

LONG LAKE LEVEL CONTROL STRUCTURE PART 307 INSPECTION

Dam Identification No.: 2555
Hazard Potential: Low
Section 17, T. 16 N. – R.08 W.
Chippewa Township, Mecosta County, Michigan



Per Part 307, Act 451 of 1994
PREPARED FOR:

*Mecosta County Drain Commissioner
Jackie Fitzgerald
14485 Northland Drive, Rm. 105
Big Rapids, MI 49307*

jfitzger@co.mecosta.mi.us

PREPARED BY:

Spicer Group, Inc.

INSPECTED BY:

Joel G. Morgan, P.E. #62771
Charles R. Smith, EIT

Date of Inspection: April 4, 2017
Date of Report: April 2017

Project I.D. Number 124563SG2017

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Part 307 Dam Inspection Form1

Appendix A

MDEQ Inventory of Dam

Appendix B

Photographs



MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
LAND AND WATER MANAGEMENT DIVISION
DAM INSPECTION REPORT

This form is to be used for inspection reports required by Part 307, Inland Lake Levels, for those dams that do not meet the size criteria as defined by Part 315, Dam Safety, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended. Dams six (6) feet or more in height, as defined by Part 315, and impounding five (5) acres or more at the design flood elevation, must meet the inspection report format as outlined in Section 31518 of Part 315.

A person failing to comply, or falsely representing dam conditions, is guilty of misconduct in office.

DAM NAME LONG LAKE DAM		DAM ID 2555	COUNTY MECOSTA
DATE OF INSPECTION 4/4/2017	NAME OF WATERBODY LONG LAKE	SECTION, TOWN, RANGE Sec. <u>17</u> T. <u>16N</u> R. <u>8W</u>	LEVEL THIS DATE 1112.50
DATE ELEVATION SET BY COURT August 23, 1993	LEGAL LEVEL 1112.50	DRAWDOWN LEVEL 1112.50	HIGH WATER MARK ELEVATION N/A

EARTH EMBANKMENTS LEFT EMBANKMENT _____ FT. RIGHT EMBANKMENT _____ FT. TOTAL LENGTH 150 FT.
(LOOKING DOWNSTREAM) **Steel Sheet Piling 164'**

	UPSTREAM	CROWN	DOWNSTREAM
VEGETATIVE COVER	GRASS WETLANDS	N/A - SHEETING	GRASS AND BRUSH
EROSION	NONE VISIBLE	NONE VISIBLE	NONE VISIBLE
SEEPAGE			MINOR ALONG SHEETPILE; SOME SPURTING OBSERVED ON LEFT SIDE OF SHEETPILE
SLIDES, SLUMPS & CRACKS	NONE VISIBLE	NONE VISIBLE	NONE VISIBLE
ANIMAL BURROWS	NONE VISIBLE	NONE VISIBLE	8" Dia burrow on left downstream toe of sheetpile. Extends under concrete spillway
WAVE ACTION PROTECTION	NATURAL WOODLANDS		N/A
REMARKS*			

CONTROL STRUCTURE

TYPE STEEL SHEET PILING	YEAR CONSTRUCTED 1995	STRUCTURAL HEIGHT (top of dam elevation minus stream invert) 6'
LENGTH OF SPILLWAY 15'	FREEBOARD 3'	HYDRAULIC HEIGHT (design flood elevation minus stream invert) 3'
VERTICAL PIPE SIZE N/A	HORIZONTAL PIPE SIZE N/A	HEAD (normal headwater 3' minus normal tailwater)

DESCRIBE CONDITION OF THE FOLLOWING ITEMS.

STOPLOG VALVES AND GATES (open and close to check condition): Check location of top stoplog in relation to top of riser pipe intake box or fixed crest, for leakage, and condition of stoplogs, valves and gates. N/A
OUTLET PIPE: Check for damage from ice, logs, vandalism; inside discharge pipe for settlement and/or joint separation; condition of pipe coating. N/A

CONTROL STRUCTURE (continued)

CONCRETE STRUCTURE: Check for erosion; location of cracking or spalling. If old or new; settlement; need for crack repairs. CONCRETE SPASHPAD – Fair condition. Portions have cracked and settled. It appears an animal burrow extends beneath the spillway and may cause further settlement or cracking.	
WALKWAY & RAILING: Check if in place or removed, condition, and if adequate protection provided. N/A	TRASHRACK OR LOG BOOM: Check if operable. N/A
EMERGENCY SPILLWAY: Size, type, and condition. N/A	

