

Superfund Records Center
SITE: Centredale
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Comments on Centredale Proposed Plan

Alicia Lehrer to: Anna Krasko

Cc: Stacy Greendlinger

02/21/2012 03:13 PM

From: "Alicia Lehrer" <alehrer@wrwc.org>
To: Anna Krasko/R1/USEPA/US@EPA
Cc: Stacy Greendlinger/R1/USEPA/US@EPA
Please respond to <alehrer@wrwc.org>

1 attachment



WRWC Comments on Centredale Manor Proposed Cleanup Plan.pdf

Hi Anna,

I have attached here the WRWC's comments on EPA's proposed cleanup plan of the Centredale Manor Superfund site.

I am also sending a hard copy to you in the mail.

Thank you for the opportunity to provide feedback.

Sincerely,
Alicia Lehrer

Alicia J. Lehrer
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February 21, 2012

Anna Krasko
EPA New England
5 Post Office Square, Suite 100
Mail Code OSRR07-1
Boston, MA 02109-3912

Anna
Dear Ms. Krasko:

The Woonasquatucket River Watershed Council (WRWC) appreciates the opportunity to comment on EPA's plans for cleanup of sediment, soil, surface water and groundwater contamination associated with the Centredale Manor Superfund site.

Attached are our comments.

We look forward to the continuation of the cleanup process.

Sincerely,

Alicia J. Lehrer
Executive Director

Lisa Aurecchia
Program Director

Amanda Blevins
Assistant
Program Director

Alicia J. Lehrer
Alicia J. Lehrer
Executive Director

Woonasquatucket River Watershed Council

Comments to the USEPA

Proposed Plan for the Centredale Manor Restoration Project

February 2012

Mission Statement

The mission of the Woonasquatucket River Watershed Council (WRWC) is to encourage, support and promote the restoration and preservation of the Woonasquatucket River Watershed as an environmental, recreational, cultural, and economic asset of the State of Rhode Island. We share with the United State Environmental Protection Agency (USEPA), the goal of returning the river to a fishable/swimmable condition and greatly appreciate the work that the USEPA and their contractors have done to assess and restore the portion of the river that has been impacted by the Centredale Manor site. We enthusiastically await the large-scale remediation of the Centredale Manor property and the downstream portions of the Site.

Document Organization

This document provides commentary from the WRWC relative to the USEPA document entitled, "Proposed Plan, Centredale Manor Restoration Project" (the "Proposed Plan") which is dated October 2011. The Proposed Plan provides general descriptions of remediation strategies for the Centredale Manor and Brook Village properties (the "Source Area") and the environs in and along the Woonasquatucket River downstream of the Centredale Manor property ending at Lyman Mill dam (in its entirety referred to as the "Site"). The remediation strategies presented in the Proposed Plan include the USEPA preferred cleanup alternatives and other alternatives that were considered but not selected by USEPA. Details about all of the information presented in the Proposed Plan are provided in the documents entitled, "Interim Final Feasibility Study of the Centredale Manor Restoration Project Superfund Site" (dated April 2010) and the "Addendum to the Interim Final Feasibility Study" (dated September 2011).

In addition to the Proposed Plan, our comments also relate to statements made at several public events organized by the USEPA in the fall of 2011.

Our comments are organized into two groups. The first group discusses subjects relating to the USEPA preferred alternatives. The second group discusses subjects relating to other remediation alternatives.

Proposed Plan Position Statement

We are encouraged to see that the USEPA Preferred Alternatives described in the Proposed Plan include many elements of the remedy that the WRWC supports. Furthermore, we are encouraged to

see that the Proposed Plan maintains the current configuration of the environmental resources within the Site, as we consider this point to be a priority.

The WRWC advocates for remedial actions which remove contamination from all areas where it is accessible and for remedial actions which manage the contaminated media either via off-site disposal or on-site encapsulation in upland Confined Disposal Facilities (CDFs) outside the floodplain and under improved engineered caps at the source area.

