



**Park District Board of Commissioners
Workshop Meeting Minutes
July 25, 2019 6:30pm
Administrative Office
1 E. Crystal Lake Avenue, Crystal Lake, IL**

MISSION STATEMENT: To enhance the lives of our residents by providing programs, services, facilities and open spaces that safely promote health, recreation and community in an environmentally and fiscally responsible manner.

Call to Order:

President Gallagher called the meeting to order at 6:30PM.

Commissioners Present: Michele Hartwig, Jason Heisler, Shawn Zimmerman, Cathy Cagle, Thomas Aquilina, Deborah Gallagher, Caroline Bachour-Chemaly (arrived at 6:42pm)

Legal Counsel:

Scott Puma, Ancel, Glink, Diamond, Bush, DiCianni and Krafthefer, P.C.

Staff:

Jason Herbster, Executive Director, Erik Jakubowski, Superintendent of Park Services, Ann Viger, Director of Planning and Development, Kurt Reckamp, Superintendent of Recreation Programs and Facility Services

Consultants: Bruce Shrake and Thomas Rychlik – Gewalt Hamilton/Vince Mosca – Hey and Associates

Citizens: Lesli Layer, Ron Orist, Doreen Orist, Patricia Schmidt, Steve Langeler, Frank Hascwanter, Ryan Washbozzn, Robin Graham

Pledge of Allegiance:

The Pledge of Allegiance was recited.

Approval of Agenda: Motion – Hartwig, Second – Aquilina, Ayes: 6, Nays: 0

New Business: Discussion/Presentation: Lippold Park Drainage/Flooding

Resident Lesli Layer gave a presentation on the research she conducted on the watershed, Lippold and the Northshore area. (presentation attached)

Bruce Shrake of Gewalt Hamilton and Vince Mosca of Hey and Associates gave a presentation on the historical work that has been completed at Lippold and the purpose and functionality behind it. (presentation attached)

Matters from the Public:

Frank Hascwanter - City drains storm sewer everytime it rains to lessen flooding created by water coming through pipe. City putting in storm sewers, can drain tiles be placed to drain into the storm sewer? Answer was only if the proper gravity was created to make it work.

Steve Langeler - wants the water to stop running to his property

Patricia Schmidt - provided pictures of ground water coming through the ground during the winter, upset that property continues to be destroyed by water. Why was water coming up through the ground in the winter?

Answer is because the ground water is high. Never had these problems prior to Lippold being constructed.

Robin Graham - CLPD needs to contain its water. Where was Cove Pond water going before it was expanded? Why was creek along Woodland Drive filled in? Both questions should be directed to the City.

Dorren Orist – Has the Park District done everything that was designed by the engineers? Answer was yes.

Matters from the Board:

President Gallagher: Has the Park District done everything that the City has asked them to do? Answer was yes.

Executive Session: None

Adjourn:

Commissioner Chemaly moved to adjourn the meeting at 9:06PM. Seconded by Commissioner Hartwig .
Ayes: 7 Nays: 0

