DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207-3199

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FLOOD PROTECTION
AND DAM SAFETY

REPLY TO
ATTENTION OF

June 12, 2012

Operations and Technical Support Section

SUBJECT: FY11 Joint Routine Inspection of Completed Works, Flood Damage Reduction Project, Oatka Creek, Warsaw, New York (10/18/11)

Mr. Alan A. Fuchs, P.E.
NYSDEC – Division of Water
Bureau of Flood Protection & Dam Safety
625 Broadway
Albany, NY 12233-3504

Dear Mr. Fuchs:

Transmitted herewith is the FY11 Inspection of Completed Works (ICW) inspection report for the Flood Damage Reduction Project for Oatka Creek in the Village of Warsaw, New York. I would like to thank you for your agency's participation in this inspection. The rating for this project as determined by the current inspection is **"MINIMALLY ACCEPTABLE" (M)**. Please refer to the enclosed inspection report, which includes an inspection checklist (Attachment "B"), for a description of project deficiencies requiring corrective action, if any.

Inspection checklist items rated "ACCEPTABLE" (A) have no deficiencies or, may have one or more concerns which could lead to potential minor deficiencies. These concerns are indicated in the report as "POTENTIAL DEFICIENCIES". Corrective action of potential deficiencies is not mandatory; however, failure to address them promptly may lead to designation of these items as deficient during the next inspection.

Inspection checklist items rated "MINIMALLY ACCEPTABLE" (M) have one or more minor deficiencies. These are indicated in the report as "MINOR DEFICIENCIES". Corrective action is required by the indicated date(s). Failure to perform corrective action for these deficiencies by the specified dates will result in an automatic downgrade of that particular inspection checklist item(s) to UNACCEPTABLE ("U") during the first inspection following the correction date, possibly resulting in a downgrade of the overall project rating.

Inspection checklist items rated "UNACCEPTABLE" (U) have deficiencies considered to be serious and will require corrective action. These are indicated in the report as "SERIOUS DEFICIENCIES". Corrective action should be initiated as soon as possible. An individual checklist item rated as "UNACCEPTABLE" (U) will likely, but not necessarily, result in an overall project rating of "UNACCEPTABLE" (U).

Projects receiving "ACCEPTABLE" (A) and "MINIMALLY ACCEPTABLE" (M) ratings will remain active in the United State Army Corps of Engineers (USACE) Rehabilitation and Inspection Program (RIP) and will continue to be eligible for Federal funding to repair the

project in the event of damage by a storm event. Projects receiving an "UNACCEPTABLE" (U) rating will be designated as inactive in the USACE RIP and will not be eligible for Federal funding to rehabilitate the project in the event of damage by a storm event. Effective date for unsatisfactory projects to be considered inactive will be date of receipt by the local sponsor of the inspection report. For these projects to become active again all serious deficiencies must be satisfactorily addressed and, the project re-inspected by USACE with at least a minimally acceptable rating.

For projects rated "ACCEPTABLE" (A), a copy of the report will be forwarded to the local sponsor and county emergency management agency. For projects rated "MINIMALLY ACCEPTABLE" (M), a copy of the report will be forwarded to the local sponsor, county emergency management agency, state emergency management agency, and the local FEMA region. For projects rated "UNACCEPTABLE" U, a copy of the report will be forwarded to the local sponsor, county emergency management agency, state emergency management agency, local FEMA region and the local Congressional delegation.

The inspection checklist (Attachment "B") includes a two page section labeled "Public Sponsor Pre-Inspection Report". The local sponsor should complete this section just prior to the next scheduled inspection and provide to USACE inspector upon arrival. The "Reporting Period" is the timeframe between inspections (i.e. inspection date of this report and date of next scheduled inspection).

Please keep this office informed if there are any changes to the project that would affect the design level of protection afforded by the project, or if there are any other changes which may alter or impact any project features. Such changes require prior written approval from USACE and NYSDEC.

Questions pertaining to this matter should be directed to the undersigned, who can be contacted in writing at the above address, by telephone at 716-879-4277 or by e-mail at robert.w.remmers@usace.army.mil.

Sincerely,

Robert W. Remmers

Robert W. Remmers, P.E., PMP
Levee Safety Program Manager
Chief, Operations and Technical Support Section

Enclosures: Project Inspection report w/ Checklist

CF: (w/encls)
Theodore A. Myers, P.E., NYSDEC – Region 9
Stephen Len, NYSDEC, Division of Water, Flood Control Project Unit
Anthony Santoro, Wyoming County Bureau of Emergency Management
Douglas Winner, Acting Director, New York State Office of Emergency Management - Region 5
Brian Shuman, Federal Emergency Management Agency; Region II

SUBJECT: FY11 Joint Routine Inspection of Completed Works, Flood Damage Reduction Project, Oatka Creek, Warsaw, New York (10/18/11)

1. **OBJECTIVE:** The objective of this inspection is to ensure project sponsor compliance with existing agreements, evaluate effectiveness of the sponsor to operate and maintain facilities constructed by the U.S. Army Corps of Engineers (USACE) in accordance with the Operations and Maintenance (O&M) manual, and determine if the sponsor has adequately met standards required to maintain eligibility for PL 84-99 Federal rehabilitation assistance should the project be damaged by flooding or a storm event.

2. **PROJECT CLASSIFICATION:** Flood Damage Reduction – Flood Protection Project

3. **REPORTING PERIOD:** 9/30/10-10/18/11

4. **INSPECTION TEAM:** The inspection team met at the West Buffalo Street (Rte 20A) bridge over Oatka Creek on 10/18/11. The following representatives from the New York State Department of Environmental Conservation (NYSDEC), Village of Warsaw, and USACE - Buffalo District, participated in the inspection.

Name	Organization	Phone
Daniel Bennett	USACE - Buffalo District	(716) 879-4249
Joseph Kasperski	USACE - Buffalo District	(716) 879-4313
David Mitchell	USACE - Buffalo District	(716) 879-4115
Theodore Myers	NYSDEC – Region 9	(716) 851-7070
Dan Judd	NYSDEC – Region 9	(716) 851-7070
Gilbert Stearns	Village of Warsaw	(585) 786-2120

5. **OVERALL PROJECT RATING:** In accordance with Headquarters, USACE guidance, this project is rated **"Minimally Acceptable" (M)**. The presence of one or more deficient conditions that lessen the degree of project reliability was the determining factor for the project rating. Specific deficiencies are discussed in Section 7 of this report. All deficiencies shall be addressed in a timely manner. Failure to correct any deficiencies that have been noted as either minor or serious by the timeframe indicated could result in an "Unacceptable" (U) rating in the next inspection scheduled after that date.

   Prior to this evaluation, the project was last inspected on 9/30/10. The condition of the project at the time of that inspection was rated as "Minimally Acceptable" (M).

6. **PROJECT LOCATION, DESCRIPTION, AND LOCAL SPONSOR:**

   a. **Project Location:** The project is located on Oatka Creek, within the Village of Warsaw, Wyoming County, New York. The project extends some 2,800 feet with the upstream limit of the project being approximately 200 feet downstream of NYS Route 19 near the confluence with Crystal Brook and the downstream limit located about 900 feet downstream of West Court Street.

   b. **Project Description:** The project was constructed between 1966 and 1968 and was designed to eliminate damage caused by a discharge of 4,500 cfs during a 30-year flood and reduce damage from higher discharges. Construction included widening and

deepening of the channel, installation of crib retaining walls, bridge protection and a drop structure to dissipate the energy at the upstream end of the project. The channel width varies from a minimum of 35 feet to a maximum of 70 feet.

Improved bank protection was included as part of the project. Refer to Page 10 in the project O&M manual to see the locations where bank protection was provided. Ramps to access the channel bottom were installed at Stations 2+86 and 13+12 and are not shown on As-Built Drawings. Two power lines cross the channel. The ramps providing access to the channel bottom were provided at the request of local interests at Stations 2+86 and 13+12 and are not shown on As-Built Drawings.

c. **Local Sponsor:** In accordance with the project O&M Manual, NYSDEC is the local sponsor for the project and is responsible for the maintenance of the project. NYSDEC has entered into a separate agreement with the Village of Warsaw to perform maintenance on the project.

7. **INSPECTION FINDINGS:** Deficiencies found during this inspection are noted below. Deficiency categories are described in the report transmittal letter. Refer to Attachment "A" for project inspection photographs, Attachment "B" for project inspection ratings of individual inspection items, Attachment "C" for a project map, and Attachment "D" for Emergency Response Plan guidelines.

a. **Potential Deficiencies:** None.

b. **Minor Deficiencies:**

(1) The sponsor submitted an Emergency Response Plan, but it needs more detail. Correction of this deficiency is past due, per FY 09 Inspection Report.

(2) Minor shoal at right bank toe just downstream of the drop structure (Photo 2). Correction of this deficiency is due by 12/31/13.

(3) Debris along the left bank toe just downstream of the drop structure (Photo 3). Correction of this deficiency is due by 6/30/13.

(4) Riprap missing or covered on the left bank from Sta. 0+50 to Sta. 1+50 (Photo 4). Correction of this deficiency is due by 12/31/13.

(5) Minor shoal along the left bank toe from approximately Sta. 1+00 to Sta. 3+00 (Photo 5). Correction of this deficiency is due by 12/31/13.

(6) Shoaling around drainage outfall on the left bank at Sta. 4+85 (Photo 6). Correction of this deficiency is due by 12/31/13.

(7) Shoaling along the left and right bank upstream and downstream of the West Buffalo Street bridge (Photos 8, 11, 12, and 15). Correction of this deficiency is due by 12/31/11, per FY 09 Inspection Report.

(8) Riprap missing or covered on the right bank just upstream of the crib wall upstream of the West Buffalo Street bridge (Photo 9). Correction of this deficiency is due by 12/31/13.

(9) Fence and shed encroachments on the right bank, just upstream of West Court Street (see photo 21). Correction of this deficiency is due by 12/31/11, per FY 09 Inspection Report.

(10) Moderate shoaling along right and left banks upstream of West Court St. bridge, and also on the right bank under the bridge (Photos 22, 23, and 24). Correction of this deficiency is due by 6/30/12, per FY 10 Inspection Report.

(11) Moderate shoaling along the right bank downstream of the West Court St. bridge (Photos 25 and 26). Correction of this deficiency is due by 6/30/12, per FY 10 Inspection Report.

(12) Outfalls for the 14", 12", and 10" drains on the right bank from the Warsaw Middle/High School parking lot are covered by moderate shoaling (Photos 27, 28, and 29). Correction of this deficiency is due by 12/31/13.

(13) Outfall for the 12" drain on the right bank near Sta. 26+75 is covered with by moderate shoal (Photo 32). Correction of this deficiency is due by 12/31/13.

(14) Debris in the channel near the downstream limit of the project (Photo 33). Correction of this deficiency is due by 6/30/13.

(15) Minor shoal along the right bank at the downstream limit of the project (Photo 35). Correction of this deficiency is due by 12/31/13.

c. **Serious Deficiencies:**

(1) Heavy shoaling along right bank under West Buffalo St. bridge (Photos 13 and 14). Correction of this deficiency is due by 12/31/11, per FY 09 Inspection Report.

(2) Heavy shoaling in the middle of Oatka Creek near the Warsaw Middle/High School (Photo 30). Correction of this deficiency is due 12/31/11, per FY 09 Inspection Report.

(3) Severe erosion is occurring along the left and right banks near Warsaw Middle/High School – caused by the creek being deflected towards both banks by the large shoal mentioned in item (2) above (Photos 30 & 31). Correction of this deficiency is due by 12/31/11, per FY 09 Inspection Report.

8. SUMMARY OF MAINTENANCE REQUIRED BY LAST INSPECTION REPORT:

See FY10 Inspection Report (inspection date 9/30/10).