We firmly oppose any remedial action which includes a reduction to the size (area or volume) of the Allendale and/or Lyman Mill Ponds. We are accordingly also opposed to the replacement of the Allendale and Lyman Mill Pond dams with weirs constructed at lower elevations than the current dam spillways. Any such proposal would negatively impact many of the positive attributes of the river and eliminate or greatly reduce the impact of the improvements that investments of Federal, State, local and personal resources have yielded along the river. Equally, we oppose those alternatives which call for partial pond sediment excavation and isolation capping due to the disproportionately high potential for failure and the long-term difficulty and costs of effective institutional controls and repairs.

We differ from the USEPA preferred remedy on one key aspect of the site remedy. We do not currently support the USEPA's preferred alternative for limited excavation and the use of a 3-inch thin layer cover in the remediation of the Oxbow and the segment of the river adjacent to the Oxbow and upstream of Lyman Mill Pond. For this critical environmental resource, we do not feel that we can fully advocate for any remedial strategy at this time. It is our position that more study of the Oxbow area and more analysis of the potential ramifications of the USEPA preferred alternative is warranted. Alternatively, if USEPA cannot study the Oxbow further, then we advocate for a remedial strategy that is more consistent with what is proposed for Allendale and Lyman Mill ponds and which removes more contaminated sediment and soil and which will have a more stable and predictable future.

The basis for our position relative to the Oxbow is that we are concerned that the implementation of the excavation and thin layer capping activities proposed by the USEPA could leave the Oxbow in an unstable condition and susceptible to natural and man-made disruptions which could lead to acute exposures to contaminant concentrations above the remedial objectives and/or a re-distribution of contamination at some point in the future. Potential subjects of concern include: vegetative die-off from earthwork vehicle traffic, post-remedy tree die-off as a result of the 3-inch cap, the effectiveness of the 3-inch cap, the difficulty in implementing any land use control and restricting access, the post remediation site becoming an attractive play area for local youths, and erosion/flooding during the post-remedy recovery period.

Comments on the USEPA's Preferred Alternative

1. The remediation of the Oxbow is in our view the most complex aspect of the Proposed Plan. We observe that the USEPA has selected as its preferred remedial alternative an approach that contrasts dramatically from other elements of their preferred remedy. Where other portions of

the Site are proposed to be addressed with remediation approaches that are proven and well understood, the preferred remedy for the Oxbow appears to be experimental and reliant on numerous assumptions. Our position is best understood by considering two concerns raised by the USEPA preferred alternative for the Oxbow, (a) the likelihood of the Oxbow's contaminated sediment under the proposed thin three inch cap to remain in place and not be eroded downstream; and (b) the means by which an enhanced natural attenuation approach would succeed.

Regarding cap stability, the USEPA proposes to remove impacted sediment from areas that are most likely to be susceptible to erosion and to install engineered structures such as baffles within the Oxbow to retard flow to the capped areas during flooding events and minimize the potential for high energy flows to suspend and transport contaminated floodplain soils.

Regarding enhanced natural attenuation, the USEPA proposes to divert water-flow into the Oxbow to help the natural build-up of clean soil and sediment.

Given the fact that the Oxbow basin has irregular topography and lacking a definitive inlet or outlet; we simply do not know how the proposed remedy can meet both of these stated expectations.