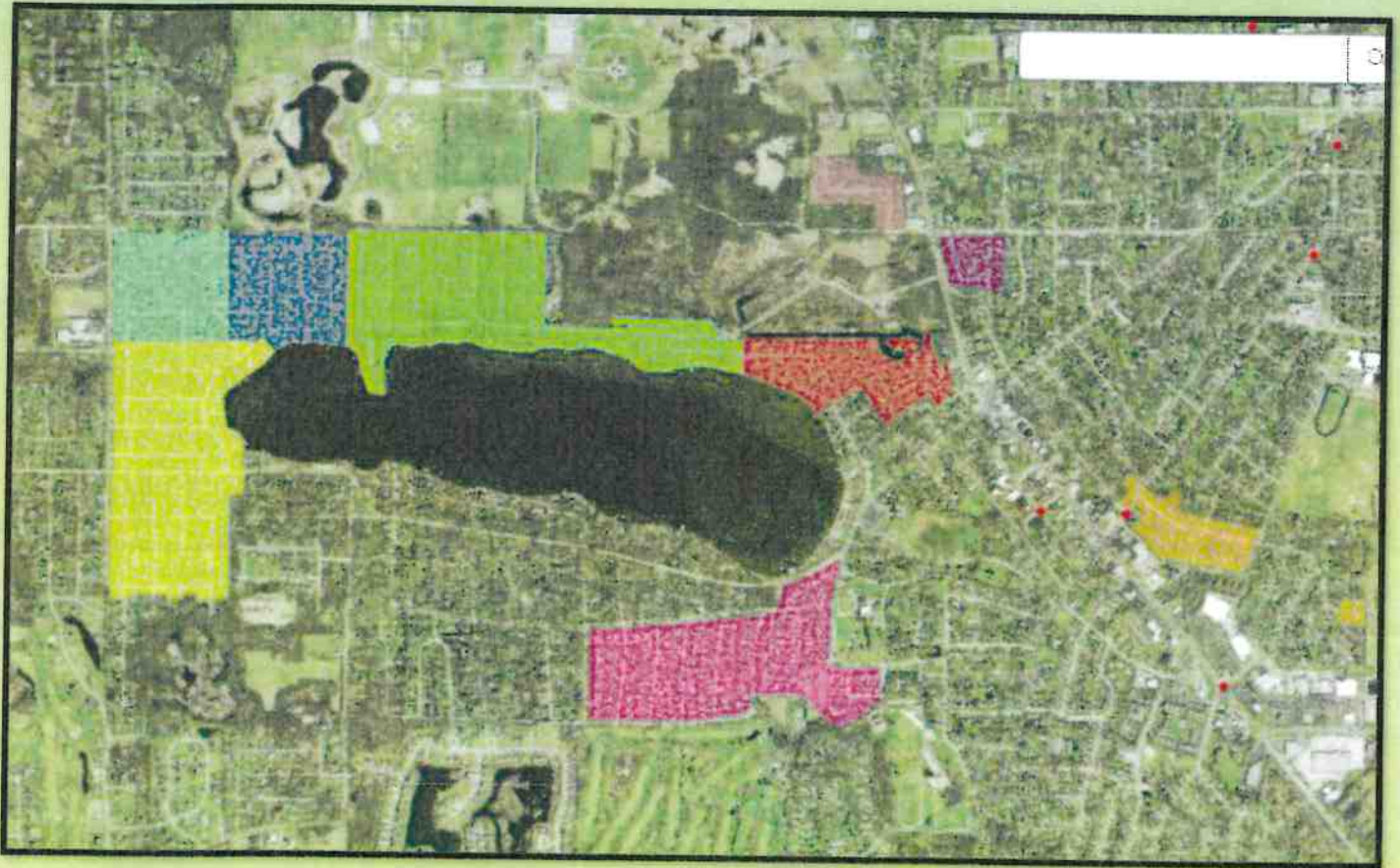
Approve: _____
President

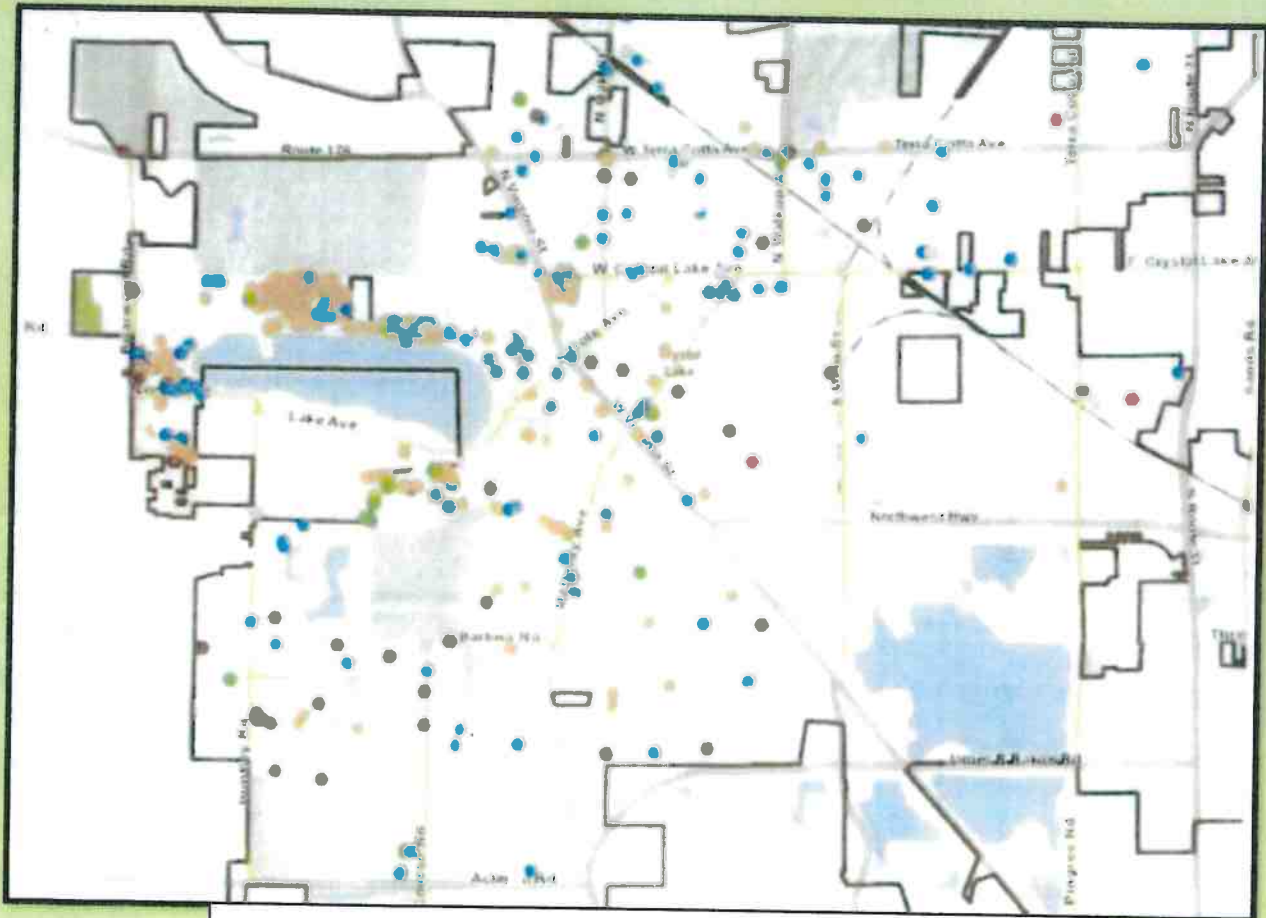
Attest: _____
Secretary

A REVIEW OF
HISTORICAL DATA FOR
THE FACTORS
IMPACTING FLOODING
IN CRYSTAL LAKE

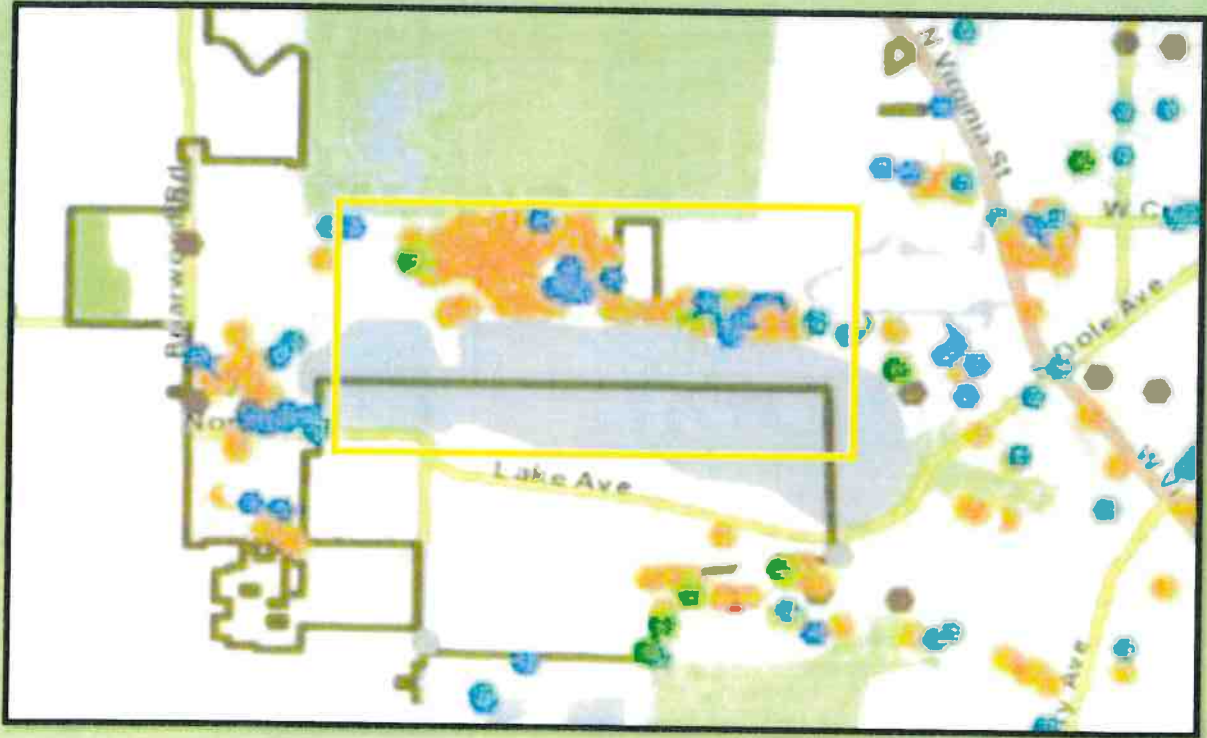
1. THE TALE OF THE DOG'S TAIL
2. DRAIN TILES-WHAT'S THE BIG DEAL?
3. GROUNDWATER-IF WE CAN'T SEE IT WHY IS IT SUCH A PROBLEM
4. BIRTH OF CRYSTAL LAKE
5. THE GENIUS OF THE DRAINAGE DISTRICT
6. WHO SAYS CLIMATE IS CHANGING? & HUMANS VS NATURE (WE TRIED) & HUMANS VS NATURE PART 2 (WE LOST)
7. WHACK-A-WETLAND
8. THE VIEW FROM ABOVE- DOES FEMA KNOW?
9. "HEY"- WE HAVE SOLUTION IDEAS
10. NOW WHAT?

