

LAKE LANSING DAM INSPECTION REPORT

Dam Identification No. 1957
Meridian Township, Ingham County, Michigan



12/2/2016



Lockwood, Andrews
& Newnam, Inc.
A LEO A DALY COMPANY

2121 University Parkway Drive, Suite 100

Okemos, MI 48864

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**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 Lake Lansing Dam		DAM ID 1957	COUNTY Ingham
DATE OF INSPECTION 12/02/2016	NAME OF WATERBODY Lake Lansing	SECTION, TOWN, RANGE Sec. 3 T. 4N R. 1W	LEVEL THIS DATE 851.85
DATE ELEVATION SET BY COURT February 26, 2003	LEGAL LEVEL 851.77 Nov 15 - Feb 852.29 Mar - Nov 14	DRAWDOWN LEVEL 848.25	HIGH WATER MARK ELEVATION Unknown

EARTH EMBANKMENTS LEFT EMBANKMENT 53 FT. RIGHT EMBANKMENT 30 FT. TOTAL LENGTH 83 FT.
(LOOKING DOWNSTREAM)

	UPSTREAM	CROWN	DOWNSTREAM
VEGETATIVE COVER	None	Grasses	Heavy vegetation in channel
EROSION	None	None	None
SEEPAGE			None
SLIDES, SLUMPS & CRACKS	None	None	None
ANIMAL BURROWS	None	None	None
WAVE ACTION PROTECTION	Stone Riprap, Concrete Seawall, Steel Sheet Piling		N/A
REMARKS*	See Attached Report		

CONTROL STRUCTURE

TYPE Horizontal CMP intake with valve control	YEAR CONSTRUCTED 1975	STRUCTURAL HEIGHT (top of dam elevation minus stream invert) 6.6 ft.
LENGTH OF SPILLWAY 38 ft. with stilling basin	FREEBOARD 1.4 ft.	HYDRAULIC HEIGHT (design flood elevation minus stream invert) 5.3 ft.
VERTICAL PIPE SIZE N/A	HORIZONTAL PIPE SIZE 24" Diameter	HEAD (normal headwater minus normal tailwater) 4.5 ft.

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.
No stop logs were in place at the time of inspection. Water was still flowing over the weir at the time of inspection (1" high). Stop log channel could use some upgrades but Maintenance personal report that the logs maintain the summer lake level satisfactorily.

OUTLET PIPE: Check for damage from ice, logs, vandalism; inside discharge pipe for settlement and/or joint separation; condition of pipe coating.

CMP pipe is in poor condition. Evidence of holes in the pipe. Pipe end seems to be surrounded with sediments which some of it made it downstream when the valve was opened up, end treatment is recommended.

CONTROL STRUCTURE (continued)

CONCRETE STRUCTURE: Check for erosion; location of cracking or spalling. If old or new; settlement; need for crack repairs.
 Minor cracking and spalling in structure. Overall sound condition. No need for immediate action

WALKWAY & RAILING: Check if in place or removed, condition, and if adequate protection provided. TRASHRACK OR LOG BOOM: Check if operable.
 There are no walkways or railings. Landowner's deck and dock over drawdown pipe and valve are in fair to good condition. The deck seems to be in more disrepair than in the past and will need some attention before the next inspection. N/A

EMERGENCY SPILLWAY: Size, type, and condition.
 N/A

INLET & OUTLET CHANNELS

	INLET	OUTLET
SIZE	N/A	5' average bottom width, less than 5' bank height
EXISTING CONDITION	N/A	Fair
EROSION	N/A	Minimal erosion
DEBRIS & OBSTRUCTIONS	N/A	Medium vegetation growth, Leaves and brush seems to cause backup in the still basin.
RIPRAP PROTECTION	N/A	Continued maintenance is recommended.
REMARKS*	N/A	Overgrown vegetation in ditch needs clearing. Evidence of recent clearing along the bank by the still basin.

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.

See attached report.

Inspection Ordered By:
Mr. Paul C. Pratt, County Delegated Agent
 Deputy Drain Commissioner

Samir Matta
 INSPECTOR'S NAME (PRINTED)

Samir F. Matta
 SIGNATURE

MI 41005
 P.E. REGISTRATION NO.

ADDRESS 2121
 University Park Dr. Suite 100

CITY, STATE, ZIP CODE
 Okemos, MI, 48864

TELEPHONE NUMBER
 (517) 657-6176

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.

LAKE HISTORY

Lake Lansing, originally known as Pine Lake, served as a hunting and fishing ground for Indian tribes for centuries. Burial mounds have been found around the lake that pre-date the Chippewa Indians and Chief Okemos. The lake provided abundant fishing, and the surrounding woods were a source of wild game.

The lake was described by early writers as being clear, and well stocked with various kinds of fish. The shores were timbered on the north and east by yellow pine, the only sizeable tract in Ingham County. Hickory and oaks wooded the north and west shores.

During the next several decades, the land around, but not immediately on, the lake was settled and farmed. The lake became a popular recreation site in the late 19th century.

The Lake Lansing Dam (Dam ID# 1957) helps control the lake elevation according to the court order of February 26, 2003. The dam was inspected by Lockwood, Andrews, and Newnam, Inc. (LAN), at the request of the Ingham County Drain Commissioner's Office, as part of a regular scheduled inspection program.