2. It is important to point out that the Oxbow preferred remedy presentation and the supporting documents provide little detail regarding subjects that are directly related to the proposed capped contaminated sediment stability and sediment deposition.
 - How will vegetative die-off and storms affect the stability of the three inch cap as trees and shrubs die and topple over revealing impacted sediment?
 - What is the expected sedimentation rate for the restored Oxbow?
 - What is the expected frequency of flood events that would impact the Oxbow?
 - What are EPA plans for restoration plantings and expectations for re-vegetation given this sedimentation rate?
3. In 2008 a study was completed in conjunction with the development of Ocean Special Area Management Plan by the Rhode Island Coastal Resources Management Council. That study found that between 1905 and 2006 there has been a 32% increase in precipitation in Rhode Island. The information provided in the administrative record leads us to conclude that this matter has not been considered during the remedy screening process. That conclusion along with the recent flood events in 2005 and 2010 make us very concerned that current expectations regarding the ability of the design engineers to develop adequate plans to manage influent flood waters and the resulting erosion at the Oxbow.
4. The previously cited increase in precipitation also triggers concerns about the definition of the 100 year flood plain (which may currently be underestimated) which is used to guide many decisions in the Proposed Plan. Underestimating the 100 year flood plain elevation could

increase the chances that aspects of the remedy could fail and expose or erode contaminated sediment and also exacerbate downstream flood impacts.

5. We have numerous concerns that sufficient data to support a decision regarding a proposed remedy for the Oxbow is not presented and may not exist.
 - a. The topography and surface water flow in this area are not represented to a degree that allows for detailed consideration of the USEPA's proposed remediation plan for the area. We suggest that a topographical survey (delineating one-foot contours) of the Oxbow be developed. The survey coverage should include the current surface water channels for both the river and the Oxbow, the current location of the 100 year flood plain and the location of soil and sediment sampling locations. This plan could then be used to more accurately present the proposed remedy. The basis for this request is the observation that most Oxbow figures from project reports were developed using aerial photographs and consequently the identification of the river and surface water in the area is un-depicted in some instances as it covered with persistent aquatic vegetation. Please refer to the attached Figure 1 which is a recent aerial photo of the Oxbow and clearly shows the diffusion of surface water flow in the basin area. This condition somewhat conflicts with USEPA's representation of surface water flow in the area (refer to Figure 2 which is a portion of Map 6 from the Proposed Plan).
 - b. We do not believe that sufficient sediment and/or floodplain soil sampling has been conducted in the Oxbow. It is our observation that the sampling of this area has been done in a less organized manner than the sampling of Allendale and Lyman Mill Ponds. As the Oxbow basin has been shown to be a significant depositional area for sediment from Allendale Pond we consider the characterization of the sediment in this area to be a priority. While we understand that additional sampling will be conducted to facilitate the remedial design process, we feel that additional sampling should be done prior to a remedial alternative being selected for this area.

Please refer to the attached Figure 2 which shows one area where we believe additional sediment and floodplain soil sampling should be conducted. Sampling in this area is appropriate for several reasons. Firstly although there is no defined river channel in this area, the area we have highlighted is likely to be a depositional area during times of high flow. Thus impacted sediment in this area is likely to be present. USEPA's preferred remedial alternative calls for a three-inch cap in this area. If elevated concentrations are detected in these sediments, we recommend that this area be included in all remedial excavation plans for the Oxbow. Secondly, this area should be sampled as the existing sampling results indicate that extremely elevated (above one part per billion) concentrations of dioxin exist to the north and what sampling exists to the south of this area indicates concentrations below the USEPA remedial objective. Thirdly, this area abuts an area of commercial and residential activity and it is our opinion that the extent of

contamination in this area is not known and could overlap with areas that are frequented by humans.

