

From: [Klatt, David/CHC](#)
To: [Klinkhamer, Christopher](#); [cieniawski.scott](#); ["Patacity, Jane M \(Manor Oak\) USA"](#); [Bessingpas, David](#); [Stuart Messur](#); [Seaman, Jennifer/CHC](#); [Selcoe, Barrie/HOU](#); [Pfeiffer, Danielle](#); [Anderson, Paul](#); [Preto, Lauren](#); [Graham, Joseph R - DNR](#); [Saari, Christopher A - DNR](#); [Sager, John E - DNR](#); [Endsley, Erin A - DNR](#); [Isom, Kristen](#); [Fassbender, Judy L - DNR](#)
Cc: [Koch, Amanda A - DHS](#); [Kilburg-Basnyat, Brita J - DHS](#)
Subject: Crawford Creek Video Working Session
Date: Tuesday, November 2, 2021 1:10:01 PM
Attachments: [Crawford Creek October 29 Presentation for WDNR_Final-dqb_dk.pdf](#)

**CAUTION: This email originated from outside the organization.
Do not click links or open attachments unless you recognize the sender and know the content is safe.**

Hi Everyone,

Thanks so much for your participation on the October 29 call!

Attached to this email is the Powerpoint presentation from the call for your review and consideration. A few additional explanatory notes were added to slides 8 and 13. Arcadis and Anchor are finalizing the figures and support files today, and they are being uploaded to a sharepoint site and/or will be transferred via another transfer mechanism.

So, stay tuned for more information.

We look forward to our discussion on November 10.

Regards,

Dave

David Klatt
Jacobs
Senior Project Manager
M 1 312 480 9875
David.Klatt@Jacobs.com
www.jacobs.com

NOTICE - This communication may contain confidential and privileged information that is for the sole use of the intended recipient. Any viewing, copying or distribution of, or reliance on this message by unintended recipients is strictly prohibited. If you have received this message in error, please notify us immediately by replying to the message and deleting it from your computer.

**Crawford Creek and Tributary,
Great Lakes Legacy Act (GLLA)
Focused Feasibility Study
(FFS) Project
October 29, 2021
Project Meeting with WDNR**

Opening Remarks – Scott Cieniawski, EPA



Agenda

1. Safety Moment

2. Meeting Objectives

3. Area B/C Data Interpretation

A. Iso-Contour Concentration Figures

B. Thiessen Polygon Figures

C. Point-By-Point Risk Figures

D. Updated "Data Stick" Figures and Cross-Sections

4. Other Lines of Evidence

A. Wetland Delineation and Habitat Considerations

B. Stream and Floodplain Hydrology Considerations

5. November 10 Working Session with WDNR

6. Path Forward

Safety Moment

- Don't let the Covid situation delay other potential medical items that might need checking out.

Meeting Objectives

- Present concentration figures and several proposed lines of evidence to be used during the scheduled November 10 working session;
- Discuss elements and goals of November 10 working session so we have a productive outcome;
- Obtain initial WDNR feedback on any additional lines of evidence they would like to be considered in the November 10 working session and the FFS.

Data Interpretation Figures

- A. Inverse Distance Weighting (IDW) Iso-Concentration Contours
- B. Thiessen Polygon Figures
- C. Point-By-Point Risk Figures
- D. Updated “Data Stick” Figures and Cross-Sections

Iso-Contour Concentration Figures

- Inverse Distance Weighting (IDW) Estimating Methodology and Assumptions
- Separate BaP and TCDD-TEQ Iso-contour Figures by Depth Intervals to 4' bgs
- Combined (Union) BaP and TCDD-TEQ Iso-contours Figures by Depth Intervals to 4' bgs

IDW/Iso-Contour Estimating Methodology and Assumptions

- Composite samples (applies to 0-0.5' depth interval only):
 - For locations where both discrete and composite samples were collected, discrete sample concentration was assigned to middle of 5 discrete locations and composite sample concentration was assigned to remaining 4 discrete locations
 - For locations where only composite samples were collected, composite sample concentration was assigned to all 5 discrete locations
- Duplicate samples: used maximum of parent/duplicate sample results
- Non-detects: used ½ ND result
- Crawford Creek floodplain (Sub-Area C) broken into two areas divided by the creek; each side interpolated separately
- Tributary in Sub-Area B not an interpolation divide
- Iso-contours clipped at 25-year floodplain boundary