The report Inspection form and some of the photographs highlighting the current condition of the Dam are attached for your review and use. LAN will work closely with the Drain office, if requested, to develop design improvements to address some of the issues noted in the inspection report.

The highlighted pictures in Appendix A are as follows:

Figure 1: Shows outlet structure under Marsh Road.

Figure 2: Shows the approach to the spillway observed from the landowners dock.

Figure 3: Indicates where the holes in the intake pipe sidewalls are currently present.

Figure 4: Indicates the current water level in the lake at the time of the survey as indicated in the report.

Figure 5, 6, and 7: Shows a look at the dam, weir and spillway areas.

Figure 8: Shows the area of the concrete stilling basin looking towards the lake.

Figure 9: Highlights the deteriorated concrete of the structure supporting the intake pipe.

Figure 10: Shows the corroded steel sheet piling right of the spillway.

Figure 11: Shows the concrete sea wall left of the spillway.

Figure 12: Shows the riprap shoreline right of the spillway.

Figure 13: Shows the intake pipe.

Figure 14: Shows the slide gate within the intake structure that controls the level of the lake outside the weir/spillway control. During the inspection, the gate seems to have been sealed tight.

DAM CONDITION ASSESSMENT

Based on the conditions observed during the inspection and highlighted in the noted photographs, the dam condition does seem to be stable and in line with the previous inspection done. The Dam, however, has some deterioration both to the concrete and steel structures that need to be addressed. There is no immediate failure potential from the observed conditions but repairs and improvements should be considered and incorporated within the next couple years but surely before the next inspection cycle.

Sheet Piling:

The sheet piling has shown significant signs of corrosion to the areas that are readily exposed and needs to be mitigated. Replacement may be an option but other means could be considered such as restoration and painting of the steel while installing an outside concrete barrier for further protection. However, earthen embankment seems to cover the majority of the sheet piling and provide some major of protection at this time.

Concrete Structures:

The concrete spillway and manholes seem to be in fairly good shape with minor cracking that need to be addressed. However, the concrete structure supporting the inlet pipe is in deteriorated state and needs to be replaced when the fix is approved for the inlet pipe replacement/repair.

Intake (Overflow) Pipe:

The intake pipe which is located immediately underneath the wooden dock has rusted out and is pitted in many locations along its length. The condition could be observed readily when the valve is operational as bubbles are seen where holes are present. Furthermore, the intake pipe lacks any screens as to prevent fish or debris from washing into the drain. End treatment is recommended to prevent debris from sealing the pipe end completely.

Riprap Walls:

No significant erosion was observed at the time of inspection. It is recommended regular upkeep be done to prevent future erosion.

Still Basin:

The still basin at the bottom of the spillway is usually full throughout the year and it is a cause for foul smell from stagnant water and decomposed fish during the summer months. It is recommended that the still basin be revised to allow for natural flow with the appropriate energy dissipaters and eliminate water and fish pooling in the basin.

Slide Gate (Control Valve):

The slide gate operates fairly well the majority of the time but has been known to allow for water seepage when sediments are present in the system. Access to the control valve structure is somewhat problematic as it is located underneath a wooden panel in the deck constructed by the homeowner. The steel manhole cover needs to be replaced by a hatch that is easier to open than the current condition which requires at least two staff members to lift.

Spillway:

The spillway and water level control structure are in satisfactory condition with some minor cracks and spalling. The spillway spalling concrete along the right side of the channel need to be monitored and repaired as needed. However, it may be best to consider revamping the improvements to deal with the control structure, still basin, sheet metal corrosion, overflow pipe and spillway into one project to control costs.

Open Channel Drain:

The outlet drain seems to be in fairly good condition but could benefit from regular clearing and grubbing of vegetation present within the open channel.

Marsh Road Outlet Culvert:

The outlet culvert under Marsh Road was recently upgraded in 2009 – 2010 by the Ingham County Road Commission and seems to be in very good condition at this time.

Water Level Monitoring:

The water level is currently monitored on a monthly basis by maintenance staff. Adjustments are made when necessary to maintain the legal lake level. These visits become more frequent during periods of heavy rainfall and could be minimized by the installation of a remote sensor that reports water level information that could be accessed via internet.

RECOMMENDATIONS

LAN recommends that the Drain Commissioner's Office perform the following:

1. Perform rehabilitation/replacement of the corroded sheet piling along the span of the dam.
2. Replace or perform lining to the existing intake piping while revising potential valve control for lowering lake level; Establish new uplift control for new/rehabilitated pipe with appropriate screening to prevent fish and other debris from washing downstream.
3. Repair damaged concrete surfaces.
4. Evaluate the need to replace the still basin with other means of energy dissipaters.
5. Perform regular clearing and grubbing within the open drain.