9. SUMMARY OF MAINTENANCE PERFORMED AFTER LAST INSPECTION:

(1) Routine maintenance in accordance with the project O&M manual, primarily mowing of grassy areas, removal of debris from the channel, and vegetation removal.

(2) Removed soft and woody vegetation along channel the entire length of the project.

(3) Fill was placed behind the crib walls along the right bank upstream and downstream of the West Buffalo Street bridge (Photos 10 and 16).

(4) Riprap was placed at the 18" and 12" outfalls along the right bank at the end of Clinton Street near Sta. 13+00, to mitigate erosion (Photos 18 and 19).

10. SUMMARY OF CHANGES TO PROJECT SINCE LAST INSPECTION:

(1) Shoaling and erosion have become more prominent.

11. PROBLEMS/ISSUES REQUIRING ASSISTANCE OF USACE:

(1) Outfall locations indicated on the As Constructed Drawings do not appear to match those observed in the field. A survey should be completed to verify all outfalls and the As Constructed Drawings updated to reflect the observed field data.

12. ADDITIONAL OBSERVATIONS:

(1) The channel was generally found to be clear of debris and obstructions except for significant shoaling under the West Buffalo Street and in the middle of the channel near the Warsaw Middle/High School.

(2) Crib walls are maintaining their vertical and horizontal alignment and are in satisfactory condition. (Photos 10 – 12 and 15).

(3) The crib wall along the right bank downstream of West Buffalo St. does not have a handrail or fall protection, creating an unsafe condition for the public (Photo 12).

(4) Bridge drain is clogged from shoaling under West Buffalo Street (Photo 9, FY 10 Inspection Report).

13. RECOMMENDATIONS AND MAINTENANCE REQUIRED AS A RESULT OF THIS INSPECTION:

a. Recommendations for Potential Deficiencies: None.

b. <u>Recommendations for Minor Deficiencies:</u>

(1) The project sponsor needs to add more detail to the proposed Emergency Response Plan given to USACE during the FY 11 Inspection. General guidance for preparing this document is presented in Attachment "D". The project sponsor must physically produce a copy of the written Emergency Response Plan for USACE review during all future project inspections.

(2) Remove the shoal at right bank toe just downstream of the drop structure.

(3) Remove the debris along the left bank toe just downstream of the drop structure.

(4) Investigate whether the riprap is missing or covered on the left bank from Sta. 0+50 to Sta. 1+50. If the riprap is covered, remove the vegetation/sediment that is covering it. If the riprap is missing, replace the riprap.

(5) Remove the minor shoal along the left bank toe from approximately Sta. 1+00 to Sta. 3+00.

(6) Remove shoaling around drainage outfall on the left bank at Sta. 4+85.

(7) Remove shoaling along the left and right bank upstream and downstream of the West Buffalo Street bridge.

(8) Investigate whether the riprap missing or covered on the right bank just upstream of the crib wall upstream of the West Buffalo Street bridge. If the riprap is covered, remove the vegetation/sediment that is covering it. If the riprap is missing, replace the riprap.

(9) Fence gate must be unlocked and remain unlocked or be removed to allow for inspections, maintenance, and flood fighting activities. Unimpeded access must be available across property along the right bank, if within easement.

(10) Remove shoaling along right and left banks upstream of West Court St. bridge, and also on the right bank under the bridge.

(11) Remove shoaling along the right bank downstream of the West Court St. bridge.

(12) Remove shoaling that is covering the outfalls for the 14", 12", and 10" drains on the right bank from the Warsaw Middle/High School parking.

(13) Remove the shoaling that is covering the outfall for the 12" drain on the right bank near Sta. 26+75.

(14) Remove the debris in the channel near the downstream limit of the project.

(15) Remove the shoal along the right bank at the downstream limit of the project.

c. Recommendations for Serious Deficiencies:

(1) Remove heavy shoaling along right bank under West Buffalo St. bridge.

(2) Remove heavy shoaling in the middle of Oatka Creek near the Warsaw Middle/High School.

(3) Repair erosion that is occurring along the left and right banks near Warsaw Middle/High School.

d. Other Recommendations:

(1) Clean out the drain pipe in the bridge abutment for West Buffalo Street.

14. INSPECTION REPORT PREPARED BY:

Daniel A. Bennett, P.E.
Civil Engineer

15. INSPECTION REPORT REVIEWED BY:

Robert W. Remmers, P.E., PMP
Levee Safety Program Manager
Chief, Operations and Technical Support Section

16. LIST OF ATTACHMENTS:

A. Project Inspection Photographs
B. Project Inspection Checklist
C. Project Map
D. Emergency Response Plan Guidelines

SUBJECT: FY11 Joint Routine Inspection of Completed Works, Flood Damage Reduction Project, Oatka Creek, Warsaw, New York (10/18/11)

Attachment "A" - Project Inspection Photographs

Photo Location Map

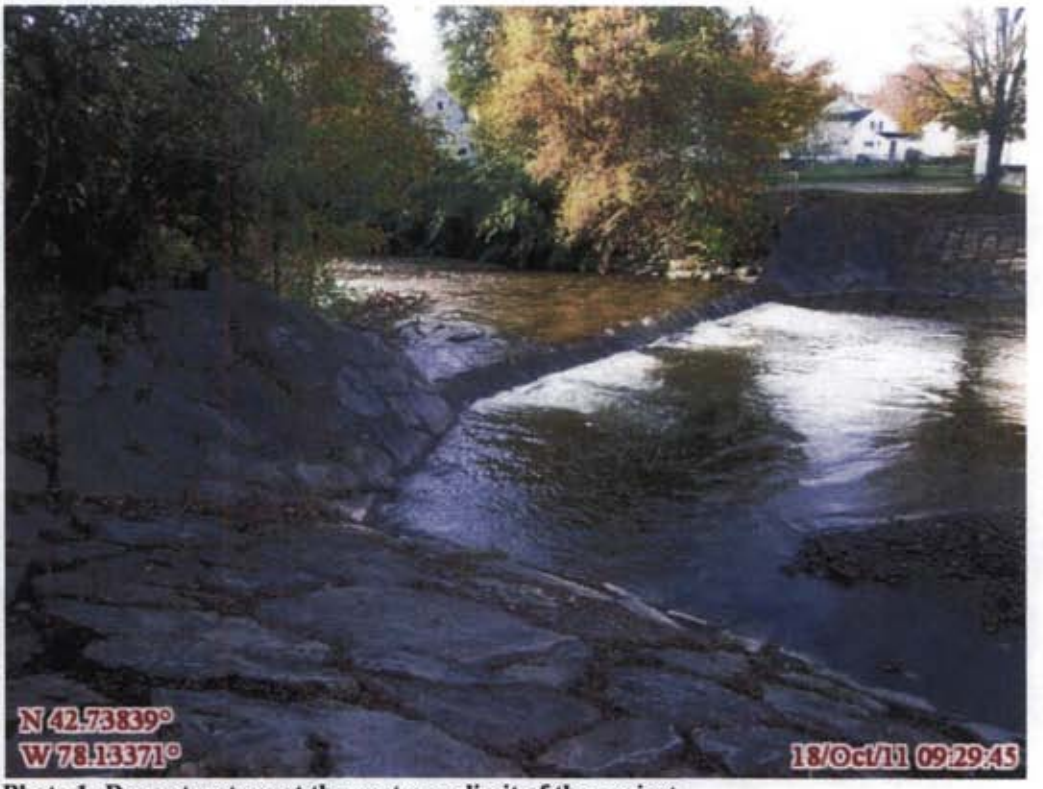

Photo 1: Drop structure at the upstream limit of the project.

Photo 2: Minor shoal at right bank toe just downstream of the drop structure.

Photo 3: Debris along left bank toe just downstream of the drop structure.

Photo 4: Riprap missing or covered on left bank starting at Sta. 0+50 to 1+50.

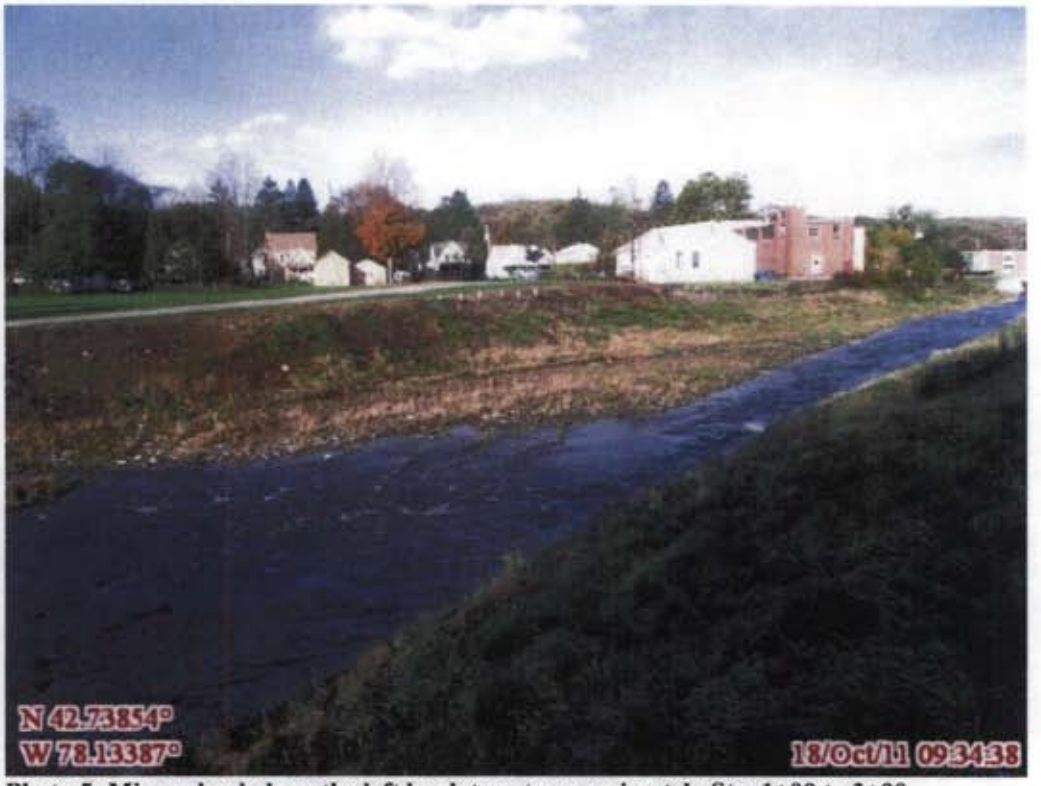

Photo 5: Minor shoal along the left bank toe at approximately Sta. 1+00 to 3+00.