- c. We would like to know more details regarding the "flow control structures" that are contemplated for the Oxbow in support of the USEPA preferred alternative.
 - d. The construction method that is likely to be used to spread the proposed three inch cap should be made clear as part of the Proposed Plan; along with an explanation of the anticipated impacts to the existing vegetation and what new plantings are proposed at the completion of remediation construction. We are concerned that the method that would be used to place the cap could include heavy construction equipment and thus destroy much of the environment that the remedy is striving to preserve and that what would be left behind would be vulnerable to future storm damage or simply die-off.
 - e. We strongly recommend that the USEPA consider the attractive nature of the Oxbow as a recreation area during and after remediation construction. The Oxbow is proximate to several residential areas and we have observed youths using the perimeter of the area in a variety of ways including as a track for all terrain vehicles. Remedial construction in areas of the Oxbow which currently are difficult to access, will likely pave the way for an expansion of the current recreational activities in the area. This situation creates the possibility of human exposure to contamination in soil and sediment and of the increased activities which would negatively impact the preserved character of the Oxbow's environment and potentially compromise any cap.
 - f. While we are pleased to learn that the USEPA intends to use the RIDEM Direct Exposure Criteria as the soil remedial objective for the Oxbow, however we are concerned about the USEPA's understanding of the human activities in the Oxbow. The USEPA's information appears to be limited to observations of surface litter/debris and surface water elevation. We suspect that USEPA's understanding of the current human activities in the Oxbow may be inaccurate and that the USEPA's use of the river's flood plain may not be appropriate as a consideration regarding the areas where people are most likely to congregate. We have consistently observed a greater level of youth activity in the Oxbow during the summer, when the river levels are at their lowest and the Oxbow at its driest. During our visits to the Oxbow we have observed evidence of: youths using the area as a gathering place, fishing, hunting, camping and all-terrain vehicle use. Please refer to the attached photos (1 through 5) which depict evidence of some of these activities.
6. We are concerned that the USEPA preferred remedy for the Oxbow, containing several wetland types, will considerably diminish their functions including: storm water treatment, flood mitigation in the watershed, groundwater recharge, and wildlife breeding and foraging habitats. Any remediation will diminish or destroy functions of this palustrine wetland complex, as well as riverine wetlands associated with the site. We ask that these losses be calculated and

mitigated under the current protocols of Army Corps regulations in a manner sufficient to meet the restoration requirements of the natural resource trustees.

7. We disagree with USEPA's expectation that the Land Use Controls for the Lyman Mill stream sediment and floodplain soil, including the Oxbow would be "temporary." On page 6 of the Proposed Plan, the land use controls are described as, "temporarily preventing excavation or other activities that could damage the thin-layer soil cover;" and "temporarily restricting recreational access to provide additional protection to the public."

It is our understanding that as the remedy is proposed by the USEPA, contamination that far exceeds the soil and sediment remedial objectives will be left in the Oxbow under the thin layer cap. As this layer of contamination will most likely not degrade, we would expect that restrictions regarding excavation and use of the Oxbow would be permanent in nature. Furthermore, we believe that it is important for the USEPA to fully consider the ability of the agency, RIDEM or the Potential Responsible Parties to control human activities in the Oxbow at the completion of remedial construction. The Oxbow is a remote area with no direct street access and which abuts numerous sparsely used properties. We believe that it would be possible for significant disturbance of the thin layer cap and new plantings to go undetected without an engaged effort of numerous stakeholders.

It is important to note that, it is our understanding that the RIDEM State-site remediation program would most likely require a two-foot thick soil cap and a permanent land use restriction as part of the remedy for the Oxbow, should a cap be the preferred remedy under the RIDEM Rules and Regulations for the Investigation and Remediation of Hazardous Materials Releases.

8. We understand that regardless of the validity of our concerns discussed above, the USEPA may not have the flexibility to delay a decision regarding the remedial action at the Oxbow, thus if a remedy must be selected in the near future, we recommend that the USEPA consider the complete removal of all impacted soil and sediment that is contaminated above the remedial objectives in a manner consistent to what has been proposed by USEPA for Allendale and Lyman Mill Ponds. The basis for this position is that we are concerned that the implementation of the excavation and thin layer capping activities proposed by the USEPA could leave the Oxbow in an unstable condition and susceptible to natural and man-made disruptions which could lead to acute exposures to contaminant concentrations above the remedial objectives and/or a re-distribution of contamination at some point in the future. Potential subjects of concern include: vegetative die-off from earthwork vehicle traffic, post-remedy tree die-off as a result of the 3-inch cap, the effectiveness of the 3-inch cap, the difficulty in implementing any land use control and restricting access, the post remediation site becoming an attractive play area for local youths, and erosion/flooding during the post-remedy recovery period.