APPENDIX A: FIGURES



Figure 1 – Marsh Rd. Outlet Structure

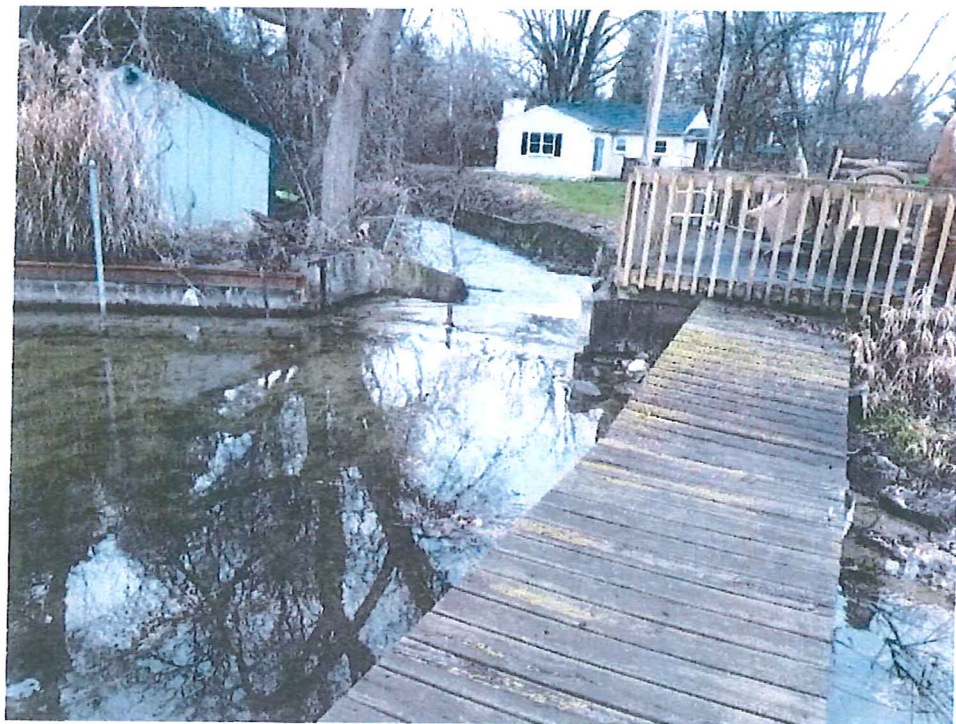


Figure 2 – Approach to Spillway from Dock



Figure 3 – Intake Pipe Damage



Figure 4 – Water Level



Figure 5 – Spillway



Figure 6 – Spillway



Figure 7 – Spillway



Figure 8 – Stilling Basin



