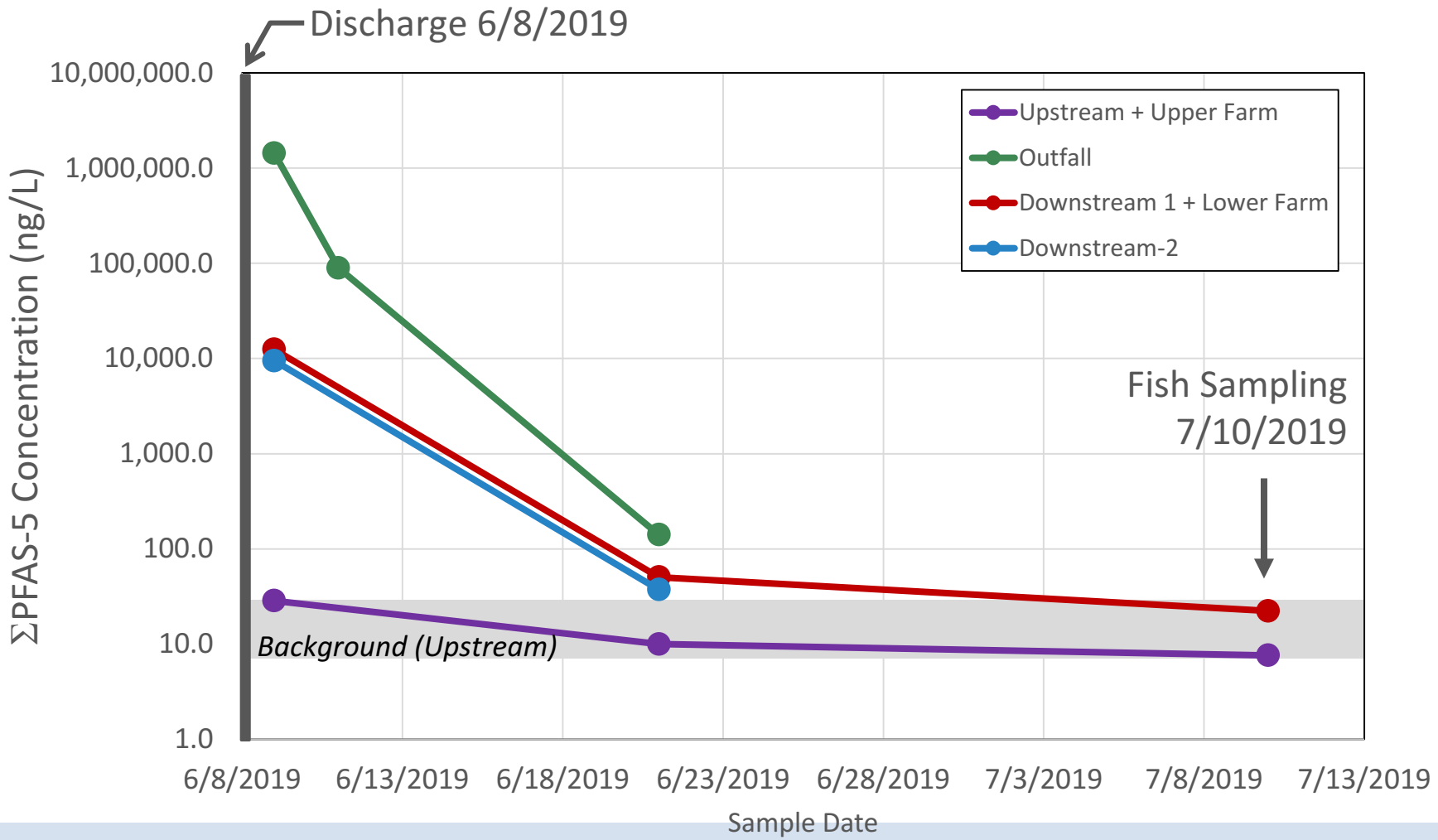
PFOS Concentrations in Surface Water

- **PFOS concentration at MDC Outfall decreased 4 orders of magnitude by June 21.**
- **Downstream concentrations were within upstream range by July 10.**



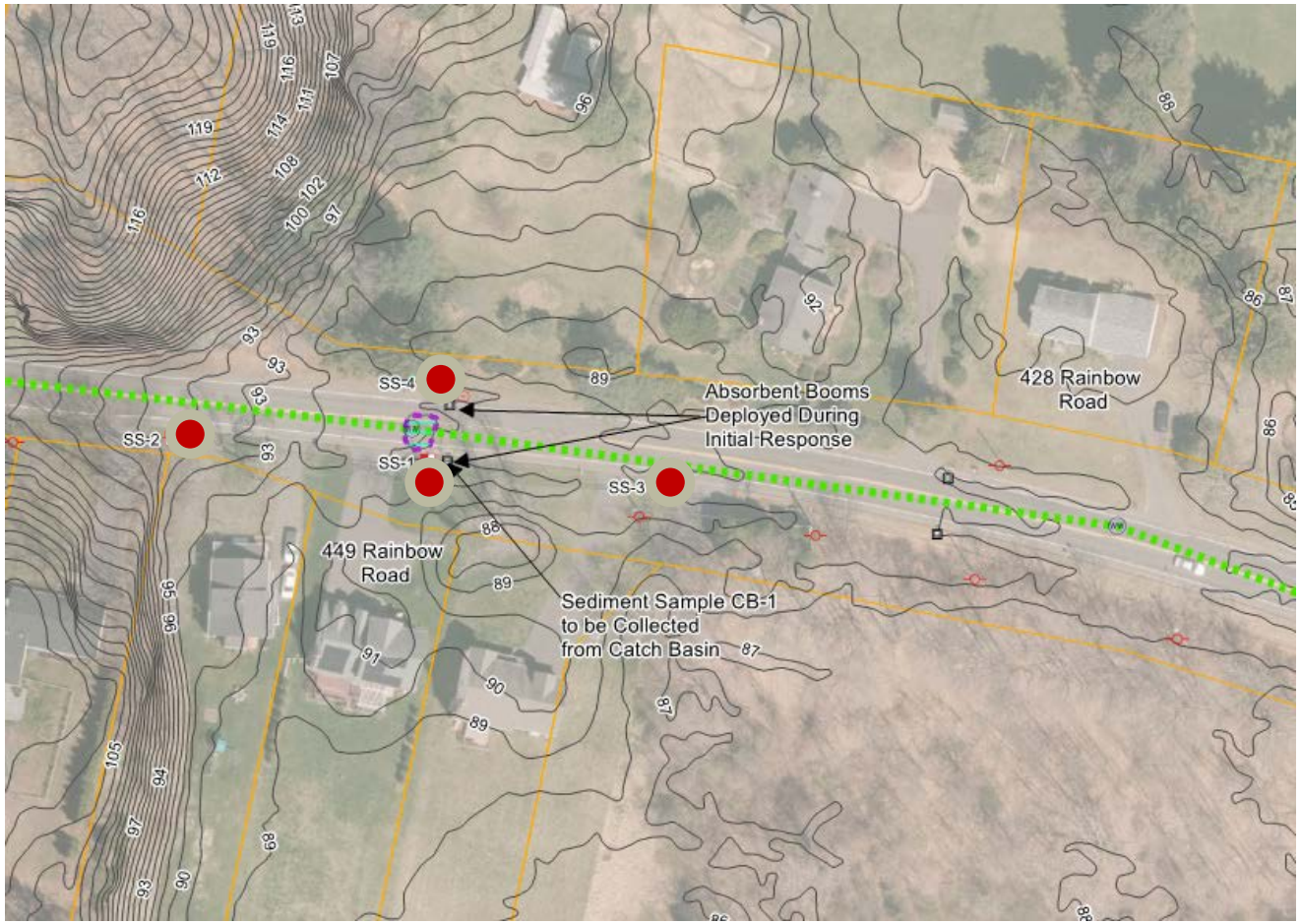
CT PFAS-5 Concentrations in Surface Water

- **Sum of CT PFAS-5 concentrations at Downstream-1 were below the CT DPH Drinking Water Action Level of 70 ng/L by July 10**
- **Sum of CT 5 PFAS-5 = PFOS + PFHxS + PFNA + PFOA + PFHpA**



Roadside Soil Assessment

- Sampled soil on either side of Rainbow Road downgradient of the sewer vent overflow.
- A soil sample was also collected from the downgradient stormwater catch basin.
- Sampling was completed on 9/27/19 with results expected 11/27/19.
- Results will be validated and then shared (3 weeks).
- Findings will be one of the factors used to evaluate risk to private wells.

