

PRETTY LAKE LEVEL CONTROL STRUCTURE PART 307 INSPECTION

Dam Identification No.: 961
Hazard Potential: Low
Section 11, T. 15 N. – R.08 W.
Martiny Townships, 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

TABLE OF CONTENTS

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 PRETTY LAKE		DAM ID 961	COUNTY MECOSTA
DATE OF INSPECTION 7/30/08	NAME OF WATERBODY PRETTY LAKE	SECTION, TOWN, RANGE Sec. 11 & 14 T. 15N R. 8W	LEVEL THIS DATE 1002.6
DATE ELEVATION SET BY COURT March 14, 1990	LEGAL LEVEL 1003.0	DRAWDOWN LEVEL 1003.1	HIGH WATER MARK ELEVATION

EARTH EMBANKMENTS LEFT EMBANKMENT _____ FT. RIGHT EMBANKMENT _____ FT. TOTAL LENGTH _____ FT.
(LOOKING DOWNSTREAM)

	UPSTREAM	CROWN	DOWNSTREAM
VEGETATIVE COVER	MOWED LAWN	MOWED LAWN	GRASS AND LIGHT BRUSH
EROSION	MINOR SHORELINE EROSION FROM WAVE & ICE ACTION	NONE VISIBLE	NONE VISIBLE
SEEPAGE			NONE VISIBLE
SLIDES, SLUMPS & CRACKS	NONE VISIBLE	NONE VISIBLE	NONE VISIBLE
ANIMAL BURROWS	NONE VISIBLE	NONE VISIBLE	NONE VISIBLE
WAVE ACTION PROTECTION	SEAWALLS IN SOME AREAS - BUT MOSTLY NATURAL		N/A
REMARKS*			

CONTROL STRUCTURE

TYPE LAKE LEVEL CONTROL STRUCTURE	YEAR CONSTRUCTED 1992	STRUCTURAL HEIGHT (top of dam elevation minus stream invert) = 5.5 FT +/-
LENGTH OF SPILLWAY 160 LFT OF SPILLWAY PIPE TO OUTLET CHANNEL	FREEBOARD 1.5' ±	HYDRAULIC HEIGHT (design flood elevation minus stream invert) = 4 FT
VERTICAL PIPE SIZE N/A	HORIZONTAL PIPE SIZE 24"	HEAD (normal headwater = 3 FT +/- 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. CONCRETE HEADWALL IN GOOD CONDITION. SOME MINOR CRACKING IN MORTAR AROUND 24" RCP PIPE. PIPE APPEARS TO BE IN GOOD CONDITION.

CONTROL STRUCTURE (continued)

CONCRETE STRUCTURE: Check for erosion; location of cracking or spalling. If old or new; settlement; need for crack repairs. SHEET PILING AND CONCRETE STRUCTURE IS IN GOOD CONDITION. NO CRACKING OBSERVED.	
WALKWAY & RAILING: Check if in place or removed, condition, and if adequate protection provided. N/A	TRASHRACK OR LOG BOOM: Check if operable. NO OBSTRUCTIONS OBSERVED.
EMERGENCY SPILLWAY: Size, type, and condition. N/A	

INLET & OUTLET CHANNELS

	INLET	OUTLET
SIZE	PRETTY LAKE	4 TO 6' BOTTOM
EXISTING CONDITION	GOOD	GOOD CONDITION
EROSION	SHORELINE	NW CHANNEL - APPROX. 30' DOWNSTREAM OF OUTLET ON BEND
DEBRIS & OBSTRUCTIONS	NONE	FALLEN TREE BETWEEN OUTLET AND PRETTY LAKE ROAD - DOES NOT APPEAR TO BE OBSTRUCTING FLOW.
RIPRAP PROTECTION	NONE	20' DOWNSTREAM OF OUTLET
REMARKS*		

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.

NO RECOMMENDATIONS AT THIS TIME.

Inspection Ordered By: Jackie Fitzgerald

Mecosta County Drain Commissioner County Delegated Agent

Joel G. Morgan, P.E.

INSPECTOR'S NAME (PRINTED) _____

SIGNATURE Joel G. Morgan

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

1 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 ElevationTo 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