INLET & OUTLET CHANNELS


	INLET	OUTLET
SIZE	800' CLEAR	3' – 4'
EXISTING CONDITION	GOOD	FAIR BRUSH AND GRASS
EROSION	NONE VISIBLE	NONE VISIBLE
DEBRIS & OBSTRUCTIONS	SHEET METAL WEIR	NONE VISIBLE
RIPRAP PROTECTION	N/A	N/A
REMARKS*	MINOR SEEPAGE THROUGH SHEET METAL	6" FROM WEIR TO SEDIMENTATION

RECOMMENDATIONS

List work needed, how to be done, by whom, estimated cost, source of funds, recommended completion date. If emergency, to what extent. ADDITIONAL COMMENTS. SEDIMENT SHOULD BE REMOVED UPSTREAM OF THE STRUCTURE WHEN IT REACHES THE CREST ELEVATION.
Inspection Ordered By: <u>Jackie Fitzgerald</u> Mecosta County Drain Commissioner County Delegated Agent

Joel G. Morgan, P.E.

INSPECTOR'S NAME (PRINTED)



SIGNATURE

62771
P.E. REGISTRATION NO.

ADDRESS
Spicer Group, Inc.

1400 Zeeb Dr.

CITY, STATE, ZIP CODE
St. Johns MI, 48879

TELEPHONE NUMBER
(989) 224-2355

Please submit this completed report and photographs of the dam, downstream channel, and deficiencies cited in the report to:

DAM SAFETY PROGRAM
 LAND AND WATER MANAGEMENT DIVISION
 MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
 PO BOX 30458
 LANSING MI 48909-7958

*NOTE: If space is inadequate for remarks, attach additional sheets as needed.

APPENDIX A

MDEQ INVENTORY OF DAM

Dam ID National ID County County #
 Dam Name File State
 Popular Name Plan
 Pond Name Quad
 1/4 Section Sec Town Range DEQ District
 City Distance (mi) Population

Print Record

Additional Information 75 acre surface area includes adjacent marshy areas at southwest and northeast ends of lake. The dam was constructed entirely of steel sheet piling after the 1993 failure of the earthen dam. V100 = 90 acre-feet per 4/6/99 memo from HSU.

No plan files Phase I (PL92-367) Inspection

EAP EAP Last Updated Jurisdiction
 Hazard Compliance Activity
 Owner ID Owner Owner Type
 Authority Del. Authority

Inspection Date Inspector
 Report Date Next Inspection Date
 Report Received Report Reply Date Action Requested
 Condition Condition Detail