THE TALE OF THE
DOG'S TAIL

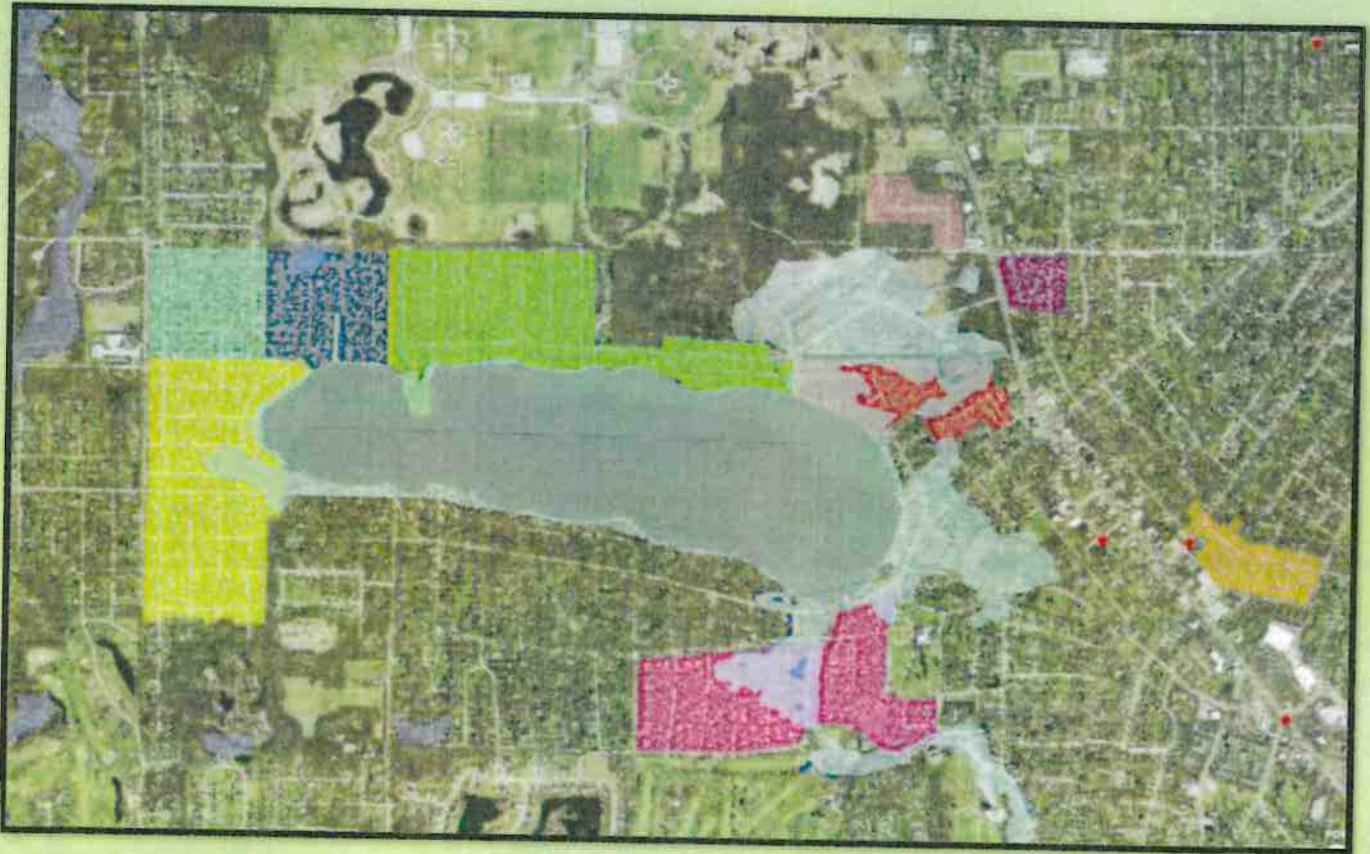




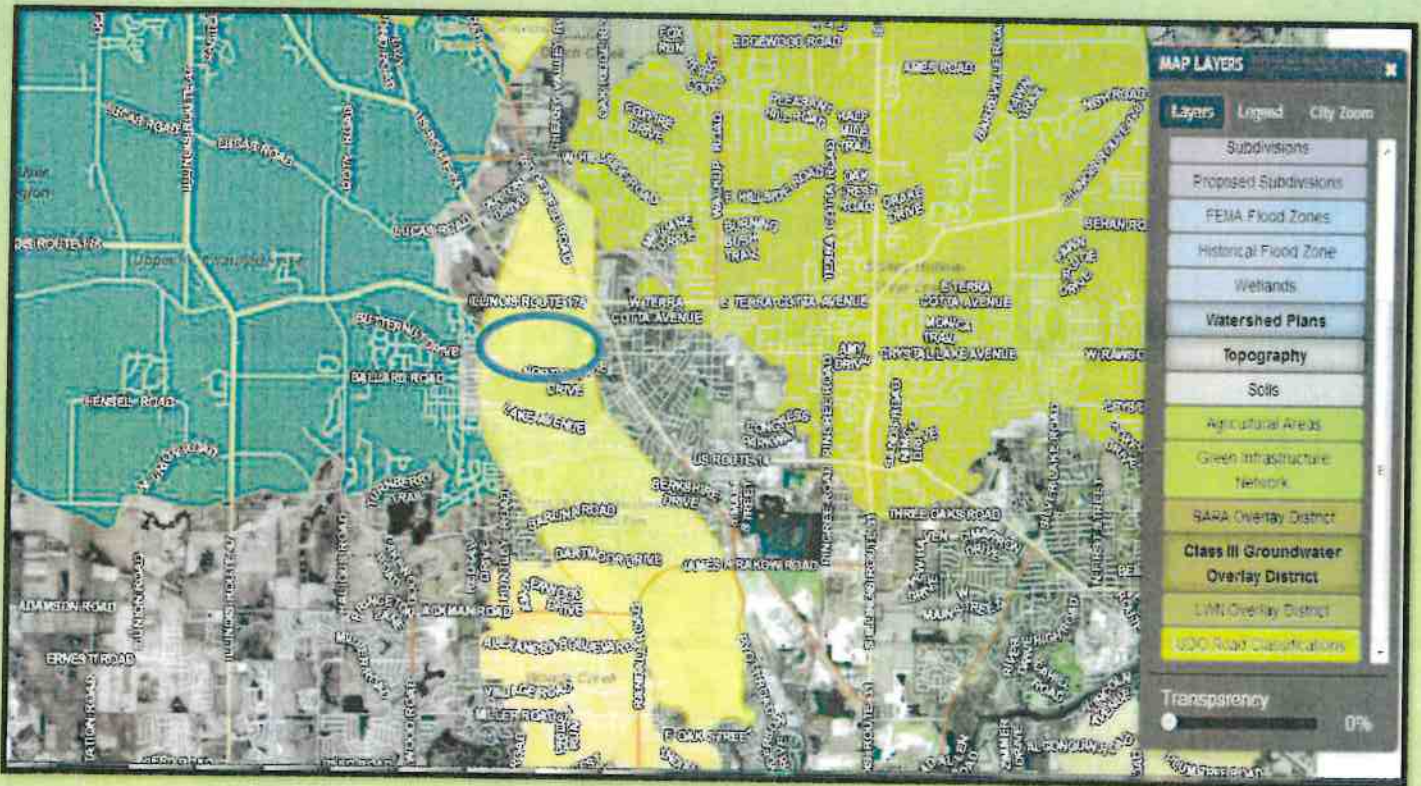
COMBINED FLOOD IMPACT 2007, 2013, 2017



ZOOM IN TO HIGH RISK AREAS

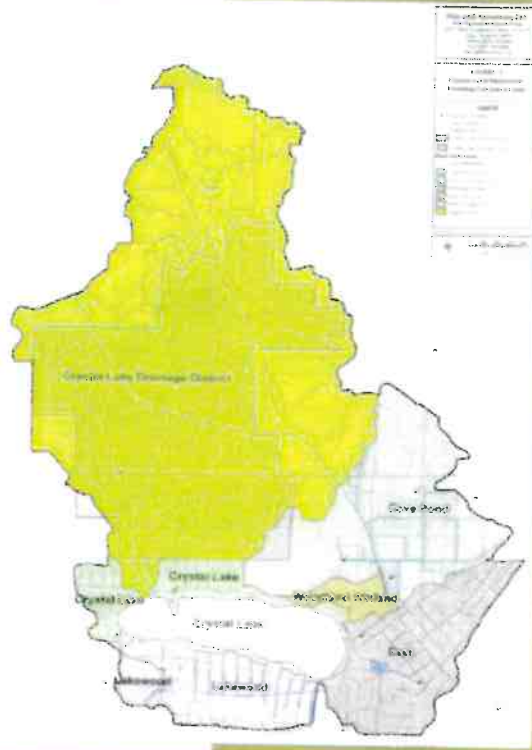


2007 FLOOD IMPACT AND FLOOD PLAIN AREAS



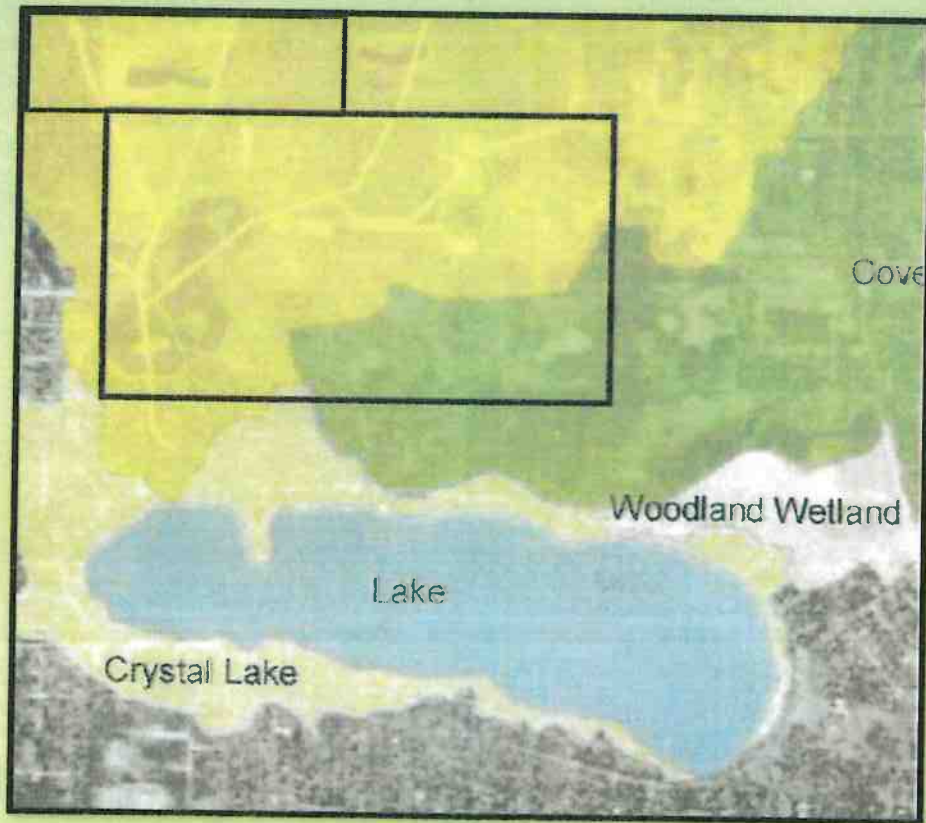
GROUNDWATER OVERLAY

Name	Drainage Area (acres)
Lippold Watershed	2,400
Cove Pond and Woodland Wetland	640
Direct Drainage Area	190
Lake Surface Area	233
Total	3,463



Hey and Associates, Inc.