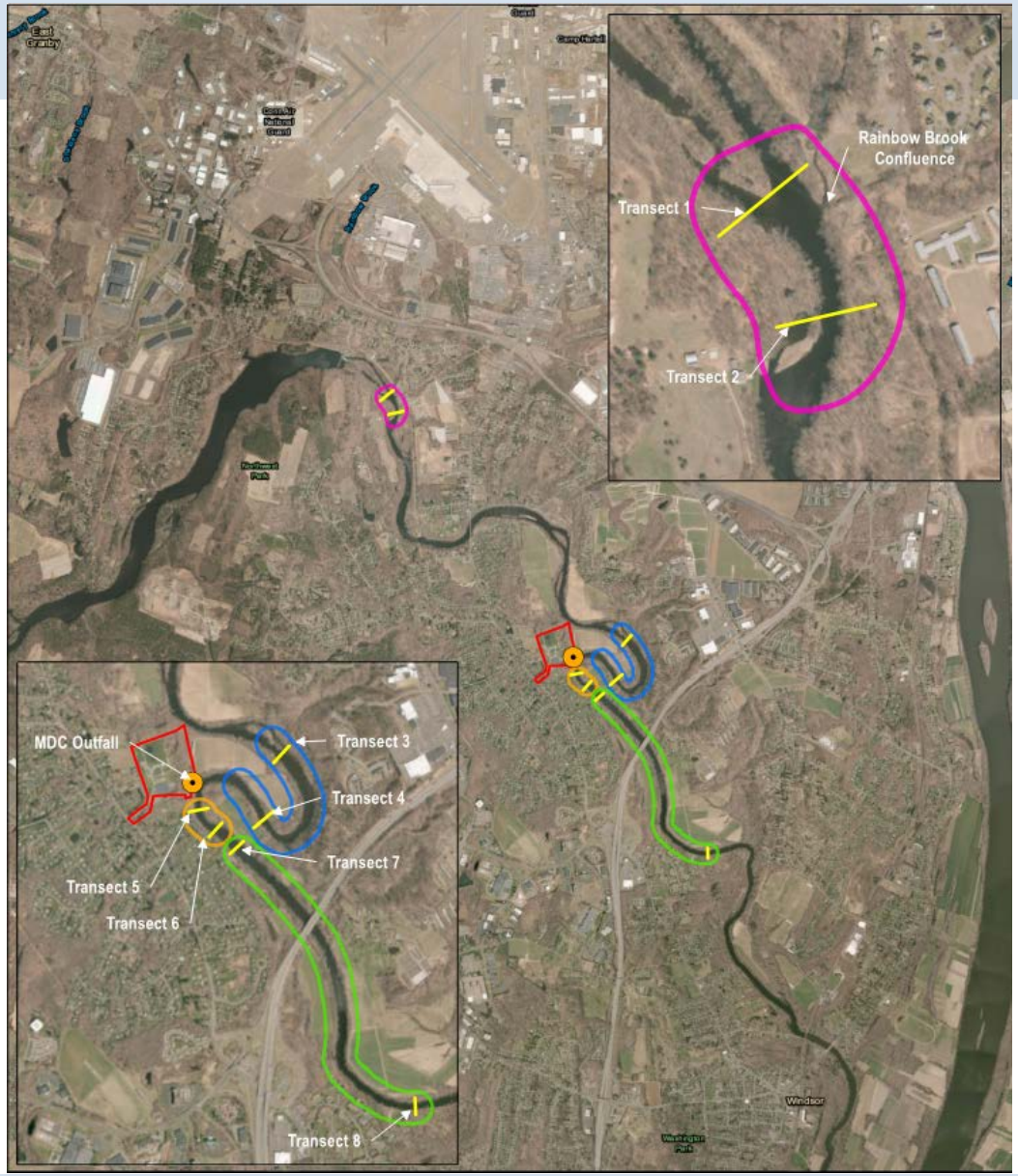


Potable Well Receptor Survey

- Well receptor survey
  - Completed by consultant and report issued to DEEP on 9/20/19
  - Included survey of more than 500 parcels over an 8 mile route along Farmington River and 2 miles along the sanitary sewer route (E. Granby/Windsor)
- DEEP staff completed site visit to view field conditions, including topography and proximity to properties with known or suspected wells.
- Determined that exposure pathway was not complete, pending evaluation of surface soil on Rainbow Road near manholes

Sediment Evaluation

- Sediment to be sampled upstream of the MDC outfall, and in two downstream areas.
- Will also sample sediment located near the confluence of Rainbow Brook to evaluate B-17 release.
- Sampling was attempted on 10/24/19 but limited due to high water and flow rate.
- Sediment and surface water sampling will be re-attempted 11/4.



MDC Wastewater Treatment Plant Sampling

- Validated data received by consultant this week.
- Will be reviewed with MDC and DEEP.

Hangar Soil Remediation

- Work scheduled to begin November 11
- Excavate impacted soil and dispose via incineration
- Sample to confirm removal of contaminated soil
- Backfill with clean soil
- Install three groundwater monitoring wells and sample over four quarterly events

July 2019 Fish Sampling Event

- Sampled fish at 2 locations
  - Upper Farmington/Control Zone
    - Upstream of Rainbow Dam
  - Lower Farmington/ Contamination Zone
    - Downstream of MDC outfall
- Sampled 2 fish species at each location
  - Predator (Yellow Perch)
  - Bottom-dweller (White Sucker)
- 70 fish samples collected in total
- Fillets from the collected fish were analyzed.