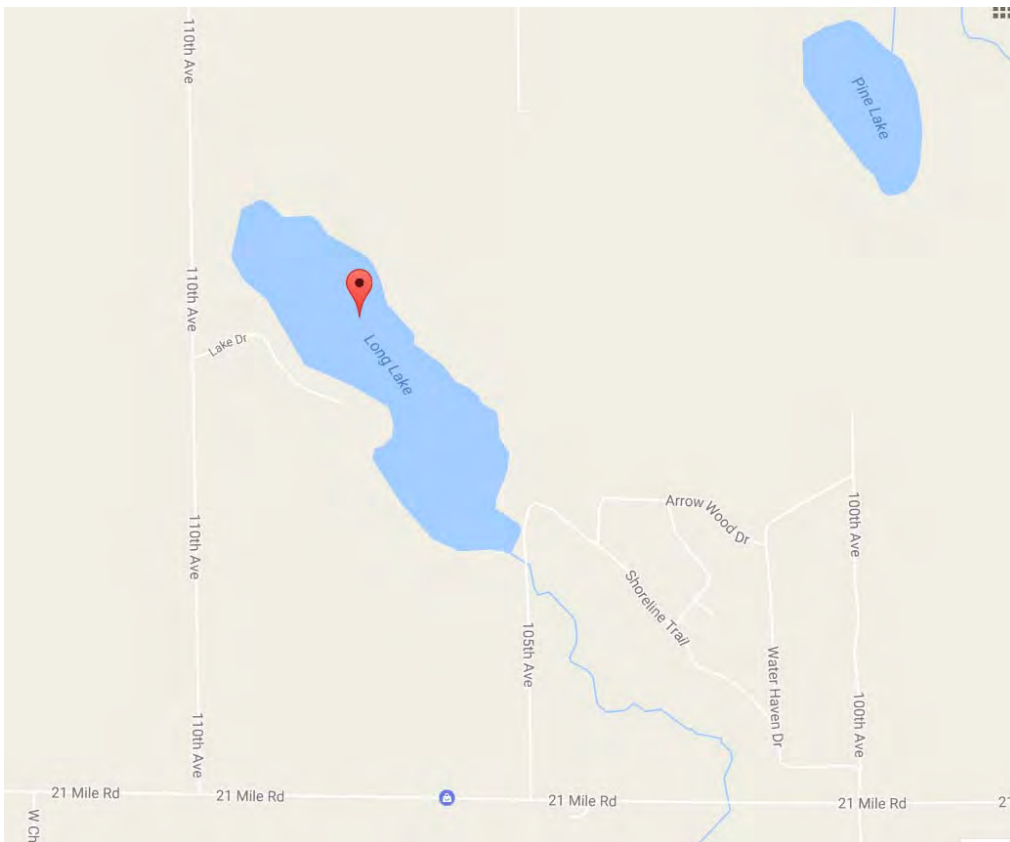
Close Inventory

Year Built Type Purpose
 Top Of Dam To Streambed (ft) Design Flood Elevation To Streambed (ft)
 Head {Headwater - Tailwater At Normal Flow (ft)} Normal Freeboard (ft)
 Pond Acres At Normal Flow Max. Storage (ac-ft) Normal Storage (ac-ft)
 River Watershed Drainage Area (sq. mi)
 Design Flood Design Inflow Discharge (cfs)
 Max. Spillway Capacity (cfs) Design Outflow Discharge (cfs)
 Spillway Control Spillway Width (ft) Crest Length (ft)
 Permit No. Repair Permit No. Permit Expiration Date
 DEQ/DNR Construction Approval Property ID

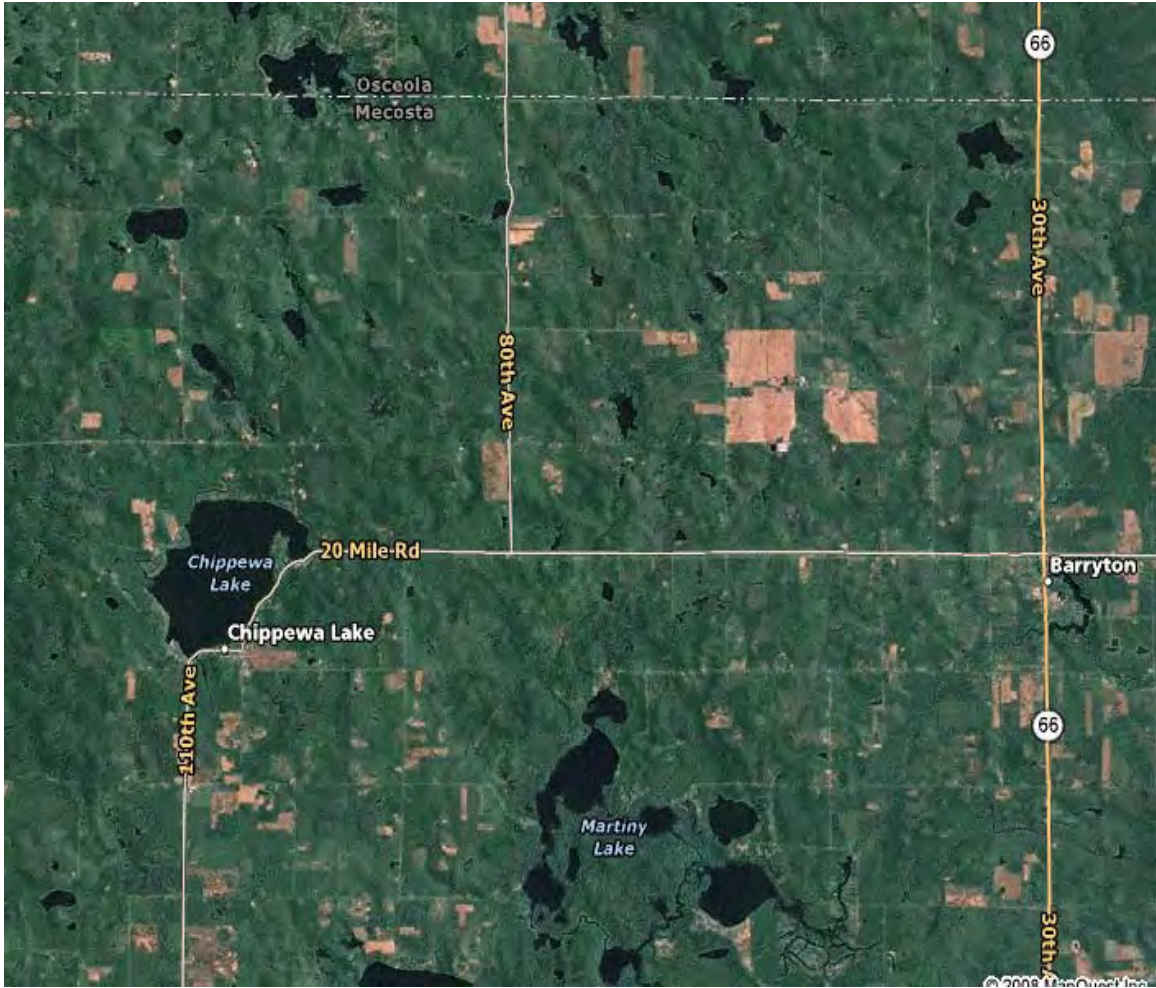
Year Legal Lake Level Established Winter Level (ft) Summer Level (ft)
 State Assessed SCS/NRCS
 Public Access FERC No. Latitude
 Trout Stream Installed Capacity (kw-hr) Longitude
 Lamprey Barrier Regulatory Agency [Locate in Bing Maps](#)
 Fish Passage
 Private on Federal