Figure 9 - Deteriorated Concrete Structure

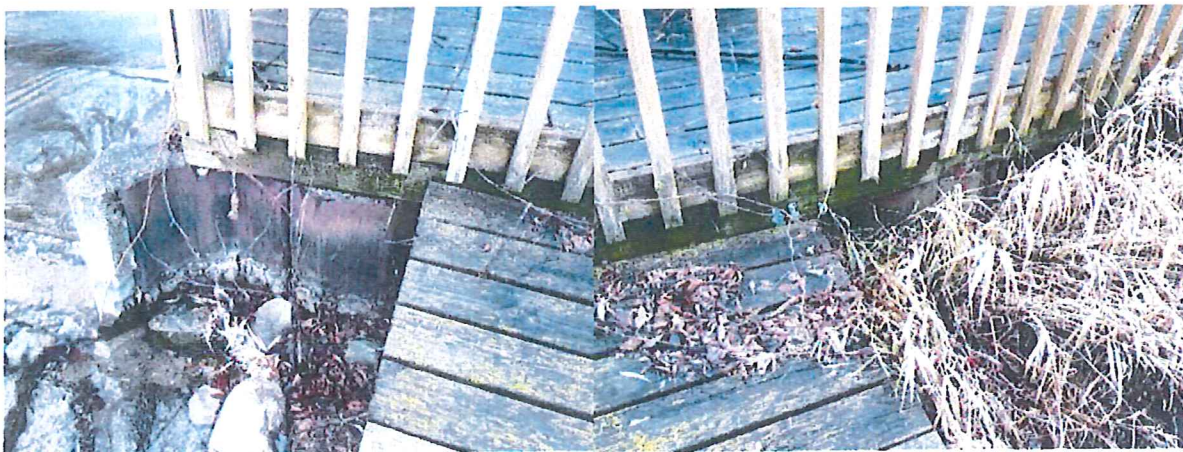


Figure 10 - Sheet Pile Right of Spillway



Figure 11 – Concrete Sea Wall Left of Spillway



Figure 12 – Riprap Shoreline Right of Spillway

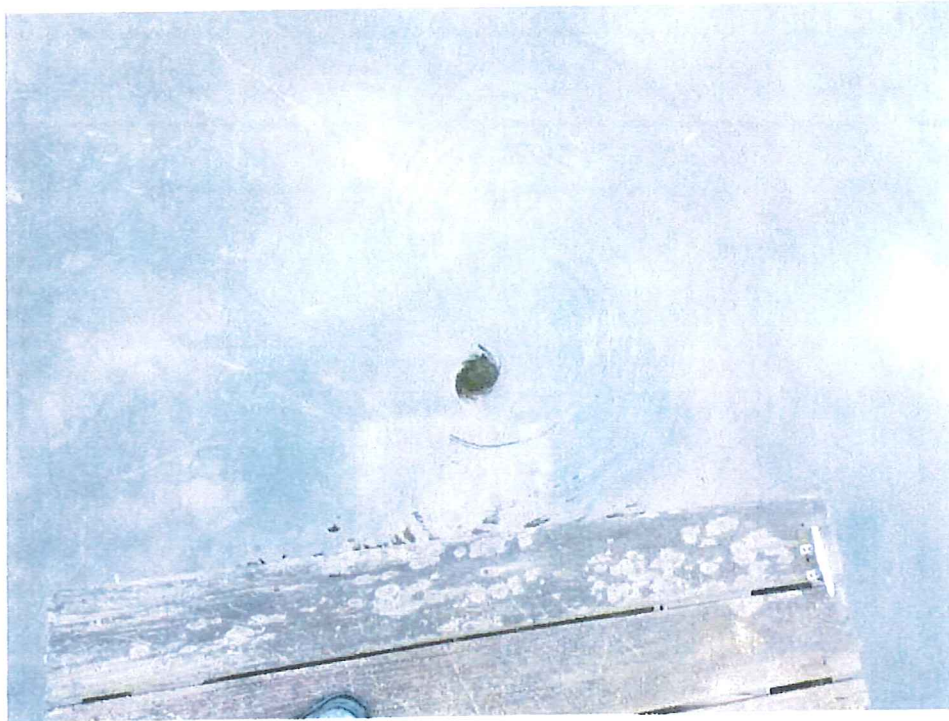
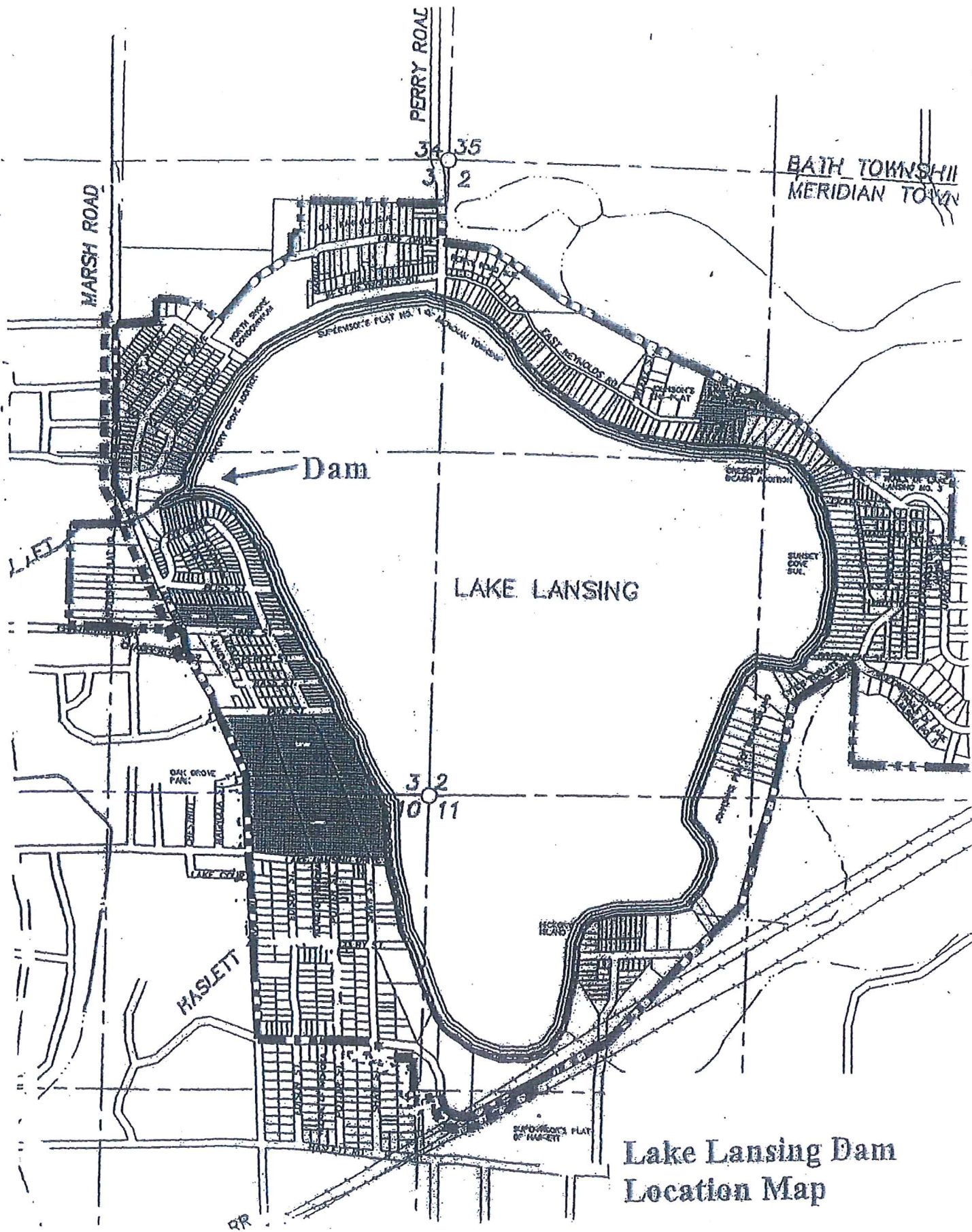