July 2019 Fish Sampling Results

- PFOS detected in all samples (fillets) and at the highest concentrations
- Downstream concentrations generally higher than upstream for most detected PFAS
- Predatory fish (yellow perch) had overall higher concentrations compared to bottom feeders (white suckers)

July 2019 Fish Sampling Results

Species	Number of Samples [1]	PFOS Average (ppb)	PFOS Range (ppb)
Upstream/Upper Farmington/Control Zone			
Yellow Perch (predator)	4	24.3	21.3 – 26.6
White Sucker (bottom feeder)	3	6.3	4.98 – 8.2
Downstream/Lower Farmington/Contamination Zone			
Yellow Perch (predator)	3	172	130 – 215
White Sucker (bottom feeder)	4	68.4	58.2 – 95.5

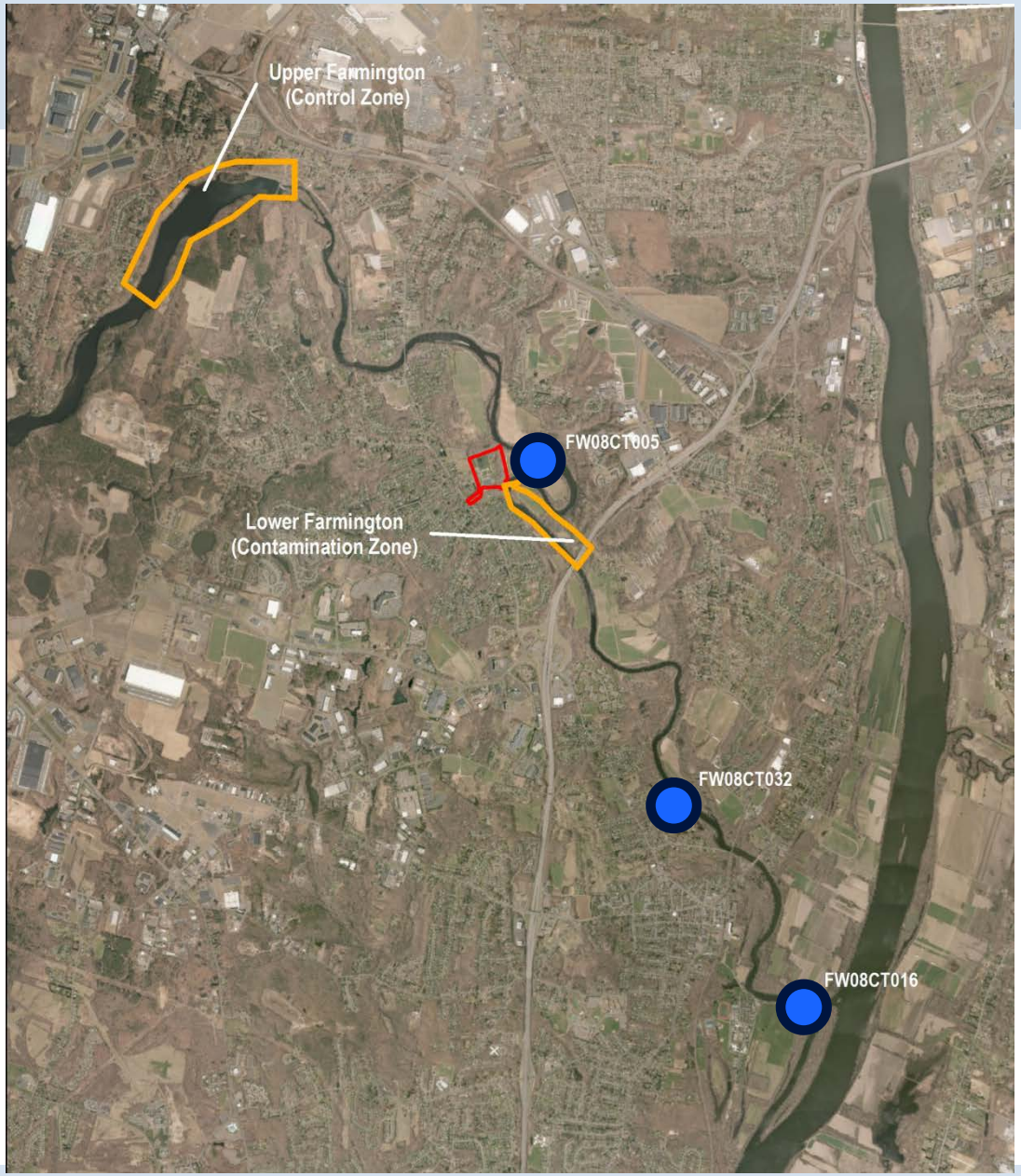
[1] Each sample result represents a composite of 5 fish.

Additional Fish Sampling

- Second fish sampling event
  - Completed on 9/21/19
  - Initial lab results due 11/27/19, validated data 3 weeks later

Historical Farmington River Fish Data

- PFOS detected in all samples (fillets) and at the highest concentrations
- Downstream concentrations generally higher than upstream
- No information available on AFFF releases at the time of the historic sampling events
- Sampling locations and some fish species differ from July 2019 sampling event



Farmington River Health Advisories

- Initially – no contact with foam, no fishing

- The Farmington River is safe for recreational uses (swimming/boating).
- DO NOT EAT FISH caught between Route 75/Poquonock Ave. downstream to the Connecticut River.
- Catch & release fishing is allowed.

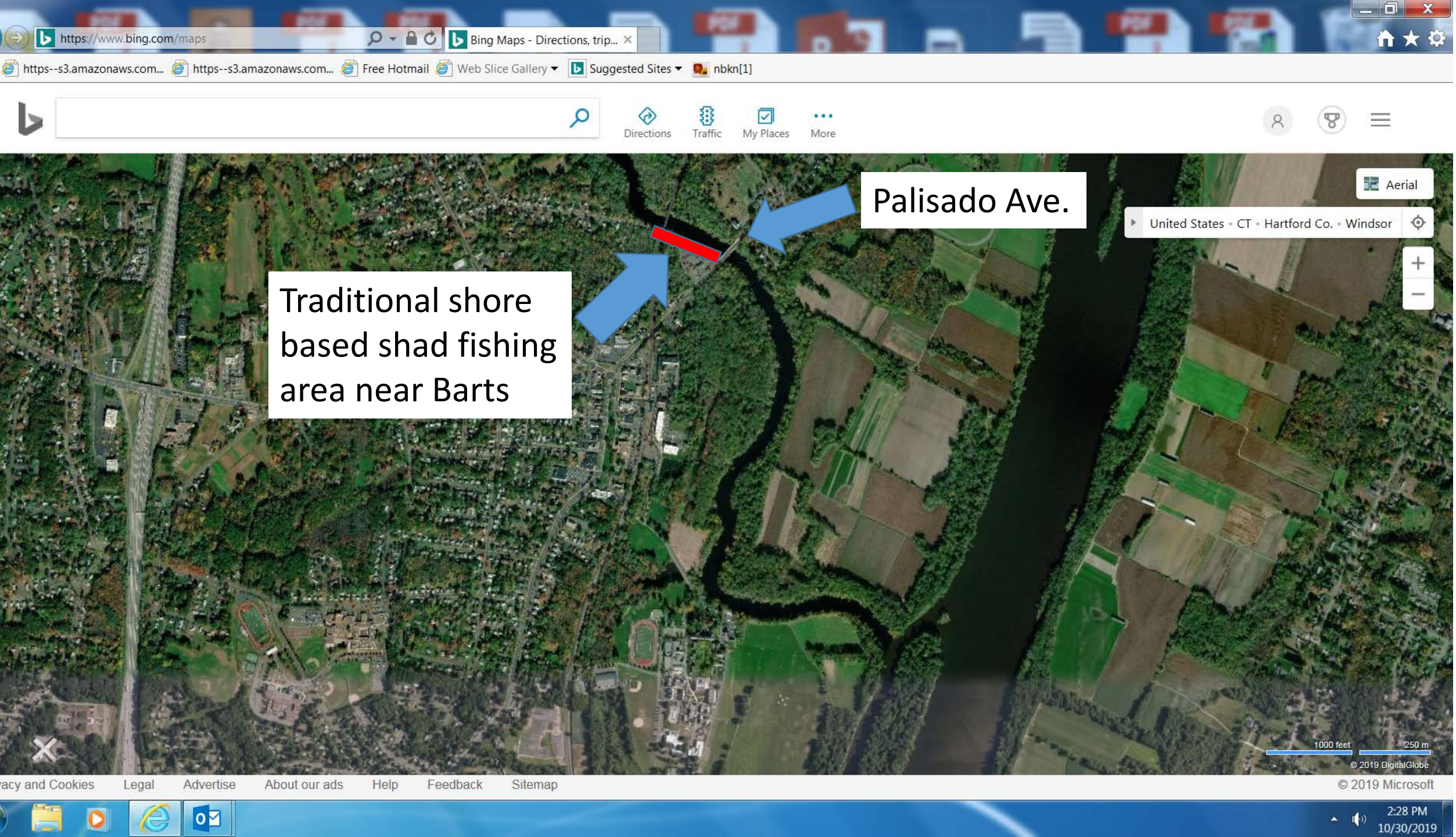
- Note: There is an existing fish consumption advisory statewide based on mercury.

