



**– 1860 RESERVOIR DAM –**  
**VISUAL INSPECTION REPORT**



Dam Name: 1860 Reservoir Dam

CTDEEP ID#: 15908

Owner: Town of Wethersfield

Town: Wethersfield, Connecticut

Consultant: GZA GeoEnvironmental, Inc.

Date of Inspection: September 27, 2016





Proactive by Design

GEOTECHNICAL  
ENVIRONMENTAL  
ECOLOGICAL  
WATER  
CONSTRUCTION  
MANAGEMENT

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October 17, 2017  
GZA File No. 05.0045906.00

Mr. Derrick Gregor, P.E.  
Town Engineer, Town of Wethersfield  
505 Silas Deane Highway  
Wethersfield, Connecticut 06109

Re: Visual Inspection Report  
1860 Reservoir  
CTDEEP # 15908

Dear Mr. Gregor:

In accordance with our proposal dated August 28, 2015 and our Notice to Proceed dated July 21, 2016 attached to the Town of Wethersfield Purchase Order Number: 20166877-000, GZA GeoEnvironmental, Inc. (GZA) has completed a visual inspection of the 1860 Reservoir located in Wethersfield, Connecticut.

Our site visit was performed on September 27, 2016 by Matthew A. Taylor, P.E., David M. Barstow, P.E., and Anthony Trani of GZA GeoEnvironmental, Inc. (GZA) as well as Don Moisa of the Town of Wethersfield. At the time of the inspection, the weather was sunny with a temperature of approximately 70° Fahrenheit.

The purpose of our efforts was to assess the current condition of the dam and to prepare an updated, formal Regulatory Inspection of the dam in accordance with the State of Connecticut Department of Energy and Environmental Protection (CTDEEP) Dam Safety Regulation 22a-409, pertaining to inspection frequency. Our services and report are subject to the Limitations found in **Appendix D**.

Based on our visual inspection, the dam was found to be in **POOR** condition due primarily to the extensive vegetation and general lack of maintenance. Refer to **Appendix A** for the condition rating definitions as per the Connecticut Dam Safety regulations. The deficiencies at the dam observed during the visual inspection include but are not limited to:

1. Undercutting at the water line of the right and left embankments;
2. Sunken/ depressed areas of the crest on the right embankment which are likely due to overtopping and erosion;
3. Minor erosion of the left and right dam embankment downstream of the auxiliary spillway;
4. Brush and debris obstructing the spillway and downstream channel which is likely from beaver activity; and
5. Heavy brush and mature tree growth on the crest, upstream and downstream slopes of the dam embankment (left and right) and in the auxiliary spillway approach and discharge areas.

The 1860 Reservoir Dam is located approximately 1,000 feet west of Highland Street. The outflow of 1860 Reservoir Dam discharges into Goff Brook which flows to the east. The immediate downstream area is undeveloped and wooded. However, residences are present on Highland Street

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near Goff Brook. Goff Brook passes underneath Highland Street in a culvert. If the dam were to breach, it is unknown if the downstream area would be able to contain the breach flow or if the flow would impact the homes along Highland Street and/or damage Highland Street.

However, given the possibility of a dam breach impacting downstream homes and roads, it is possible that the hazard class of the dam may need to be raised from **Class A (low)** to **Class BB (moderate)** or possibly **Class B (significant)** hazard potential dam. A detailed hydrologic and hydraulic analysis is required to determine the impact of a dam breach to determine the appropriate hazard class for the dam.

It should be noted that the condition of the dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. Impoundment levels greater than or lower than the time of inspection may create conditions which were undetectable during this visual inspection. The condition of the dam reported herein is based on observations of field conditions at the time of inspection and the data available to the inspection team. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through continued care and inspection can unsafe conditions be detected.

A further discussion of our evaluation and recommended actions are presented in the Inspection Report. The report includes: (a) CTDEEP Dam Inspection Form; (b) Limitations; and (c) Photo Log and Photo Location Plan.

GZA GeoEnvironmental, Inc. will submit one bound color copy of the final inspection report to the Inland Water Resources Division of CTDEEP. An electronic copy of the complete report in unlocked, searchable PDF format, using the latest CTDEEP prescribed format will also be sent to the CTDEEP.

We are happy to have been able to assist you with this inspection. Please contact the undersigned if you have any questions or comments regarding the content of this Inspection Report.

Sincerely,

GZA GeoEnvironmental, Inc.

A handwritten signature in blue ink, appearing to read 'D. Barstow'.

David M. Barstow, P.E.  
Project Manager

A handwritten signature in blue ink, appearing to read 'M. Taylor'.

Matthew A. Taylor, P.E.  
Principal-in-Charge

A handwritten signature in blue ink, appearing to read 'P. Baril'.

Peter H. Baril, P.E.  
Consultant/Reviewer

Enclosures:

CTDEEP Dam Inspection Report Form

Appendices

- A. Overall Dam Condition Selection Standards
- B. Hazard Classification of Dams
- C. Photo Location Plan and Photo Log with Site Sketch
- D. Limitations
- E. Historic Drawings



Connecticut Department of  
**Energy & Environmental Protection**  
 Bureau of Water Protection & Land Reuse  
 Inland Water Resources Division



## DAM SAFETY PROGRAM DAM INSPECTION REPORT FORM – FOR REGULATORY INSPECTION

Please complete this form in accordance with the instructions (DEEP-DAM-INST-002).

### Part I: Summary of Dam Inspection

Dam Name:	<b>1860 Reservoir</b>	Inspection Date(s):	<b>9/27/2016</b>
Alternate Dam Name(s):	---	CT Dam ID #:	<b>15908</b>
Location (Municipality):	<b>Wethersfield</b>	Temperature / Weather:	<b>~65°F /Sunny</b>
Registered?: Yes or No If yes, provide the 9 digit registration number found on the notification letter.	<b>Yes – number unknown</b>	Pool Level: See Instructions	<b>0.3 feet below primary spillway</b>
Emergency Action Plan?: Yes or No If Yes, see instructions	<b>No</b>	Impoundment Use: use options listed in instructions	<b>Recreation</b>
Hydraulic and Hydrologic Analysis?: Yes or No If Yes, see instructions	<b>No</b>	Stability Analysis?: Yes or No If Yes, see instructions	<b>No</b>
Overall Condition: (refer to <a href="#">Appendix A</a> located at the end of this form) <b>Poor</b>			

<b>Persons present at the inspection</b> <i>(select the tab button in the last cell to the right to create another row)</i>		
<b>Name</b>	<b>Title/Position</b>	<b>Representing</b>
<b>Matthew Taylor, P.E.</b>	<b>Associate Principal</b>	<b>GZA GeoEnvironmental, Inc.</b>
<b>David Barstow, P.E.</b>	<b>Project Manager</b>	<b>GZA GeoEnvironmental, Inc.</b>
<b>Anthony Trani</b>	<b>Assistant Project Manager</b>	<b>GZA GeoEnvironmental, Inc.</b>
<b>Don Moisa</b>	<b>Operations Coordinator</b>	<b>Town of Wethersfield</b>

**Owners and Operators:** If there is more than one owner or operator, copy the empty table below for each owner or operator and paste right below the previous table, then complete the information for each

\*By providing this e-mail address you are agreeing to receive official correspondence from DEEP, at this electronic address, concerning the subject report. Please remember to check your security settings to be sure you can receive e-mails from "ct.gov" addresses. Also, please notify DEEP if your e-mail address changes by email via [deep.damsafety@ct.gov](mailto:deep.damsafety@ct.gov).

**Indicate if Owner or Operator: Owner**

**Name: Town of Wethersfield (Contact: Jeff Bridges, Town Manager)**

**Mailing Address: 505 Silas Deane Highway**

**City/Town: Wethersfield**

**State: CT**

**Zip Code: 06109**

**Phone: (860) 721-2801**

**ext.: ---**

**Emergency Phone: ---**

**\*E-mail: [jeff.bridges@wethersfieldct.gov](mailto:jeff.bridges@wethersfieldct.gov)**

## Part II: General Dam Information

**General Description:** The 1860 Reservoir is used for recreation. The 1860 Reservoir Dam is an earthen embankment dam with a maximum height of about 4 feet and a total length of approximately 950 feet. The right embankment is about 515-feet long and the left embankment is about 400-feet long. Existing topography serve as the abutments for the embankments. The right and left embankments are separated by a reinforced concrete structure that has serves as both the primary and auxiliary spillways.

The primary spillway portion of the integral structure consists of two, approximately 7.5-foot long, broad crested weirs with stop log bays. The auxiliary spillway is approximately 16.5-foot long on the right side of the primary spillway and approximately 31.5-foot long on the left side of the primary spillway. The auxiliary spillway crest is about 1 foot higher than the crest of the primary spillway. Refer to Appendix C - Figure 3 for a plan and profile view of the primary and auxiliary spillway structure.

There are three, approximately 8-foot-long, reinforced concrete, downstream training walls which are perpendicular to the primary and auxiliary spillway. The three downstream training walls are connected by an approximately 3.3-foot long reinforced concrete discharge apron. Water discharges over the spillway into Goff Brook A 6-foot-wide, timber bridge spans between the three downstream training walls over the discharge channel. The auxiliary spillway flow passes over the left and right embankment downstream of the auxiliary spillway.

<b>Hazard Classification:</b>	A	<b>Dam Height (ft):</b>	4
<b>Dam Length (ft):</b>	950	<b>Spillway Length (ft):</b>	Primary: 15 Auxiliary: 48
<b>Spillway Type:</b>	Primary: Broad crested weir with two stop log bays Auxiliary: Broad crested weir	<b>Normal Freeboard (ft):</b>	1.5
<b>Drainage Area (square miles):</b>	0.63	<b>Impoundment Area (at principal spillway crest, in acres):</b>	33
<b>Watercourse(s):</b> Both spillways discharge to eastward flowing Goff Brook.			

**OTHER INFORMATION:** The information presented in the table above was obtained from:

- A Connecticut Department of Energy and Environmental Protection (CTDEEP) Dam Registration Form, dated August 1992;
- "Proposed Spillway, 1860 Reservoir, Wethersfield, Connecticut, Flood Encroachment Control Board Application, Inland Wetlands and Water Course Application", by Town of Wethersfield Engineering Division, dated May 12, 1992, scale 1" = 200', Sheet 1 of 2
- "Proposed Concrete Spillway, 1860 Reservoir, Wethersfield, Connecticut, Flood Encroachment Control Board Application", by Town of Wethersfield Engineering Division, dated August 1992, Sheet 1 through 4 (Proposed Concrete Spillway Plan Set, dated August 1992); and
- Direct observation and measurement by GZA.