Figure 13 – Intake Pipe



Figure 14 – Control Valve

**APPENDIX B:
DAM DETAILS**



BATH TOWNSHIP
 MERIDIAN TOWNSHIP

Dam

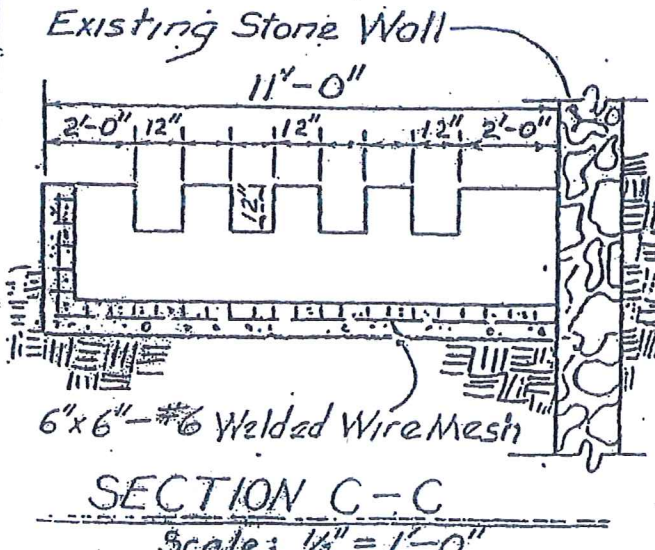
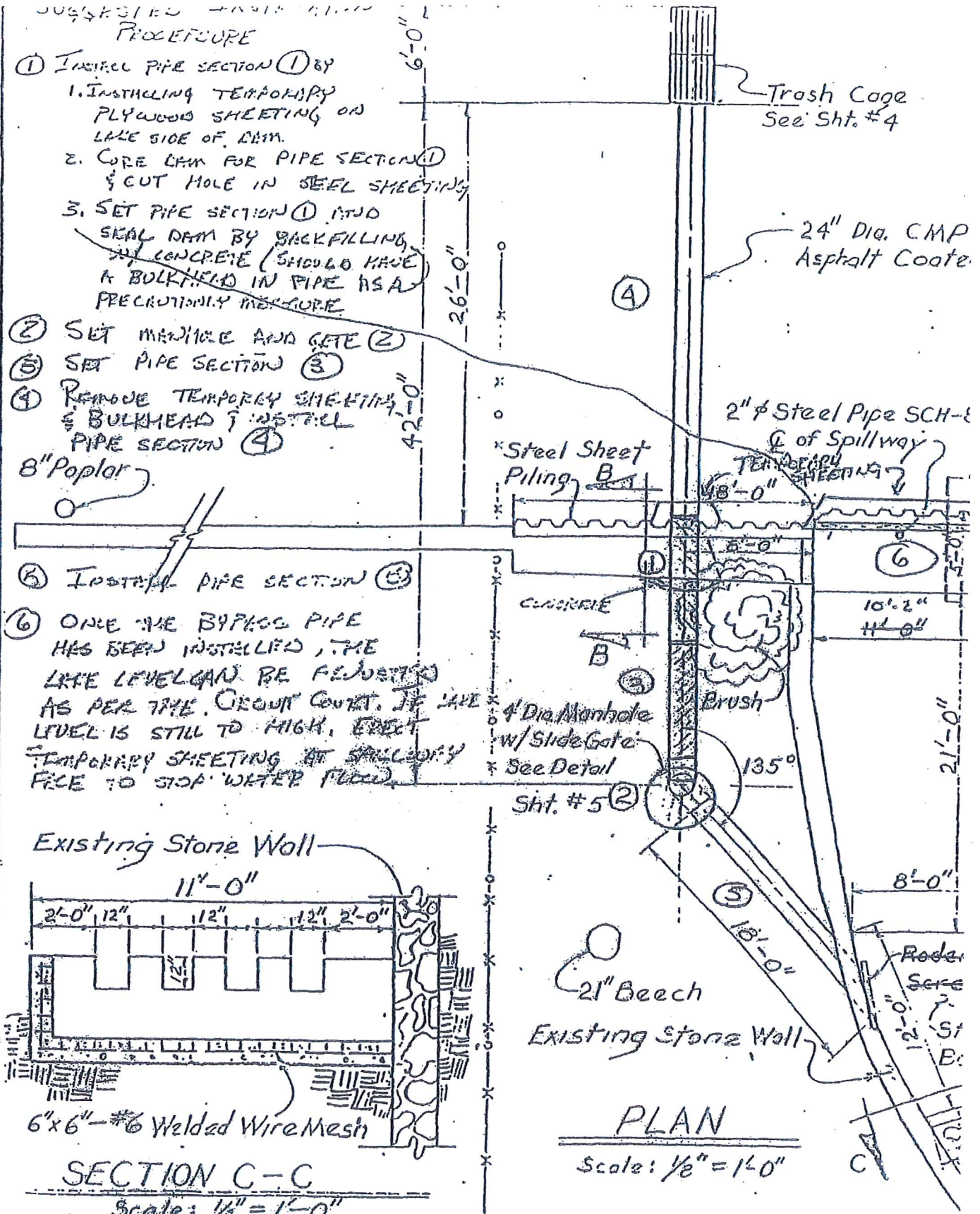
LAKE LANSING