Clarification: At sample locations SO-C02, SO-C03, SO-C06, SO-C08, and SO-C11, both a composite sample (composed of five discrete samples) and a discrete boring sample were collected from the 0-0.5' depth interval. Both sample results are depicted on the IDW figures. For data interpolation, the boring sample result was assigned to the center location of the five discrete samples, and the composite result was assigned to each of the remaining four discrete composite sample locations

IDW/Iso-Contour Estimating Methodology and Assumptions

- Separate iso-contours developed for 0-0.5', 0.5-1', 1-2' and 2-4' depth intervals
- Iso-contours developed for BaP and TCDD-TEQ, then iso-contours combined (union)
- Concentration "bins":
 - < WDNR Non-Industrial CULs
 - > WDNR Non-Industrial CULs, < WDNR Recreator CULs
 - > WDNR Recreator CULs, < 4X WDNR Recreator CULs
 - > 4X WDNR Recreator CULs, < Site-Specific Recreator CULs
 - > Site-Specific CULs

Notes:

- Individual BaP and TCDD-TEQ figures also include bins for 2X WDNR Recreator CUL and ~2X Site-Specific CUL
- BaP CULs adjusted to 1×10^{-6} risk level (previously based on 1×10^{-5} risk)
- Visual impacts (NAPL, staining, sheen) depicted on each figure

BaP and TCDD-TEQ Iso-contour Figures by Depth Interval

Combined (Union) BaP and TCDD-TEQ Iso-contour Figures by Depth Interval

Thiessen Polygon Figures

- Estimating Methodology and Assumptions
- Separate BaP and TCDD-TEQ Figures by Depth Intervals to 4' bgs
- Combined (Union) BaP and TCDD-TEQ Figures by Depth Intervals to 4' bgs

Thiessen Polygon Estimating Methodology and Assumptions

- Crawford Creek floodplain (Sub-Area C) broken into two areas divided by the creek; each side evaluated separately
- Tributary in Sub-Area B not a divide
- Polygons clipped at 25-year floodplain boundary
- Separate polygon figures developed for 0-0.5', 0.5-1', 1-2' and 2-4' depth intervals
- Separate polygon figures developed for BaP and TCDD-TEQ, then combined (union)
- Same concentration "bins" as iso-concentration figures
- Visual impacts (NAPL, staining, sheen) depicted on each figure

On additional note: At sample locations SO-C02, SO-C03, SO-C06, SO-C08, and SO-C11, both a composite sample (composed of five discrete samples) and a discrete boring sample were collected from the 0-0.5' depth interval. Both sample results are depicted on the Thiessen polygon figures. The maximum of the two results was used to color the associated sample polygon.

BaP and TCDD-TEQ Thiessen Polygon Figures by Depth Interval

Combined (Union) BaP and TCDD-TEQ Thiessen Polygon Figures by Depth Interval

Point-By-Point Risk Figures

- Point-By-Point Risk Methodology and Assumptions
- Figures by Depth Intervals and Risk Screening Level