INFLOW TO THE LAKE



CLPD PROPERTY



CLPD PROPERTY

	M	NO P	Q	W	X
1 Owner	Mail To CH Sit S D ParcelArea				Acres
2 Total CLPD			20494943.00		470
3 Total Palatine bank			8217353.00		188
4 Total City Crystal Lake			6518746.00		149
5 Total Wdst Bank			5970485.00		137
6 HARRIS TR SVGS BK TR HTP 4001	BARRINGT HI C 2i		4757017.99		109
7 Total Home State Bank Trust			4451015.00		102
8 HILDEGARD A TR ET AL KLAGUES	CRYSTAL L 93 C 2i		3872873.05		
9 KHW MCHENRY LLC	WILMETTE NA 2i		3798785.51		
10 UNIVERSITY OF CHGO LOYOLA	CHICAGO, 27 V 2i		3693631.68		
11 EIGER LLC	WOODSTC NA 2i		3379932.28		
12 CHGO CSMPLTN NATL BK 29727	HINSDALE NA 9i		3189593.77		
13 CHGO CSMPLTN NATL BK 29727	OAK BROO 94 V 9i		3143715.63		
14 BD TRS JR COLLEGE DIST 528	CRYSTAL L 85 C		2879904.74		
15 TRS OF MICH CO COLL DIST 528	CRYSTAL L NA 2i		2439386.61		
16 KILRUSH LLC	CRYSTAL L CH V 2i		2176355.96		
17 WDSTK AMCORE BK NA TR 2696	CRYSTAL L NA 1i		2085597.93		
18 LE RJ TR 101 SELCKE	AUSTIN, T NA 1i		2033862.48		
19 CHGO TITLE TR CO TR 52235	ROLLING P 91 V		1988855.91		
20 WILMETTE LAUREL II LLC	CHICAGO, LL V 2i		1965123.96		
21 Total Lubrizol			1959924.00		

MAJOR UPPER WATERSHED SHAREHOLDERS

Owner	M	NOP	Q	W	X	
	Mail To	Cit	Sit S D	ParcelArea/SF	Acres	Wetland%
Total CLPD				20494943.00	470	65
Total Palatine bank				8217353.00	188	25
Total City Crystal Lake				6518746.00	149	100
Total Wdst Bank				5970485.00	137	25
HARRIS TR SVGS BK TR HTP 4001	BARRINGT	HI	C 2/	4757017.99	109	25
Total Home State Bank Trust				4461015.00	102	25
Total Lubrizol				1959924.00	45	50
Total HSB				768374.00	17	25
TOTAL AREA watershed north of lake (all lots)				53147857.99	2700	

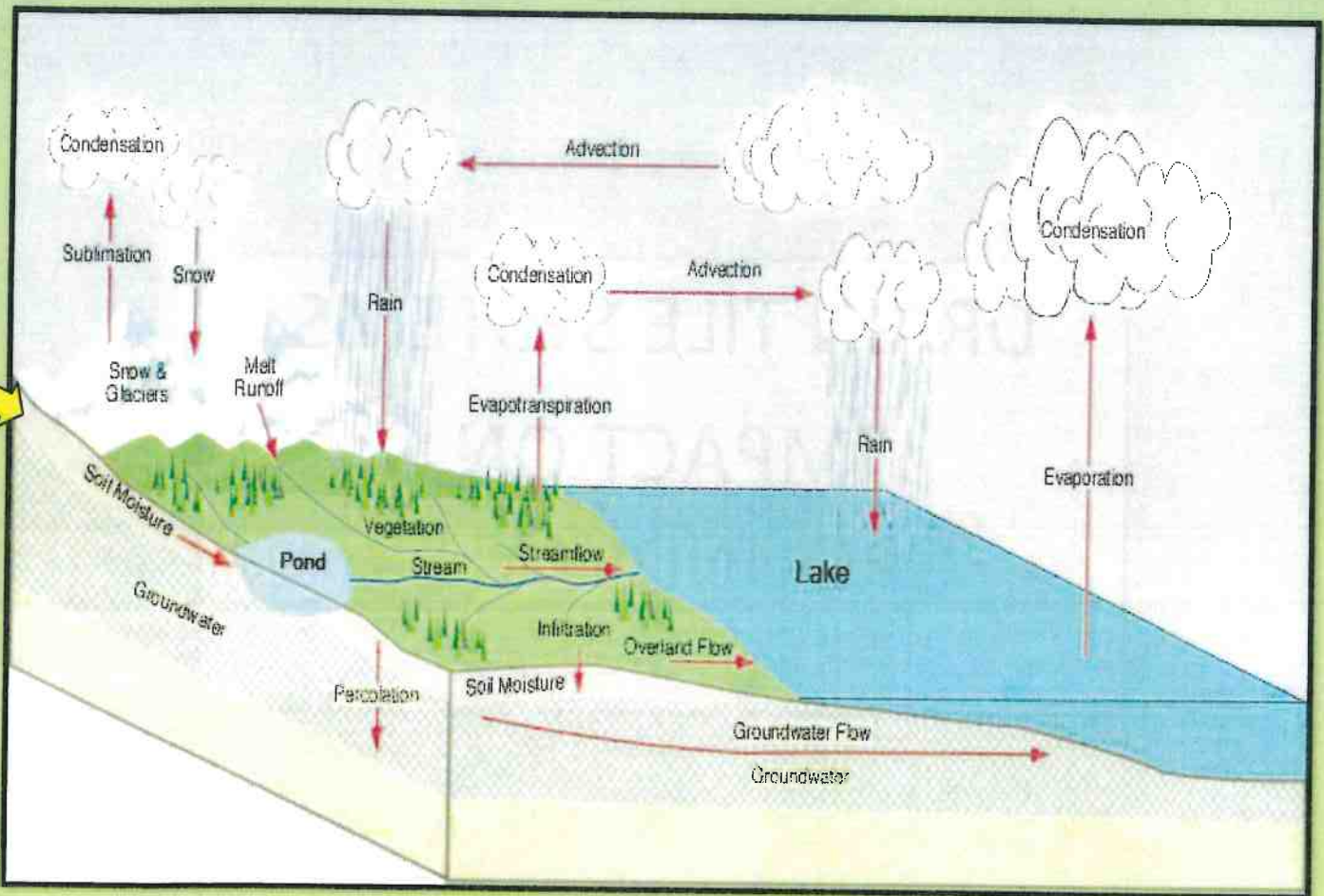
**APPROX WETLAND % BY
MAJOR HOLDERS**

SUMMARY OF “DOG TAILS”