Farmington River American shad (Anadromy 101)

- Spawn in freshwater – grow to maturity in marine waters
- Returning adults are between age 3 and 7
  - Most males are age 4 and 5; most females age 5 and 6 (some repeat spawning)
- Spawning run (i.e. fishing season) runs from ~ mid April to mid June (peaks on May 15; from Rainbow Dam records)
- YOY shad spend several weeks in lower river (or CT River)

American shad (52 cm)

R Jacobs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Traditional shore based shad fishing area near Barts
Aerial
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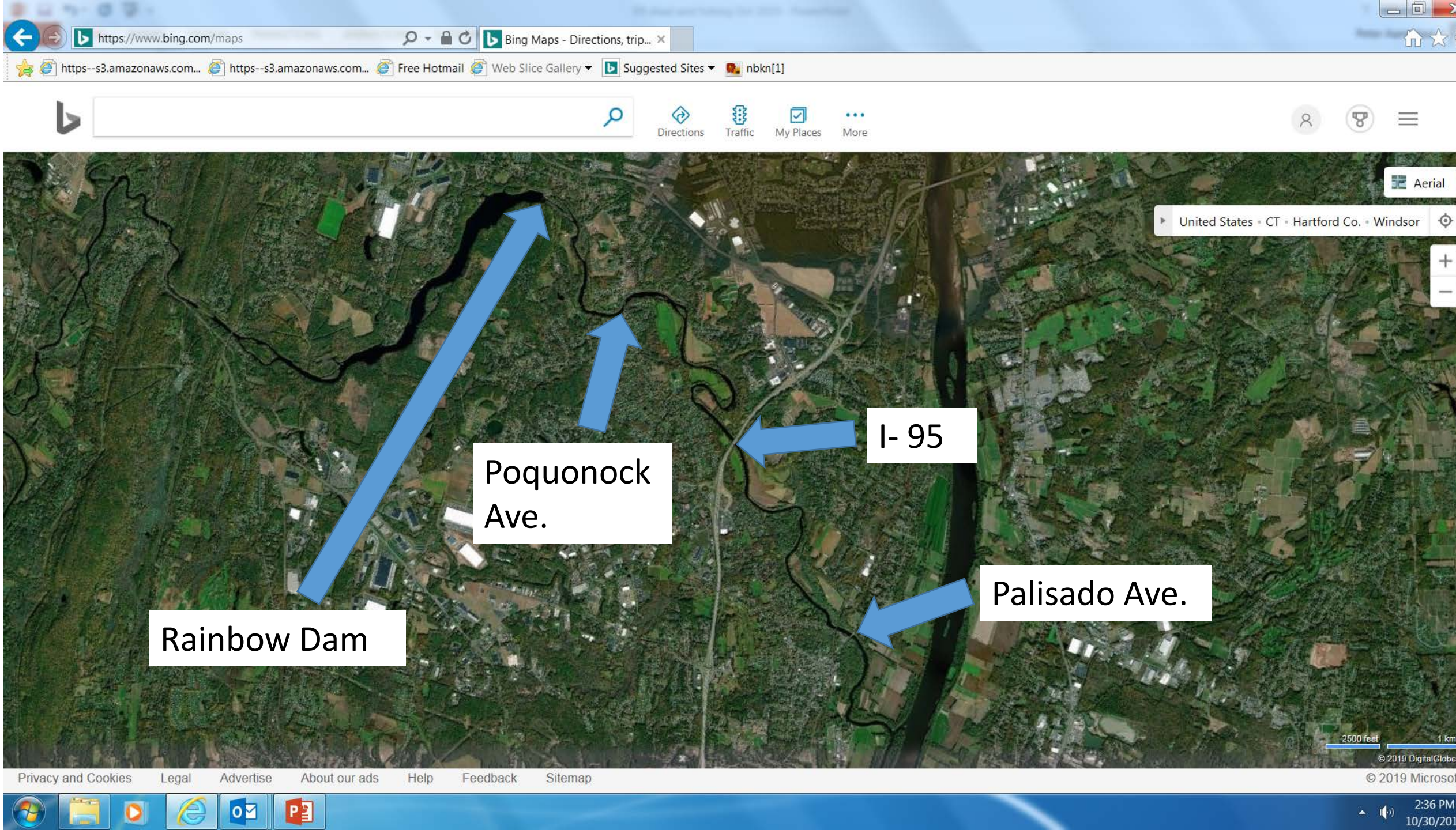
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Poquonock Ave.
I- 95
Palisado Ave.
Rainbow Dam
2500 feet
1 km
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Legal
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Help
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Sitemap
© 2019 Microsoft
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10/30/2019

B-17 Plane Crash Emergency Incident

- Summary of initial **response**—immediate containment
- **Notifications** to local and state health officials
- **Coordination** among airport, local, regional, and state resources
- **Communications with public** —immediate notifications; advisories updates
- Communications with **press/media**
- Environmental **samples collected** and **results tabulated**
- **Next steps** for environmental assessment and monitoring

B-17 Plane Crash Emergency Incident

- October 2 - Approx. 10 am, WWII era B-17 plane crashed at Bradley shortly after take-off, impacting the de-icing facility at the southwest side of the airport.
- Environmental Impact - Surface Water Runoff
  - Aviation Gasoline/oils/hydraulic fluids, from plane
  - Propylene glycol, from de-icing facility
  - PFAS-containing Aqueous Film-Forming Foam (AFFF), used to extinguish the fire

- The Federal Aviation Administration requires the use of AFFF by Bradley's Fire Department to respond to flammable liquid fires such as this.

CT DEEP Emergency Response Actions

October 2

- Incident reported to DEEP Dispatch at 10:01 by multiple entities
- DEEP retained Emergency Response Contractor to assess environmental impact
- Within 30 min., On-Scene Unified Command established
- Containment of Hazardous Materials initiated
  - Contain fluids and minimize off-site migration
  - Establish air monitoring locations
  - Set boom at MDC wastewater treatment facility
  - Set boom in Rainbow Brook at Trap Rock Road

CT DEEP Emergency Response Actions

October 2

- Notifications
  - State and Local Health Officials notified at 10:45
  - Residents via reverse 911 at 13:00 – expected release of firefighting foam in Rainbow Brook and Farmington River; informing public to report any foam and to avoid contact
- Advisories issued to public – initially believed release was to sanitary sewer system
- Identification of Sensitive Receptor Locations (homes, wells)
  - No potable wells determined to be at risk along Rainbow Brook

CT DEEP Emergency Response Actions

- Combination of Legacy PFOS AFFF and Modern C6 AFFF applied to fire
  - 700 – 800 gallons of AFFF concentrate, total
  - 22,000 – 25,000 gallons AFFF solution discharged
  - Visible foam never observed on the Farmington River

- De-icing fluids
  - 2 trucks and an above-ground storage tank damaged
  - 18,000 gallons of propylene glycol contaminated with AFFF

CT DEEP Emergency Response Actions

October 2

Fluids Containment and removal on-site

CT DEEP Emergency Response Actions

October 2

- Containment of surface water runoff from the Airport
  - Installed boom at drainage pipe outlet offsite
  - Installed berm ahead of drainage culvert along Rainbow Brook at Trap Rock Road, dismantled 10/3 prior to rain event

Recovery of Hazardous Materials

- Volumes of Fuel, De-Icing Fluids, and Firefighting Foam Collected

As of 10/4, 8 am:

- 117,976 gallons PFAS/Water combination collected. Still collecting and storing collected liquids.
- Approx. 18,055 gallons of Glycol/Water mixture recovered and stored in a tank at the Airport.