Point-By-Point Risk Methodology and Assumptions

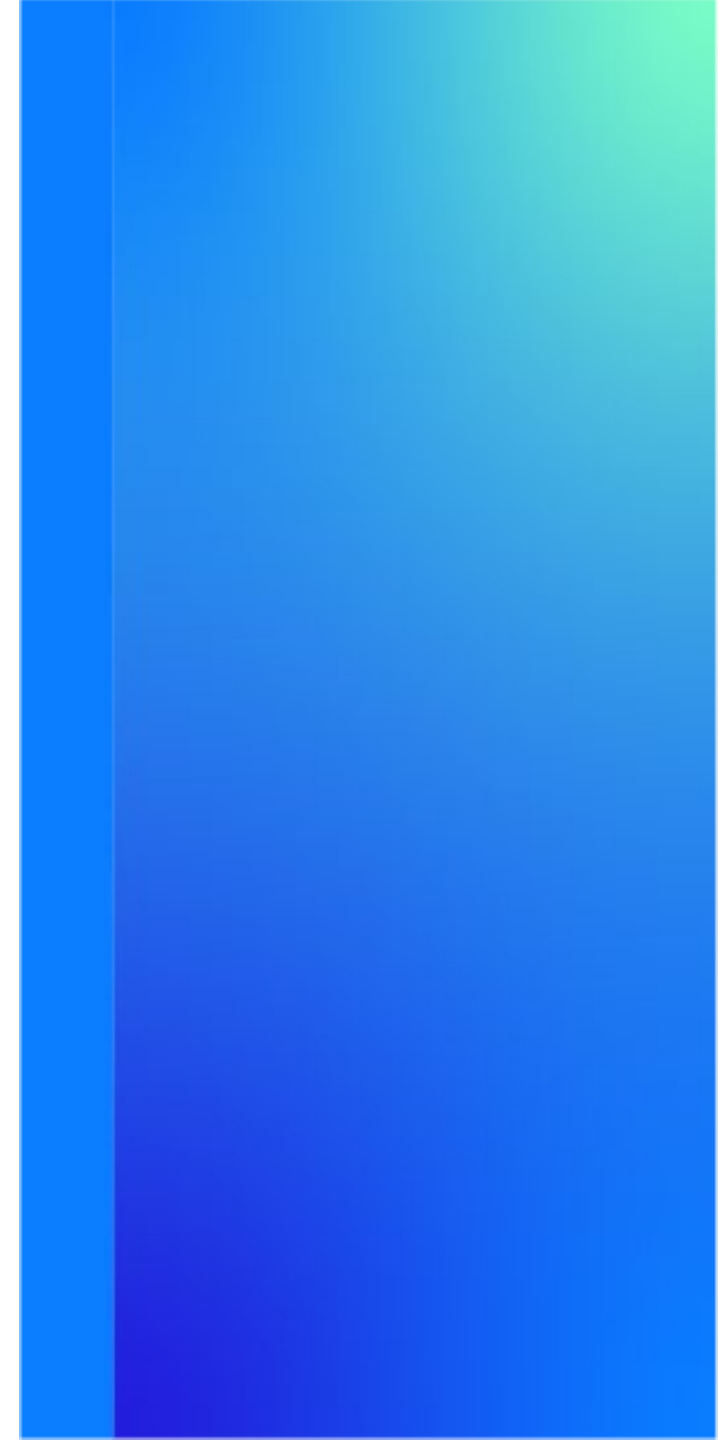
- Estimated potential cancer risks for each sampling location in each of the four depth intervals (0-0.5', 0.5-1', 1-2', 2-4')
 - Cumulative risks associated with all PAHs and all PCDD/F congeners
 - Potential risks for each individual PAH and each individual PCDD/F congener
- Estimated two sets of potential risks
 - WDNR recreator CUL exposure and toxicity assumptions
 - 4X WDNR recreator CUL exposure and toxicity assumptions (very similar to site-specific recreator CULs based on FI=0.25)
- Compared estimated risks to NR 720.12 target risks:
 - Cumulative risk $\leq 1 \times 10^{-5}$
 - Individual compound risk $\leq 1 \times 10^{-6}$