HASLETT

Lake Lansing Dam
 Location Map

SUGGESTED CONSTRUCTION PROCEDURE

- ① INSTALL PIPE SECTION ① BY
 1. INSTALLING TEMPORARY PLYWOOD SHEETING ON LAKE SIDE OF DAM.
 2. CORE DAM FOR PIPE SECTION ① & CUT HOLE IN STEEL SHEETING.
 3. SET PIPE SECTION ① INTO SEAL DAM BY BACKFILLING W/ CONCRETE (SHOULD HAVE A BULKHEAD IN PIPE AS A PRECAUTIONARY MEASURE).
- ② SET MANHOLE AND GATE ②
- ③ SET PIPE SECTION ③
- ④ REMOVE TEMPORARY SHEETING & BULKHEAD; INSTALL PIPE SECTION ④
- ⑤ 8" Poplar
- ⑥ INSTALL PIPE SECTION ⑥
- ⑦ ONCE THE BYPASS PIPE HAS BEEN INSTALLED, THE LAKE LEVEL CAN BE ADJUSTED AS PER THE CIRCUIT COURT. IF LAKE LEVEL IS STILL TOO HIGH, ERECT TEMPORARY SHEETING AT SPILLWAY FACE TO STOP WATER FLOW.



DR'N BY:	G.L.D.	10-30-75
CK'D BY:	R.G.N.	10-30-75
APP'D BY:	D.W.	10-30-75
DES'N BY:	R.G.N.	10-30-75

DAM ALTERATIONS &
LAKE LEVEL CONTROL
LAKE LANSING, INGHAM CO., MICH.

SNELL E

APPENDIX C:
LAKE LEVEL COURT ORDER

COPY

RECEIVED

COHL, STOKER, TOSKEY & McGLINCHEY, P.C.
ATTORNEYS AND COUNSELORS
601 NORTH CAPITOL
LANSING, MICHIGAN 48933

FEB 28 2003

INGHAM CTY. DRAIN COMMISSIONER

PETER A. COHL
DAVID G. STOKER
ROBERT D. TOWNSEND
BONNIE G. TOSKEY
JOHN R. McGLINCHEY
RUTH E. MASON
RICHARD D. McNULTY
NAOMI A. GAYNOR
TIMOTHY M. PERRONE

February 26, 2003

(517) 372-9000
FAX (517) 372-1026

Patrick Lindemann, Drain Commissioner
Ingham County
707 Buhl Avenue
P.O. Box 220
Mason, MI 48854

**Re: *In the Matter of the Petition of Ingham County Board of Commissioners, a Municipal Corporation, and Patrick E. Lindemann, Ingham County Drain Commissioner, for modifications of the normal lake level for Lake Lansing, County of Ingham, State of Michigan
Ingham County Circuit Court File No. 03-4-CE***

Dear Commissioner Lindemann:

Enclosed please find a copy of an Order signed by the Honorable William Collette regarding the above referenced matter. The Court agreed to the modifications as requested in the Petition. As such, the boards will not need to be removed in June, in accordance with the new Order and the removal of the boards in December is moved to mid-November. We appreciate the effort and concern put forth by your office in this matter.

If you have any questions regarding the enclosed, please do not hesitate to contact this office.

Very Truly Yours,

COHL, STOKER, TOSKEY & McGLINCHEY, P.C.


Naomi Gaynor

NG/jm
Enclosure

N:\Client\Ingham\Drain\Litigation\Lake Lansing\Lindemann.order.wpd

STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF INGHAM

IN THE MATTER OF THE PETITION OF
INGHAM COUNTY BOARD OF COMMISSIONERS,
A MUNICIPAL CORPORATION AND PATRICK E.
LINDEMANN, INGHAM COUNTY DRAIN
COMMISSIONER, for modifications of the normal
lake level for Lake Lansing, County of Ingham,
State of Michigan.

Case No. 03-4-CE

Hon. William Collette

Petitioners.

COHL, STOKER, TOSKEY & McGLINCHEY, P.C.
Peter A. Cohl (P12029)
Naomi Gaynor (P48594)
Attorneys for Petitioners
601 N. Capitol Avenue
Lansing, Michigan 48933
(517) 372-9000

ORDER MODIFYING THE LAKE LEVELS FOR LAKE LANSING

At a session of said Court, held in the Circuit
Courtrooms in Mason Michigan, County of
Ingham, State of Michigan, this 26th day of
February, 2003.

WHEREAS, Pursuant to a petition by Ingham County under the authority of the
Inland Lake Levels Act, pursuant to MCL 281.61 et seq.; MSA 11.30 (1) et seq., and now
governed by MCL 324.30701 et seq.; MSA 13a.30701 et seq., a petition was filed in 1975
to establish a lake level for Lake Lansing.

WHEREAS, On July 24, 1975, the Ingham County Circuit Court entered an Order
establishing the lake level (Exhibit A) which established the lake level for Lake Lansing as
follows:

<u>Level Period</u>	<u>Level</u>
a) June - November	852.08 ft.
b) December - February	851.72 ft.
c) March - May	852.29 ft.

WHEREAS, MCL 324.30707(5); MSA 13a.30707, grants this Court continuing jurisdiction to modify the normal level as necessary to accomplish the purposes of the Inland Lake Levels Act.

WHEREAS, Ingham County and the Ingham County Drain Commissioner filed a Petition for Modification of the Lake Level for Lake Lansing on January 1, 2003 (the "Petition").