Liquid storage tanks along Trap Rock Road

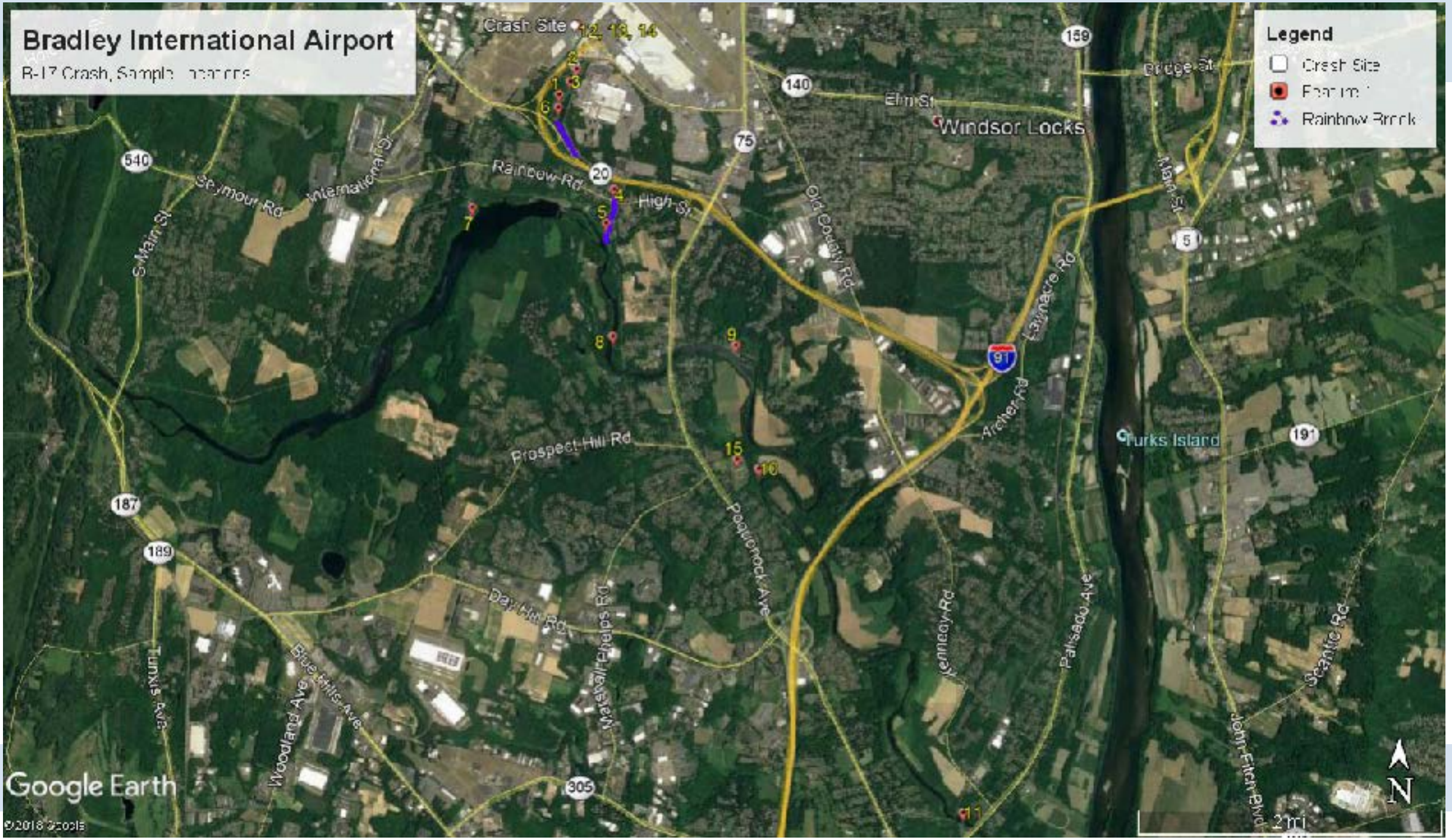
Containment, Removal, and Sampling at Foam Collection Sites Downstream October 2-11

Downstream of Hamilton/Watts Pond Dam

Containment, Removal, and Sampling at Foam Collection Sites Downstream October 6-11

Rainbow Brook at Stevens Mill Road

Emergency Responders conducted outreach to nearby property owners.


Bradley International Airport
Crash Site
Legend
Crash Site
Rainbow Brook
Windsor Locks
Turks Island
Rainbow Rd
High St
Seymour Rd
International Dr
S Main St
Elm St
Bridge St
Main St
Old County Rd
Lamagre Rd
Archer Rd
Prospect Hill Rd
Day Hill Rd
Marshall Phelps Rd
Poquonock Ave
Kennedy Rd
Palisado Ave
Blue Hills Ave
Woodland Ave
Tunxis Ave
John Fitch Blvd
Spaulding Rd
75
91
140
159
191
20
5
540
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305
Google Earth
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Soil and Surface Water Sampling Locations

Figure 1: BDL, B17 Crash Incident, Upper Section Sample Locations

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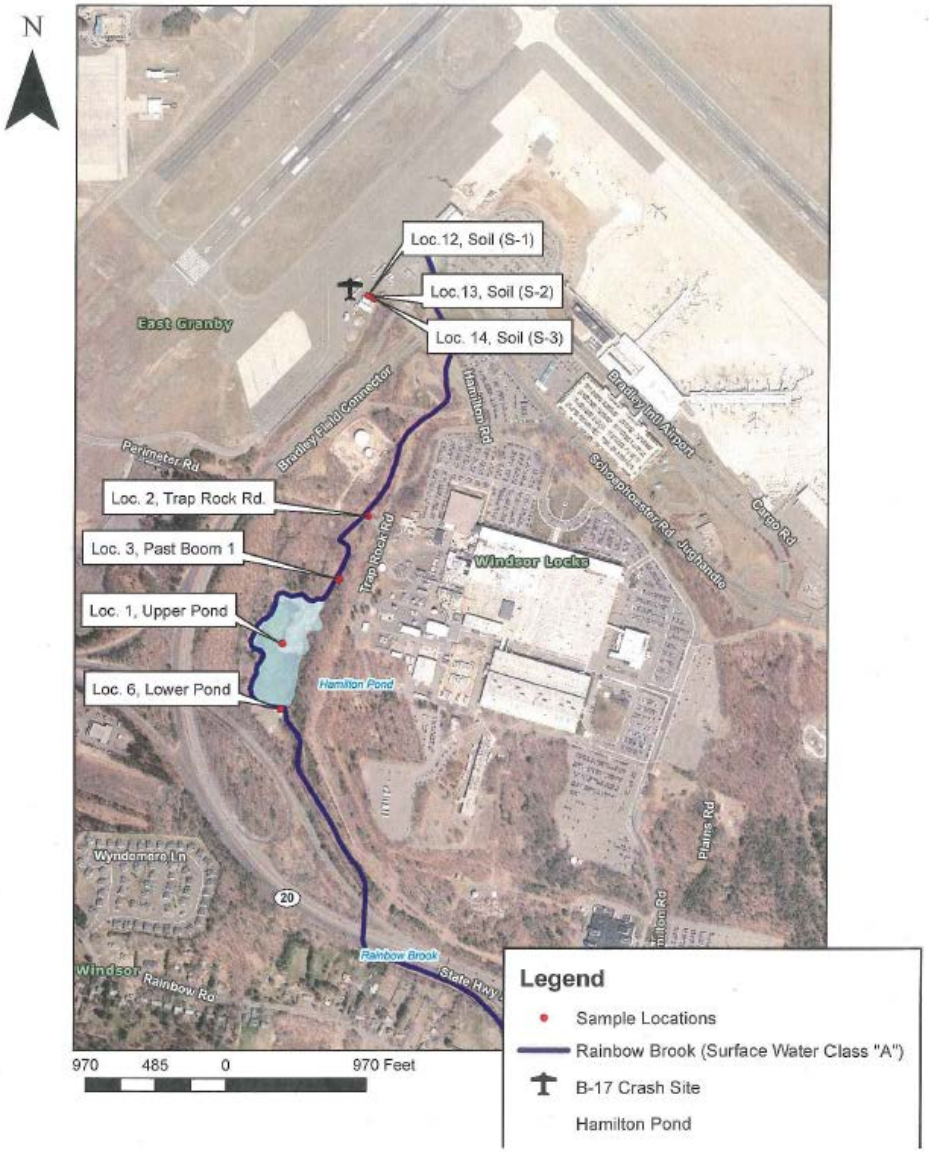