Point-By-Point Risk Methodology and Assumptions

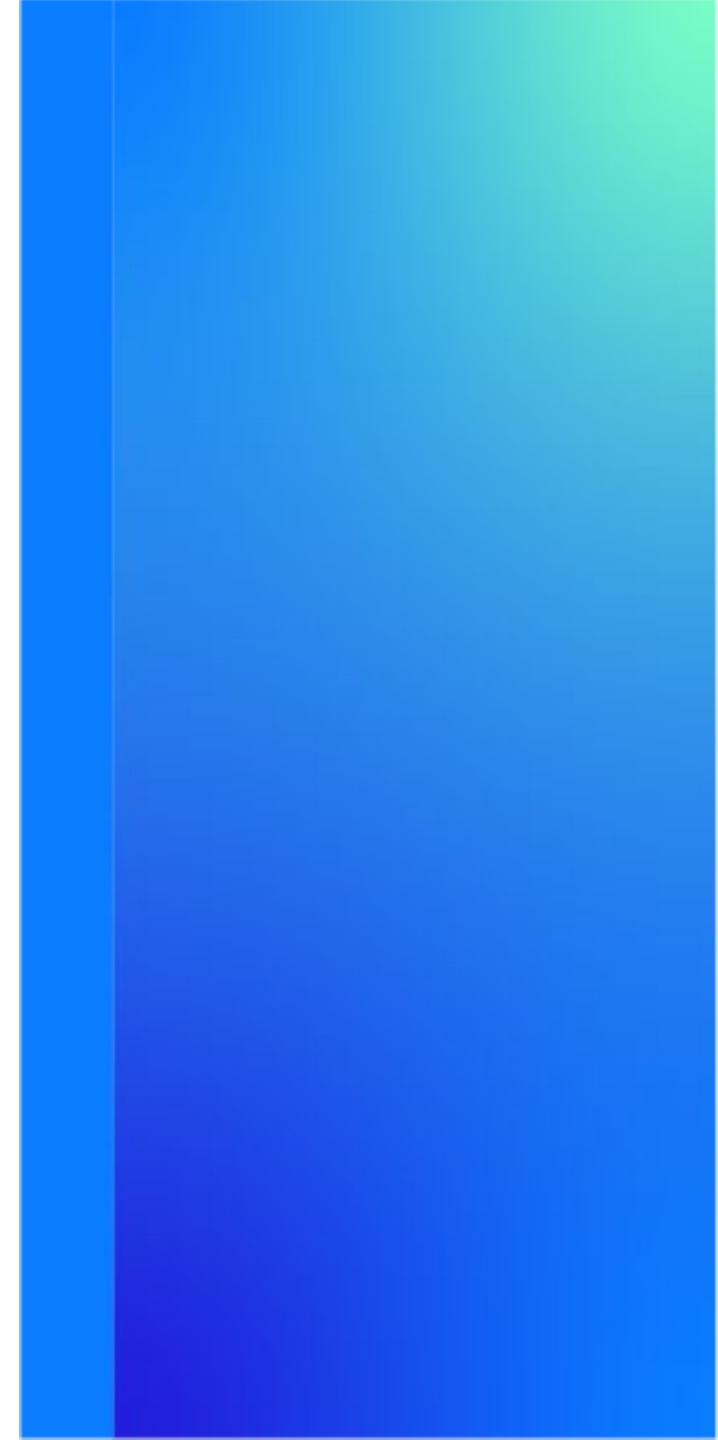
- Results of comparison to target risks presented using Thiessen polygons
- Three risk categories depicted on figures:
 - Cumulative risk $> 1 \times 10^{-5}$
 - Cumulative risk $\leq 1 \times 10^{-5}$; one or more individual compounds with risk $> 1 \times 10^{-6}$
 - Identify individual compounds with exceedances and their estimated potential risk
 - Cumulative risk $\leq 1 \times 10^{-5}$; all individual compounds with risk $\leq 1 \times 10^{-6}$
- Other notes:
 - Conservative: assumes CUL exposure assumptions apply to floodplain material at each depth interval at each sampling location (e.g., EF = 175 d/y; ET 4 hr/day; ED 4 or 20 years for child or adult, respectively)
 - Has the advantage of evaluating both cumulative and individual potential risks
 - Comparing concentrations to CULs does not address NR 720.12 cumulative risk target