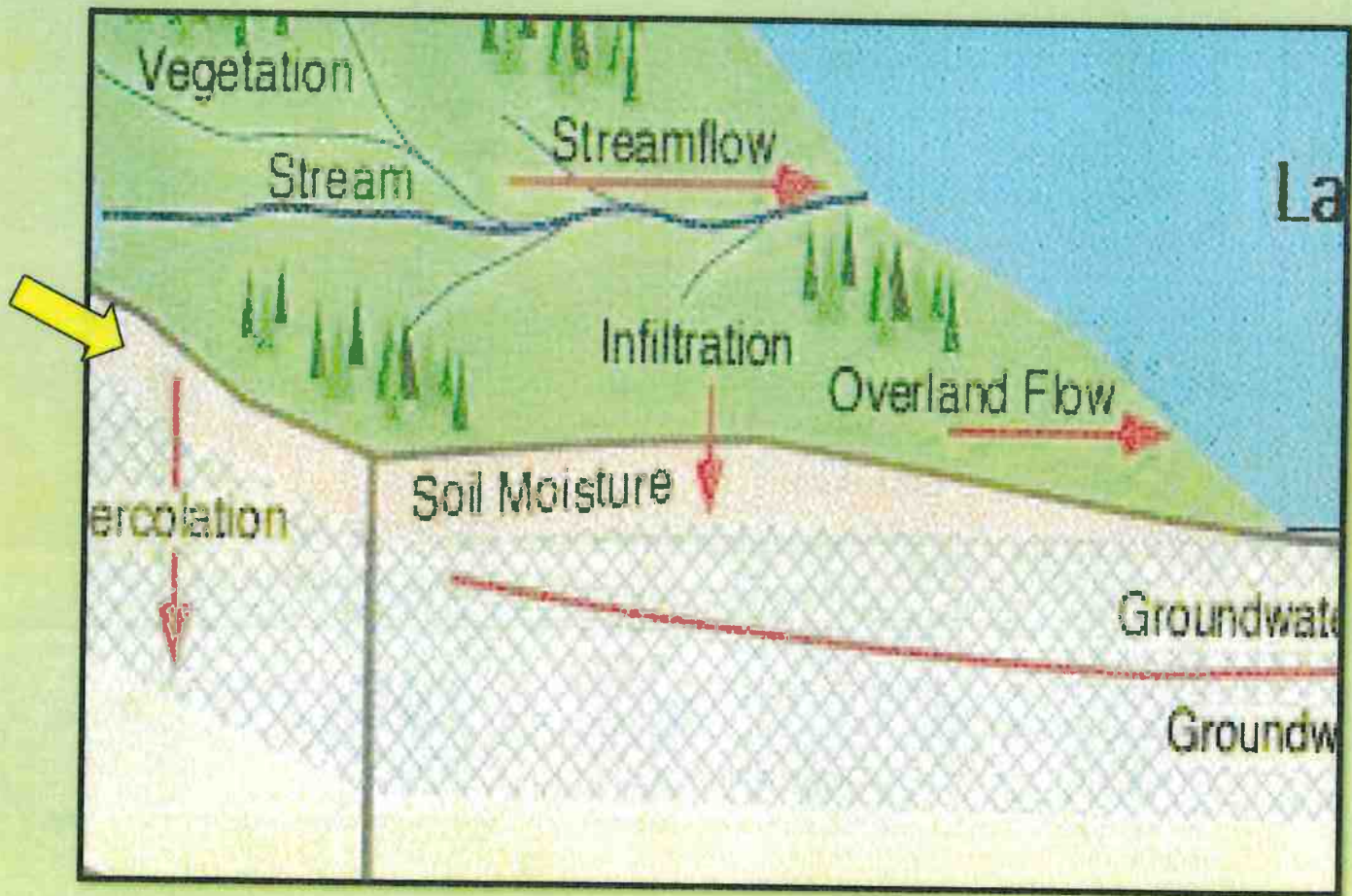
THE MOST SEVERE AND
CHRONIC HIGH RISK AREAS FOR
FLOODING ARE UPSTREAM OF
THE LAKE

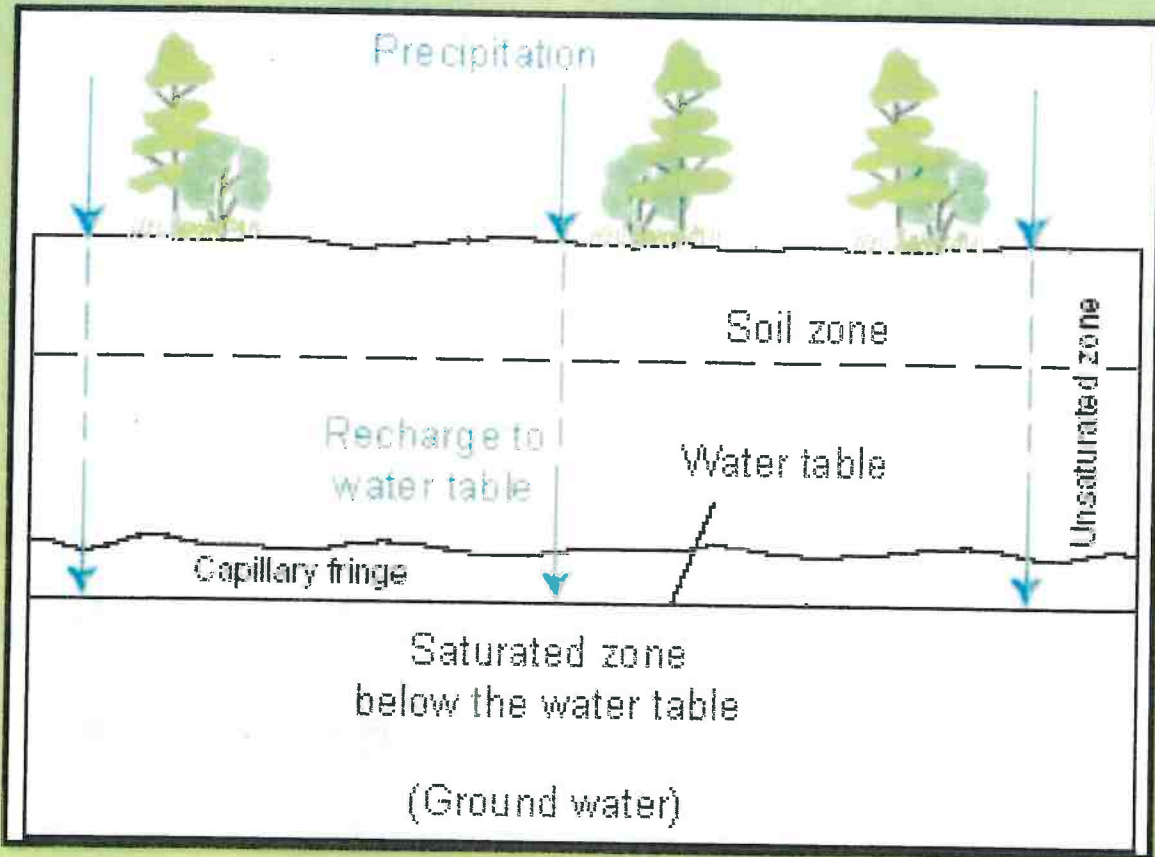
AREAS FURTHER UPSTREAM
MAY HOLD BEST POTENTIAL FOR
IMPACT ON REDUCING
FLOODING TO DOWNSTREAM
URBAN AREAS

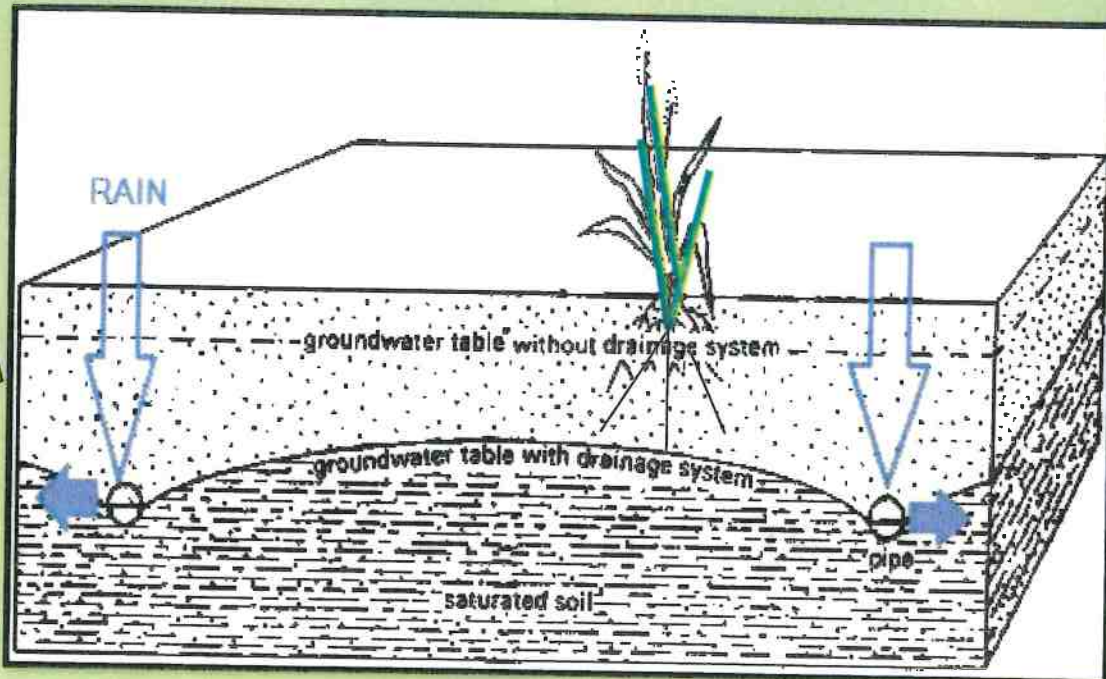
**DRAIN TILE SYSTEMS
IMPACT ON
GROUNDWATER**