Elevations included in this inspection report are based on the Proposed Concrete Spillway Plan Set, dated August 1992, prepared by the Town of Wethersfield, which references the Metropolitan District Datum (MDC datum). MDC Datum = National Geodetic Vertical Datum + 2.18 feet

Aerial photographs available at the University of Connecticut's Maps and Geographic Information Center (accessed via the internet at <http://magic.lib.uconn.edu/>), were reviewed to estimate the approximate age of the 1860 Reservoir Dam. Based upon a review of the 1934 aerial photograph, there appears to be a smaller structure

near the current location of the dam. Therefore, it is likely this structure is the dam and it was originally built sometime prior to 1934.

The available documents do not indicate when the integral spillway structure was constructed. Based on GZA's direct observation during the dam inspection, the visible portions of the integral spillway structure appear to be consistent with Proposed Concrete Spillway Plan Set, dated August 1992. Based on the referenced plan set, we assume the spillway structure was reconstructed based on the August 1992 plan set.

Based on the notes on the Proposed Concrete Spillway Plan Set, dated August 1992, Sheet 1 of 4, the primary spillway has a capacity of 54 cubic feet per second (10-year storm) and the auxiliary spillway has a capacity of 83 cubic feet per second. The hydraulic and hydraulic calculations for the dam were not made available to GZA for review.

A series of six (6) dams are located on the upper watershed of Goff Brook. The dams, listed in descending order from upstream to downstream, are: 1860 Reservoir Dam (Hazard Class A), Murphy Pond Dam (Hazard Class A), Griswold Pond Dam (Hazard Class A), Mill Woods Park Pond Dam (Hazard Class A), Mill Woods Swimming Pond Dam #1 (Hazard Class A) and Bell Pond Dam (Hazard Class BB). The Town of Wethersfield is the owner/operator for each of these dams.

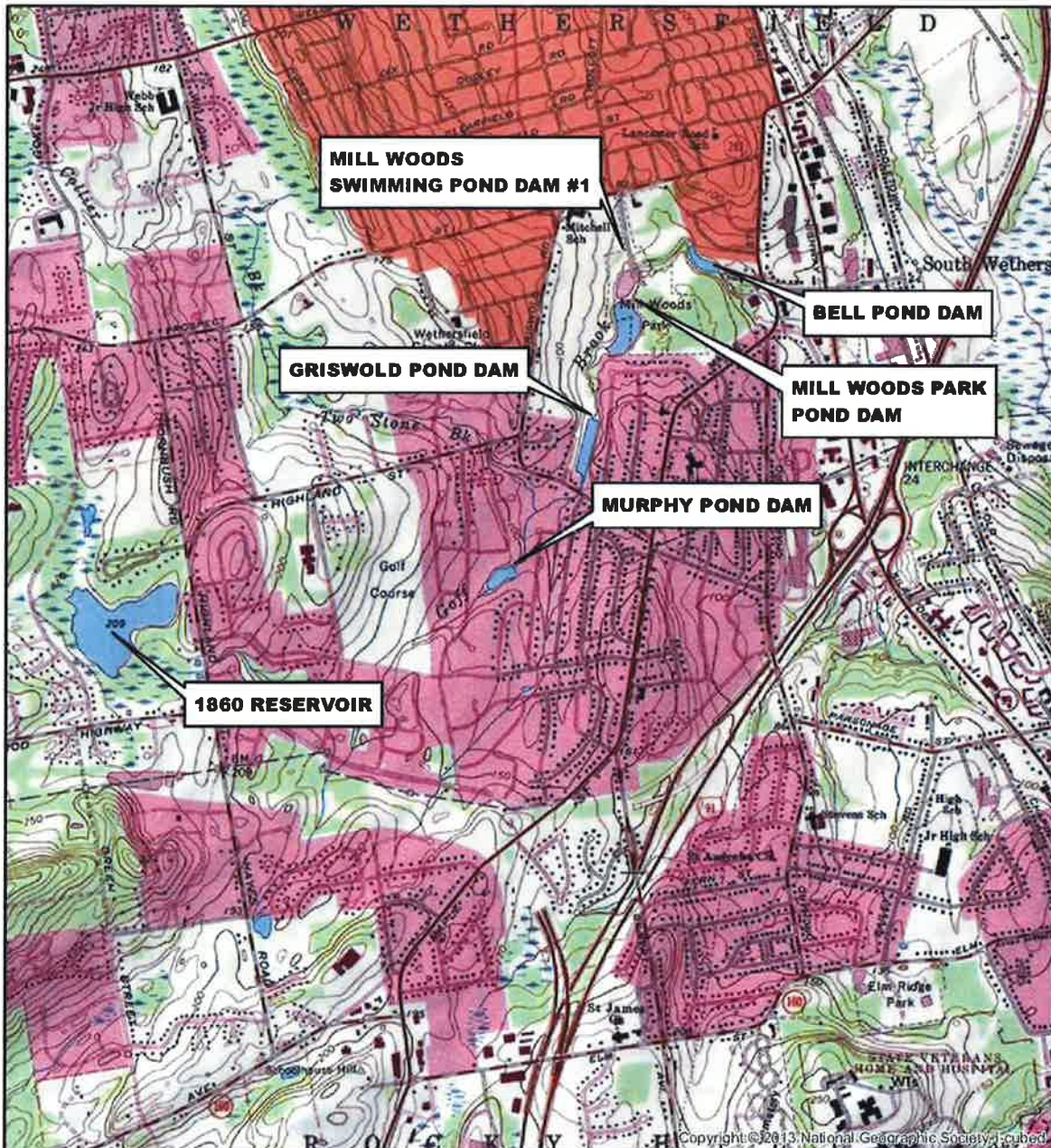
### References





"Proposed Spillway, 1860 Reservoir, Wethersfield, Connecticut, Flood Encroachment Control Board Application, Inland Wetlands and Water Course Application", by Town of Wethersfield Engineering Division, dated May 12, 1992, scale 1"=200', Sheet 1 of 2

"Proposed Concrete Spillway, 1860 Reservoir, Wethersfield, Connecticut, Flood Encroachment Control Board Application", by Town of Wethersfield Engineering Division, dated August 1992, Sheet 1 through 4

"Goff Brook Ponds Study, Town of Wethersfield, Connecticut", by DeCarlo & Doll, Inc., dated April 2007

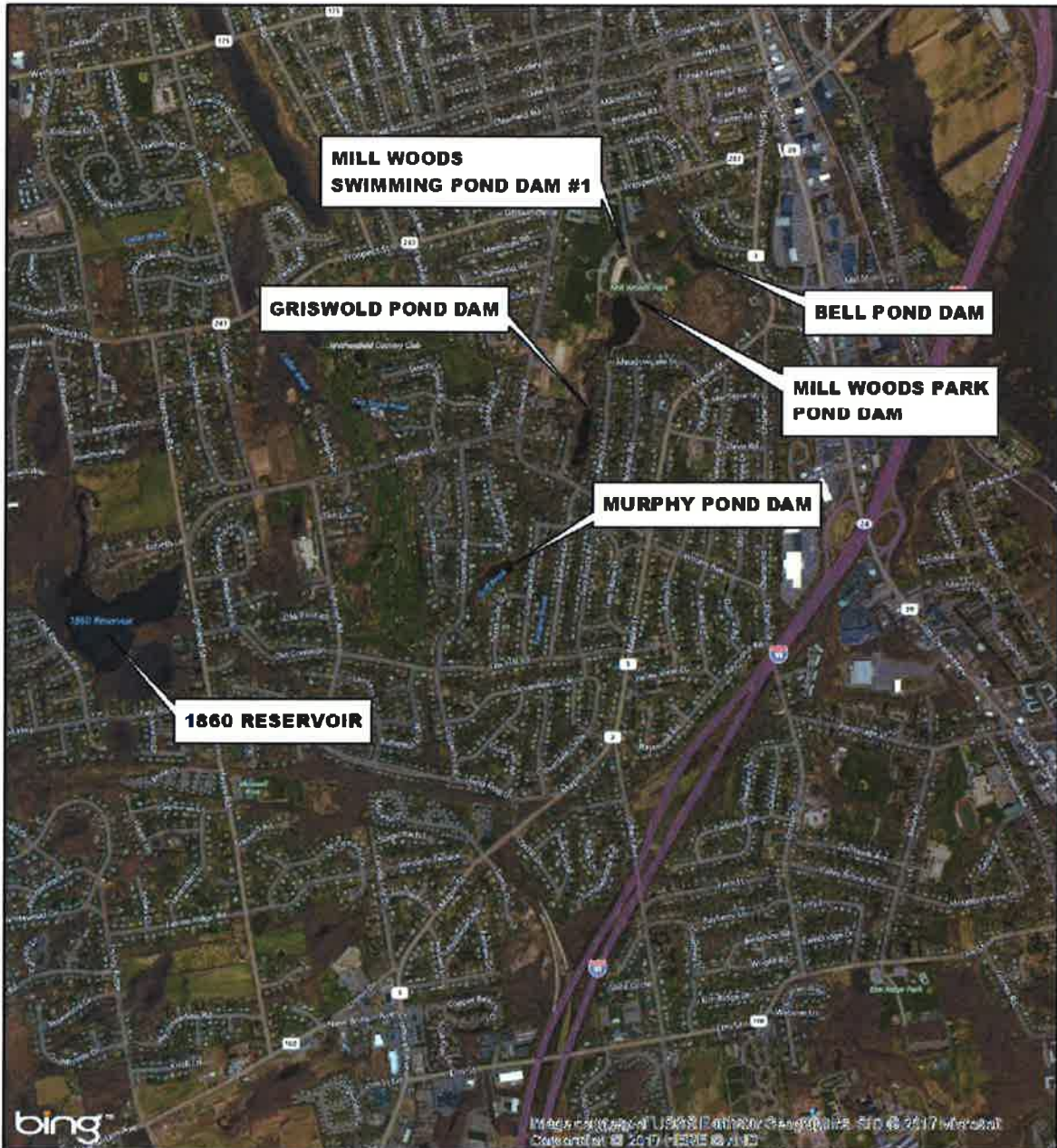
**Part III: Aerial Photo/Location Map**




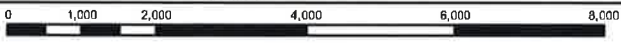


 <p><b>GZA GeoEnvironmental, Inc.</b> Engineers and Scientists www.gza.com</p>  <p>USGS 7.5 MINUTE QUAD INDEX BASE MAP: HARTFORD SOUTH, CONNECTICUT 1997</p>	<p><b>1860 RESERVOIR LOCUS</b></p>		
	<p>WETHERSFIELD, CONNECTICUT</p>		
	<p>Source: TOPOI maps are USGS topographic maps, Copyright:© 2011 National Geographic Society, I-cubed and are provided by zrgisonline.com.</p>		
	<p>PROJ MGR: DMB DESIGNED BY: AJT</p>	<p>REVIEWED BY: MAT DRAWN BY: MJS</p>	
<p>THIS MAP HAS BEEN COMPILED FROM OTHER MAPS AND/OR SOURCES OF INFORMATION. THIS MAP SHOULD NOT BE CONSIDERED AS A PROPERTY SURVEY, NOR USED FOR CONSTRUCTION PURPOSES.</p>			<p><b>FIGURE 1</b></p>
 <p>Scale In Feet</p>			