Point-By-Point Risk Figures

Updated “Data Stick” Figures and Cross-Sections



Wetland Delineation and Habitat Considerations



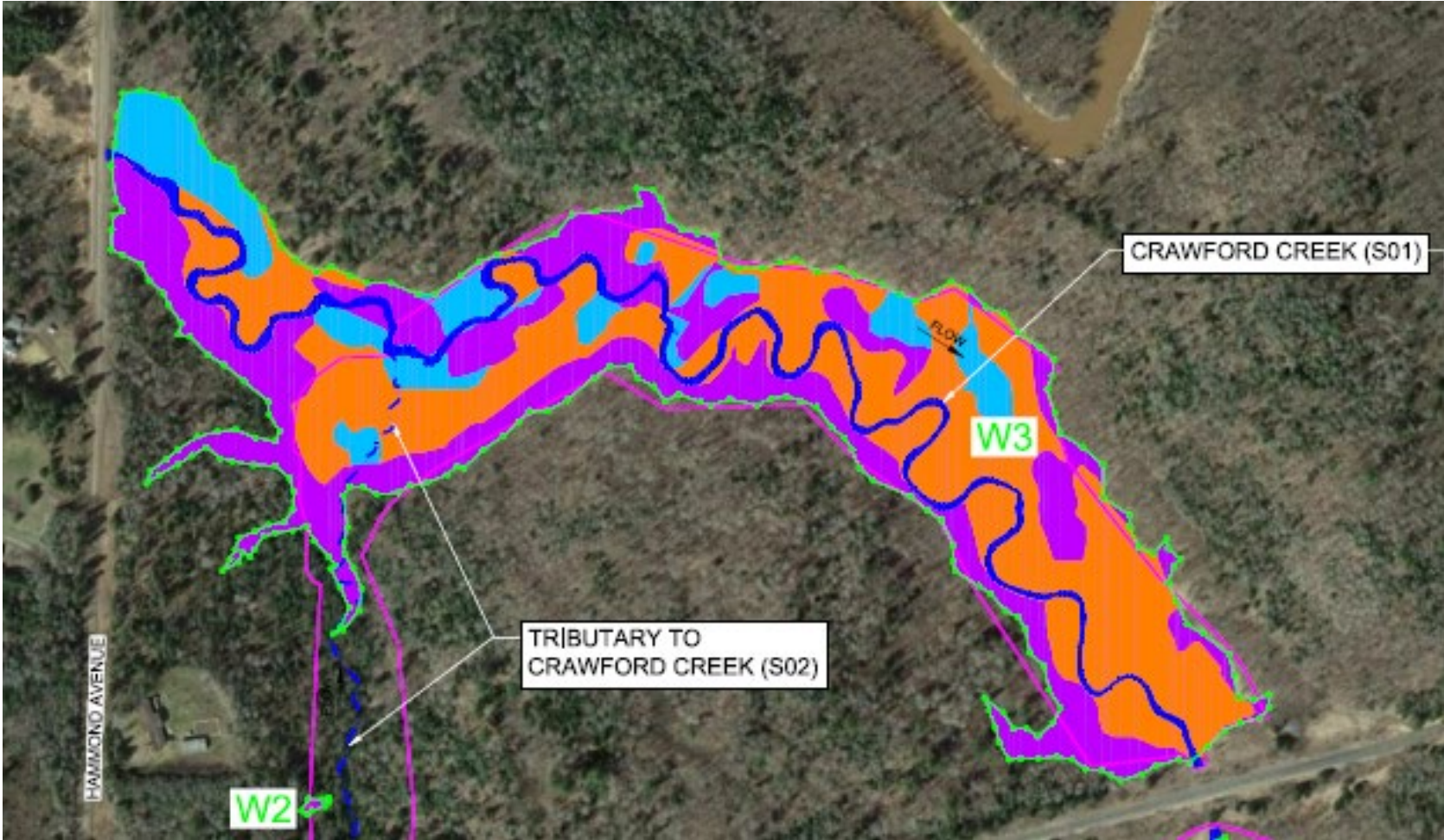
Wetland Delineation and Habitat Considerations

- *A Preliminary WDNR Floristic Quality Assessment (FQA) scoring was conducted based on the Arcadis Wetland and Waterbody Delineation Report (February 2020).*
- The FQA calculator indicates fair to good quality for both Emergent (PEM) and Forested (PFO) wetlands. Only one shrub (PSS) location was evaluated in the wetland delineation (poor quality-but may score higher if more PSS areas were reviewed).
- These higher quality wetland zones will be considered in the FFS.
- The FFS technologies, alternatives, and costing will consider the implications of removing higher quality vegetation/habitat. The time and cost it takes to attempt to restore the higher quality wetlands back to pre-remedial conditions (especially forested) can be significant.

Wetland Delineation and Habitat Considerations

- Disturbing higher quality vegetation/habitat also has implications for threatened and endangered species with a possible presence based on habitat type (such as Long Eared Bat, Canada Lynx, Monarch Butterfly –candidate species) that are identified for this area
- Plan to discuss habitat considerations such as good quality wetlands (PFO, PEM) during the November 10 call and how these will be integrated into FFS.