We recognize that the potential costs of remediating the Oxbow in the manner we are advocating for are high relative to the initial/up-front capital costs of USEPA's preferred

alternative. We recommend a higher investment in initial costs and management of contaminated material in a less vulnerable setting so that long term costs will be less and success in the reaching the USEPA human health and ecological risk objectives more likely. Furthermore, we observe that the calculation of the cost increase of remediating the Oxbow via a complete excavation and CDF approach will have significant cost saving benefits. These are:

- The ability to implement remedial construction activities in whatever means is most efficient, not having to worry about preserving a significant portion of the existing vegetation and hydrology;
- The ability to design and restore the Oxbow wetland in a manner that provides for the required floodplain capacity and compensation and/or actually improves the ability of the river to handle storm events and mitigate the potential of downstream floods;
- Elimination of the need to conduct detailed pre-remediation studies such as a topographic survey;
- Reduced long term monitoring costs; and
- Reduced long term maintenance costs

Regardless of whether EPA proceeds with the plan as currently proposed, or decides to carry out a more complete remediation of the Oxbow as suggested above, a restoration plan will need to be started prior to implementing construction so that natural resources and their services that will inevitably be impacted can be restored quickly and fully. To date, there has been no on-the-ground evaluation of the natural resources that would be affected and that must be restored. These studies would include complete surveys of vertebrates, invertebrates, and plants actually in the area, not just armchair lists of what might be there, including distribution maps and densities of the most important species. Because this area represents an "island" of wildlife habitat in an urban area, where there are few equivalent areas supporting wildlife, it is important that restoration proceed expeditiously, and that the habitat values be restored fully and early. Such efforts should be coordinated with the natural resource trustees responsible for those resources.

9. It is evident that the residents, workers and local governmental officials of this densely populated area are greatly concerned about potential impacts on their day to day lives and to their properties as a result of the proposed remediation construction. Therefore we recommend that the USEPA endeavor to pro-actively explain aspects of the construction work that are likely to be prominent in the local resident's minds as fully as possible and as soon as possible. While we understand that many of the details of the remedial construction will change during the engineering design of the remedy, we have heard the public comments of the local residents, and observe that they are entirely unfamiliar with the manner in which environmental remediation construction projects are implemented and as such have concerns that could be addressed at this time. These concerns relate to such issues as: regulatory oversight, regulatory accessibility, truck traffic, stock pile management, private property restoration, odor controls and dust monitoring.

10. We suggest that the USEPA work with the ATSDR and the RIDOH to explain the likely environmental monitoring procedures that will be used during remediation construction and furthermore address the residential population's concerns about human health as a result of remedial construction.
11. We request that the USEPA create the opportunity for public involvement during the design of the remediation construction.
12. We suggest that the decision as to where to locate the CDFs be made in tandem with the decision as to how they are going to be used at the completion of the project. This approach will maximize the chances that these structures become a positive aspect of the local community.
13. We are interested in discussing with USEPA the possibility of coordinating improvements to or extension of the Woonasquatucket River Bikeway during the proposed remediation project.
14. We are interested to know what the USEPA's ideas are relative to addressing the flood plain displacement caused by the proposed capping of the source area and the Oxbow. We are particularly concerned that all efforts be made to locate these compensations areas as nearby as possible to the areas that are suffering the displacements and oppose any remedial alternative which places CDFs in or near the floodplain elevation.
15. We strongly encourage USEPA to extend the remediation project slightly further downstream from Lyman Mill Dam. Reviewing the first five sediment samples downstream of the dam, in order, the 2,3,7,8 TCDD results are:
 - WRM-SD-2054 = 2,620 parts per trillion (ppt)
 - WRM-SD-2062 = 6.4 ppt
 - WRM-SD-2056 = 23.3 ppt
 - WRM-SD-2055 = 678 ppt
 - WRM-SD-2057 = 586 ppt