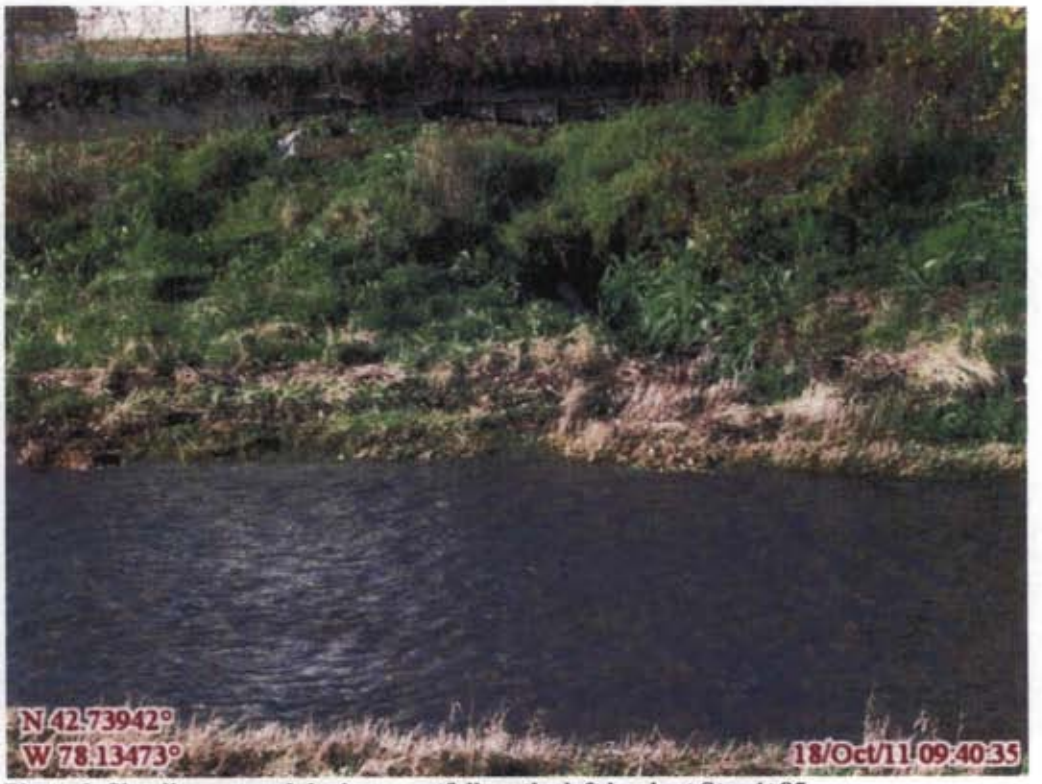

Photo 6: Shoaling around drainage outfall on the left bank at Sta. 4+85.

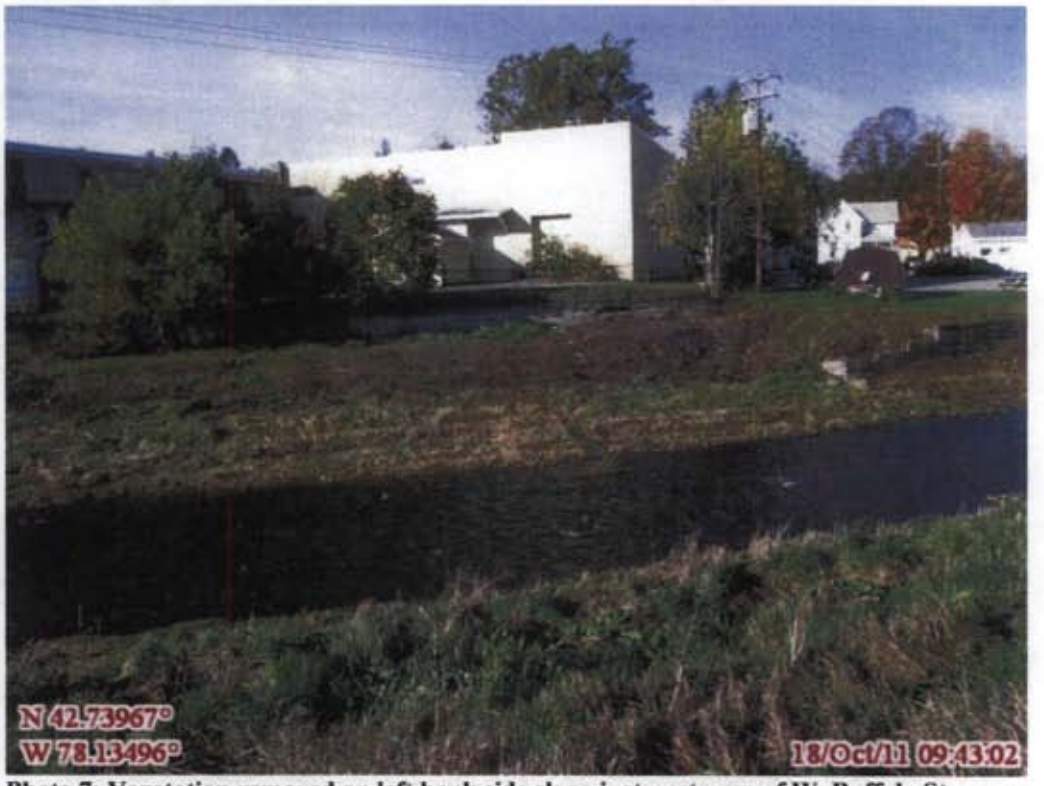

Photo 7: Vegetation removed on left bank side slope just upstream of W. Buffalo St. crib wall.

Photo 8: Shoaling at left bank toe just upstream of the W. Buffalo St. bridge.

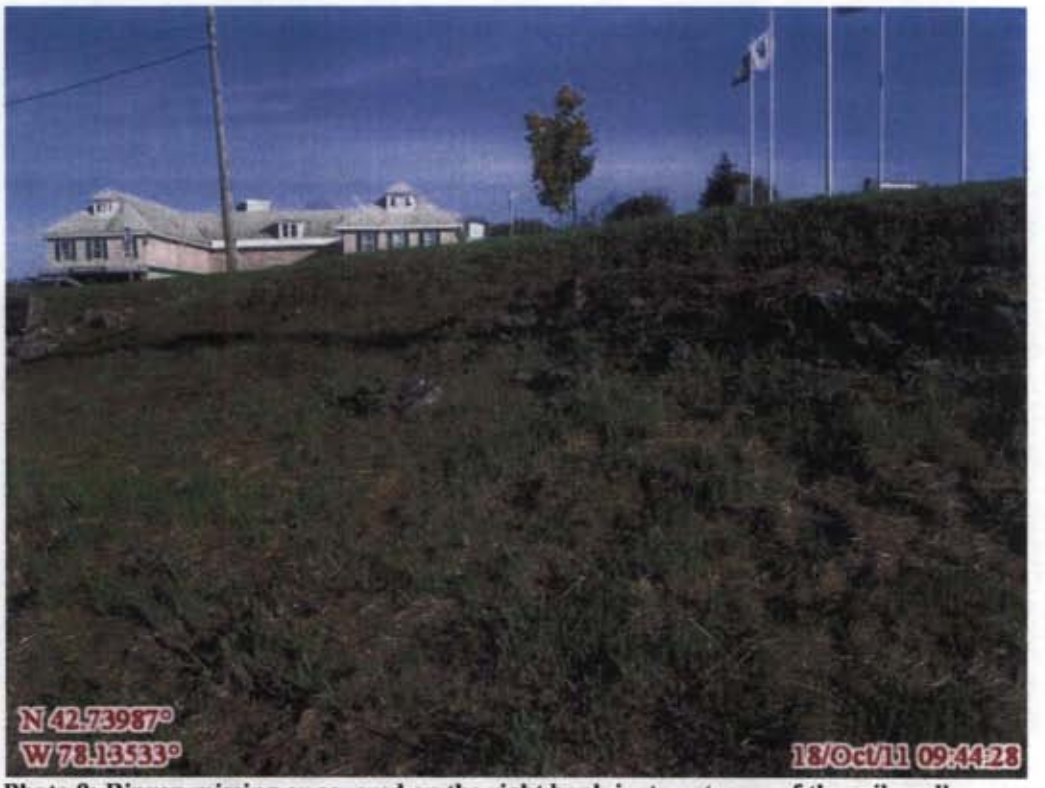

Photo 9: Riprap missing or covered on the right bank just upstream of the crib wall upstream of the W. Buffalo St. bridge.

Photo 10: Fill placed behind the right bank crib wall just upstream of the W. Buffalo St. bridge.

Photo 11: Looking upstream from the W. Buffalo St. bridge – shoaling along the right and left bank toes.

Photo 12: Looking downstream from the W. Buffalo St. bridge – shoaling along the right and left bank toes.

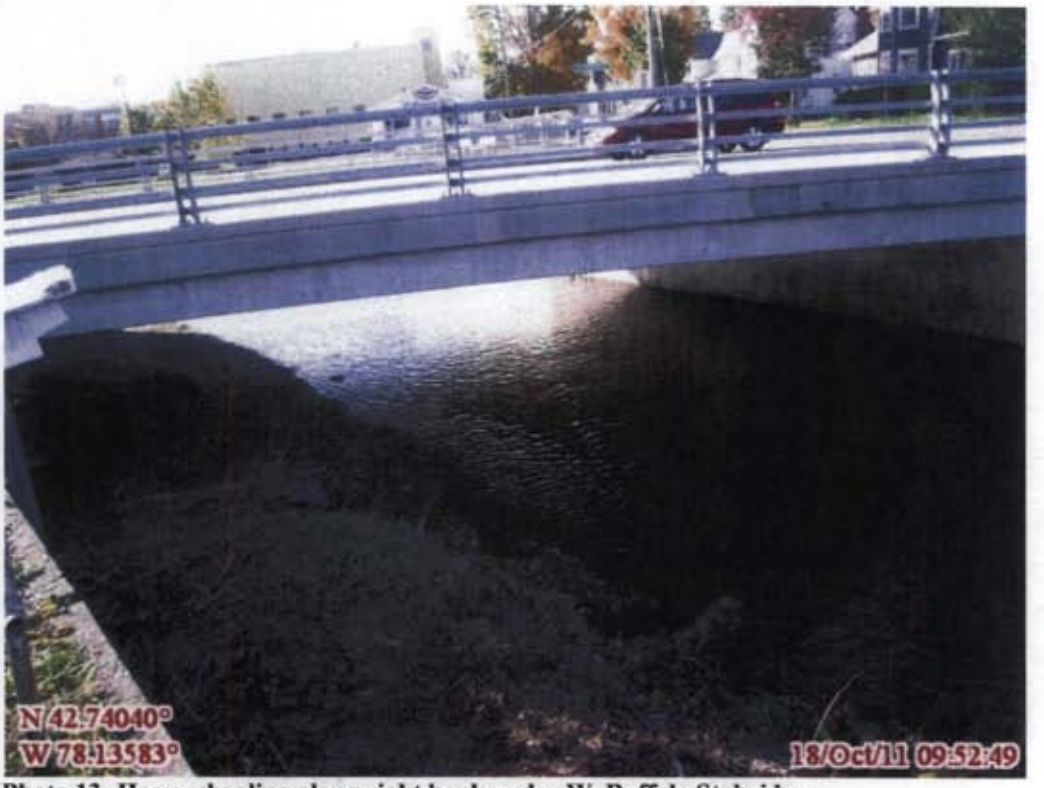

Photo 13: Heavy shoaling along right bank under W. Buffalo St. bridge.