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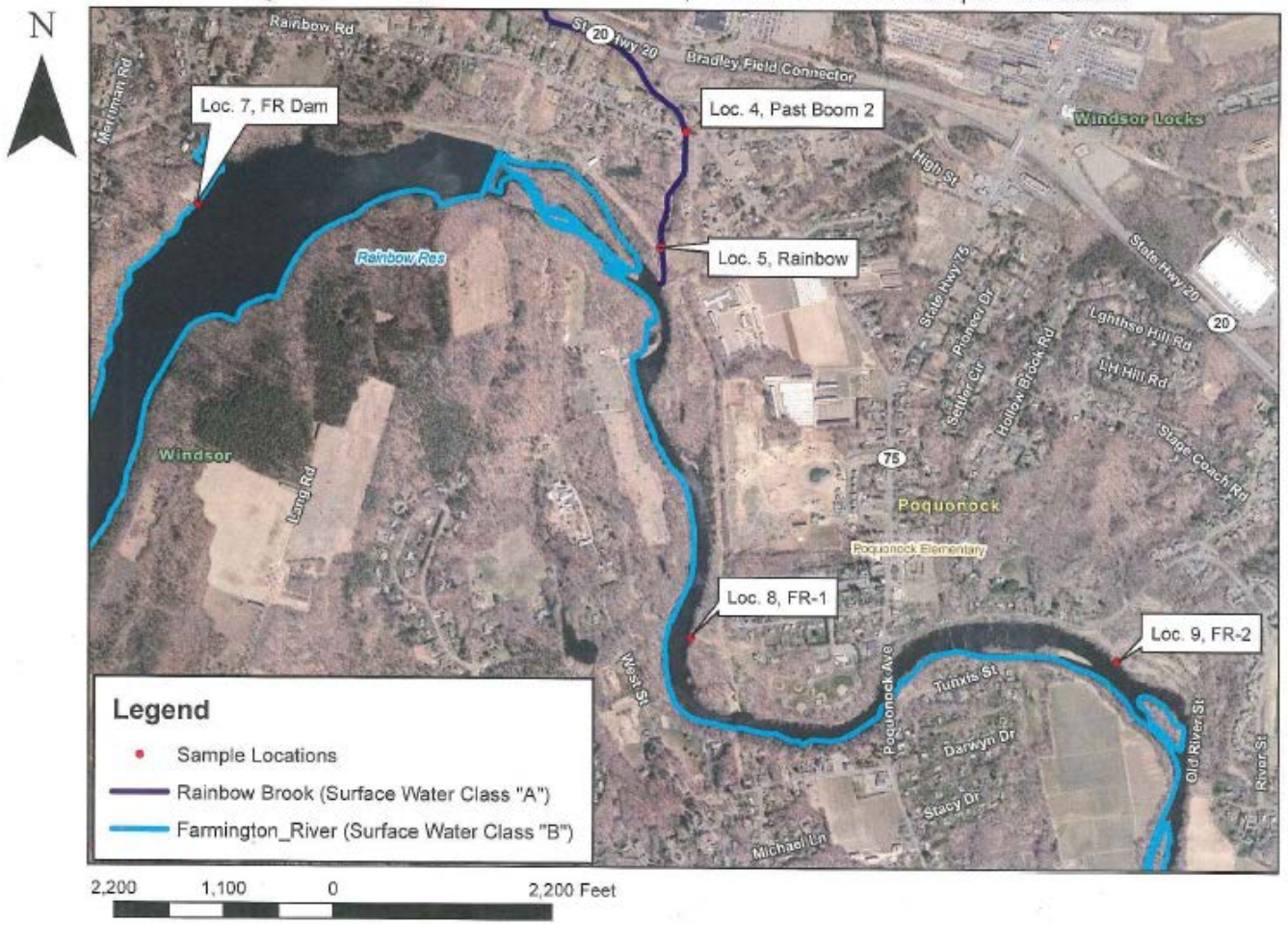
Figure 2: BDL, B17 Crash Incident, Middle Section Sample Locations



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Soil and Surface Water Sampling Locations