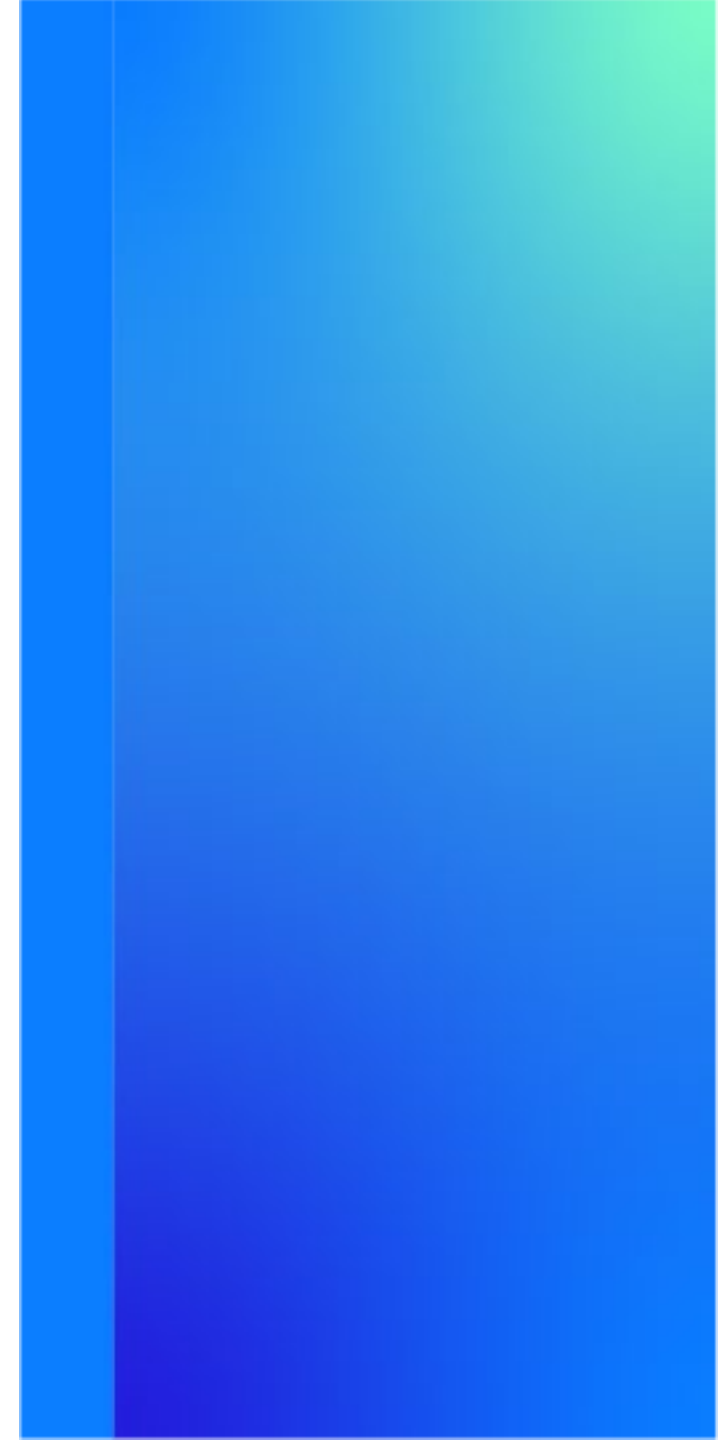
Wetland Delineation and Habitat Considerations



LEGEND:

- CRAWFORD CREEK
- TRIBUTARY TO CRAWFORD CREEK
- ENVIRONMENTAL SURVEY AREA (SEE NOTE 2)
- SURVEYED WETLAND DELINEATION FLAGS
- 2018 DELINEATED WETLAND BOUNDARY (SEE NOTE 3)
- WETLAND VEGETATION TYPE PEM
- WETLAND VEGETATION TYPE PFO
- WETLAND VEGETATION TYPE PSS