HYDROCYCLE BUDGET- A REVIEW

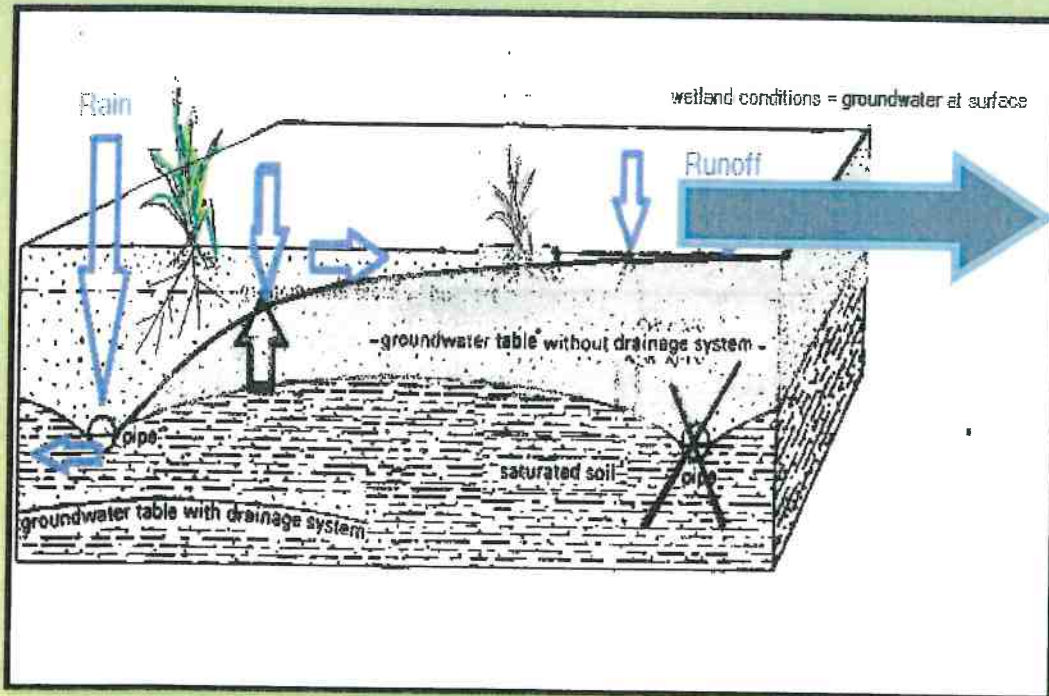






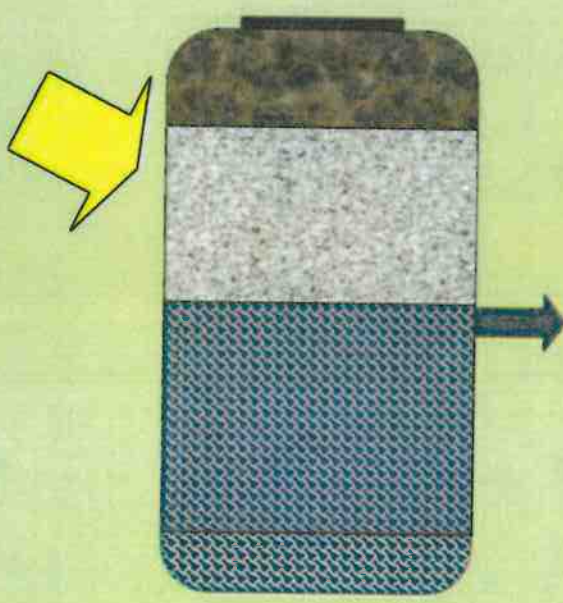
AGRICULTURE

Lowered Groundwater to a Consistent Depth for Optimal Crop Health and Yield

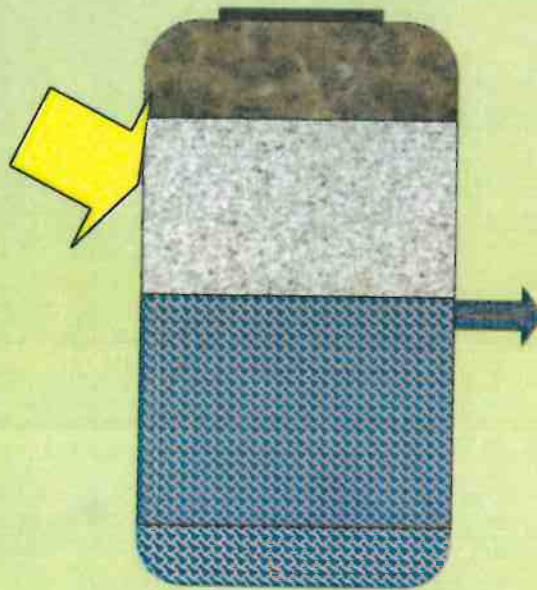


Loss of Drain Tile Systems

MOTHER NATURE



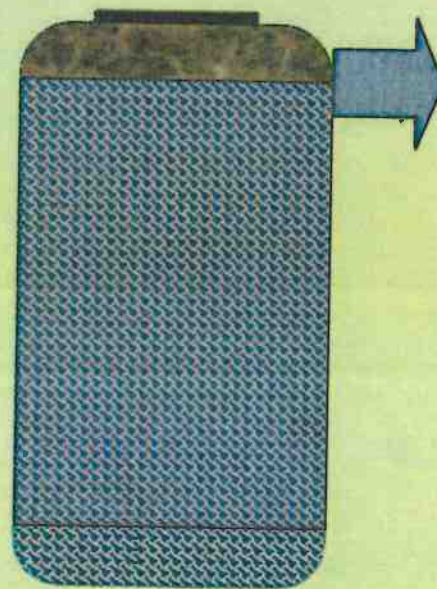
MOTHER NATURE



GROUNDWATER
TRAVEL
AND AQUIFERS

REDUCED
RUNOFF
PROVIDE
STORAGE
AND
FILTRATION
AND SEDIMENT
REMOVAL

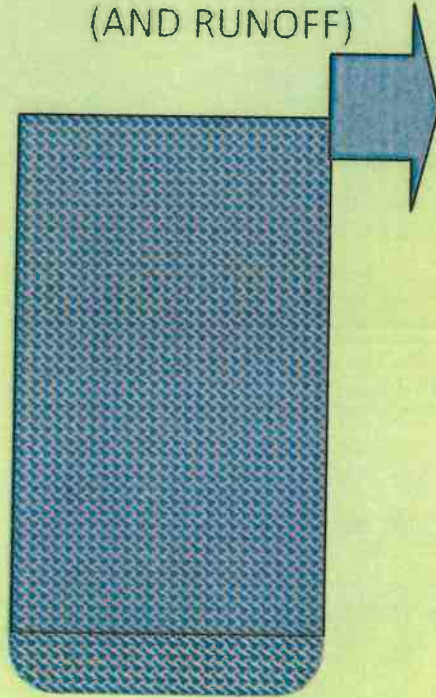
MOTHER NATURE'S HIGH GROUND WATER



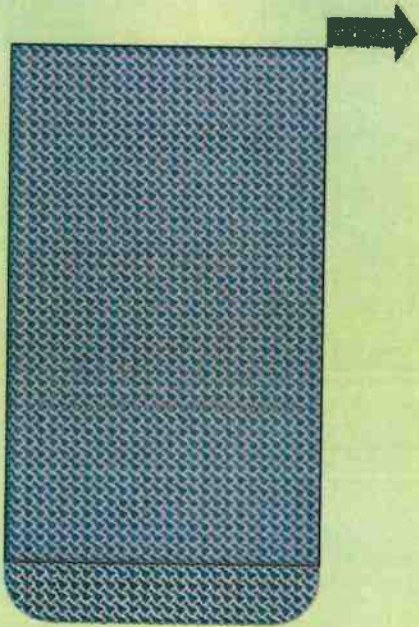
LIMITS TO
GROUNDWATER
STORAGE

RUNOFF TO
STREAMS
PONDS
LAKES
OCEANS

MOTHER NATURE'S WETLAND
(AND RUNOFF)