Figure 1: BDL, B17 Crash Incident, Upper Section Sample Locations

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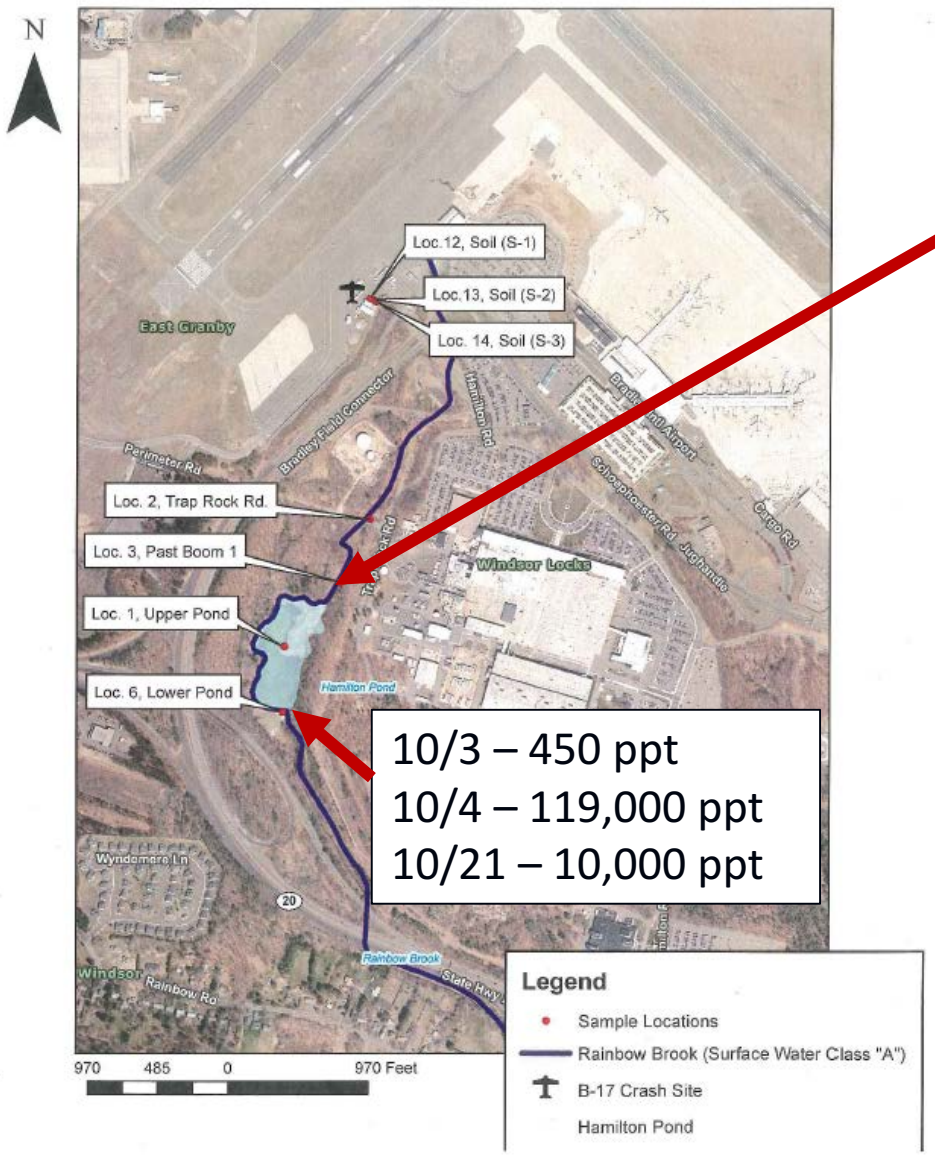