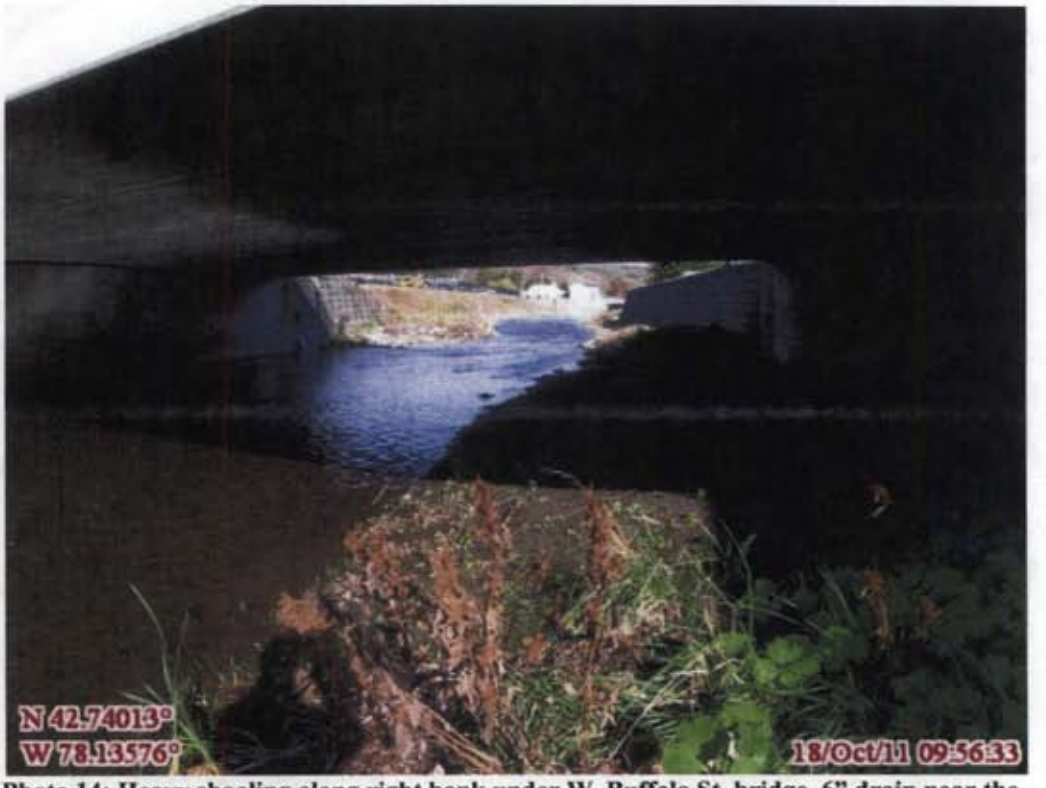

Photo 14: Heavy shoaling along right bank under W. Buffalo St. bridge. 6" drain near the downstream end of the bridge along the right bank is completely covered with sediment.

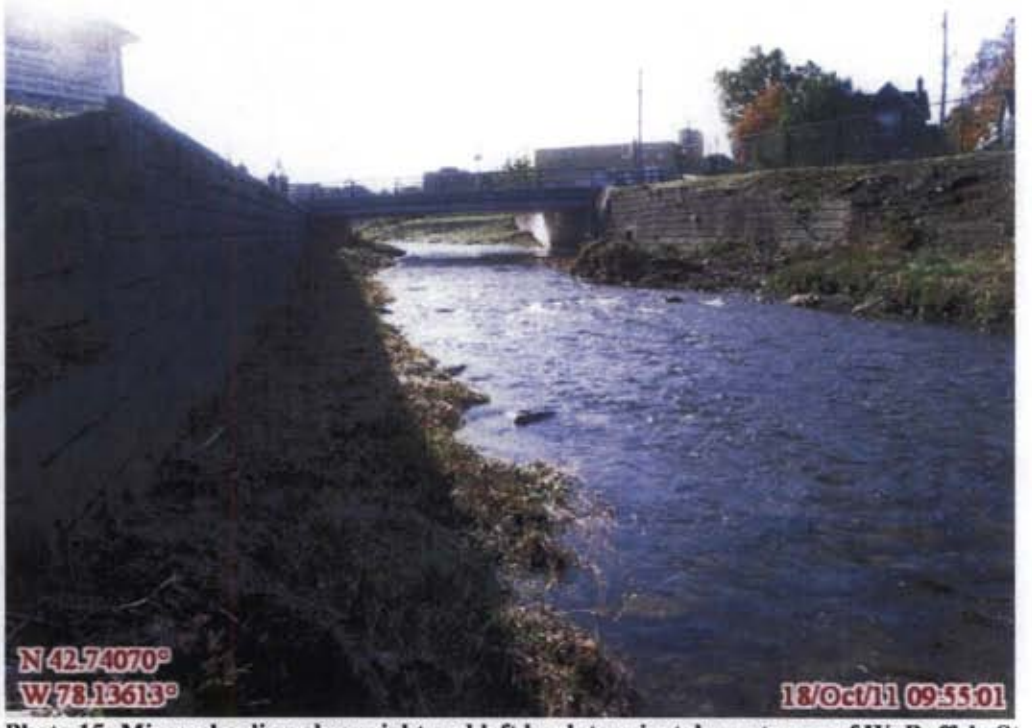

Photo 15: Minor shoaling along right and left bank toes just downstream of W. Buffalo St. bridge. Sponsor began removing shoal, but stopped because they had not gotten a permit.

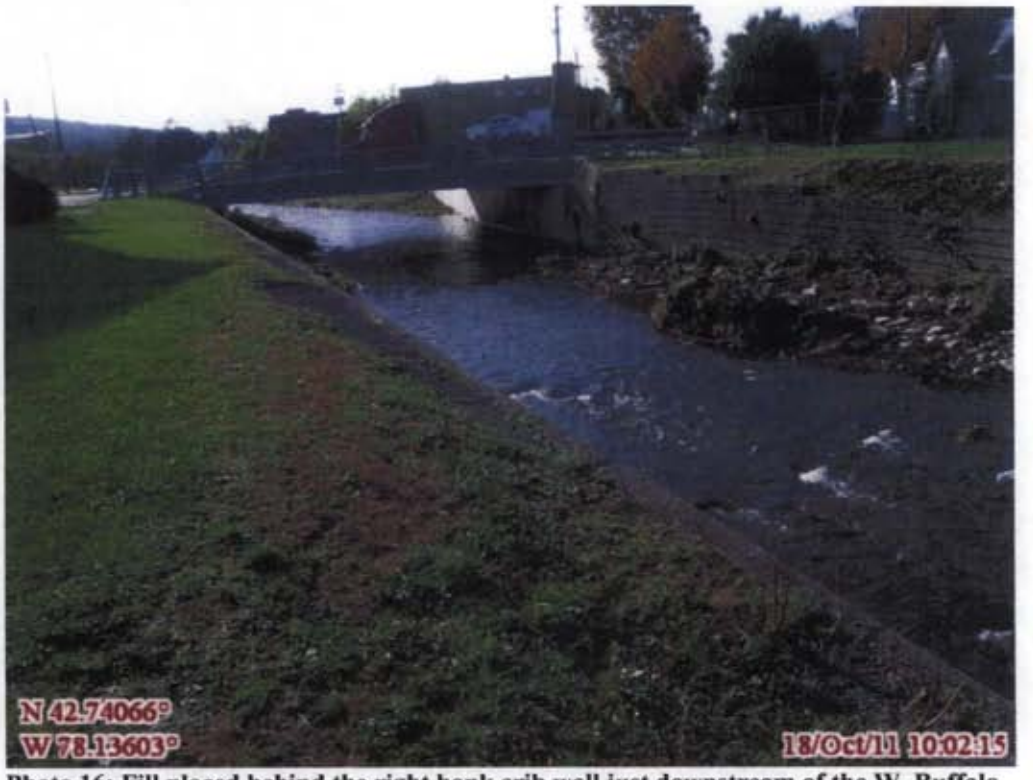

Photo 16: Fill placed behind the right bank crib wall just downstream of the W. Buffalo St. bridge.

Photo 17: Left bank along elementary school parking lot – O.K.

Photo 18: Riprap placed at the 18" HDPE drain outfall at approximately Sta. 13+00.

Photo 19: Riprap placed at the 12" CMP drain outfall at approximately Sta. 13+00.

Photo 20: Elementary parking lot drain outfall on the left bank at approximately Sta. 15+25 – O.K.

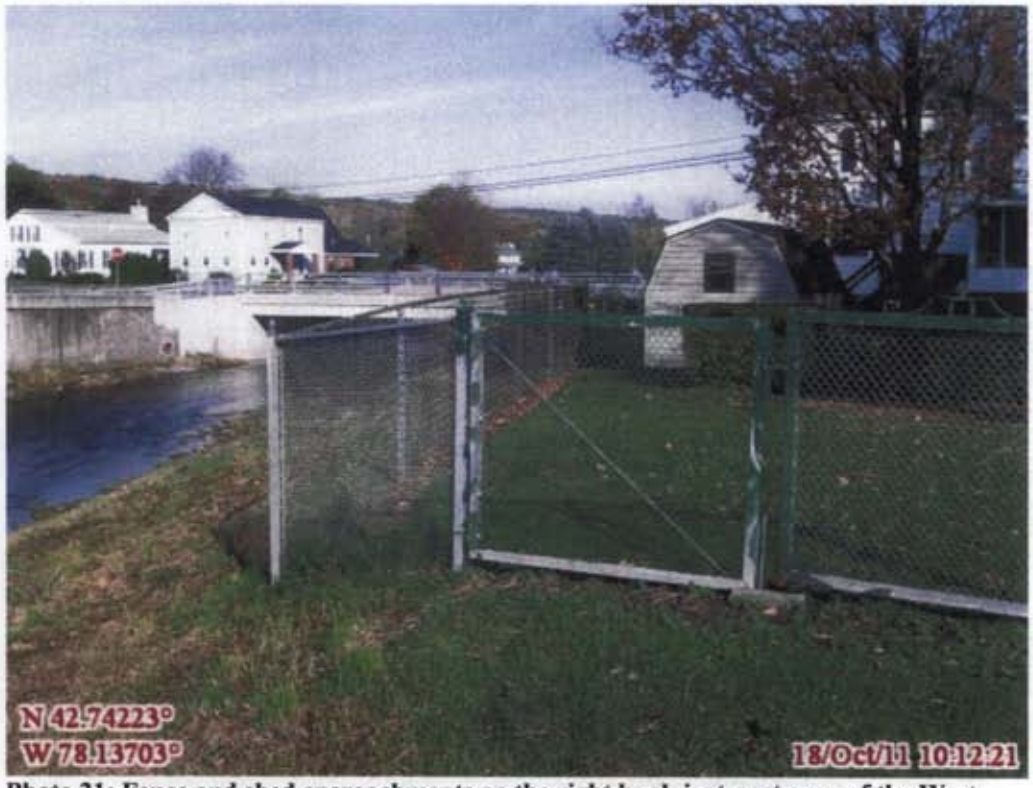

Photo 21: Fence and shed encroachments on the right bank just upstream of the West Court St.

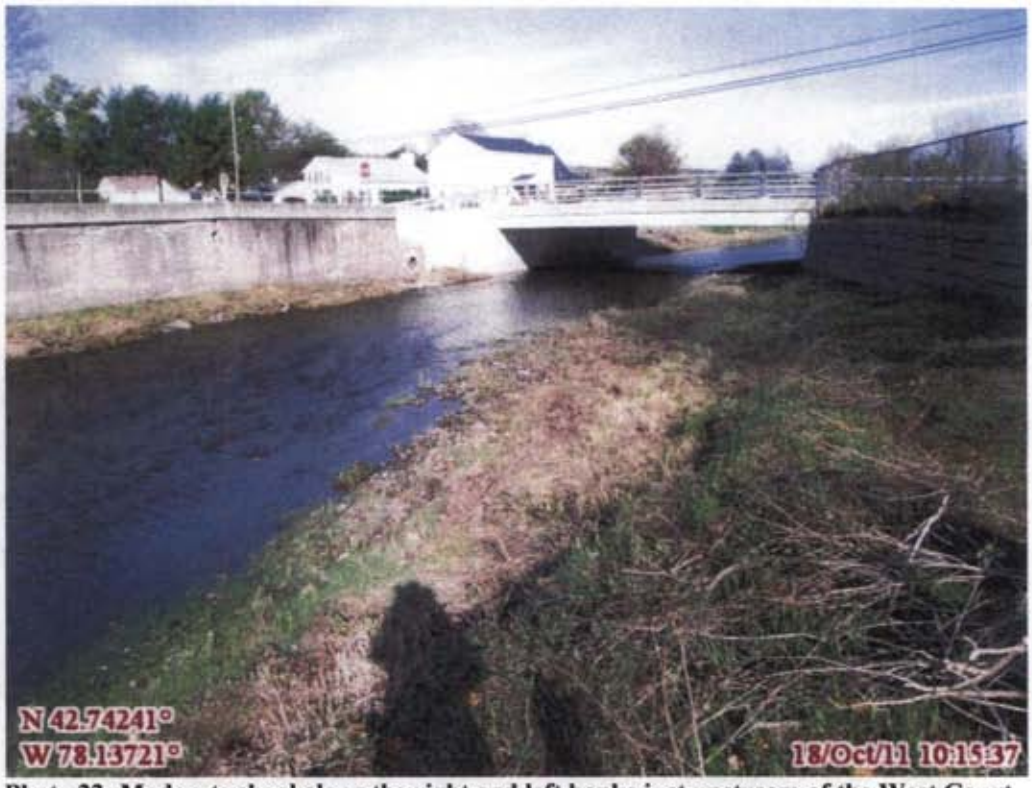

Photo 22: Moderate shoal along the right and left banks just upstream of the West Court St. bridge.