Stream and Floodplain Hydrology Considerations

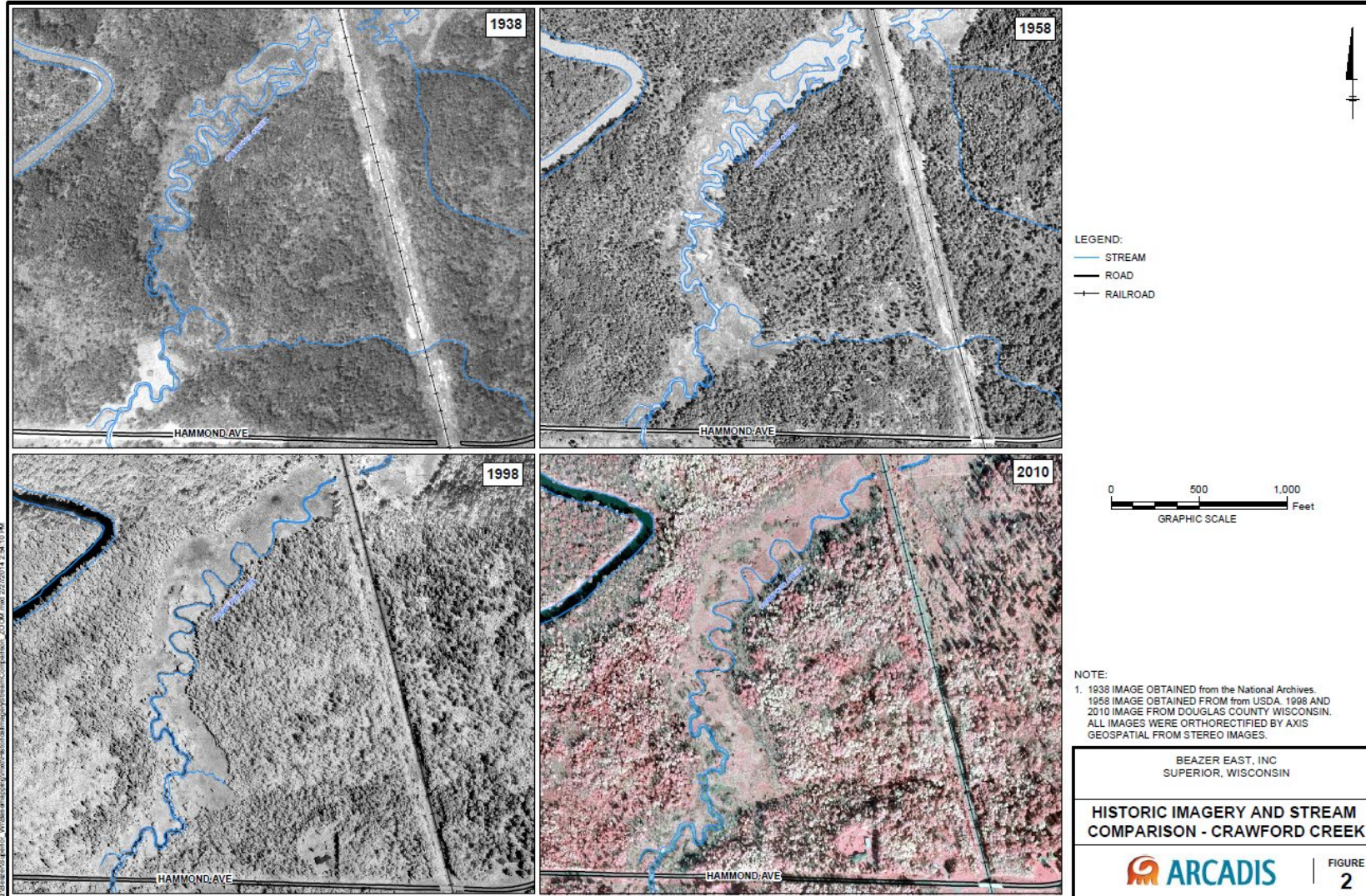


Stream and Floodplain Hydrology Considerations

- Prior Arcadis evaluations (2008/2009 Memos) indicate:
 - Flood elevations/velocities in the Crawford Creek floodplain are largely controlled by the Nemadji River flood elevation
 - Surface water velocities in floodplain are low during various flood stages, even for 100-year flood
- Additional evaluations/modeling could be conducted for surface water velocities in stream channel, but also expected to be low during flood events
- Review of historical aerial photographs indicate Crawford Creek channel has been stable dating back to at least 1938