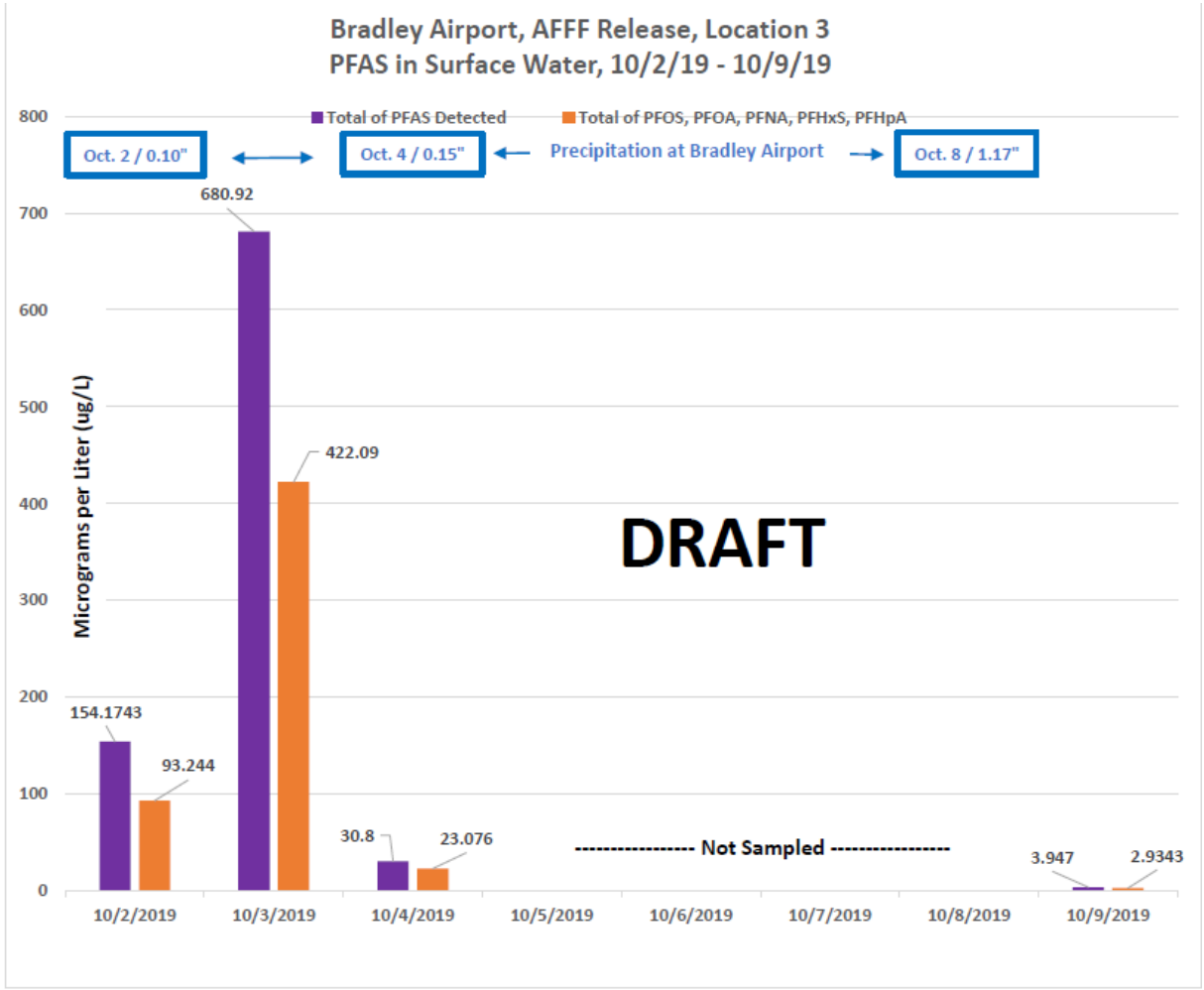

10/21-
3,933 ppt

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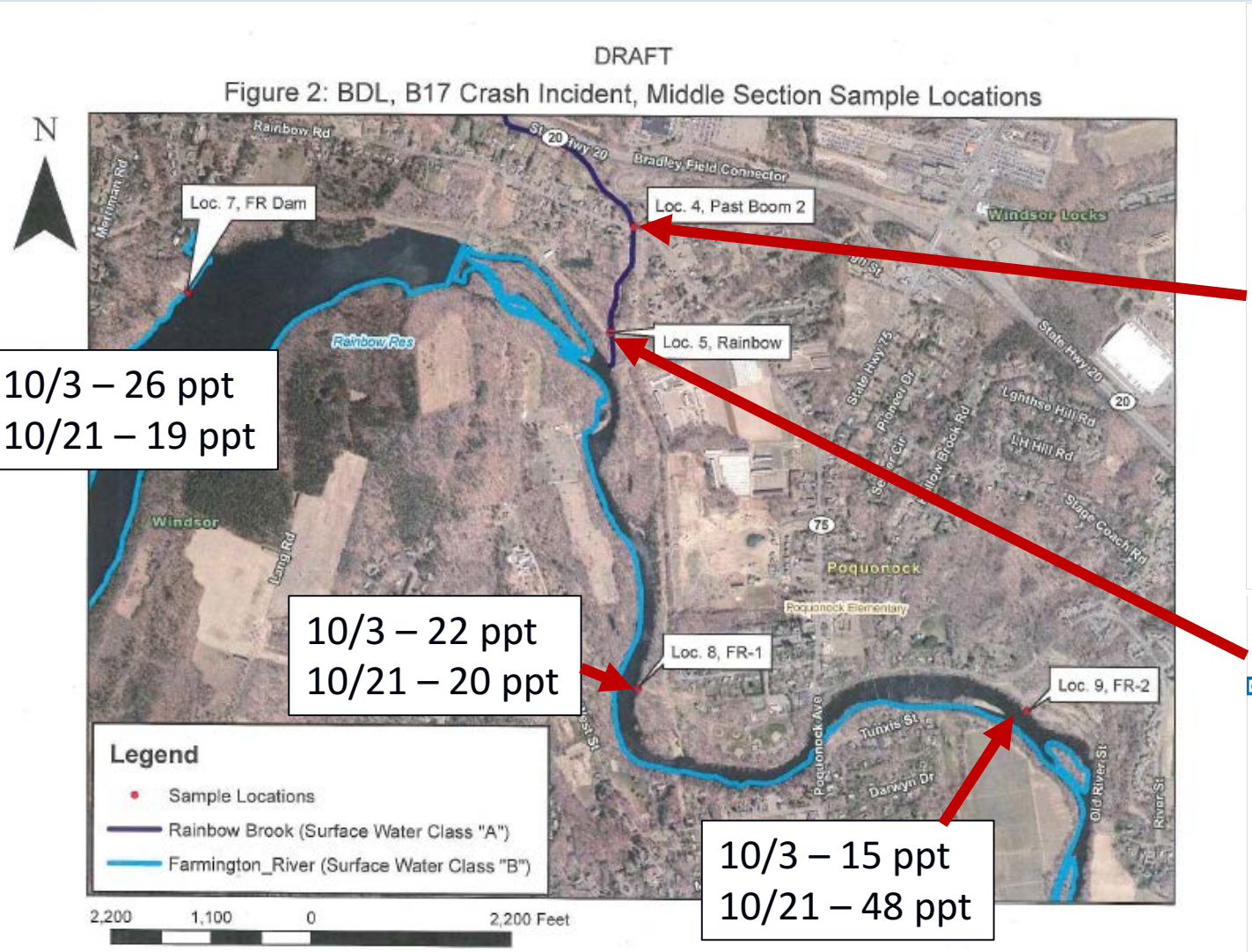
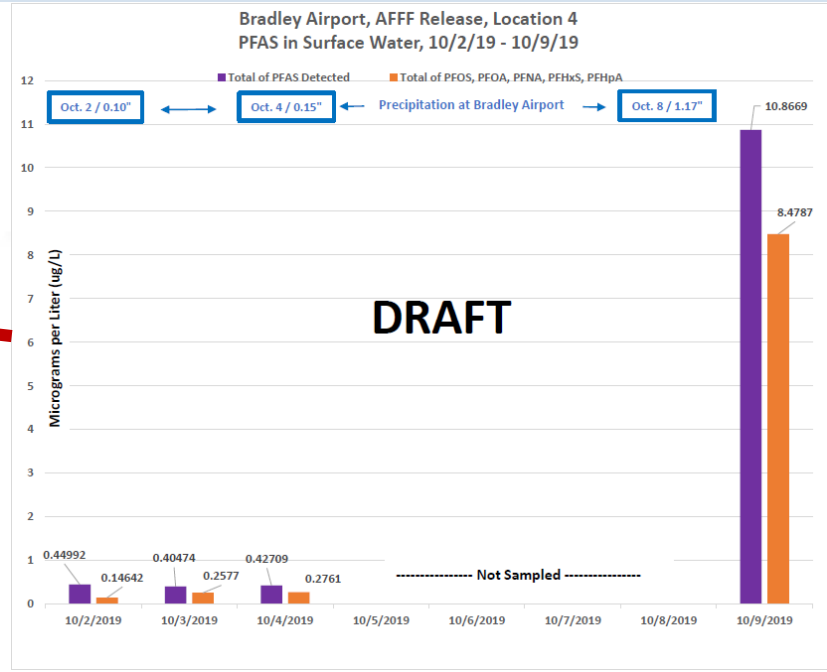
Surface Water Sampling Locations



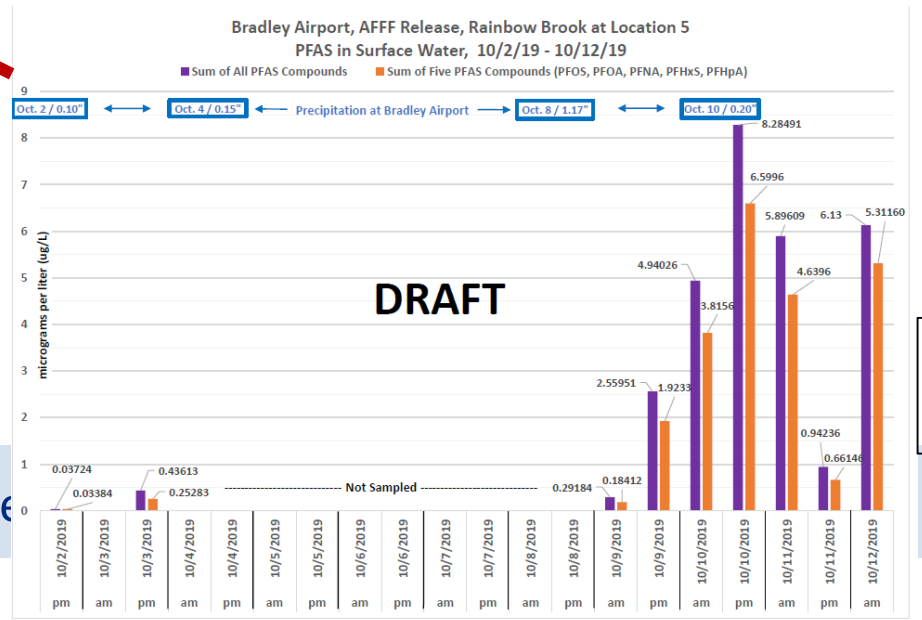
10/3 – 26 ppt
10/21 – 19 ppt

10/3 – 22 ppt
10/21 – 20 ppt

10/3 – 15 ppt
10/21 – 48 ppt



10/21-
5,275 ppt



10/21-
524 ppt

Surface Water Sampling Locations

Figure 3: BDL, B17 Crash Incident, Lower Section Sample Locations
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10/3 – 76 ppt

10/3 – 56 ppt
10/9 – 82 ppt

Farmington River – Downstream of MDC Outfall

Soil Removal at Airport October 21, 2019

Ongoing Surface Water Monitoring

- Weekly sampling of Rainbow Brook
  - Trap Rock Road
  - South of Trap Rock Road/Past Boom 1
  - Lower Pond
  - Near confluence with Farmington River
- Weekly sampling of Farmington River
  - Upstream, above Rainbow Brook but below dam
  - Brown's Farm irrigation water intake
  - Downstream Farmington

Additional Soil Sampling

- Rainbow Brook at Stevens Mill Road where foam accumulated along stream bank

- Confirmation sampling at Airport soil removal area

Next Steps

- Response is still being handled by DEEP's Emergency Response Unit.

- Long-term monitoring and further environmental evaluation will be needed.

Fish and Rainbow Brook

- Rainbow Brook is not considered by DEEP to be a fishery.
- Few fish found during most recent DEEP survey.
- No public access.

- Fish consumption advisory on Farmington River extended upstream to Rainbow Dam as a precaution following incident.

PFAS Foam versus Naturally Occurring Foam

PFAS Foam

- Can be bright white
- Tends to pile up like shaving cream
- Usually lightweight
- May blow inland
- Can be sticky

Source: Michigan Department of Environment, Great Lakes, and Energy, PFAS Action Response Team website

Naturally Occurring Foam

- Is off-white and/or brown
- Often accumulate in bays, eddies, or river blockages
- May have earthy or fishy aroma

Questions?