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 <p><b>GZA GeoEnvironmental, Inc.</b> Engineers and Scientists www.gza.com</p>  <p>USGS 7.5 MINUTE QUADRANGLE BASE MAP: HARTFORD SOUTH, CONNECTICUT 1987</p>	<p><b>1860 RESERVOIR</b> <b>AERIAL PHOTOGRAPH</b></p>		
	<p>WETHERSFIELD, CONNECTICUT</p>		
	<p>Source: Imagery provided by arcgisonline.com.</p>		
	<p>PROJ MGR: DMB</p>	<p>REVIEWED BY: MAT</p>	
<p>DESIGNED BY: AJT</p>	<p>DRAWN BY: MJS</p>	<p>DATE: SEPTEMBER 2016</p>	
<p><small>THIS MAP HAS BEEN COMPILED FROM OTHER MAPS AND/OR SOURCES OF INFORMATION. THIS MAP SHOULD NOT BE CONSTRUED AS A PROPERTY SURVEY, NOR USED FOR CONSTRUCTION PURPOSES.</small></p>			<p><b>FIGURE</b> <b>2</b></p>
 <p>Scale In Feet</p>			

© 2017 GZA GeoEnvironmental, Inc. J:\\_45,509-45,999\45905.006 Town of Wethersfield\45906-00.dwg\GIS\mxd\AER 1860 RESV.mxd, 9/30/2017, 11:09:13 AM, max.strobel

**Part IV: Dam/Embankment/Dike Information****Number of Dam/Embankments/Dikes:** (2) Two**Dam/Embankment/Dike Name (see instructions):** Left Embankment

**General Description:** The left embankment is an approximately 400-foot-long earthen embankment with an approximately 2 Horizontal:1 Vertical (2H:1V) upstream and downstream slope. The crest of the left embankment is about 10- to 12-feet wide and functions as a gravel access road and walking path. Existing topography functions as the left abutment. The right abutment of the left embankment ties into the left downstream training wall and auxiliary spillway. The crest of the left embankment is at the auxiliary spillway elevation and the auxiliary spillway flow passes over the left embankment in this area.

**General Condition:** Poor

**Concrete Condition:** N/A

**Stone Masonry:** N/A

**Settlement/Alignment/Movement:** There were no obvious signs of settlement observed on the left embankment crest, however vision was obstructed due to the mature trees and leafy vegetation. However, a few minor depressions were observed on the walking path on the crest of the embankment. The majority of the left embankment upstream slope and downstream slope were covered with thick brush and mature trees.

**Seepage/Foundation Drainage:** The majority of the left embankment downstream slope was covered with thick brush and mature trees. Vision was obstructed. Additionally, there is a large wetland area at the downstream toe of slope. As a result, seepage conditions could not be fully assessed due to visual obstruction due to the unwanted vegetation.

**Riprap:** The majority of the left embankment upstream slope was covered with thick brush and mature trees. Vision was obstructed. Occasional 6- to 8-inch diameter riprap was observed on the upstream slope.

**Erosion/Burrows:** The majority of the left embankment upstream and downstream slope was covered with thick brush and mature trees. Vision was obstructed. However, the upstream slope appeared to be undercut at the waterline.

**Vegetative Cover:** The upstream and downstream slope is covered with thick brush/vegetation and mature trees (up to 24-inch-diameter). There is a walking path/access road on the crest of the dam and portions of the left embankment crest are covered with thick brush/vegetation and mature trees.

**Other:** N/A

**Photos/Graphics/Sketches:** See Parts XIII and XIV below.

**Dam/Embankment/Dike Name (see instructions):** Right Embankment

**General Description:** The right embankment is an approximately 515-foot-long earthen embankment with an approximately 2 Horizontal:1 Vertical (2H:1V) upstream and downstream slope. The crest of the right embankment is about 10- to 12-feet wide at the abutment near the right downstream spillway training wall and narrows to about 2 to 3 feet wide over the remainder of the right embankment. The embankment crest functions as walking path. Existing topography functions as the right abutment. The left abutment of the right embankment ties into the right downstream training wall of the integral spillway structure. Downstream of the auxiliary spillway, the crest of the right embankment is at the auxiliary spillway elevation and the auxiliary spillway flow passes over the right embankment in this area.

**General Condition:** Poor

**Concrete Condition:** N/A

**Stone Masonry:** N/A

**Settlement/Alignment/Movement:** The right embankment crest is depressed up to 6-inches along the walking path which has exposed rocks and tree roots. Bare soil was observed and the ground surface is irregular and uneven. The right embankment upstream and downstream slope is covered with thick brush and mature trees. Vision was obscured.

**Seepage/Foundation Drainage:** Vision observed by thick brush and vegetation. There is a large wetland at the toe of the downstream slope. Therefore, possible seepage conditions could not be assessed due to obstruction caused by the unwanted vegetation.

**Riprap:** The majority of the right embankment upstream slope was covered with thick brush and mature trees. Vision was obstructed. Occasional 6- to 8-inch diameter riprap was observed on the upstream slope.

**Erosion/Burrows:** The majority of the right embankment upstream and downstream slope was covered with thick brush and mature trees. Vision was obstructed. The upstream slope is undercut at the waterline. There was

an up to 12-inch deep depressed area in the central area of the right embankment crest that appears to have been created by water overtopping the embankment.

**Vegetative Cover:** The upstream slope and downstream slope is covered with thick brush/vegetation and mature trees (up to 24-inch-diameter). There is a walking path on the crest of the dam and portions of the right embankment crest are covered with thick brush/vegetation and mature trees

**Other:** N/A

**Photos/Graphics/Sketches:** See Parts XIII and XIV below.

## Part V: Principal Spillway, Training Walls, Apron

**Number of Principal Spillways:** (1) One

**Spillway Type (see instructions):** Two broad crested weirs with stop log bays.

**General Description:** The primary spillway consists of two, approximately 7.5-foot long, broad crested weirs with stop log bays. The primary spillway is at El. 212 feet. The stop log bays are 4-feet wide and 3-feet high and the bottom of the stop log bays are at El. 209 feet. At the time of the inspection, the top of the stop logs were at the auxiliary spillway elevation. The auxiliary spillway acts as a training wall for the primary spillway when the reservoir level is below the auxiliary spillway elevation.

There are three, approximately 8-foot-long, reinforced concrete, downstream training walls which are perpendicular to the primary spillway. The three downstream training walls are connected to one another by an approximately 3.3-foot long reinforced concrete discharge apron.

**General Condition:** Poor- The primary spillway, discharge apron and downstream channel were significantly blocked with brush and mud (possible beaver activity).

**Concrete Condition:** Visible portion – Good. A significant portion of the primary spillway, discharge apron and downstream channel was either underwater or obscured with brush (possible beaver activity) and could not be viewed.

**Stone Masonry:** N/A

**Settlement/Alignment/Movement:** None observed on visible portion. A significant portion of the primary spillway, discharge apron and downstream channel was either underwater or obscured with brush (possible beaver activity) and could not be viewed.

**Cracks:** None observed on visible portion. A significant portion of the primary spillway, discharge apron and downstream channel was either underwater or obscured with brush (possible beaver activity) and could not be viewed.

**Scouring/Undermining:** None observed on visible portion. A significant portion of the primary spillway, discharge apron and downstream channel was either underwater or obscured with brush (possible beaver activity) and could not be viewed.

**Seepage/Foundation Drainage:** None observed on visible portion. A significant portion of the primary spillway, discharge apron and downstream channel was either underwater or obscured with brush (possible beaver activity) and could not be viewed.

**Other:** A 6-foot-wide, timber bridge spans between the three downstream training walls over the discharge channel. There appears to be beaver activity around the dam based on the amount of vegetative and stick debris at the primary spillway.

**Photos/Graphics/Sketches:** See Parts XIII and XIV below.

**Part VI: Auxiliary Spillway, Training Walls, Apron****Number of Auxiliary Spillways:** (1) One**Auxiliary Spillway Type (see instructions):** Broad crested weir**General Description:** The reinforced concrete, auxiliary spillway is approximately 16.5-feet long on the right side of the primary spillway and approximately 31.5-feet long on the left side of the primary spillway. The edges of the auxiliary spillway located opposite of the primary spillway have an approximately 0.5-foot high step up to 6-foot long, training walls. The auxiliary spillway is at El. 213 feet and the training walls are at El. 213.5 feet**General Condition:** Good**Concrete Condition:** Good**Stone Masonry:** N/A**Settlement/Alignment/Movement:** None observed**Cracks:** None observed**Scouring/Undermining:** Minor erosion was observed at the contact area between the right downstream training wall with the right embankment and the left downstream training wall with the left embankment.**Vegetative Cover:** Bare earth was observed on the left embankment and right embankment located downstream of the auxiliary spillway. Thick brush and vegetation was observed on the crest and upstream slopes of the embankment contacts with the auxiliary spillway training walls.**Riprap:** 6- to 8-inch-diameter riprap was observed upstream of the auxiliary spillway**Seepage/Foundation Drainage:** None observed**Other:** N/A**Photos/Graphics/Sketches:** See Parts XIII and XIV below.**Part VII: Downstream Channel****Number of Downstream Channels:** (1) One**Channel Name (see instructions), include Watercourse Name:** Goff Brook**General Description:** Goff brook consists of a riprap lined channel and transitions to a natural channel. Goff brook flows east towards Murphy Pond and the Murphy Pond Dam. The Murphy Pond Dam is over a mile east of the 1860 Reservoir Dam.**General Condition:** Satisfactory**Scouring:** None observed**Debris:** Brush debris was observed downstream in the discharge channel, likely from beaver activity.**Riprap:** Occasional 12 to 18-inch rip-rap was observed in the downstream channel.**Other:** N/A**Photos/Graphics/Sketches:** See Parts XIII and XIV below.**Part VIII: Intake Structure(s)****Number of Intake Structures:** (0) None**Part IX: Outlet Structure(s)****Number of Outlet Structures:** (0) None

## Part X: Miscellaneous Features

**List miscellaneous features:** 1860 Reservoir Dam is accessed via an unimproved dirt road on the west side of Highland Street and north of the intersection with Old Common Road. At the end of the unimproved road, there is a walking path (which is the left embankment crest) to 1860 Reservoir Dam. The dam impounds Goff Brook and forms the 1860 Reservoir impoundment.