MOTHER NATURE'S WETLAND
(AND RUNOFF)

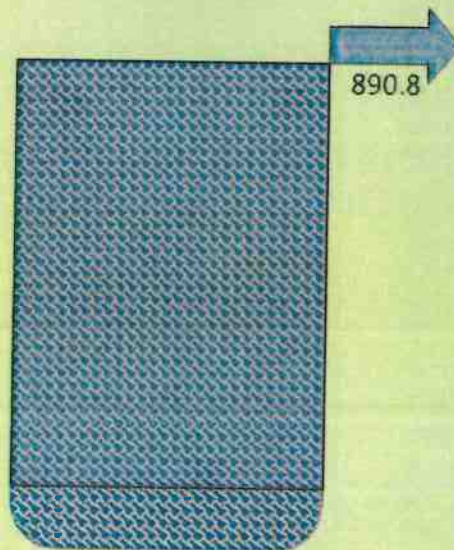


IS A WETLAND
IMPERVIOUS?

SPONGE IS FULL
WHEN RAIN
INCREASES

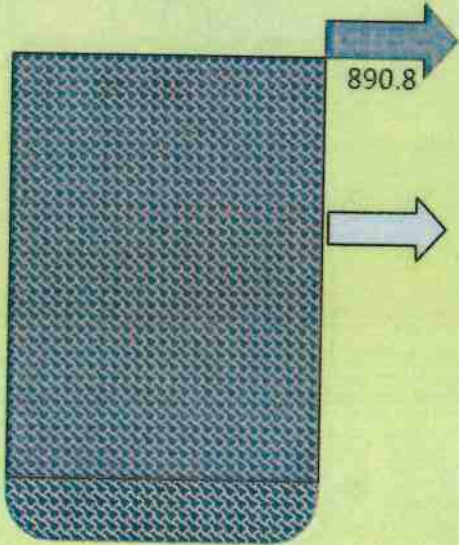
GROUNDWATER
RISES IF NO
DRAIN AVAILABLE

THE LAKE WIER



— A VARIABLE TO THE DRAIN CONCEPT —

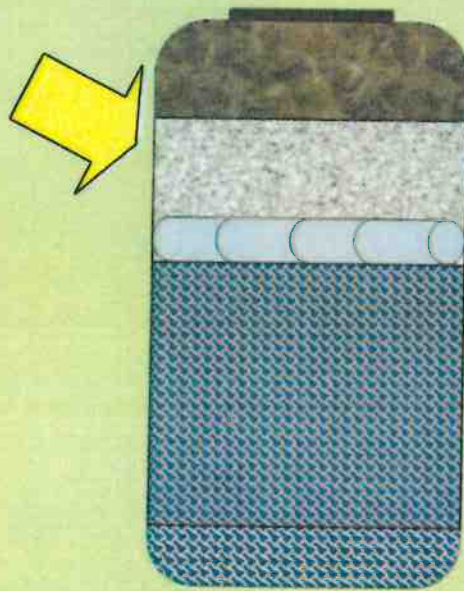
THE LAKE WIER



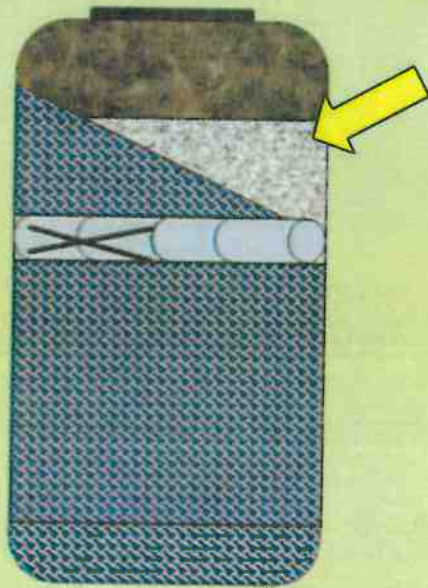
REDUCE RUNOFF
PROVIDE
STORAGE
AND
FILTRATION
AND SEDIMENT
REMOVAL

A STABLE AND PERMANENT DRAIN

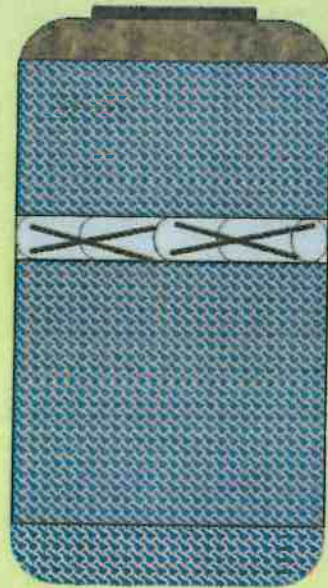
DRAIN TILES LOWER THE
GROUNDWATER LEVEL



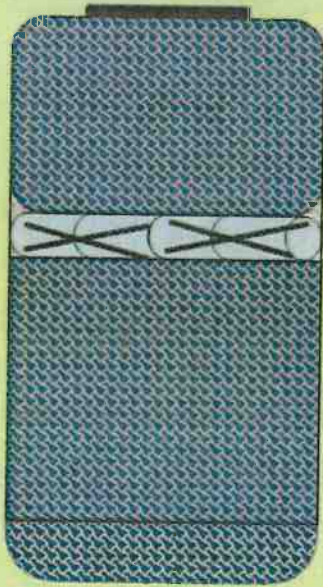
DAMAGED OR AGED DRAIN TILES