Photo 23: Shoaling along the right bank under the West Court St. bridge.

Photo 24: Looking upstream of the West Court St. bridge - moderate shoal along the right and left banks.

Photo 25: Shoaling along the right bank just downstream of the West Court St. bridge.

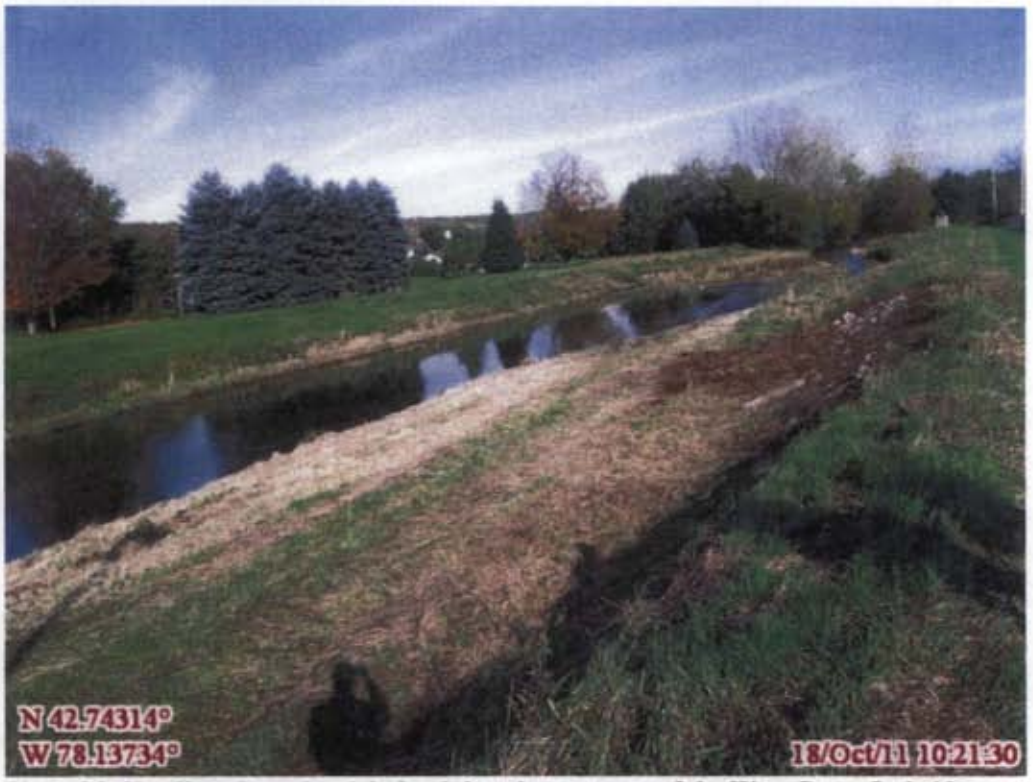

Photo 26: Shoaling along the right bank just downstream of the West Court St. bridge.

Photo 27: 14" drain from Warsaw Middle/High School parking lot near Sta. 22+50 – outfall is covered by moderate shoal.

Photo 28: 12" drain from Warsaw Middle/High School parking lot near Sta. 22+50 – outfall is covered by moderate shoal.

Photo 29: 10" drain from Warsaw Middle/High School parking lot near Sta. 24+50 – outfall is covered by moderate shoal.

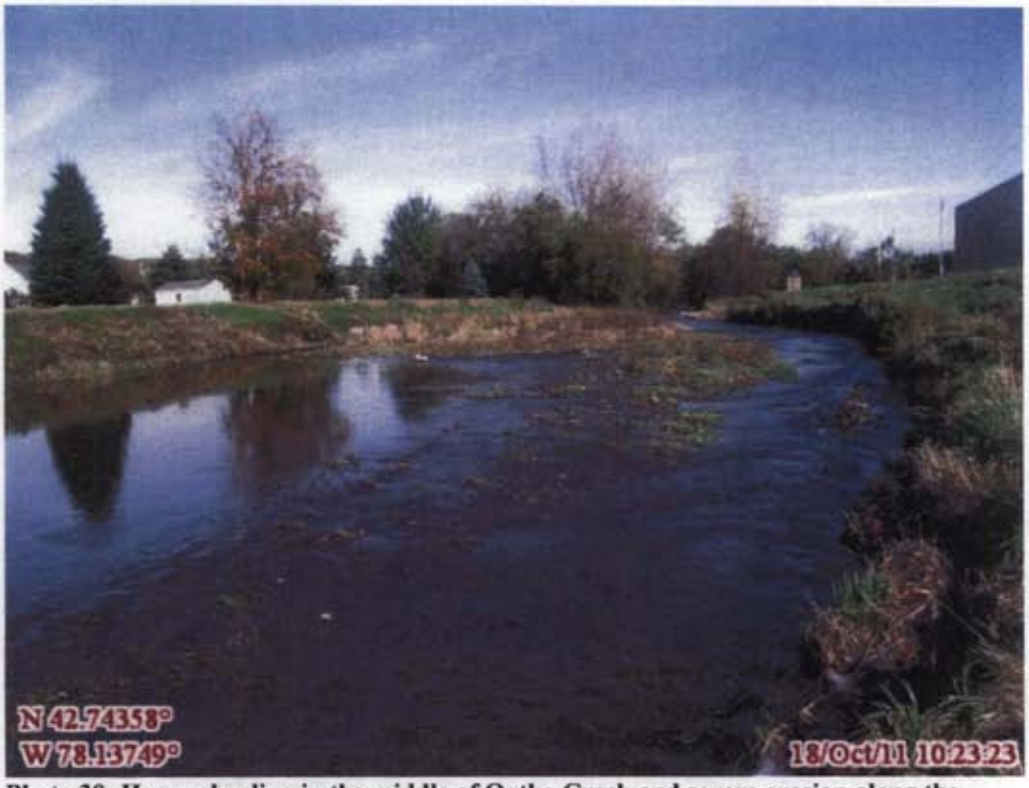

Photo 30: Heavy shoaling in the middle of Oatka Creek and severe erosion along the left and right banks near the Warsaw Middle/High School.

Photo 31: Erosion along the left bank near the Warsaw Middle/High School at approximately Sta. 25+00.

Photo 32: 12" drain at downstream limit of the project on the right bank near Sta. 26+75 – outfall is covered by moderate shoal.

Photo 33: Debris in the channel near the downstream limit of the project.

Photo 34: Gage house on right bank near the downstream limit of the project – O.K.

Photo 35: Minor shoal along the right bank at the downstream limit of the project.

US Army Corps of Engineers®

Attachment "B"
Flood Damage Reduction Systems
Inspection Report

Name of System: Flood Damage Reduction Project, Oatka Creek, Warsaw, New York

Public Sponsor(s): NYSDEC Region 9

Public Sponsor Representative: Theodore Myers, P.E.

Sponsor Phone: (716) 851-7070

Sponsor Email: tamyers@gw.dec.state.ny.us

Corps of Engineers Inspector: D. Bennett, J. Kasperski, D. Mitchell Date of Inspection: 10/18/11

Inspection Report Prepared By: Daniel Bennett Date Report Prepared: -

Internal Technical Review (for Periodic Inspections) By: Date of ITR:

Final Approval By: Date Approved:

Type of Inspection:

- ☐ **Initial Eligibility Inspection**
- ☒ **Continuing Eligibility Inspection (Routine)**
- ☐ **Continuing Eligibility Inspection (Periodic)**

Overall System Rating:

- ☐ **Acceptable**
- ☒ **Minimally Acceptable**
- ☐ **Unacceptable**

Contents of this Report:

- ☒ **Instructions**
- ☒ **Public Sponsor Pre-Inspection Report**
- ☒ **General Items**
- ☐ **Levee Embankments**
- ☐ **Floodwalls**
- ☒ **Interior Drainage System**
- ☐ **Pump Stations**
- ☒ **Channels**

Note: In addition to the report contents indicated here, a plan view drawing of the system, with stationing, should be included with this report to reference locations of items rated less than acceptable. Photos of general system condition and any noted deficiencies should also be attached.

Instructions - Inspection of Flood Damage Reduction Systems

A. Purpose of USACE Inspections:

The primary purpose of these inspections is to prevent loss of life and catastrophic damages; preserve the value of Federal investments, and to encourage non-Federal sponsors to bear responsibility for their own protection. Inspections should assure that Flood Damage Reduction structures and facilities are continually maintained and operated as necessary to obtain the maximum benefits. Inspections are also conducted to determine eligibility for Rehabilitation Assistance under authority of PL 84-99 for Federal and non-Federal systems. (ER 1130-2-530, ER 500-1-1)

B. Types of Inspections:

The Corps conducts several types of inspections of Flood Damage Reduction systems, as outlined below:

Initial Eligibility Inspections	Continuing Eligibility Inspections	
	Routine Inspections	Periodic Inspections
IEIs are conducted to determine whether a non-Federally constructed Flood Damage Reduction system meets the minimum criteria and standards set forth by the Corps for initial inclusion into the Rehabilitation and Inspection Program.	RIs are intended to verify proper maintenance, owner preparedness, and component operation.	PIs are intended to verify proper maintenance and component operation and to evaluate operational adequacy, structural stability, and safety of the system. Periodic Inspections evaluate the system's original design criteria vs. current design criteria to determine potential performance impacts, evaluate the current conditions, and compare the design loads and design analysis used against current design standards. This is to be done to identify components and features for the sponsor that need to be monitored more closely over time or corrected as needed. (Periodic Inspections are used as the basis of risk assessments.)

C. Inspection Boundaries:

Inspections should be conducted so as to rate Flood Damage Reduction "systems" as complete and independent units, regardless of relevant "project" or "segment" boundaries.

Project	System	Segment
A flood damage reduction project is made up of one or more flood damage reduction systems which were under the same authorization.	A flood damage reduction system is made up of one or more flood damage reduction segments which collectively provide flood damage reduction to a defined area. Failure of one segment within a system constitutes failure of the entire system. Failure of one system does not affect another system.	A flood damage reduction segment is defined as a discrete portion of a flood damage reduction system that is operated and maintained by a single entity. A flood damage reduction segment can be made up of one or more features (levee, floodwall, pump stations, etc).

D. Land Use Definitions:

The following three definitions are intended for use in determining minimum required inspection intervals and initial requirements for inclusion into the Rehabilitation and Inspection Program. Inspections should be considered for all systems that would result in significant environmental or economic impact upon failure regardless of specific land use.

Agricultural	Rural	Urban
Protected population in the range of zero to 5 households per square mile protected.	Protected population in the range of 6 to 20 households per square mile protected.	Greater than 20 households per square mile; major industrial areas with significant infrastructure investment. Some protected urban areas have no permanent population but may be industrial areas with high value infrastructure with no overnight population.

E. Use of the Inspection Report Template:

The report template is intended for use in all Army Corps of Engineers inspections of levee and floodwall systems and flood damage reduction channels. The section of the template labeled "Initial Eligibility" only needs to be completed during Initial Eligibility Inspections of Non-Federally constructed Flood Damage Reduction Systems. The section labeled "General Items" needs to be completed with every inspection, along with all other sections that correspond to features in the system. The section labeled "Public Sponsor Pre-Inspection Report" is intended for completion before the inspection, if possible.