**Photos/Graphics/Sketches:** See Parts XIII and XIV below.

## Part XI: Downstream Hazard Classification Reassessment

**Downstream Hazard Classification:** *(provide recommendation for the hazard class based on the Dam Safety regulation. See Instructions and [Appendix B.](#))*

1860 Reservoir Dam is located approximately 1,000 feet west of Highland Street. The outflow of 1860 Reservoir Dam discharges into Goff Brook which flows to the east. The immediate downstream area is undeveloped and wooded. However, residences are present on Highland Street near Goff Brook. Goff Brook passes underneath Highland Street in a culvert.

If the dam were to breach, it is unknown if the downstream area would be able to handle the added flow and it is possible water from the impoundment would flow into homes along Highland Street and damage Highland Street.

Based on an Average Daily Traffic (ADT) map available at [www.CT.Gov](http://www.CT.Gov), traffic counts available for Highland Street near the intersection with Two Rod Highway are 6,800 cars. North of this intersection on Highland Street, traffic counts are 6,600 cars.

Because of the lack of a detailed hydrologic and hydraulic analyses for 1860 Reservoir, it is unclear how extensive the damage would be from an uncontrolled dam breach. However, based on the available data, it appears raising the hazard class from **Class A (low)** to **Class BB (moderate)** or possibly **Class B (significant) hazard potential dam** may be warranted if a detailed H&H analysis confirms major property damage or probable loss of life. A detailed hydrologic and hydraulic analysis is required to determine the impact of a dam breach to determine the appropriate hazard class for the dam.

## Part XII: Recommendations *(See instructions for identifying recommendations)*

**Recommendations:** The following recommendations and remedial measures generally describe the recommended approach to address the current deficiencies at the dam. Prior to undertaking any maintenance, repairs or remedial measures, the applicability of dam safety and environmental permits should be considered.

### Studies and Analyses

1. Perform a detailed hydrologic and hydraulic (H&H) analysis to determine the appropriate spillway design flood, evaluate spillway adequacy, and evaluate overtopping potential. If overtopping is predicted, evaluate options to increase hydraulic capacity of the dam. A limited topographic survey should be performed to evaluate the spillway capacity.
2. Perform a dam breach analysis to determine if the extent of the inundation if the 1860 Reservoir Dam were to fail. Adjust the hazard class of 1860 Reservoir accordingly.

### Recurrent Maintenance Recommendations:

GZA recommends the following recurrent maintenance-level activities that can be undertaken by Owner and do not require engineering design or a dam safety permit.

1. Cut the vegetation/brush and remove trees smaller than 3-inch diameter on the left embankment, right embankment (crest and upstream slopes and downstream slopes), and at least 25 feet downstream of the embankments.
2. Develop a program to remove potential beavers at the dam.
3. Remove the brush and debris from the spillway and downstream channel.

### Dam Repairs

GZA recommends the following repairs that can be undertaken by the Owner and requires Professional Engineer oversight and a dam safety permit.

1. Remove trees greater than 3-inch diameter, including root balls, on the left embankment and right embankment (crest and upstream and downstream slopes). Coordination with the CT DEEP and the local conservation commission should be performed to establish an appropriate lateral limit for the tree removal downstream of the dam. This coordination should consider the hazard class of the dam, the extents of the wetlands, and if seepage conditions are observed once the trees are removed from the downstream slope. Fill, compact, seed and maintain grass upon completion.
2. Downstream of the auxiliary spillway, install an appropriate erosion mitigation measure (i.e. reinforced turf, riprap or concrete on portions of the right and left embankments that are downstream of the auxiliary spillway. The intent would be to mitigate the potential for auxiliary flows to cause erosion of the embankments.

## Part XIII: Photographs/Graphics *(see instructions and [Appendix C](#))*

Refer to Appendix C for Photographic Log

## Part XIV: Sketches

Refer to Appendix C and E for a Site Sketch.

### Part XV: Professional Engineer Certification

The following certification must be signed by a Professional Engineer

"I hereby certify that the information provided in this report has been examined by me and found to be true and correct in my professional judgment."



10/6/17

Signature of Professional Engineer

Date

**Matthew A. Taylor**

**Associate Principal**

**26480**

Printed Name of Professional Engineer

Title

CT P.E. Number


GZA GeoEnvironmental, Inc  
Name of Firm

Affix P.E. Stamp Here



**Part XVI: Owner Signature**

The following statement must be signed by the Owner(s) of the subject Dam.

"The information provided in this report has been examined by me."	
	10/14/2017
Signature of Owner	Date
Jeff Bridges (Town of Wethersfield)	Town Manager
Name of Owner (print or type)	Title (if applicable)
Signature of Owner	Date
Name of Owner (print or type)	Title (if applicable)
Signature of Owner	Date
Name of Owner (print or type)	Title (if applicable)
Signature of Owner	Date
Name of Owner (print or type)	Title (if applicable)

**Note: Mail the completed inspection report to:**

**DAM SAFETY PROGRAM**  
**INLAND WATER RESOURCES DIVISION**  
**CONNECTICUT DEPARTMENT OF ENERGY AND ENVIRONMENTAL PROTECTION**  
**79 ELM STREET**  
**HARTFORD, CT 06106**

In addition, please send this completed report converted to Adobe portable document format (pdf) including a scan of the signature page via email to: [DEEP.DamSafety@ct.gov](mailto:DEEP.DamSafety@ct.gov)



**APPENDIX A**

**OVERALL DAM CONDITION SELECTION STANDARDS**

## Appendix A: Overall Dam Condition Selection Standards

Condition	Definition
<b>Good</b>	Through file research and after a thorough visual inspection it has been determined that the dam is well maintained and no existing dam safety deficiencies are recognized. Only continued routine maintenance is required.
<b>Satisfactory</b>	Through file research and after a thorough visual inspection it has been determined that no significant deficiencies are recognized. Only minor maintenance is required and only minor flaws are noted.
<b>Fair</b>	Through file research and after a thorough visual inspection it has been determined that there are no critical deficiencies with the dam that would require engineering analysis with the following exception: the engineer may recommend that a hydrologic and hydraulic analysis be conducted due to the lack of adequate freeboard and/or the lack of spillway capacity documentation. A condition exists at the dam that may require some sort of additional monitoring.
<b>Poor</b>	Through file research and after a thorough visual inspection it has been determined that deficiencies are recognized that require engineering analysis and/or remedial action.
<b>Unsatisfactory</b>	Through file research and after a thorough visual inspection it has been determined that a deficiency is recognized that requires immediate or emergency action. Administrative/Enforcement action may be required as determined by the Dam Safety Program. Reservoir level restrictions may be necessary until the problem is resolved.

**APPENDIX B**

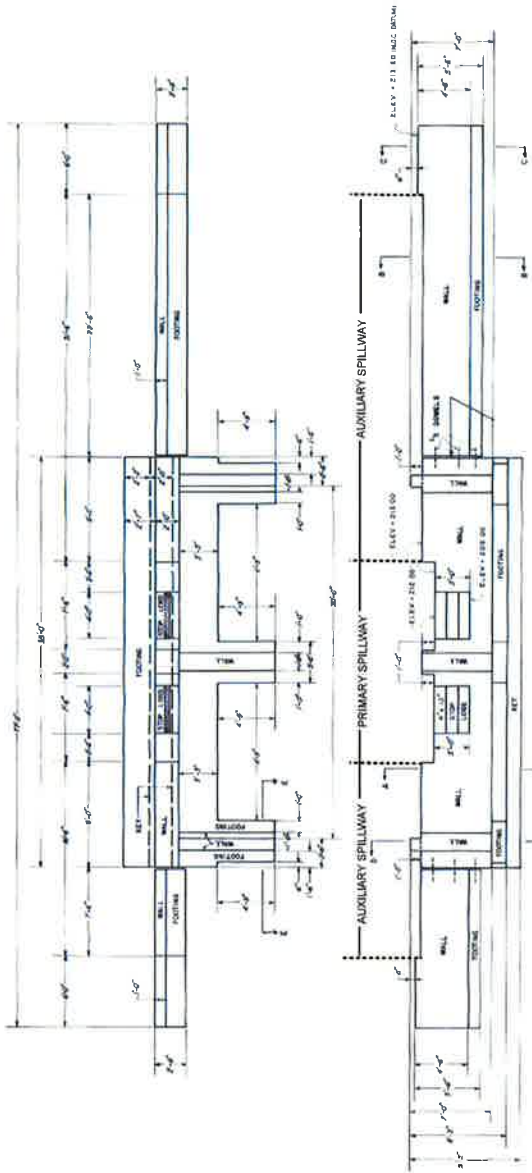
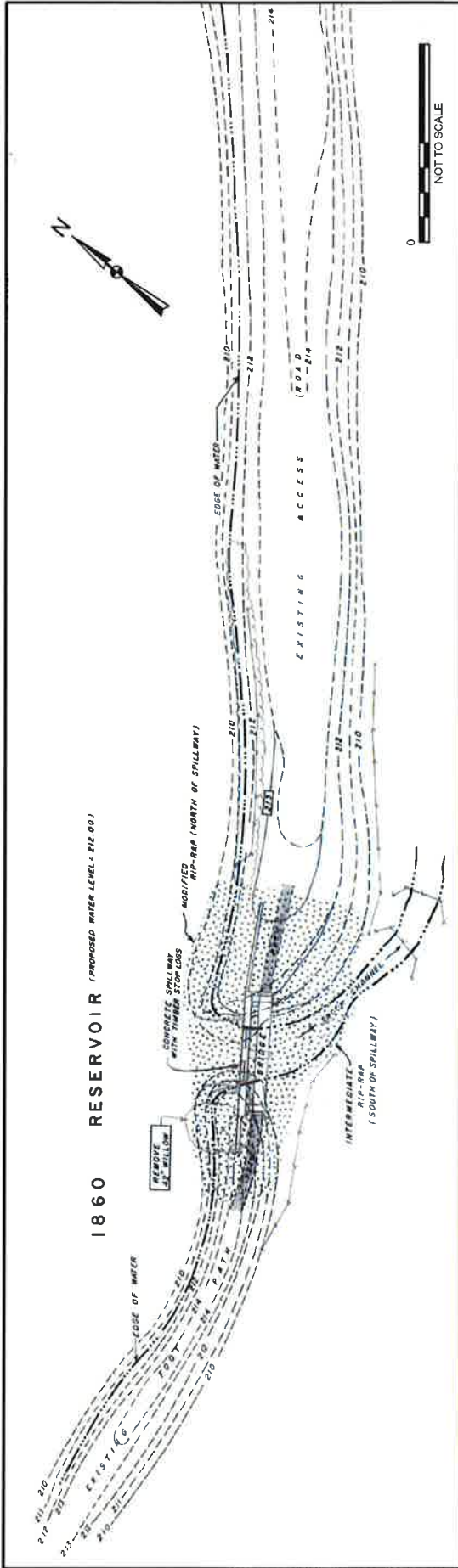
**HAZARD CLASSIFICATION DAMS**