WHEREAS, By Order dated January 6, 2003 this Court set the date for the hearing of the Petition, and ordered that Petitioners to provide notice of the hearing both by publication and by first-class mail to each person whose name appears within the current special assessment roll as owning land at the address shown on the roll; to the governing body of each political subdivision of the state in which Lake Lansing is located; to the governing body of each affected political subdivision of the state; and by serving notice on the Michigan Department of Environmental Quality.

WHEREAS, Petitioner has satisfied the notice requirements of the January 6, 2003 Order, and this Court having held a hearing on this matter on February 26, 2003.

NOW THEREFORE, The Court having considered the Petition for Modification of the Lake Levels for Lake Lansing, the exhibits and the testimony heard it open court, and being otherwise fully advised in the premises and for good cause shown:

IT IS HEREBY ORDERED that Petitioner's Petition for Modification of the Lake Levels for Lake Lansing is **GRANTED**, and the normal lake level to be established for the waters of Lake Lansing, County of Ingham, State of Michigan be and is hereby established at:

<u>Level Period</u>	<u>Level</u>
a) November 15 - February	851.72 feet above sea level.
b) March - November 14	852.29 feet above sea level.

These levels shall be maintained as nearly as possible to do at said levels.

IT IS FURTHER ORDERED that this Court shall have continuing jurisdiction and may provide for the departure from the normal lake level and the above stated deviations therefrom as may be necessary to accomplish the purposes of the Act.

IT IS FURTHER ORDERED that there shall be no pumping of waters into Lake Lansing, County of Ingham, State of Michigan, if same extracts water from below the ground level to meet or fulfill the normal lake level and the deviations therefrom except upon Order of this Court.

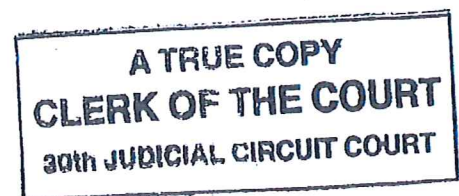
Dated: _____

WILLIAM E. COLLETTE

Hon. William Collette
Circuit Court Judge

Prepared by:
Naomi Gaynor (P48594)
COHL, STOKER TOSKEY & MCGLINCHEY, P.C.
Attorneys for Petitioners
601 N. Capitol Avenue
Lansing, Michigan 48933
517/372-9000

N:\Client\Ingham\Drain\Litigation\Lake Lansing\order for modification.wpd



STATE OF MICHIGAN

IN THE CIRCUIT COURT FOR THE COUNTY OF INGHAM

IN Re:

PETITION FOR THE ESTABLISHMENT OF A

NORMAL LAKE LEVEL FOR LAKE LANSING,

Case No. 75-17402 CE

COUNTY OF INGHAM, STATE OF MICHIGAN.

ORDER

At a session of said Court held
in the Circuit Courtrooms in the
City Hall in the City of Lansing,
County of Ingham, State of Michigan,
on the 24th day of July, 1975.

PRESENT: The Honorable Jack W. Warren, Circuit Judge

This cause came on to be heard by this Court for
a determination of a normal lake level for Lake Lansing,
County of Ingham, State of Michigan, on Petition by the
Ingham County Board of Commissioners, County of Ingham,
State of Michigan, pursuant to 1961 P.A. 146, as amended.

It appearing to this Court from the pleadings,
exhibits and testimony heard in open court that Petitioner's
request in the above-entitled cause should be granted.

IT IS HEREBY ORDERED AND ADJUDGED that the normal
lake level to be established for the waters of Lake Lansing,
County of Ingham, State of Michigan be and is hereby deter-
mined and established at 852.08 feet above sea level and shall
be maintained as nearly as it is possible to do so at said
level for the months June through November; provided, however,

that a deviation from said normal lake level be permitted and shall be at as near as possible to be 851.72 feet above sea level for the months of December through February; provided further, that a further deviation from the normal level be permitted and shall as near as possible be at 852.29 feet above sea level for the months March through May.

IT IS FURTHER ORDERED AND ADJUDGED that this Court shall have continuing jurisdiction and may provide for the departure from the normal lake level and the above stated deviations therefrom as may be necessary to accomplish the purposes of the Act.

IT IS FURTHER ORDERED AND ADJUDGED that there shall be no pumping of waters into Lake Lansing, County of Ingham, State of Michigan, if the same extracts water from below the ground level to meet or fulfill the normal level and the deviations therefrom except upon Order of this Court.

IT IS FURTHER ORDERED AND ADJUDGED that this Court confirms the special assessment district boundaries as specified in this Court on the 16th day of July, 1975.

JACK W. WARREN

JACK W. WARREN

A TRUE COPY
JOHN I. WHITMYER
INGHAM COUNTY CLERK

Matta, Samir

From: deq-wrd-qreq <deq-wrd-qreq@michigan.gov>
Sent: Thursday, November 10, 2016 1:41 PM
To: Matta, Samir
Subject: RE: flood or low flow discharge request (ContentID - 168812)

Follow Up Flag: Follow up
Due By: Friday, November 18, 2016 3:00 PM
Flag Status: Flagged