ArcMap

Long Lake Control Structure, Dam ID 2555, Mecosta County, MI



Long Lake Control Structure, Dam ID 2555, Mecosta County, MI



Williams, June C.

From: deq-wrd-qreq <deq-wrd-qreq@michigan.gov>
Sent: Monday, April 24, 2017 5:16 PM
To: Williams, June C.
Subject: RE: flood or low flow discharge request (ContentID - 168812)

Categories: [Projects/Proj 2017/124563SG2017_2017MecostaCounty307Dam Inspections/C_PrettyLakeDamInspection_DamID961]

We have estimated the flood frequency discharges requested in your email of March 29, 2017 (Process No. 20170174), as follows:

Tributary to Chippewa Creek at Long Lake Control Structure, Dam ID 2555, Section 17, T16N, R8W, Chippewa Township, Mecosta County, has a drainage area of 0.92 square miles. The design discharge for this dam is the 1% chance (100-year) flood. The 50%, 20%, 10%, 4%, 2%, 1%, 0.5%, and 0.2% chance peak flows are estimated to be 15 cubic feet per second (cfs), 45 cfs, 70 cfs, 120 cfs, 180 cfs, 250 cfs, 340 cfs, and 480 cfs, respectively. The 1% chance flood volume is estimated to be 90 acre-feet. (Watershed Basin No. 32E Chippewa).

Please include a copy of this letter with your inspection report or any subsequent application for permit. These estimates should be confirmed by our office if an application is not submitted within one year. If you have any questions concerning the discharge estimates, please contact Ms. Susan Greiner, Hydrologic Studies and Dam Safety Unit, at 517-284-5579, or by email at: GreinerS@michigan.gov. If you have any questions concerning the hydraulics or the requirements for the dam safety inspection report, please contact Mr. Jim Pawloski of our Dam Safety Program at 989-370-1528, or by email at: PawloskiJ@michigan.gov.

Low flows will be provided in a separate email.

From: junew@spicergroup.com [mailto:junew@spicergroup.com]
Sent: Wednesday, March 29, 2017 2:27 PM
To: deq-wrd-qreq <deq-wrd-qreq@michigan.gov>
Subject: flood or low flow discharge request (ContentID - 168812)

Requestor: June Williams
Company: Spicer Group
Address: 1400
City: St. Johns, Michigan
Zip: 48879
Phone: 989-224-2355
Date: March 29, 2017
F50percent: Yes
F20percent: Yes
F10percent: Yes
F4percent: Yes
F2percent: Yes
F1percent: Yes
F0.5percent: Yes
F0.2percent: Yes
Monthly95: Yes
Monthly50: Yes
MonthlyMean: Yes
90DayQ10: Yes
Lowest95: Yes
Lowest50: Yes

HarmonicMean: Yes

FlowExceedanceCurve: Yes

ContactAgency: Other

ContactPerson:

Watercourse: Long Lake Control Structure, DAM ID 2555, Mecosta County

LocalName: Long Lake Control Structure

CountyLocation: Mecosta

CityorTownship: Chippewa

Section: 17

Town: 16N

Range: 08W

Location: Requesting a floor or low flow discharge for the Long Lake Dam, Chippewa Township, DAM ID 2555 for our Dam Inspection Report.

FFR1: Dam

This reply is being sent via email only.