## Appendix B - Hazard Classification of Dams

- I. A Class AA dam is a negligible hazard potential dam which, if it were to fail, would result in the following:**
- (i) no measurable damage to roadways;
  - (ii) no measurable damage to land and structures;
  - (iii) negligible economic loss.
- II. A Class A dam is a low hazard potential dam which, if it were to fail, would result in any of the following:**
- (i) damage to agricultural land;
  - (ii) damage to unimproved roadways (less than 100 ADT);
  - (iii) minimal economic loss.
- III. A Class BB dam is a moderate hazard potential dam which, if it were to fail, would result in any of the following:**
- (i) damage to normally unoccupied storage structures;
  - (ii) damage to low volume roadways (less than 500 ADT);
  - (iii) moderate economic loss.
- IV. A Class B dam is a significant hazard potential dam which, if it were to fail, would result in any of the following:**
- (i) possible loss of life;
  - (ii) minor damage to habitable structures, residences, hospitals, convalescent homes, schools, etc;
  - (iii) damage to or interruption of the use of service of utilities;
  - (iv) damage to primary roadways (less than 1500 ADT) and railroads;
  - (v) significant economic loss.
- V. A Class C dam is a high hazard potential dam which, if it were to fail, would result in any of the following:**
- (i) probable loss of life;
  - (ii) major damage to habitable structures, residences, hospitals, convalescent homes, schools, etc;
  - (iii) damage to main highways (greater than 1500 ADT);
  - (iv) great economic loss.

**APPENDIX C**

**PHOTO LOCATION PLAN AND PHOTO LOG WITH SITE SKETCH**



1860 RESERVOIR  
PLAN AND ELEVATION VIEW  
1" = 10'

- NOTES:
1. BASEMAP DEVELOPED FROM A PLAN ENTITLED "FLOOD ENCROACHMENT CONTROL BOARD APPLICATION, PROPOSED SPILLWAY, 1860 RESERVOIR POND", BY TOWN OF WETHERSFIELD ENGINEERING DIVISION, DATED MARCH 17, 1992, ORIGINAL SCALE 1"=20', SHEET NO. 1 OF 4.
  2. DAM INSPECTION PERFORMED BY GZA PERSONNEL ON SEPTEMBER 27, 2016.

PREPARED BY: <b>GZA</b> GeoEnvironmental, Inc. Engineers and Scientists www.gza.com		PROJECT NO.: 05.0045966.00 SHEET NO.: 3	
CHECKED BY: MAT	DRAWN BY: LKC	SCALE: N.T.S.	REVISION NO.:
DATE: MARCH 2017	PROJECT NO.: 05.0045966.00	SHEET NO.: 3	REVISION NO.:
<b>SITE SKETCH</b>			
1860 RESERVOIR OLD RESERVOIR ROAD OFF TWO ROD HIGHWAY WETHERSFIELD, CONNECTICUT			
PREPARED FOR: TOWN OF WETHERSFIELD ENGINEERING DIVISION WETHERSFIELD, CONNECTICUT			





Client Name:

Town of Wethersfield

Site Location:

1860 Reservoir, Wethersfield, CT

Project No.:

05.0045906.00

Photo No.:  
01

Date:  
9/27/16

Direction Photo Taken:  
Northeasterly

Photographer:  
D. Barstow

**Description:**

Overview of the spillway looking downstream from the upstream slope of the right embankment.



Photo No.:  
02

Date:  
9/27/16

Direction Photo Taken:  
Southwesterly

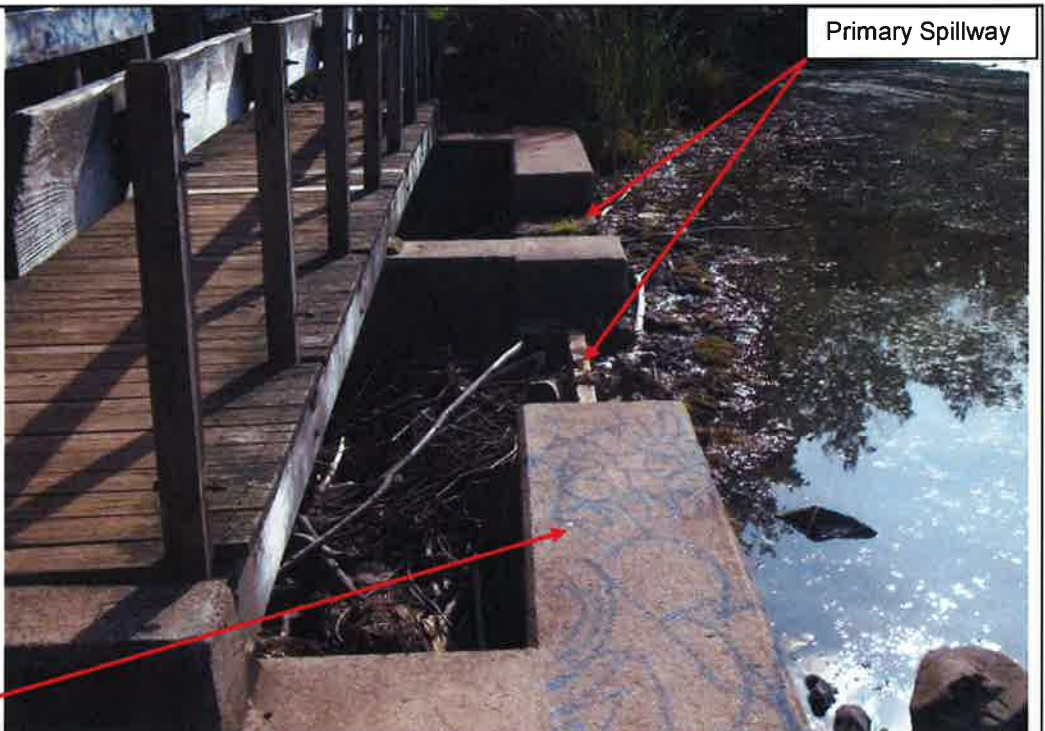
Photographer:  
D. Barstow

**Description:**

Overview of primary spillway looking towards the right embankment from the left embankment.

Note the woody debris in the downstream channel (possible beaver activity).

Auxiliary Spillway



Primary Spillway





Client Name:

Town of Wethersfield

Site Location:

1860 Reservoir, Wethersfield, CT

Project No.:

05.0045906.00

Photo No.: 03 Date: 9/27/16

Direction Photo Taken: Southwesterly

Photographer: D. Barstow

Description:

Overview of the primary spillway, auxiliary spillway, and left embankment crest looking towards the spillway from the left embankment crest.

Note thick vegetation, brush and mature trees on the upstream and downstream slope of the left embankment.



Auxiliary Spillway

Photo No.: 04 Date: 9/27/16

Direction Photo Taken: Southwesterly

Photographer: D. Barstow

Description:

Overview of the upstream slope of the right embankment looking towards the right abutment from the primary spillway.

Note thick vegetation, brush and mature trees on the right embankment.



Primary Spillway



Client Name:

Town of Wethersfield

Site Location:

1860 Reservoir, Wethersfield, CT

Project No.:

05.0045906.00

Photo No.: 05 Date: 9/27/16

Direction Photo Taken: Southwesterly

Photographer: D. Barstow

Description:

Overview of the right embankment crest, upstream slope and downstream slope looking towards the right abutment from the auxiliary spillway.

Note thick vegetation, brush and mature trees. The right embankment crest is depressed from use as a walking path.



Downstream

Upstream

Photo No.: 06 Date: 9/27/16

Direction Photo Taken: Southwesterly

Photographer: D. Barstow

Description:

Overview of the upstream slope of the right embankment looking towards the right abutment from the upstream slope of the right embankment.

Note thick vegetation, brush and mature trees.





**Client Name:**

Town of Wethersfield

**Site Location:**

1860 Reservoir, Wethersfield, CT

**Project No.:**

05.0045906.00

**Photo No.:**  
07

**Date:**  
9/27/16

**Direction Photo Taken:**  
Northeasterly

**Photographer:**  
D. Barstow

**Description:**

Overview of the upstream slope of the right embankment looking towards the primary spillway from the upstream slope of the right embankment.

Note the thick brush and mature trees on the upstream slope and crest.



**Photo No.:**  
08

**Date:**  
9/27/16

**Direction Photo Taken:**  
Northeasterly

**Photographer:**  
D. Barstow

**Description:**

Overview of the upstream slope and crest of the left embankment looking towards the left abutment from the auxiliary spillway.

Note the thick brush and mature trees on the upstream slope and crest.



Auxiliary Spillway



**Client Name:**

Town of Wethersfield

**Site Location:**

1860 Reservoir, Wethersfield, CT

**Project No.:**

05.0045906.00

**Photo No.:**  
09      **Date:**  
9/27/16

**Direction Photo Taken:**  
Northeasterly

**Photographer:**  
D. Barstow

**Description:**

Overview of the left embankment crest looking from the spillway towards the left abutment.

Note the thick brush.



Upstream

Downstream

**Photo No.:**  
10      **Date:**  
9/27/16

**Direction Photo Taken:**  
Southwesterly

**Photographer:**  
D. Barstow

**Description:**

Overview of the left embankment crest looking from the left abutment towards the spillways.




Downstream

Upstream



<b>Client Name:</b> Town of Wethersfield	<b>Site Location:</b> 1860 Reservoir, Wethersfield, CT	<b>Project No.:</b> 05.0045906.00
---	---	--------------------------------------

<b>Photo No.:</b> 11	<b>Date:</b> 9/27/16	
<b>Direction Photo Taken:</b> Northwesterly		
<b>Photographer:</b> D. Barstow		
<b>Description:</b>  Overview of reservoir area looking upstream from the timber bridge over the spillways.		