These samples appear to have all been collected within 1,700 feet downstream of the dam. Based upon data provided in the Remedial Investigation and other supplemental documents, it was not possible for us to confidently characterize these samples as sediment (cleanup objective 14.7 ppt – 4 out of 5 samples exceed), flood plain soil (cleanup objective 35 ppt – 3 out of 5 samples exceed) or residential soil (cleanup objective 1,000 ppt 1 out of 5 samples exceed).

Sample WRM-SD-2054 appears to have been taken immediately downstream of the dam and is significantly impacted. Based upon this one result we advocate for the remedial construction at Lyman Mill Pond to be extended and that additional sampling be conducted in this area prior to finalization of the area proposed for remediation.

16. We respectfully request that the USEPA clarify what their plans are for monitoring downstream of the Lyman Mill Pond Dam. We are concerned that a great deal of time has passed since the area was investigated as part of the Remedial Investigation and there are lingering concerns in the local community as a result of more recent flood events. This request is made with the understanding that the USEPA has been responsive to specific requests for sampling however we observe that an official statement regarding a scope and schedule for additional sampling may help address the concerns of the local downstream communities.

We urge USEPA to take a more active role in the area downstream of Lyman Mill Dam. Contamination above the remediation objectives exists in these areas and at the present it appears that the USEPA's only idea is to wait for the sedimentation rate to dilute the contamination. We feel that the users of the downstream portion of the river should also have the benefit of the river being fishable and swimmable.

17. We understand that it has not been determined who will implement the proposed remedy at the site. However, we request that the USEPA provide details regarding their expectations for a post remedial construction monitoring program and what is meant by the terminology "periodic monitoring" which is used throughout the Proposed Plan. Will the CDFs and the thin layer cap be viewed/managed by USEPA in a manner similar to the manner currently used for the capped areas at the source area? Will it be required that the area be inspected after all significant storm events?
18. We recommend that when it is appropriate, the USEPA manage the removal of the restrictive fencing along the river so that the task is not left to individual property owners.
19. Is leachate expected to be generated from the completed CDFs? If so, what is the expected volume and level of contamination and how will this matter be addressed so as to avoid the CDFs becoming a secondary source of contamination?
20. We suggest that after the removal of impacted sediment from the Allendale Mill sluiceway, that the portion of the sluiceway between Allendale Avenue and the Allendale Pond Dam be filled to surface grade and compacted with suitable material so as to avoid this channel becoming a potential source of floodwater into the Mill at Allendale condominiums. It is important to note that it is common to observe water ponding at the toe of the dam (see Photo 6).

Comments On Other Remediation Alternatives Not Preferred by USEPA

21. Several of the remediation alternatives include approaches which would sacrifice the local environment in our opinion to an unacceptable level in order clean up the dioxin. The near shore CDFs, replacement of the dams with weirs, the loss of the current pond system, the reduction in the depth of the ponds, the placement of the CDFs in natural upland areas are all significant environmental impacts that may not be necessary. This point should be considered not only from the view of what is best for the species inhabiting these areas but also from the

larger perspective of what such a decision about the environment would mean to the youths of these areas who currently view the ponds as the only natural environment in their neighborhood. Destroying these environmental resources in the name of "cleanup" and leaving these neighborhoods with characterless highly engineered structures which is undesirable.