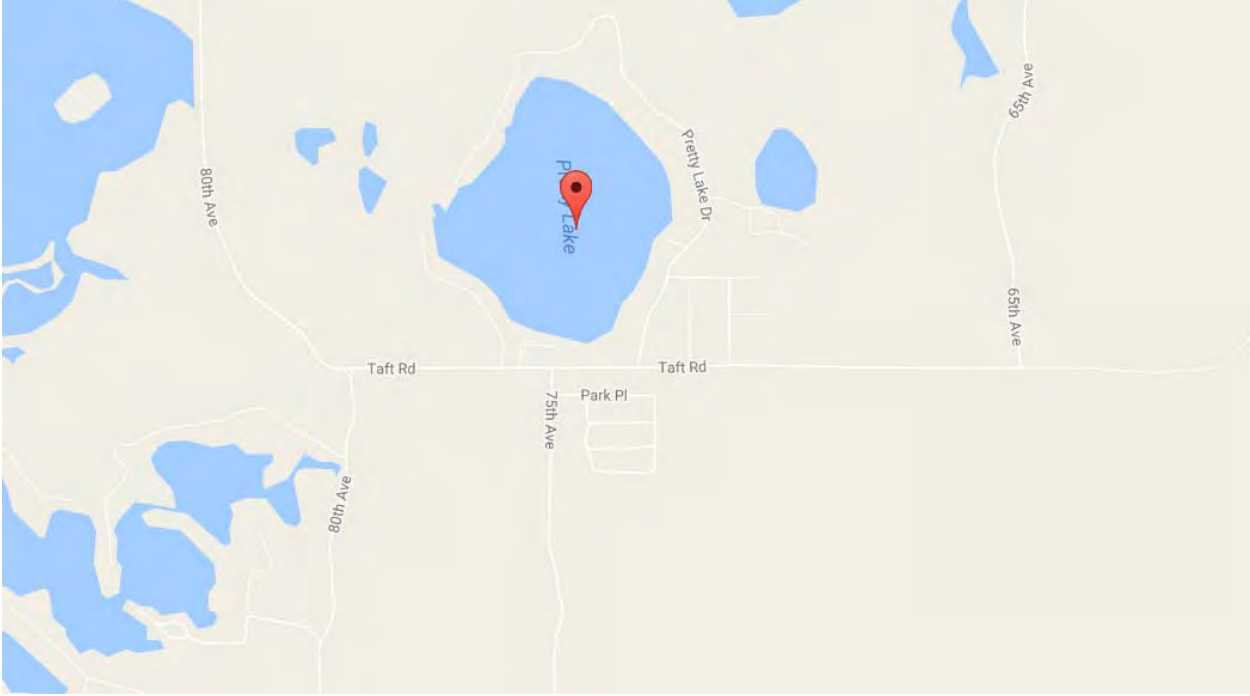
Lamprey Barrier Regulatory Agency [Locate in Bing Maps](#)

Fish Passage

Private on Federal

ArcMap

Pretty Lake, DAM ID 961, Mecosta County



Williams, June C.

From: deq-wrd-qreq <deq-wrd-qreq@michigan.gov>
Sent: Monday, April 24, 2017 5:17 PM
To: Williams, June C.
Subject: RE: flood or low flow discharge request (ContentID - 168812)

Categories: [Projects/Proj 2017/124563SG2017_2017MecostaCounty307Dam
Inspections/B_PickerellLakeDamInspections_DamID2553]

We have estimated the flood frequency discharges requested in your email of March 29, 2017 (Process No. 20170175), as follows:

Tributary to West Branch Chippewa River at Pretty Lake Dam, Dam ID 961, Section 11, T15N, R8W, Martiny Township, Mecosta County, has a total drainage area of 0.94 square miles and a contributing 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), 30 cfs, 45 cfs, 70 cfs, 100 cfs, 140 cfs, 180 cfs, and 260 cfs, respectively. The 1% chance flood volume is estimated to be 130 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 2:54 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 Zeeb Drive
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

HarmonicMean: Yes

FlowExceedanceCurve: Yes

ContactAgency: Other

ContactPerson:

Watercourse: Pretty Lake Dam ID 961, Mecosta County

LocalName: Pretty Lake

CountyLocation: Mecosta

CityorTownship: unknown

Section: 11 & 14

Town: 15N

Range: 8W

Location: Requesting a flood or low flow discharge for the Pretty Lake Dam, ID 961, 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.9208), as follows:

Chippewa River W.br. Trib At Pretty Lake Outlet, SW ¼ of the SE ¼ of Section 11, T15N, R8W, Martiny Township, Mecosta County, has a drainage area of 0.88 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	0.3	0.6	0.8	0.5	0.3	0.2	0.2	0.2	0.3	0.4	0.3
95%	0.1	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	1.1	0.6	0.4	0.2	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 (P-22-NW)

Stat	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Ann
95%	0.1	0.2	0.2	0.1	0.1	0.2	0.4	0.2	0.1	0.1	0.1	0.1	0.1
90%	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
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	0.1
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	0.3	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	0.4	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	0.1	0.1	0.1	0.3
55%	0.2	0.4	0.3	0.3	0.3	0.6	0.8	0.4	0.2	0.2	0.1	0.2	0.3
50%	0.3	0.4	0.3	0.3	0.3	0.6	0.8	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	0.4	0.4	0.4	0.4	0.7	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	0.4	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	0.4	0.3	0.3	0.2	0.6
20%	0.5	0.6	0.5	0.5	0.5	1.2	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	0.3	0.4	0.3	0.8
10%	0.7	0.9	0.7	0.7	0.8	2	2.1	1.2	0.8	0.4	0.4	0.4	1
5%	0.9	1.2	1	1	1.1	2.7	2.9	1.7	1.1	0.6	0.7	0.5	1.5

APPENDIX B

PHOTOGRAPHS



Downstream channel



Lake level inlet structure



Impoundment



Right side of sheetpile and concrete structure



Front of sheetpile and concrete structure



Left front of sheetpile and concrete structure



Access hatch on control structure grate



Concrete wall around sheetpile. No cracks observed.



Mortar around outlet culvert. Minor cracking observed.



Concrete headwall of structure



Minor cracking in mortar around culvert



Existing ground above outlet pipe



Existing ground above outlet pipe, looking downstream



Downstream channel, east of road



Downstream channel, west of road