F. Individual Item / Component Ratings:

Assessment of individual components rated during the inspection should be based on the criteria provided in the inspection report template, though inspectors may incorporate additional items into the report based on the characteristics of the system. The assessment of individual components should be based on the following definitions.

Acceptable Item	Minimally Acceptable Item	Unacceptable Item
The inspected item is in satisfactory condition, with no deficiencies, and will function as intended during the next flood event.	The inspected item has one or more minor deficiencies that need to be corrected. The minor deficiency or deficiencies will not seriously impair the functioning of the item as intended during the next flood event.	The inspected item has one or more serious deficiencies that need to be corrected. The serious deficiency or deficiencies will seriously impair the functioning of the item as intended during the next flood event.

G. Overall System Ratings:

Determination of the overall system rating is based on the definitions below. Note that an Unacceptable System Rating may be either based on an engineering determination that concluded that noted deficiencies would prevent the system from functioning as intended during the next flood event, or based on the sponsor's demonstrated lack of commitment or inability to correct serious deficiencies in a timely manner.

Acceptable System	Minimally Acceptable System	Unacceptable System
All items or components are rated as Acceptable.	One or more items are rated as Minimally Acceptable or one or more items are rated as Unacceptable and an engineering determination concludes that the Unacceptable items would not prevent the system from performing as intended during the next flood event.	One or more items are rated as Unacceptable and would prevent the system from performing as intended, or a serious deficiency noted in past inspections (which had previously resulted in a minimally acceptable system rating) has not been corrected within the established timeframe, not to exceed two years.

H. Eligibility for PL84-99 Rehabilitation Assistance:

Inspected systems that are not operated and maintained by the Federal government may be Active in the Corps' Rehabilitation and Inspection Program (RIP) and eligible for rehabilitation assistance from the Corps as defined below:

If the Overall System Rating is Acceptable	If the Overall System Rating is Minimally Acceptable	If the Overall System Rating is Unacceptable
The system is active in the RIP and eligible for PL84-99 rehabilitation assistance.	The system is Active in the RIP during the time that it takes to make needed corrections. Active systems are eligible for rehabilitation assistance. However, if the sponsor does not present USACE with proof that serious deficiencies (which had previously resulted in a minimally acceptable system rating) were corrected within the established timeframe, then the system will become Inactive in the RIP.	The system is Inactive in the RIP, and the status will remain Inactive until the sponsor presents USACE with proof that all items rated Unacceptable have been corrected. Inactive systems are ineligible for rehabilitation assistance.

I. Reporting:

After the inspection, the Corps is responsible for assembling an inspection report (or a summary report if it was a Periodic Inspection) including the following information:

a. All sections of the report template used during the inspection, including the cover and pre-inspection materials. (Supplemental data collected, and any sections of the template that weren't used during the inspection do not need to be included with the report.)
b. Photos of the general system condition and noted deficiencies.
c. A plan view drawing of the system, with stationing, to reference locations of items rated less than acceptable.
d. The relative importance of the identified maintenance issues should be specified in the transmittal letter.
e. If the Overall System Rating is Minimally Acceptable, the report needs to establish a timeframe for correction of serious deficiencies noted (not to exceed two years) and indicate that if these items are not corrected within the required timeframe, the system will be rated as Unacceptable and made Inactive in the Rehabilitation Inspection Program.

J. Notification:

Reports are to be disseminated as follows within 30 days of the inspection date.

If the Overall System Rating is Acceptable	If the Overall System Rating is Minimally Acceptable	If the Overall System Rating is Unacceptable
Reports need to be provided to the local sponsor and the county emergency management agency.	Reports need to be provided to the local sponsor, state emergency management agency, county emergency management agency, and to the FEMA region.	Reports need to be provided to the local sponsor, state emergency management agency, county emergency management agency, FEMA region, and to the Congressional delegation within 30 days of the inspection.

US Army Corps
of Engineers®

Flood Damage Reduction Systems
Public Sponsor Pre-Inspection Report

The following information is to be provided by the local sponsor prior to an inspection. This information will be used to help evaluate the organizational capability of the local sponsor to manage the levee system maintenance program.

1. Project name and local sponsor:
2. Reporting period: (month/day/year to month/day/year)
3. Summary of maintenance required by last inspection report:
4. Summary of maintenance performed this reporting period:
5. Summary of maintenance planned next reporting period:
6. Summary of changes to system since last inspection:
7. Problems/ issues requiring the assistance of the US Army Corps of Engineers:

Public Sponsor Pre-Inspection Report

8. Sign-in sheet for inspection attendees				
Name	Position	Mailing Address	Phone Number	Email Address

General Items - Flood Damage Reduction Systems

For use during all inspections of all Flood Damage Reduction Systems

Rated Item	Rating	Rating Guidelines		Location/ Remarks/ Recommendations
1. Operations and Maintenance Manuals	A	A	Levee Owner's Manual, O&M Manuals, and/or manufacturer's operating instructions are present.	
		M	Sponsor manuals are lost or missing or out of date; however, sponsor will obtain manuals prior to next scheduled inspection.	
		U	Sponsor has not obtained lost or missing manuals identified during previous inspection.	
2. Emergency Supplies and Equipment (A or M only)	A	A	The sponsor maintains a stockpile of sandbags, shovels, and other flood fight supplies which will adequately supply all needs for the initial days of a flood fight. Sponsor determines required quantity of supplies after consulting with inspector.	
		M	The sponsor does not maintain an adequate supply of flood fighting materials as part of their preparedness activities.	
3. Flood Preparedness and Training (A or M only)	M	A	Sponsor has a written system-specific flood response plan and a solid understanding of how to operate, maintain, and staff the FDR system during a flood. Sponsor maintains a list of emergency contact information for appropriate personnel and other emergency response agencies.	Refer to Sections 7.b.(1) and 13.b.(1), FY11 Inspection Report
		M	The sponsor maintains a good working knowledge of flood response activities, but documentation of system-specific emergency procedures and emergency contact personnel is insufficient or out of date.	

Key: A = Acceptable. M = Minimally Acceptable; Maintenance is required. U = Unacceptable. N/A = Not Applicable. FDR = Flood Damage Reduction

Interior Drainage System - Flood Damage Reduction Systems

For use during Initial and Continuing Eligibility Inspections of interior drainage systems

Rated Item	Rating		Rating Guidelines	Location/ Remarks/ Recommendations
1. Vegetation and Obstructions	M	A	No obstructions, vegetation, debris, or sediment accumulation noted within interior drainage channels or blocking the culverts, inlets, or discharge areas. Concrete joints and weep holes are free of grass and weeds.	Refer to Sections 7.b.(6), (12) & (13); 13.b.(6), (12) & (13), FY11 Inspection Report
		M	Obstructions, vegetation, debris, or sediment are minor and have not impaired channel flow capacity or blocked more than 10% of any culvert openings, but should be removed. A limited volume of grass and weeds may be present in concrete channel joints and weep holes.	
		U	Obstructions, vegetation, debris, or sediment have impaired the channel flow capacity or blocked more than 10% of a culvert opening. Sediment and debris removal required to re-establish flow capacity.	
2. Encroach-ments	A	A	No trash, debris, unauthorized structures, excavations, or other obstructions present within the easement area. Encroachments have been previously reviewed by the Corps, and it was determined that they do not diminish proper functioning of the interior drainage system.	
		M	Trash, debris, unauthorized structures, excavations, or other obstructions present, or inappropriate activities noted that should be corrected but will not inhibit operations and maintenance or emergency operations. Encroachments have not been reviewed by the Corps.	
		U	Unauthorized encroachments or inappropriate activities noted are likely to inhibit operations and maintenance, emergency operations, or negatively impact the integrity of this component of the interior drainage system.	
3. Ponding Areas	N/A	A	No trash, debris, structures, or other obstructions present within the ponding areas. Sediment deposits do not exceed 10% of capacity.	
		M	Trash, debris, excavations, structures, or other obstructions present, or inappropriate activities that will not inhibit operations and maintenance. Sediment deposits do not exceed 30% of capacity.	
		U	Trash, debris, excavations, structures, or other obstructions, or other encroachments or activities noted that will inhibit operations, maintenance, or emergency work. Sediment deposits exceeds 30% of capacity.	
		N/A	There are no ponding areas associated with the interior drainage system.	
4. Fencing and Gates[1]	N/A	A	Fencing is in good condition and provides protection against falling or unauthorized access. Gates open and close freely, locks are in place, and there is little corrosion on metal parts.	
		M	Fencing or gates are damaged or corroded but appear to be maintainable. Locks may be missing or damaged.	
		U	Fencing and gates are damaged or corroded to the point that replacement is required, or potentially dangerous features are not secured.	
		N/A	There are no features noted that require safety fencing.	

Key: A = Acceptable. M = Minimally Acceptable; Maintenance is required. U = Unacceptable. N/A = Not Applicable. FDR = Flood Damage Reduction

[1] Proper operation of this item must be demonstrated during the inspection.

Interior Drainage System - Flood Damage Reduction Systems

For use during Initial and Continuing Eligibility Inspections of interior drainage systems

Rated Item	Rating	Rating Guidelines		Location/ Remarks/ Recommendations
5. Concrete Surfaces (Such as gate wells, outfalls, intakes, or culverts)	N/A	A	Negligible spalling, scaling or cracking. If the concrete surface is weathered or holds moisture, it is still satisfactory but should be seal coated to prevent freeze/ thaw damage.	
		M	Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs/ sealing is necessary to prevent additional damage during periods of thawing and freezing.	
		U	Surface deterioration or deep cracks present that may result in an unreliable structure. Any surface deterioration that exposes the sheet piling or lies adjacent to monolith joints may indicate underlying reinforcement corrosion and is unacceptable.	
		N/A	There are no concrete items in the interior drainage system.	
6. Tilting, Sliding or Settlement of Concrete and Sheet Pile Structures[1] (Such as gate wells, outfalls, intakes, or culverts)	N/A	A	There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the structure.	
		M	There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The maximum offset, either laterally or vertically, does not exceed 2 inches unless the movement can be shown to be no longer actively occurring. The integrity of the structure is not in danger.	
		U	There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance. Any movement that has resulted in failure of the waterstop (possibly identified by daylight visible through the joint) is unacceptable. Differential movement of greater than 2 inches between any two adjacent monoliths, either laterally or vertically, is unacceptable unless it can be shown that the movement is no longer active. Also, if the floodwall is of I-wall construction, then any visible or measurable tilting of the wall toward the protected side that has created an open horizontal crack on the riverside base of a monolith is unacceptable.	
		N/A	There are no concrete items in the interior drainage system.	
7. Foundation of Concrete Structures[2] (Such as culverts, inlet and discharge structures, or gatewells.)	N/A	A	No active erosion, scouring, or bank caving that might endanger the structure's stability.	
		M	There are areas where the ground is eroding towards the base of the structure. Efforts need to be taken to slow and repair this erosion, but it is not judged to be close enough to the structure or to be progressing rapidly enough to affect structural stability before the next inspection. The rate of erosion is such that the structure is expected to remain stabile until the next inspection.	
		U	Erosion or bank caving observed that may lead to structural instabilities before the next inspection.	
		N/A	There are no concrete items in the interior drainage system.	

Key: A = Acceptable. M = Minimally Acceptable; Maintenance is required. U = Unacceptable. N/A = Not Applicable. FDR = Flood Damage Reduction

[1] The sponsor should be monitoring any observed movement to verify whether the movement is active or inactive.

[2] Inspectors must have as-built drawings available during the inspection so that the lateral distance to the heel and toe of the floodwalls can be determined in the field.