<b>Photo No.:</b> 12	<b>Date:</b> 9/27/16	
<b>Direction Photo Taken:</b> Northwesterly		
<b>Photographer:</b> D. Barstow		
<b>Description:</b>  Overview of left notched stop log bay of the primary spillway, looking upstream from the timber bridge.  Note the built-up sediment on upstream side of the stop logs and wood debris on upstream and downstream sides of the stop logs.		



**Client Name:**  
Town of Wethersfield

**Site Location:**  
1860 Reservoir, Wethersfield, CT

**Project No.:**  
05.0045906.00

**Photo No.:** 13  
**Date:** 9/27/16

**Direction Photo Taken:**  
Northwesterly

**Photographer:**  
D. Barstow

**Description:**

Overview of right notched stop log bay of the primary spillway, looking upstream from the timber bridge.

Note the built-up sediment on upstream side of the stop logs and wood debris on the upstream and downstream sides of the stop logs.



**Photo No.:** 14  
**Date:** 9/27/16

**Direction Photo Taken:**  
Southeasterly

**Photographer:**  
D. Barstow

**Description:**

Overview of downstream channel looking downstream from the timber bridge. Note the sticks and logs in the downstream channel.





**Client Name:**

Town of Wethersfield

**Site Location:**

1860 Reservoir, Wethersfield, CT

**Project No.:**

05.0045906.00

**Photo No.:**  
15

**Date:**  
9/27/16

**Direction Photo Taken:**  
Southwesterly

**Photographer:**  
D. Barstow

**Description:**

Overview of the right embankment crest and slopes looking towards the right abutment.

Note the mature trees and thick brush, exposed roots and soil on the crest, and slopes. The crest is depressed from use as a walking path and possible scour due to overtopping.



Downstream

Upstream

## **APPENDIX D**

### **LIMITATIONS**





## USE OF REPORT

1. GeoEnvironmental, Inc. (GZA) prepared this report on behalf of, and for the exclusive use of the Town of Wethersfield (Client) for 1860 Reservoir and for the stated purpose(s) and location(s) identified in the Report. Use of this report, in whole or in part, at other locations, or for other purposes, may lead to inappropriate conclusions; and we do not accept any responsibility for the consequences of such use(s). Further, reliance by any party not identified in the agreement, for any use, without our prior written permission, shall be at that party's sole risk, and without any liability to GZA.

## STANDARD OF CARE

2. Our findings and conclusions are based on the work conducted as part of the Scope of Services set forth in the Report and/or proposal, and reflect our professional judgment. These findings and conclusions must be considered not as scientific or engineering certainties, but rather as our professional opinions concerning the limited data gathered during the course of our work. Conditions other than described in this report may be found at the subject location(s).
3. Our services were performed using the degree of skill and care ordinarily exercised by qualified professionals performing the same type of services at the same time, under similar conditions, at the same or a similar property. No warranty, expressed or implied, is made.

## SUBSURFACE CONDITIONS

4. If presented, the generalized soil profile(s) and description, along with the conclusions and recommendations provided in our Report, are based in part on widely-spaced subsurface explorations by GZA and/or others, with a limited number of soil and/or rock samples and groundwater /piezometers data and are intended only to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized, and were based on our assessment of subsurface conditions. The composition of strata, and the transitions between strata, may be more variable and more complex than indicated. For more specific information on soil conditions at a specific location refer to the exploration logs. The nature and extent of variations between these explorations may not become evident until further exploration or construction. If variations or other latent conditions then appear evident, it will be necessary to reevaluate the conclusions and recommendations of this report.
5. Water level readings have been made in test holes (as described in the Report), monitoring wells and piezometers, at the specified times and under the stated conditions. These data have been reviewed and interpretations have been made in this Report. Fluctuations in the groundwater and piezometer levels, however, occur due to temporal or spatial variations in areal recharge rates, soil heterogeneities, reservoir and tailwater levels, the presence of subsurface utilities, and/or natural or artificially induced perturbations.

## GENERAL

6. The observations described in this report were made under the conditions stated therein. The conclusions presented were based solely upon the services described therein, and not on scientific tasks or procedures beyond the scope of described services or the time and budgetary constraints imposed by the Client.
7. In preparing this report, GZA relied on certain information provided by the Client, state and local officials, and other parties referenced therein available to GZA at the time of the evaluation. GZA did not attempt to independently verify the accuracy or completeness of all information reviewed or received during the course of this evaluation.
8. Any GZA hydrologic analysis presented herein is for the rainfall volumes and distributions stated herein. For storm conditions other than those analyzed, the response of the site's spillway, impoundment, and drainage network has not been evaluated.



9. Observations were made of the site and of structures on the site as indicated within the report. Where access to portions of the structure or site, or to structures on the site was unavailable or limited, GZA renders no opinion as to the condition of that portion of the site or structure. In particular, it is noted that water levels in the impoundment and elsewhere and/or flow over the spillway may have limited GZA's ability to make observations of underwater portions of the structure. Excessive vegetation, when present, also inhibits observations.
10. In reviewing this Report, it should be realized that the reported condition of the dam is based on observations of field conditions during the course of this study along with data made available to GZA. It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through continued inspection and care can there be any chance that unsafe conditions be detected.

#### **COMPLIANCE WITH CODES AND REGULATIONS**

11. We used reasonable care in identifying and interpreting applicable codes and regulations. These codes and regulations are subject to various, and possibly contradictory, interpretations. Compliance with codes and regulations by other parties is beyond our control.
12. This scope of work does not include an assessment of the need for fences, gates, no-trespassing signs, repairs to existing fences and railings and other items which may be needed to minimize trespass and provide greater security for the facility and safety to the public. An evaluation of the project for compliance with OSHA rules and regulations is also excluded.

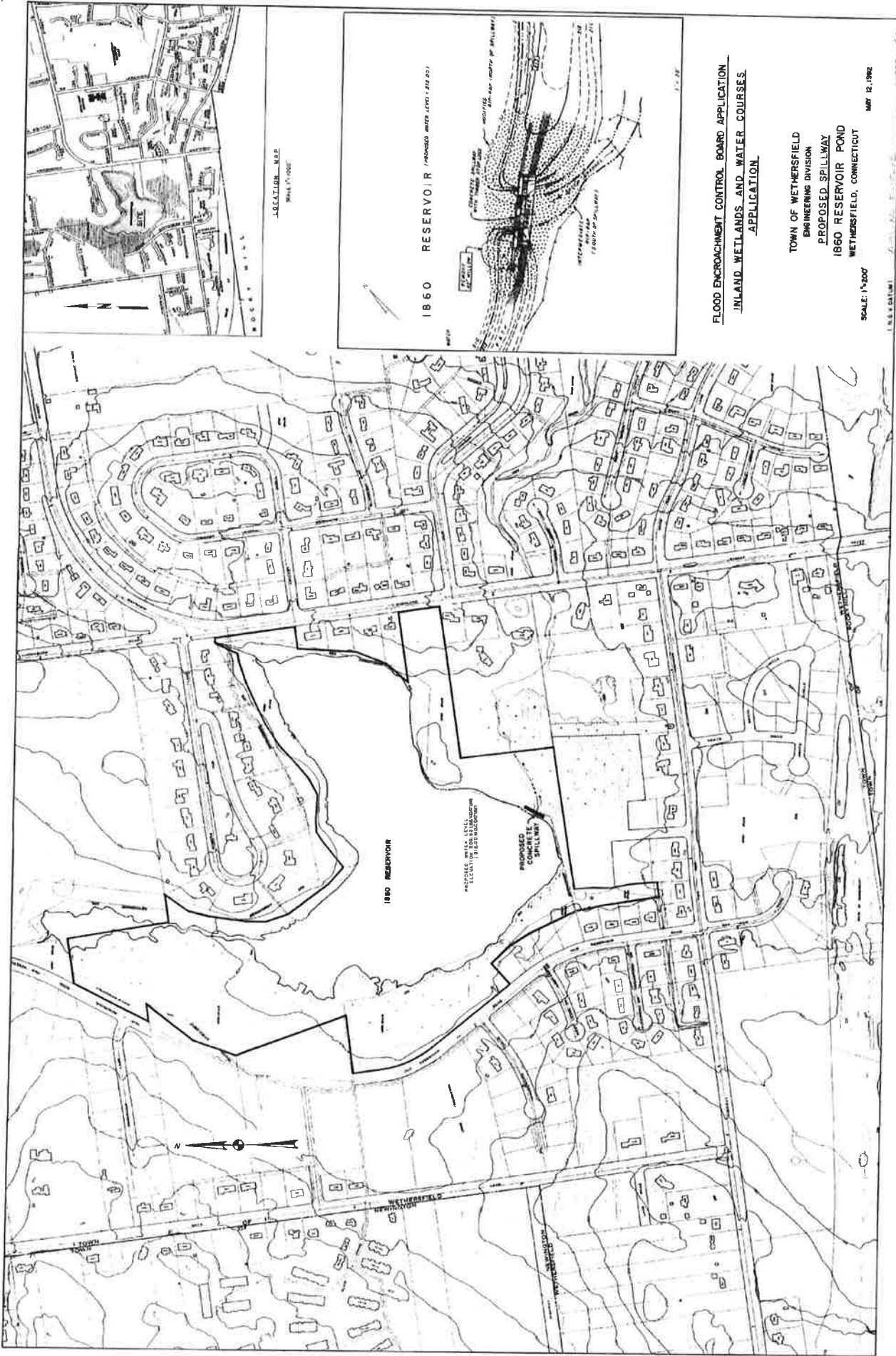
#### **COST ESTIMATES**

13. Unless otherwise stated, our cost estimates are for comparative, or general planning purposes. These estimates may involve approximate quantity evaluations and may not be sufficiently accurate to develop construction bids, or to predict the actual cost of work addressed in this Report. Further, since we have no control over the labor and material costs required to plan and execute the anticipated work, our estimates were made using our experience and readily available information. Actual costs may vary over time and could be significantly more, or less, than stated in the Report.