We have estimated the low flow discharges requested in your email of March 29, 2017 (Process No.9207), as follows:

Chippewa Creek Trib. At Long Lake Dam Outlet, NW ¼ of the SE ¼ of Section 17, T16N, R8W, Chippewa Township, Mecosta County, has a drainage area of 0.9 square miles. The lowest 95% and 50% exceedance, the Harmonic Mean and 90-day once in 10-year flow (90Q10) are estimated to be 0.1 cubic feet per second (cfs), 0.2 cfs, 0.3 cfs, and 0.1 cfs, respectively. The 50% and 95% exceedance and mean monthly flows are:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
50%	0.3	0.4	0.6	0.9	0.5	0.3	0.2	0.2	0.2	0.3	0.4	0.4
95%	0.2	0.1	0.2	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.2	0.2
Mean	0.4	0.4	0.9	1.2	0.7	0.4	0.3	0.3	0.2	0.4	0.5	0.4

The attached excel file contains the flow exceedance curves. If you have any questions, please contact Mr. Marlio Lesmez, Water Resources Division, Hydrologic Studies Unit, at 517-284-5580, or by e-mail at: lesmezm@michigan.gov.

Sincerely,

Byron P. Lane, P.E., Supervisor
Hydrologic Studies Unit
Water Resources Division
517-241-9862

MWL

cc: , MDEQ (O-21-SE)

Stat	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Ann
95%	0.1	0.2	0.2	0.2	0.1	0.2	0.4	0.2	0.1	0.1	0.1	0.1	0.1
90%	0.2	0.2	0.2	0.2	0.2	0.2	0.4	0.2	0.1	0.1	0.1	0.1	0.1
85%	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.3	0.1	0.1	0.1	0.1	0.2
80%	0.2	0.2	0.2	0.2	0.2	0.3	0.5	0.3	0.2	0.1	0.1	0.1	0.2
75%	0.2	0.3	0.3	0.2	0.2	0.4	0.6	0.3	0.2	0.1	0.1	0.1	0.2
70%	0.2	0.3	0.3	0.2	0.2	0.4	0.6	0.4	0.2	0.1	0.1	0.1	0.2
65%	0.2	0.3	0.3	0.3	0.3	0.5	0.7	0.4	0.2	0.1	0.1	0.1	0.2
60%	0.2	0.3	0.3	0.3	0.3	0.5	0.7	0.4	0.2	0.2	0.1	0.2	0.3
55%	0.2	0.4	0.3	0.3	0.3	0.6	0.8	0.4	0.2	0.2	0.2	0.2	0.3
50%	0.3	0.4	0.4	0.3	0.4	0.6	0.9	0.5	0.3	0.2	0.2	0.2	0.3
45%	0.3	0.4	0.4	0.4	0.4	0.7	0.9	0.5	0.3	0.2	0.2	0.2	0.4
40%	0.3	0.5	0.4	0.4	0.4	0.8	1	0.6	0.3	0.2	0.2	0.2	0.4
35%	0.3	0.5	0.4	0.4	0.4	0.9	1.1	0.6	0.4	0.2	0.2	0.2	0.4
30%	0.4	0.5	0.5	0.4	0.4	1	1.2	0.7	0.4	0.2	0.2	0.2	0.5
25%	0.4	0.6	0.5	0.5	0.5	1.1	1.3	0.8	0.5	0.3	0.3	0.2	0.6
20%	0.5	0.7	0.6	0.5	0.6	1.3	1.5	0.9	0.5	0.3	0.3	0.3	0.7
15%	0.6	0.7	0.6	0.6	0.6	1.5	1.7	1	0.6	0.4	0.4	0.3	0.8
10%	0.7	0.9	0.7	0.7	0.8	2	2.1	1.3	0.8	0.4	0.5	0.4	1
5%	1	1.2	1	1	1.1	2.8	2.9	1.8	1.1	0.6	0.7	0.6	1.5

APPENDIX B

PHOTOGRAPHS



Sheetpile control structure, looking northerly



Downstream face of sheetpile structure



Downstream channel



Washout/erosion on left downstream channel



Washout/erosion on left downstream channel



Seepage along downstream face of sheetpile at joints (typical)



Animal burrow on downstream face of left sheetpile wall. Depth > 5'



Standing water on downstream face of left sheetpile structure



Spurting seepage through sheetpile on downstream face of left sheetpile structure



Washout/animal burrow on left downstream channel



Washout/erosion on right downstream channel



Transverse crack running along concrete spillway over void below concrete



View along top of sheetpile structure



Impoundment