22. The alternatives which rely on near shore CDFs and the isolation capping of the river bottom fail to consider fully the long term maintenance and integrity of the proposed remedies and the costs associated with mitigation and with potential failures. The use of containment and administrative controls to facilitate a site remedy may be a "necessary evil." However, we are concerned that use of near shore CDFs will place dense volumes of heavily contaminated sediment proximate to the river which would act as a transport system should a near shore CDF fail thus heightening the potential ramifications of a failure in comparison to an upland location. Our concerns are compounded by the fact that this remediation will take place in a passively used recreation area, making the odds that a failure will be discovered quickly very low. We feel that administrative controls and caps are best used in circumstances where if they fail, the impacts will be minimal and that if failure occurs, it is likely that it will be discovered quickly by users of the property. In some of the non-preferred remedies described by the USEPA in the Proposed Plan it is possible that a failure could go undetected for a significant period of time.
23. The remediation alternatives which involve near shore CDFs and isolation capping of the impacted river channel have the potential to change the groundwater hydrology of the area. This possibility should have been evaluated so as to understand the potential impacts prior to consideration of this approach.
24. The remediation alternatives which involve near shore CDFs and isolation capping of impacted river channel sediment in place appear to be in direct conflict with the State's Rules and Regulations governing the enforcement of the Freshwater Wetlands Act, as amended, which were identified as an Applicable or Relevant and Appropriate Requirement, by the RIDEM. These alternatives will eliminate or greatly reduce the size of the Allendale and Lyman Mill ponds and areas of riverbank wetlands and also reduce the flood capacity of the river. Based on our extensive knowledge of the river, there do not appear to be easy opportunities to provide adequate and appropriate mitigation should any of these remedial alternatives be selected.
25. We are concerned that natural resources and aquatic communities would be altered by the change from lentic to lotic water regimes if the Allendale or Lyman Mill Pond dams be removed or re-placed by weirs. Any of the remedial alternatives which included elimination of the dams and ponds would eliminate vast amounts of habitat, in an area where habitat is scarce. We take our position regarding the preservation of the dam system with the understanding that the use of fish ladders to facilitate the return of herring to the river is not an optimal strategy, but which has been successful to date.

Appendix A – Figures



Figure 1 – Oxbow – Basin With Limited Channelization
(aerial photograph from Bing Maps, 2012 Microsoft Corporation Imagery)



Figure 2 – Oxbow Sampling Coverage Data Gap
(Map 6 –From USEPA Proposed Plan, October 2011)