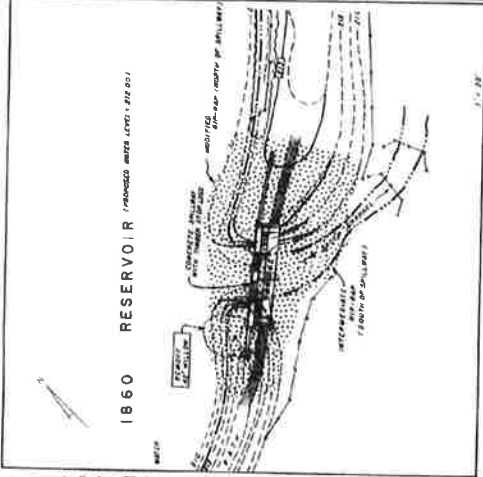
#### **ADDITIONAL SERVICES**

14. It is recommended that GZA be retained to provide services during any future: site observations, explorations, evaluations, design, implementation activities, construction and/or implementation of remedial measures recommended in this Report. This will allow us the opportunity to: i) observe conditions and compliance with our design concepts and opinions; ii) allow for changes in the event that conditions are other than anticipated; iii) provide modifications to our design; and iv) assess the consequences of changes in technologies and/or regulations.

**APPENDIX E**  
**HISTORIC DRAWINGS**



LOCATION MAP  
WETHERSFIELD



1860 RESERVOIR (PROPOSED) MAP

FLOOD ENCROACHMENT CONTROL BOARD APPLICATION  
INLAND WETLANDS AND WATER COURSES  
APPLICATION

TOWN OF WETHERSFIELD  
ENGINEERING DIVISION  
PROPOSED SPILLWAY  
1860 RESERVOIR POND  
WETHERSFIELD, CONNECTICUT

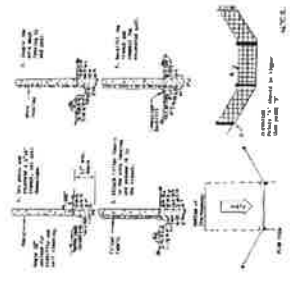
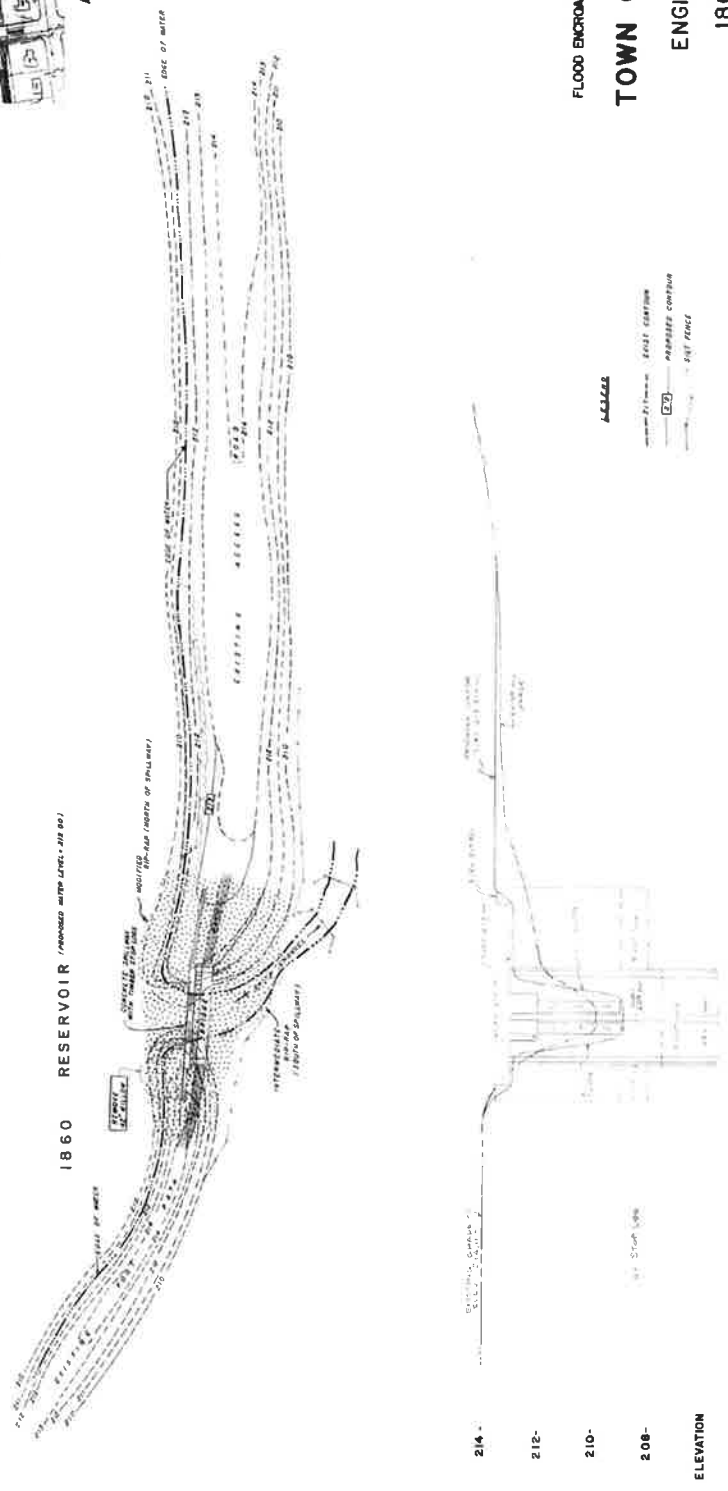
SCALE: 1"=200'

MAY 12, 1982



- NOTES:
1. WMA RESTRICTIONS TO BE SHOWN BY SHADING - 215 TO 180 FT. FROM SPILLWAY DOWNSTREAM TO WMA - 205 TO 180 FT. FROM SPILLWAY.
  2. ALL FILL STRUCTURES TO BE INSTALLED PRIOR TO CONSTRUCTION.
  3. EXCEPTED 4" YELLOW PAINT TO BE SHOWN.
  4. ALL WMA FILL SHALL BE PROCEEDED FROM STAKE OFF THE SPILLWAY TO THE 180 FT. MARK.
  5. WMA RESTRICTIONS SHALL BE SHOWN BY SHADING - 215 TO 180 FT. FROM SPILLWAY DOWNSTREAM TO WMA - 205 TO 180 FT. FROM SPILLWAY.
  6. WMA RESTRICTIONS SHALL BE SHOWN BY SHADING - 215 TO 180 FT. FROM SPILLWAY DOWNSTREAM TO WMA - 205 TO 180 FT. FROM SPILLWAY.
  7. THE ASSISTANT ATTORNEY GENERAL HAS REVIEWED THIS PLAN AND HAS DETERMINED THAT IT IS IN ACCORDANCE WITH THE WMA RESTRICTIONS.
  8. ALL EXCESS EXCAVATED MATERIAL WILL BE REMOVED FROM THE SITE.

1860 RESERVOIR (REVISED WATER LEVEL - 210.00)



FLOOD ENCROACHMENT CONTROL BOARD APPLICATION  
**TOWN OF WETHERSFIELD**  
ENGINEERING DIVISION  
1860 RESERVOIR

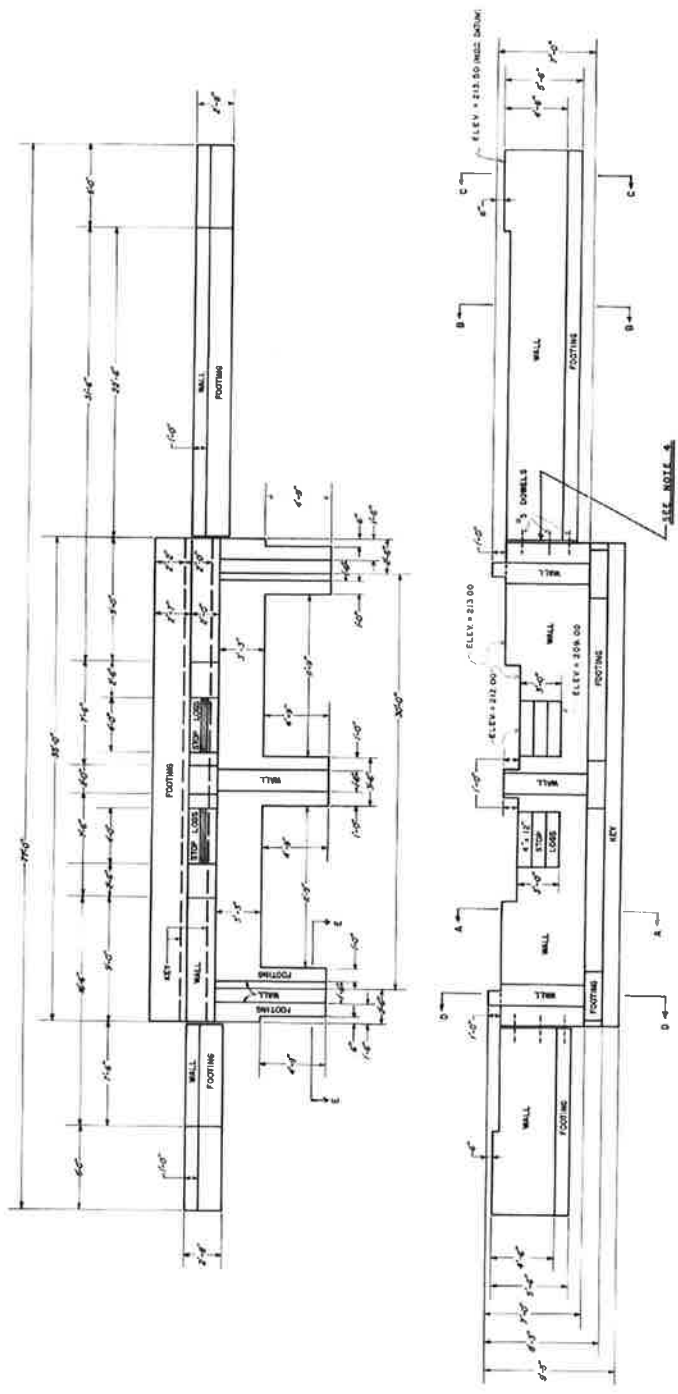
PROPOSED CONCRETE SPILLWAY  
DRAWN BY: APY. SCALE: 1" = 20'  
DATE: MARCH 17, 1992

APPROVED  
DATE: 3/17/92  
BY: [Signature]

WARNING - M.S.C. VERTICAL DATUM USED

SPILLWAY CROSS-SECTION  
SCALE: 1" = 10' HORIZ.  
1" = 2' VERT.

214 -  
212 -  
210 -  
208 -  
ELEVATION

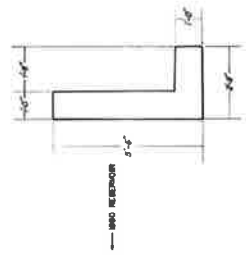


- NOTES:
1. Concrete shall be 1,000
  2. Concrete shall be vibrated during placement.
  3. All concrete shall be grade 40.
  4. Section between walls shall be cast in place concrete with mastic dowels on joint with mastic dowels to be used as shown.