Interior Drainage System - Flood Damage Reduction Systems

For use during Initial and Continuing Eligibility Inspections of interior drainage systems

Rated Item	Rating	Rating Guidelines		Location/ Remarks/ Recommendations
8. Monolith Joints	N/A	A	The joint material is in good condition. The exterior joint sealant is intact and cracking/ desiccation is minimal. Joint filler material and/or waterstop is not visible at any point.	
		M	The joint material has appreciable deterioration to the point where joint filler material and/or waterstop is visible in some locations. This needs to be repaired or replaced to prevent spalling and cracking during freeze/ thaw cycles, and to ensure water tightness of the joint.	
		U	The joint material is severely deteriorated or the concrete adjacent to the monolith joints has spalled and cracked, damaging the waterstop; in either case damage has occurred to the point where it is apparent that the joint is no longer watertight and will not provide the intended level of protection during a flood.	
		N/A	There are no monolith joints in the interior drainage system.	
9. Culverts/Discharge Pipes[1]	*	A	There are no breaks, holes, cracks in the discharge pipes/ culverts that would result in significant water leakage. The pipe shape is still essentially circular. All joints appear to be closed and the soil tight. Corrugated metal pipes, if present, are in good condition with 100% of the original coating still in place (either asphalt or galvanizing) or have been relined with appropriate material, which is still in good condition. Condition of pipes has been verified using television camera video taping or visual inspection methods within the past five years, and the report for every pipe is available for review by the inspector.	* Only manual inspection of project outfalls at channel sideslopes required; videotaping inside of pipe is not necessary.
		M	There are a small number of corrosion pinholes or cracks that could leak water and need to be repaired, but the entire length of pipe is still structurally sound and is not in danger of collapsing. Pipe shape may be ovalized in some locations but does not appear to be approaching a curvature reversal. A limited number of joints may have opened and soil loss may be beginning. Any open joints should be repaired prior to the next inspection. Corrugated metal pipes, if present, may be showing corrosion and pinholes but there are no areas with total section loss. Condition of pipes has been verified using television camera video taping or visual inspection methods within the past five years, and the report for every pipe is available for review by the inspector.	
		U	Culvert has deterioration and/or has significant leakage; it is in danger of collapsing or as already begun to collapse. Corrugated metal pipes have suffered 100% section loss in the invert. HOWEVER: Even if pipes appear to be in good condition, as judged by an external visual inspection, an Unacceptable Rating will be assigned if the condition of pipes has not been verified using television camera video taping or visual inspection methods within the past five years, and reports for all pipes are not available for review by the inspector.	
		N/A	There are no discharge pipes/ culverts.	

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[1] The decision on whether or not USACE inspectors should enter a pipe to perform a detailed inspection must be made at the USACE District level. This decision should be made in conjunction with the District Safety Office, as pipes may be considered confi

Interior Drainage System - Flood Damage Reduction Systems

Rated Item	Rating	Rating Guidelines		Location/ Remarks/ Recommendations
10. Sluice / Slide Gates[1]	N/A	A	Gates open and close freely to a tight seal or minor leakage. Gate operators are in good working condition and are properly maintained. Sill is free of sediment and other obstructions. Gates and lifters have been maintained and are free of corrosion. Documentation provided during the inspection.	
		M	Gates and/or operators have been damaged or have minor corrosion, and open and close with resistance or binding. Leakage quantity is controllable, but maintenance is required. Sill is free of sediment and other obstructions.	
		U	Gates do not open or close and/or operators do not function. Gate, stem, lifter and/or guides may be damaged or have major corrosion.	
		N/A	There are no sluice/ slide gates.	
11. Flap Gates/ Flap Valves/ Pinch Valves[2]	N/A	A	Gates/ valves open and close easily with minimal leakage, have no corrosion damage, and have been exercised and lubricated as required.	
		M	Gates/ valves will not fully open or close because of obstructions that can be easily removed, or have minor corrosion damage that requires maintenance.	
		U	Gates/ valves are missing, have been damaged, or have deteriorated to the point that they need to be replaced.	
		N/A	There are no flap gates.	
12. Trash Racks (non-mechanical)	N/A	A	Trash racks are fastened in place and properly maintained.	
		M	Trash racks are in place but are unfastened or have bent bars that allow debris to enter into the pipe or pump station, bars are corroded to the point that up to 10% of the sectional area may be lost. Repair or replacement is required.	
		U	Trash racks are missing or damaged to the extent that they are no longer functional and must be replaced. (For example, more than 10% of the sectional area may be lost.)	
		N/A	There are no trash racks, or they are covered in the pump stations section of the report.	
13. Other Metallic Items	N/A	A	All metal parts are protected from corrosion damage and show no rust, damage, or deterioration that would cause a safety concern.	
		M	Corrosion seen on metallic parts appears to be maintainable.	
		U	Metallic parts are severely corroded and require replacement to prevent failure, equipment damage, or safety issues.	
		N/A	There are no other significant metallic items.	

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[1] Proper operation of the gates (full open and closed) must be demonstrated during the inspection if no documentation is available. Be aware of both manual and electrical operators.

[2] Proper operation of this item must be demonstrated during the inspection.

Interior Drainage System - Flood Damage Reduction Systems

For use during Initial and Continuing Eligibility Inspections of interior drainage systems

Rated Item	Rating	Rating Guidelines		Location/ Remarks/ Recommendations
14. Riprap Revetments of Inlet/ Discharge Areas	**M**	A	No riprap displacement or stone degradation that could pose an immediate threat to the integrity of channel bank. Riprap intact with no woody vegetation present.	Refer to Sections 7.b.(6), (12) & (13); 13.b.(6), (12) & (13), FY11 Inspection Report
		M	Minor riprap displacement or stone degradation that could pose an immediate threat to the integrity of the channel bank. Unwanted vegetation must be cleared or sprayed with an appropriate herbicide.	
		U	Significant riprap displacement, exposure of bedding, or stone degradation observed. Scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling. Rock protection is hidden by dense brush, trees, or grasses.	
		N/A	There is no riprap protecting this feature of the system, or riprap is discussed in another section.	
15. Revetments other than Riprap	**N/A**	A	No riprap displacement or stone degradation that could pose an immediate threat to the integrity of channel bank. Riprap intact with no woody vegetation present.	
		M	Minor riprap displacement or stone degradation that could pose an immediate threat to the integrity of the channel bank. Unwanted vegetation must be cleared or sprayed with an appropriate herbicide.	
		U	Significant riprap displacement, exposure of bedding, or stone degradation observed. Scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling. Rock protection is hidden by dense brush, trees, or grasses.	
		N/A	There are no such revetments protecting this feature of the system.	

Key: A = Acceptable. M = Minimally Acceptable; Maintenance is required. U = Unacceptable. N/A = Not Applicable. FDR = Flood Damage Reduction

Channels - Flood Damage Reduction Systems

For use during Initial and Continuing Eligibility Inspections of flood damage reduction channels

Rated Item	Rating	Rating Guidelines		Location/ Remarks/ Recommendations
1. Vegetation and Obstructions	M	A	No obstructions, vegetation, debris, or sediment accumulation within the channel. Concrete channel joints and weep holes are free of grass and weeds.	Refer to Sections 7.b.(3) & (14); 13.b.(3) & (14), FY11 Inspection Report
		M	Obstructions (including log jams), vegetation, debris, or sediment are minor and have not impaired channel flow capacity, but should be removed. Sediment shoals have not developed to the extent that they can support vegetation other than non-aquatic grasses. A limited volume of grass and weeds may be present in concrete channel joints and weep holes.	
		U	Obstructions (including log jams), vegetation, debris or sediment have impaired the channel flow capacity. Sediment shoals are well established and support woody and/or brushy vegetation. Sediment and debris removal required to re-establish flow capacity.	
2. Shoaling[1] (sediment deposition)	U	A	No shoaling or minor, non-vegetated shoaling is present.	Refer to Sections 7.b(2), (5), (7), (10), (11), & (15), 7.c.(1) & (2); 13.b.(2), (5), (7), (10), (11), & (15), 13.c.(1) & (2), FY11 Inspection Report
		M	More widespread vegetated and non-vegetated shoaling is present. Non-aquatic grasses are present on shoal. No trees or brush is present on shoal, and channel flow is not significantly reduced. Sediment and debris removal recommended.	
		U	Shoaling is well established, stabilized by saplings, brush, or other vegetation. Shoals are diverting flow to channel walls. Channel flow capacity is reduced and maintenance is required.	
3. Encroach-ments	M	A	No trash, debris, unauthorized structures, excavations, or other obstructions present within the easement area. Encroachments have been previously reviewed by the Corps, and it was determined that they do not diminish proper functioning of the channel.	Refer to Sections 7.b.(9); 13.b.(9), FY 11 Inspection Report
		M	Trash, debris, unauthorized structures, excavations, or other obstructions present, or inappropriate activities noted that should be corrected but will not inhibit operations and maintenance or emergency operations. Encroachments have not been reviewed by the Corps.	
		U	Unauthorized encroachments or inappropriate activities noted are likely to inhibit operations and maintenance, emergency operations, or negatively impact the integrity of the channel.	
4. Erosion	U	A	No head cutting or horizontal deviation observed.	Refer to Sections 7.c.(3); 13.c.(3), FY11 Inspection Report
		M	Head cutting and horizontal deviation evident, but is less than 1 foot from the designed grade or cross section.	
		U	Head cutting and horizontal deviation of more than 1 foot from the designed grade or cross section. Corrective actions required to stop or slow erosion.	

Key: A = Acceptable. M = Minimally Acceptable; Maintenance is required. U = Unacceptable. N/A = Not Applicable. FDR = Flood Damage Reduction

[1] If weather and flow conditions allow, inspectors should walk in the channel and probe shoal areas in order to estimate extent of blockage of the cross-sectional area where shoaling is present.

Channels - Flood Damage Reduction Systems

For use during Initial and Continuing Eligibility Inspections of flood damage reduction channels

Rated Item	Rating	Rating Guidelines		Location/ Remarks/ Recommendations
5. Concrete Surfaces	A	A	Negligible spalling, scaling or cracking. If the concrete surface is weathered or holds moisture, it is still satisfactory but should be seal coated to prevent freeze/ thaw damage.	This item refers to the Cribwalls.
		M	Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs/ sealing is necessary to prevent additional damage during periods of thawing and freezing.	
		U	Surface deterioration or deep cracks present that may result in an unreliable structure. Any surface deterioration that exposes the sheet piling or lies adjacent to monolith joints may indicate underlying reinforcement corrosion and is unacceptable.	
		N/A	There are no concrete items in the channel.	
6. Tilting, Sliding or Settlement of Concrete Structures[1]	A	A	There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the structure.	This item refers to the Cribwalls.
		M	There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The maximum offset, either laterally or vertically, does not exceed 2 inches unless the movement can be shown to be no longer actively occurring. The integrity of the structure is not in danger.	
		U	There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance. Any movement that has resulted in failure of the waterstop (possibly identified by daylight visible through the joint) is unacceptable. Differential movement of greater than 2 inches between any two adjacent monoliths, either laterally or vertically, is unacceptable unless it can be shown that the movement is no longer active. Also, if the floodwall is of I-wall construction, then any visible or measurable tilting of the wall toward the protected side that has created an open horizontal crack on the riverside base of a monolith is unacceptable.	
		N/A	There are no concrete items in the channel.	
7. Foundation of Concrete Structures[2]	A	A	No active erosion, scouring, or bank caving that might endanger the structure's stability.	This item refers to the cribwalls.
		M	There are areas where the ground is eroding towards the base of the structure. Efforts need to be taken to slow and repair this erosion, but it is not judged to be close enough to the structure or to be progressing rapidly enough to affect structural stability before the next inspection. For the purposes of inspection, the erosion or scour is not closer to the riverside face of the wall than twice the floodwall's underground base width if the wall is of L-wall or T-wall construction; or if the wall is of sheetpile or I-wall construction, the erosion is not closer than twice the wall's visible height. Additionally, rate of erosion is such that the wall is expected to remain stabile until the next inspection.	
		U	Erosion or bank caving observed that is closer to the wall than the limits described above, or is outside these limits but may lead to structural instabilities before the next inspection. Additionally, if the floodwall is of I-wall or sheetpile construction, the foundation is unacceptable if any turf, soil or pavement material got washed away from the landside of the I-wall as the result of a previous overtopping event.	
		N/A	There are no concrete items in the channel.	