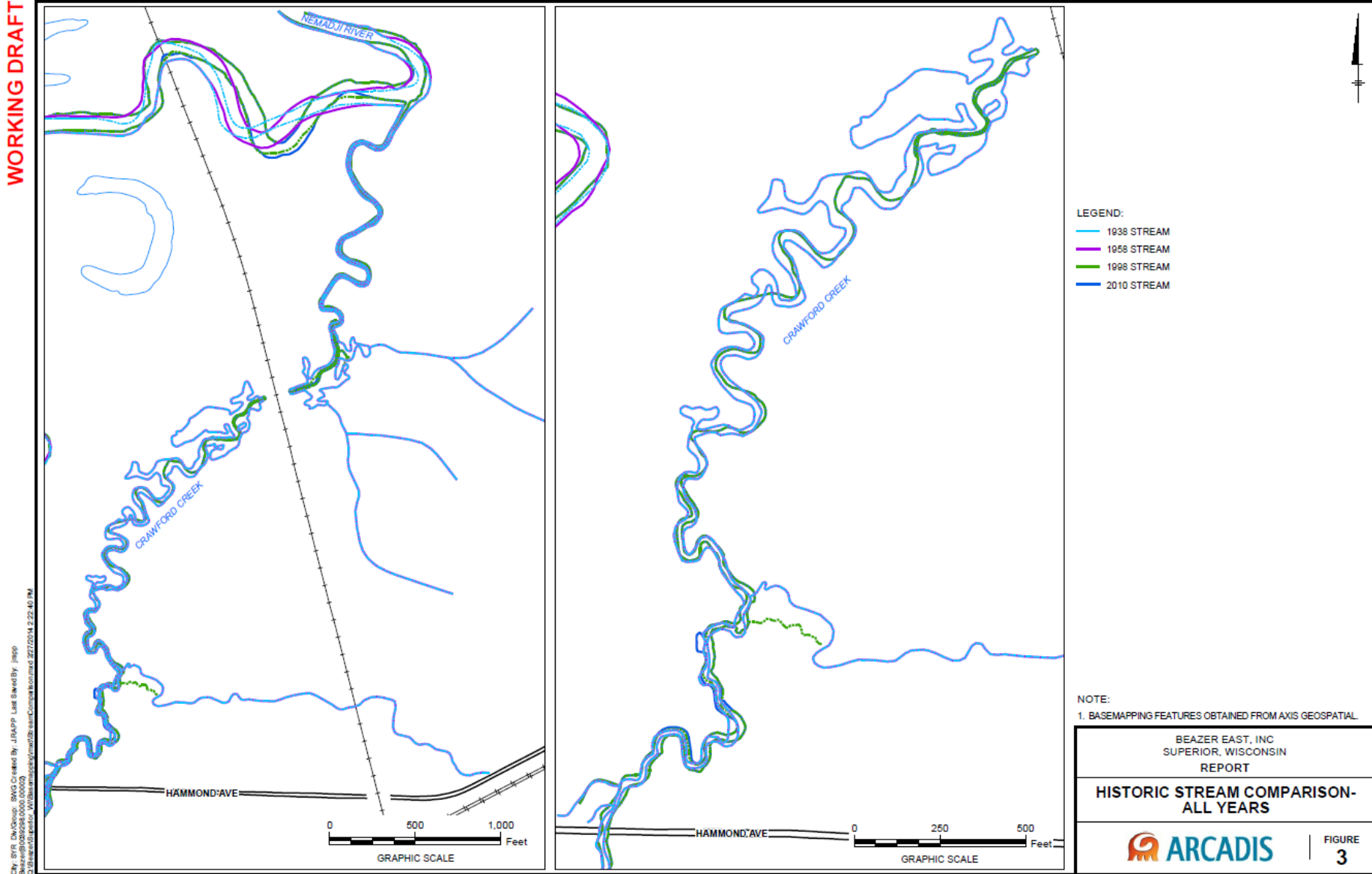
Suggested Working Session Focus Areas

WORKING DRAFT



Stream Comparison

WORKING DRAFT



November 10 Working Session With WDNR, Path Forward

November 10 Working Session With WDNR

- 1-4 p.m. Confirm list of participants
- Send WDNR this presentation and related backup figures and materials after this meeting for WDNR review prior to 11/10.
- Screen-sharing working session using Figures, GIS, Reports, and other information.
- Focus on two key representative areas (See next slide). If WDNR would like other specific sample locations/areas discussed on Nov 10, please let us know.
- Session will look at the representative areas and discuss the multiple lines of evidence that are to be evaluated in the FFS and obtain WDNR input on General Decision Criteria for the FFS remedial approaches.

Suggested Working Session Focus Areas



Path Forward and Requests for WDNR

- EPA/Beazer and Consultants continue to move forward on FFS report (Technology Screening, Evaluation Criteria, Alternatives Development).
- WDNR to review information from the October 29 call and provide feedback with any comments or information requests before November 10 to support the working session.
- Conduct November 10 Working Session and generate meeting notes that describe General Decision Criteria and Multiple Lines of Evidence for review by the group.
- Generate sufficient clarity on decision criteria and FFS framework that will support remedial alternative development for the Draft FFS Report.

Any WDNR questions or information requests for Beazer/EPA at this time?