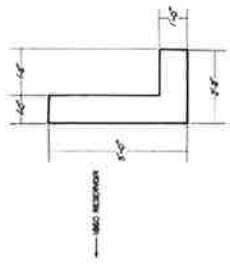
TOWN OF WETHERSFIELD	
1960 RESERVOIR SPILLWAY	
ENGINEERING DIVISION	DATE: D.A.S.
SPILLWAY PLANS	
NO. 2	2 of 2
DATE: 1954	NO. 47200

Reinforcement Schedule

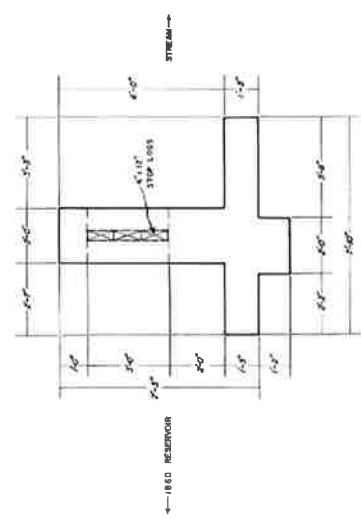
Bar	Size	Length	Quantity	Name
1	1/2"	10'-0"	12	SECTION 1 - 1/2" REINFORCEMENT BARS
2	1/2"	10'-0"	12	SECTION 2 - 1/2" REINFORCEMENT BARS
3	1/2"	10'-0"	12	SECTION 3 - 1/2" REINFORCEMENT BARS
4	1/2"	10'-0"	12	SECTION 4 - 1/2" REINFORCEMENT BARS
5	1/2"	10'-0"	12	SECTION 5 - 1/2" REINFORCEMENT BARS
6	1/2"	10'-0"	12	SECTION 6 - 1/2" REINFORCEMENT BARS
7	1/2"	10'-0"	12	SECTION 7 - 1/2" REINFORCEMENT BARS
8	1/2"	10'-0"	12	SECTION 8 - 1/2" REINFORCEMENT BARS
9	1/2"	10'-0"	12	SECTION 9 - 1/2" REINFORCEMENT BARS
10	1/2"	10'-0"	12	SECTION 10 - 1/2" REINFORCEMENT BARS
11	1/2"	10'-0"	12	SECTION 11 - 1/2" REINFORCEMENT BARS
12	1/2"	10'-0"	12	SECTION 12 - 1/2" REINFORCEMENT BARS
13	1/2"	10'-0"	12	SECTION 13 - 1/2" REINFORCEMENT BARS
14	1/2"	10'-0"	12	SECTION 14 - 1/2" REINFORCEMENT BARS
15	1/2"	10'-0"	12	SECTION 15 - 1/2" REINFORCEMENT BARS
16	1/2"	10'-0"	12	SECTION 16 - 1/2" REINFORCEMENT BARS
17	1/2"	10'-0"	12	SECTION 17 - 1/2" REINFORCEMENT BARS
18	1/2"	10'-0"	12	SECTION 18 - 1/2" REINFORCEMENT BARS
19	1/2"	10'-0"	12	SECTION 19 - 1/2" REINFORCEMENT BARS
20	1/2"	10'-0"	12	SECTION 20 - 1/2" REINFORCEMENT BARS
21	1/2"	10'-0"	12	SECTION 21 - 1/2" REINFORCEMENT BARS
22	1/2"	10'-0"	12	SECTION 22 - 1/2" REINFORCEMENT BARS
23	1/2"	10'-0"	12	SECTION 23 - 1/2" REINFORCEMENT BARS
24	1/2"	10'-0"	12	SECTION 24 - 1/2" REINFORCEMENT BARS
25	1/2"	10'-0"	12	SECTION 25 - 1/2" REINFORCEMENT BARS
26	1/2"	10'-0"	12	SECTION 26 - 1/2" REINFORCEMENT BARS
27	1/2"	10'-0"	12	SECTION 27 - 1/2" REINFORCEMENT BARS
28	1/2"	10'-0"	12	SECTION 28 - 1/2" REINFORCEMENT BARS
29	1/2"	10'-0"	12	SECTION 29 - 1/2" REINFORCEMENT BARS
30	1/2"	10'-0"	12	SECTION 30 - 1/2" REINFORCEMENT BARS



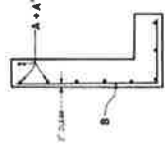
CONCRETE OUTLINES  
CROSS SECTION OF "C"  
SCALE: 1/8" = 1/2"



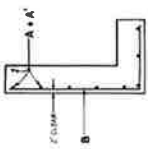
CONCRETE OUTLINES  
CROSS SECTION OF "B"  
SCALE: 1/8" = 1/2"



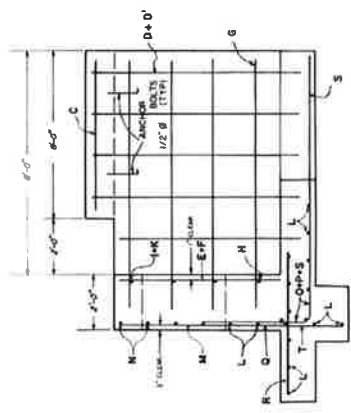
CONCRETE OUTLINES  
CROSS SECTION OF "A"  
SCALE: 1/8" = 1/2"



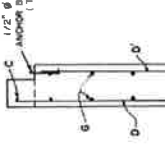
REINFORCEMENT OUTLINES  
CROSS SECTION OF "C"  
SCALE: 1/8" = 1/2"



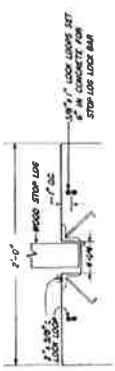
REINFORCEMENT OUTLINES  
CROSS SECTION OF "B"  
SCALE: 1/8" = 1/2"



REINFORCEMENT OUTLINES  
CROSS SECTION OF "D"  
SCALE: 1/8" = 1/2"



REINFORCEMENT OUTLINES  
CROSS SECTION OF "E"  
SCALE: 1/8" = 1/2"



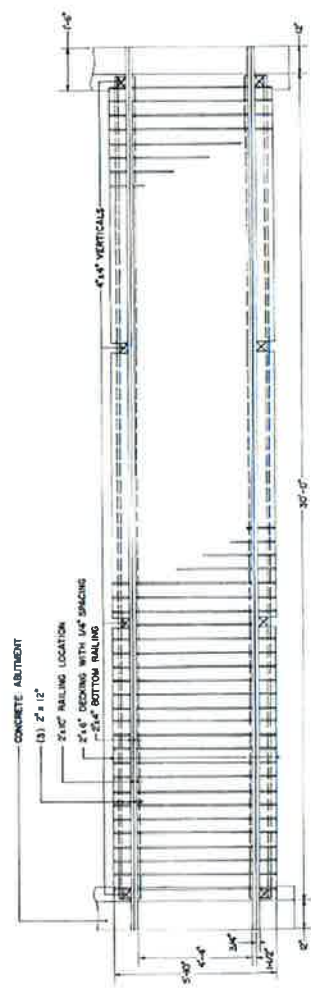
TYPICAL DETAIL OF STOP LOG SLOTS  
NOT TO SCALE



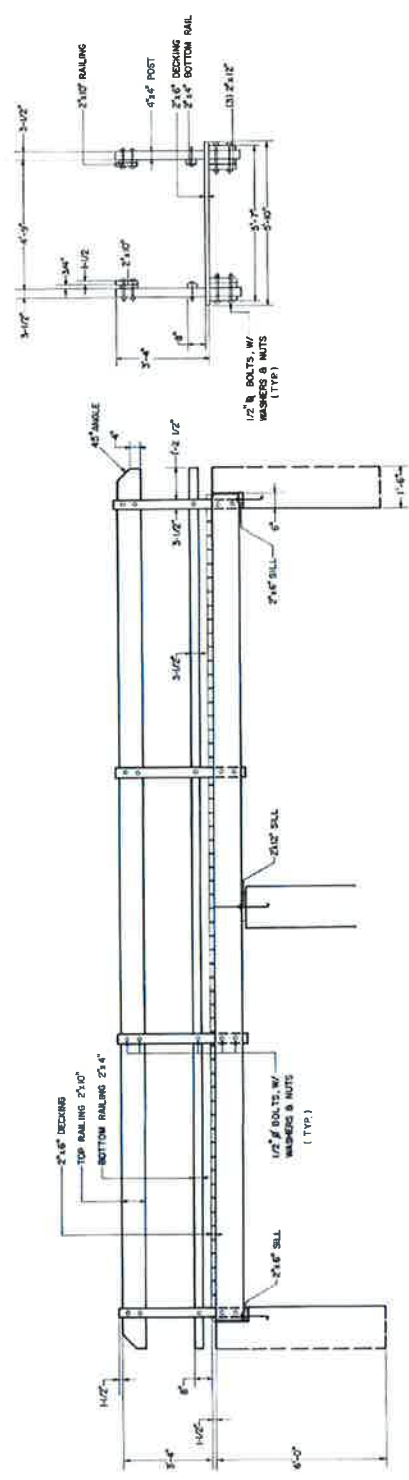
TYPICAL LOCK LOOPS (B)  
NOT TO SCALE

- NOTES:
1. ALL CONCRETE TO BE 3,000 P.S.I.
  2. CONCRETE SHALL BE VIBRATED DURING PLACEMENT.
  3. REINFORCEMENT SHALL BE PLACED WITH PROPER SPACING BETWEEN WALLS AS SHOWN.
  4. REINFORCEMENT SHALL BE PLACED AS SHOWN.

TOWN OF WETHERSFIELD	
1860 RESERVOIR - SHILLING	
ENGINEERING DIVISION	D.A.S.
DETAILS	
DATE	3-15-4
BY	W.P.R.



- NOTE: Timber shall be pressure treated
1. Southern Pine No. 2 all finish and
  2. Redwood No. 2 all temporary
  3. All other timbers shall be of equal or better quality of the same species as specified in the contract documents, and shall be of the same species as specified in the contract documents.
  4. All concrete shall be of the same quality as specified in the contract documents.



TOWN OF WETHERFIELD	
1850 RESERVOIR SPILLWAY	
ENGINEERING DIVISION	10/21/17
DATE	10/21/17
FOOTBRIDGE PLANS	
SCALE	AS SHOWN
PROJECT NO.	1850-17-001
DATE	10/21/17
BY	J.P.
CHECKED	J.P.
APPROVED	J.P.