Key: A = Acceptable. M = Minimally Acceptable; Maintenance is required. U = Unacceptable. N/A = Not Applicable. FDR = Flood Damage Reduction

[1] The sponsor should be monitoring any observed movement to verify whether the movement is active or inactive.

[2] Inspectors must have as-built drawings available during the inspection so that the lateral distance to the heel and toe of the floodwalls can be determined in the field.

Channels - Flood Damage Reduction Systems

For use during Initial and Continuing Eligibility Inspections of flood damage reduction channels

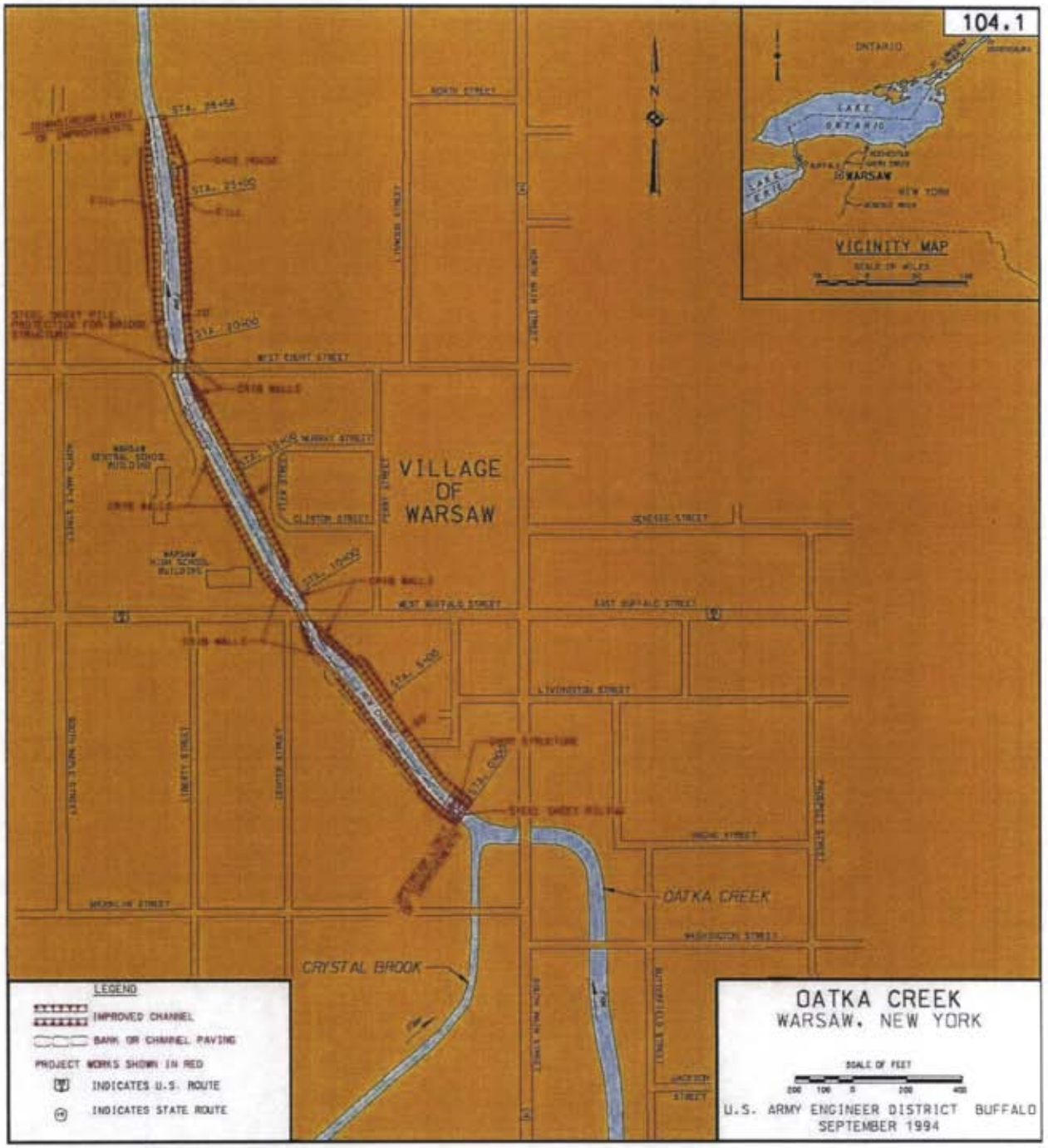
Rated Item	Rating		Rating Guidelines	Location/ Remarks/ Recommendations
8. Slab and Monolith Joints	N/A	A	The joint material is in good condition. The exterior joint sealant is intact and cracking/ desiccation is minimal. Joint filler material and/or waterstop is not visible at any point.	
		M	The joint material has appreciable deterioration to the point where joint filler material and/or waterstop is visible in some locations. This needs to be repaired or replaced to prevent spalling and cracking during freeze/ thaw cycles, and to ensure water tightness of the joint.	
		U	The joint material is severely deteriorated or the concrete adjacent to the monolith joints has spalled and cracked, damaging the waterstop; in either case damage has occurred to the point where it is apparent that the joint is no longer watertight and will not provide the intended level of protection during a flood.	
		N/A	There are no concrete items in the channel.	
9. Flap Gates/Flap Valves/ Pinch Valves[1]	N/A	A	Gates/ valves open and close easily with minimal leakage, have no corrosion damage, and have been exercised and lubricated as required.	
		M	Gates/ valves will not fully open or close because of obstructions that can be easily removed, or have minor corrosion damage that requires maintenance.	
		U	Gates/ valves are missing, have been damaged, or have deteriorated to the point that they need to be replaced.	
		N/A	There are no flap gates.	
10. Riprap Revetments & Banks	M	A	No riprap displacement or stone degradation that could pose an immediate threat to the integrity of channel bank. Riprap intact with no woody vegetation present.	Refer to Sections 7.b.(4) & (8); 13.b.(4) & (8), FY11 Inspection Report
		M	Minor riprap displacement or stone degradation that could pose an immediate threat to the integrity of the channel bank. Unwanted vegetation must be cleared or sprayed with an appropriate herbicide.	
		U	Significant riprap displacement, exposure of bedding, or stone degradation observed. Scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling. Rock protection is hidden by dense brush, trees, or grasses.	
		N/A	There is no riprap protecting this feature of the system, or riprap is discussed in another section.	
11 Revetments other than Riprap	A	A	Existing revetment protection is properly maintained, undamaged, and clearly visible.	Crib walls are serving as revetments (retaining walls).
		M	Minor revetment displacement or deterioration that does not pose an immediate threat to the integrity of the levee. Unwanted vegetation must be cleared or sprayed with an appropriate herbicide.	
		U	Significant revetment displacement, deterioration, or exposure of bedding observed. Scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling. Revetment protection is hidden by dense brush and trees.	
		N/A	There are no such revetments protecting this feature of the system.	

Key: A = Acceptable. M = Minimally Acceptable; Maintenance is required. U = Unacceptable. N/A = Not Applicable. FDR = Flood Damage Reduction

[1] Proper operation of this item must be demonstrated during the inspection.

Subject: FY11 Joint Routine Inspection of Completed Works, Flood Damage Reduction Project, Oatka Creek, Warsaw, New York (10/18/11)

Attachment C: Project Map



Attachment "D" - Emergency Response Plan Guidelines

The local sponsor must develop and maintain a written system specific response plan for emergency preparedness and have a solid understanding of how to operate, maintain, and staff the project during an emergency flooding event. These plans should addresses, at minimum, the following key elements:

1. Organizational Chart/Roster: A chain of command that indicates who will be contacted during a flood emergency.

2. List of Important Project Features: A bullet point list or annotated map that identifies: potentially critical weak points; locations of important structures such as gates, drains, closures; alternate access points, should areas become impassible; available sources of emergency supplies.

3. Flood Plan Response: The written plan does not need to be long or wordy, but should indicate what needs to be done during a flood fight and when. The plan should identify the hierarchy of responsibility, procedures, and equipment. Evacuation plans should be included in the flood plan response.

4. Short Term Planning Elements: Provisions to address temporary situations. For example, what to do in case of flooding during short term construction or replacement of critical elements.

5. Continued Plan Management: Plan should be reviewed annually and amended or revised as necessary; updates to critical information and contacts should be included.

Refer to pages 35 through 52 of Levee Owner's Manual for Non-Federal Flood Control Works, for additional specific information. This document is available for download via the following link:

https://eportal.usace.army.mil/sites/ENGLink/FCCE/Shared%20Documents/LeveeOwnersManual.pdf

Sample Guidance for Emergency Response Plans

Reference: Levee Owner's Manual for Non-Federal Flood Control Works (pgs. 35-51)

1. Develop flood fight organizational roster (identify chain of command, who notifies who, contact information). Include list of important utility contacts.

2. Identify required supplies, materials, and equipment for floodfighting:

   - Supplies: safety gear (i.e. flotation vests, ropes, first aid kits, etc.), communication equipment, maps, flashlights, rain gear, cameras, etc.

   - Materials: sandbags, sand, lumber, plastic sheeting, shovels, riprap, etc.

   - Equipment: dump trucks, loaders, dozers, pumps, lighting, sandbag filling machines, vehicles, small boats, etc.

Where are these items stored or where can they be procured quickly during/prior to a flood event?

What quantities of materials and supplies to be needed (rough estimate) – how much is already on hand and how much can be obtained during a floodfight? How many of each piece of equipment are readily available? How many more can be obtained during a floodfight? Who are the sources for the supplies, materials, and equipment?

Might contractors be used during a floodfight? Are there pre-arranged contract agreements in place?

3. Training in floodfighting procedures (i.e. proper way to fill sandbags, etc.), conducting floodfighting exercises, and applying lessons learned from previous flood events.

4. Develop a site-specific flood fight plan.

   - At what flood stages should various floodfighting alarms be triggered (initial notification of possible flood event, advance mobilization of floodfighting resources, actual floodfighting?

   - List of important project features and how they should be accessed and inspected before, during, and after a flood event.

   - Identify the most likely modes of failure or flooding, and emergency actions to be taken.

- List of potential assembly areas for flood fighters and potential staging areas for equipment and materials.

- Floodfighting patrols:

  - Who should go on them?

  - What should responders look for?

  - Where do they access the project?

  - Reporting procedures/forms?

- Discussion of safety of floodfighting participants and impacted public. List of potential hazards and how to mitigate/avoid them.

5. Evacuation Plan:

   -Who's in charge of coordinating (Emergency Management Office, local officials, etc.)? Who's in charge of executing (police, fire department, etc.)? What support groups will be utilized (i.e. media)?

   - What are the evacuation routes to be taken?

   - Locations of emergency shelters?

6. Recordkeeping (documentation of labor, materials, and equipment for potential reimbursement; gage readings, photographs, damage reports, forms to be used, etc.)

7. After Action Review – discussion on lessons learned from current floodfight event.

NOTE: This list is only meant to provide sample guidance of what might be included in a Flood Response Plan and is not meant to be all-inclusive. Each project and flood event has its own peculiarities. This list is a living document and will be improved in the future as more input and guidance is received.

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