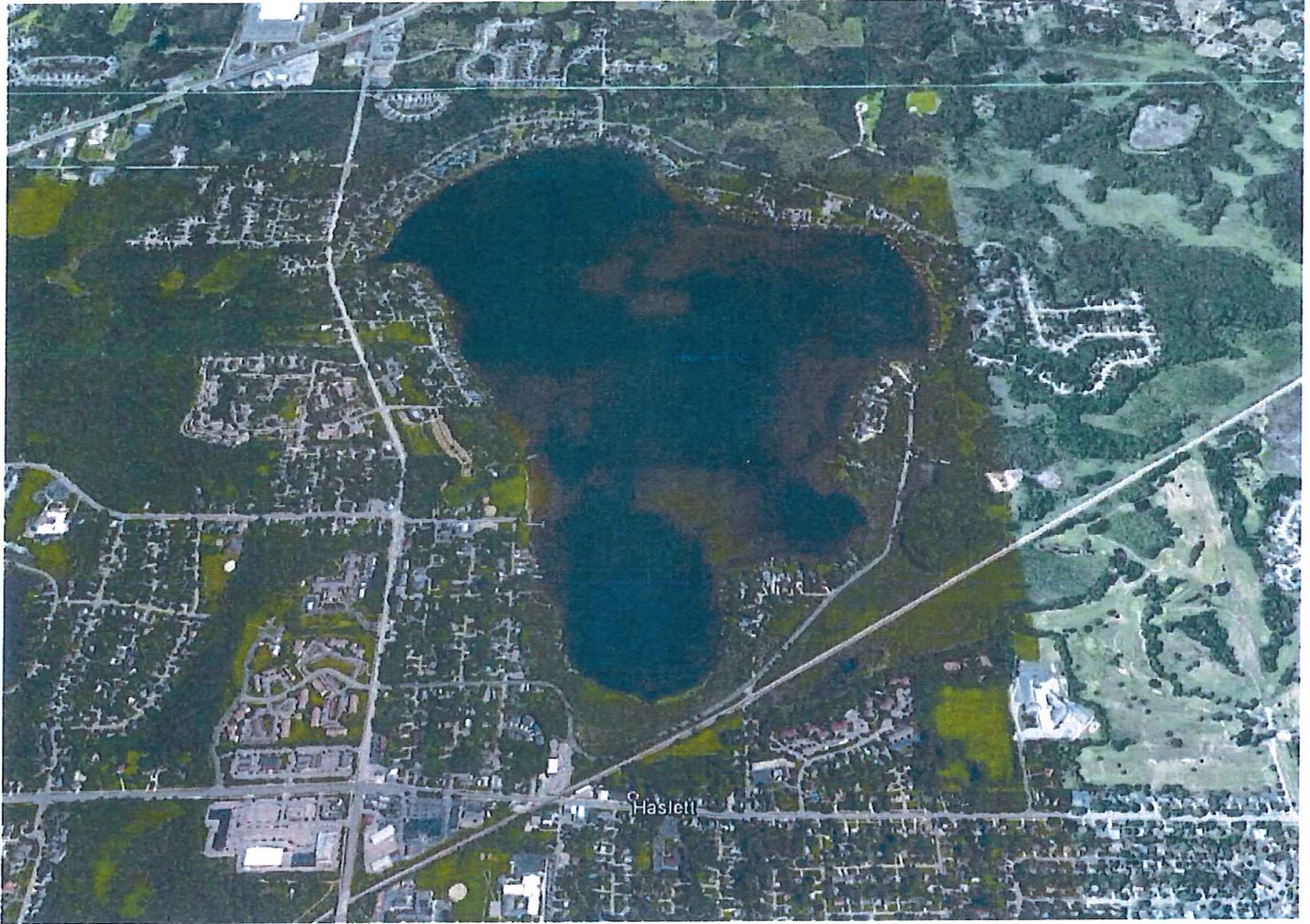
We have estimated the flood frequency discharges requested in your email of October 28, 2016 (Process No. 20160565), as follows:

Pine Lake Outlet at Lake Lansing Dam, Dam ID 1957, Section 3, T04N, R01W, Meridian Township, Ingham County, has a drainage area of 3.7 square miles. The design discharge for this dam is the 1% chance (100-year) flood. The 1% chance peak flow is estimated to be 135 cubic feet per second. (Watershed Basin No. 14A Red Cedar).

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. Luke Trumble of our Dam Safety Program at 517-420-8923, or by email at: TrumbleL@michigan.gov.

From: sfmatta@lan-inc.com [mailto:sfmatta@lan-inc.com]
Sent: Friday, October 28, 2016 2:15 PM
To: deq-wrd-qreq
Subject: flood or low flow discharge request (ContentID - 168812)

Requestor: Samir Matta
Company: Lockwood, Andrews & Newnam, Inc.
Address: 2121 University Park Drive, Suite 100
City: Okemos
Zip: 48864
Phone: (517)819-2367
Date: 10/28/16
F1percent: Yes
ContactAgency: None Selected
ContactPerson:
Watercourse: Lake Lansing Dam
LocalName:
CountyLocation: Ingham
CityorTownship: Meridian Township
Section: 3
Town: 4N
Range: 3W
Location: Tributary area to Lake Lansing Dam with flow discharge outlet within the vicinity of Marsh Road and E. Lake Drive in Meridian Township, Ingham County, MI. A location map will be sent via email as an attachment.
FFR1: Dam



Headquarters

2925 Briarpark Drive
Suite 400
Houston, TX 77042
713.266.6900

info@lan-inc.com

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**Lockwood, Andrews
& Newnam, Inc.**
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