Appendix B – Photographs

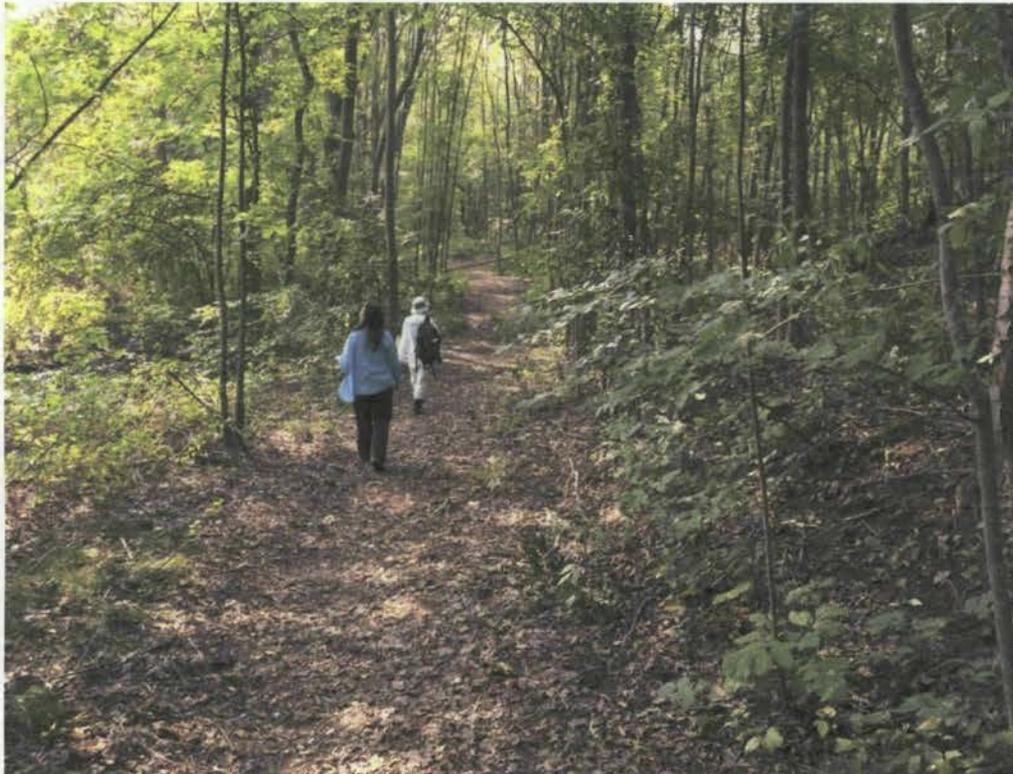


Photo 1 – Well Worn Trail Into Oxbow From Allendale Avenue



Photo 2 – Collecting Fishing Line In Oxbow



Photo 3 – Congregating Area With Evidence of Cooking and Eating



Photo 4 – Campfire



Photo 5 – Tent Located Near Utility Right of Way

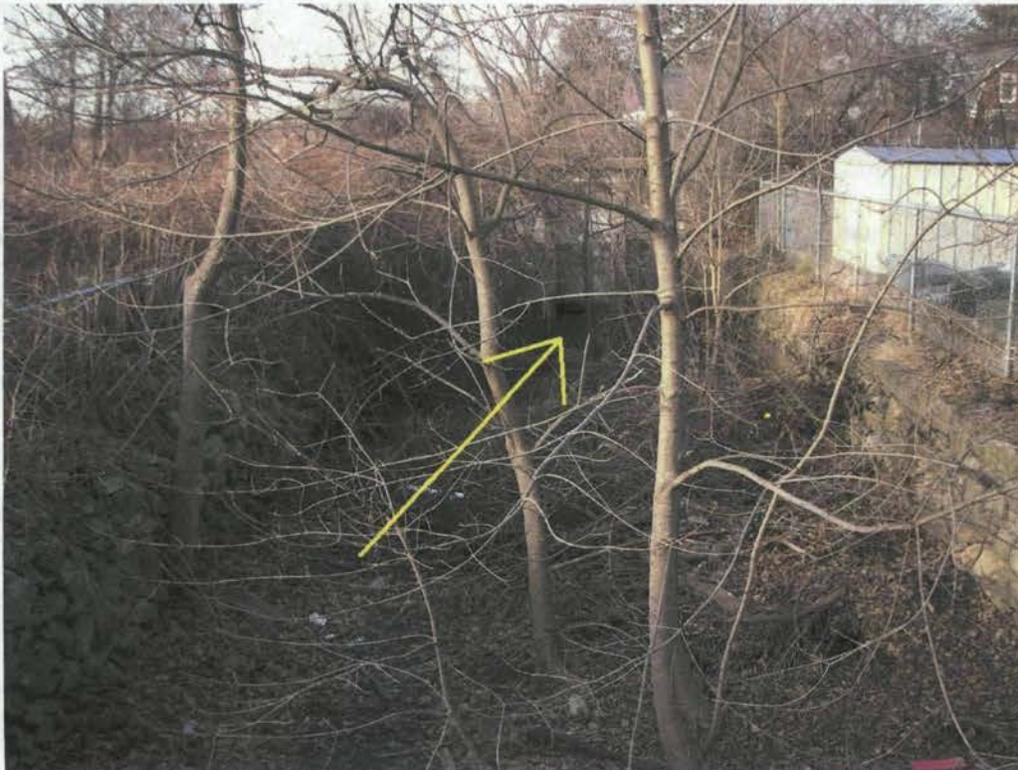


Photo 6 – Water Collecting Behind Allendale Dam In Mill Sluiceway