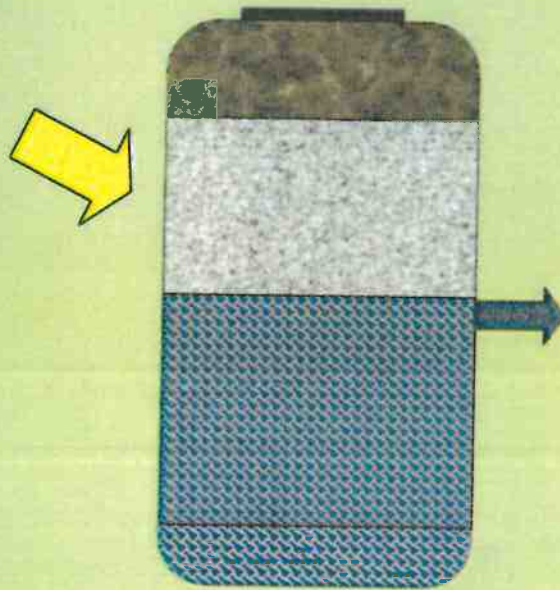
NON-FUNCTIONING DRAIN TILES

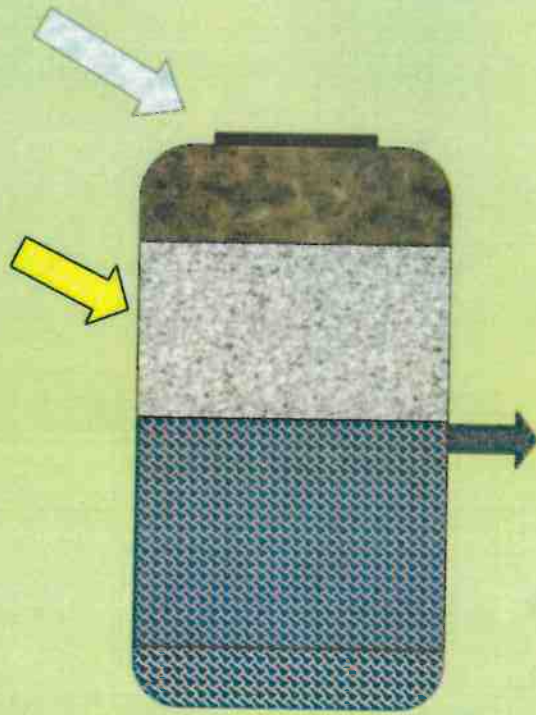


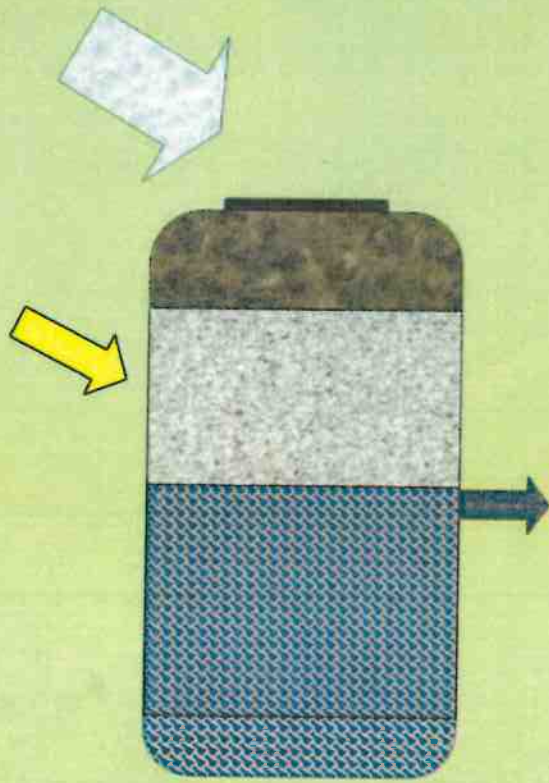
NON-FUNCTIONING DRAIN TILES RETURN TO ORIGINAL WETLANDS



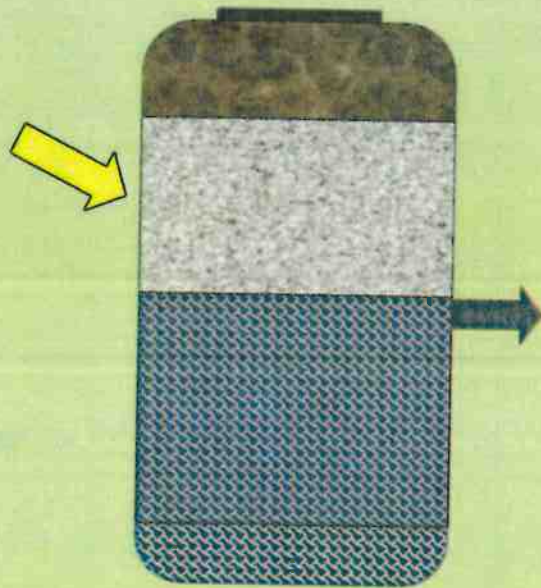
IMPACT OF MORE RAIN?



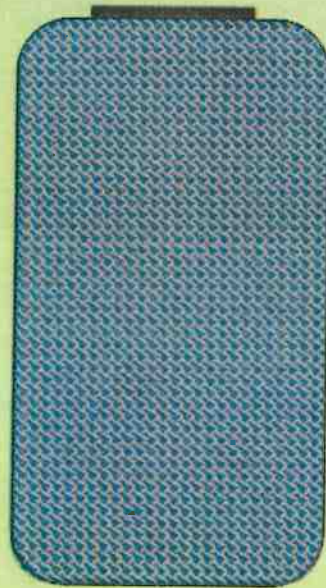




CAN MORE RAIN ALONE CHANGE NATURAL STATUS OF GROUNDWATER LEVELS?



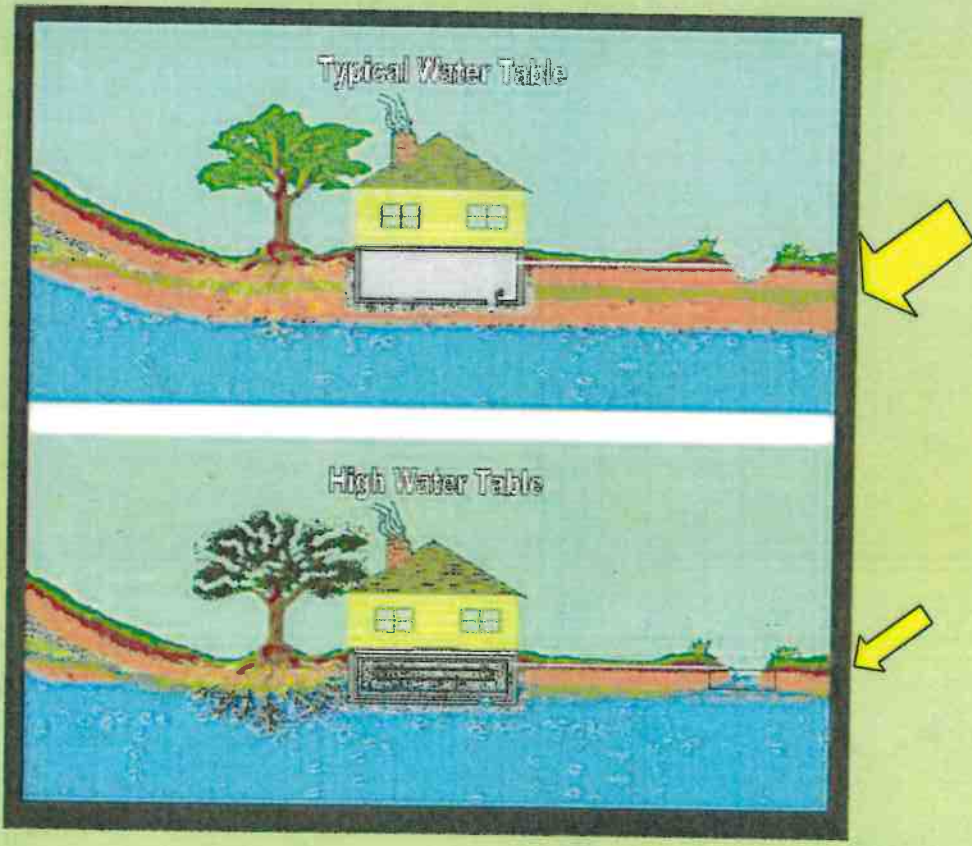
ONLY IF THE DRAIN STATUS IS CHANGED
(WIER, DAMS, LEVEES, DRAIN TILES SYSTEMS,
CHANGE IN ELEVATIONS/SOILS, ETC)

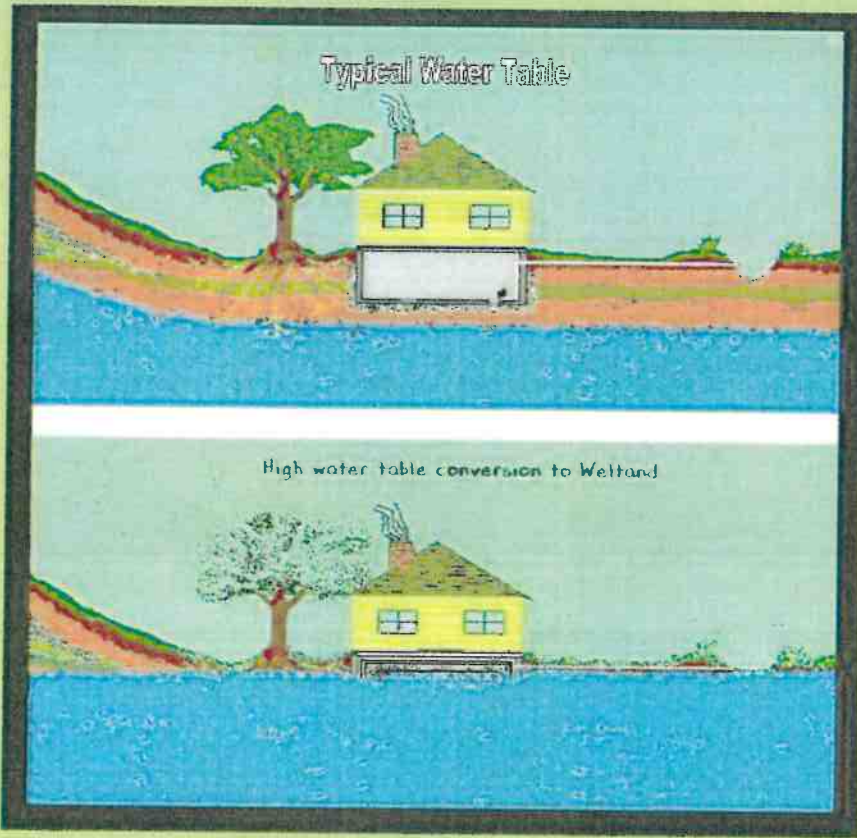


**OTHER FACTORS THAT IMPACT
GROUNDWATER (ALTER THE SPONGE)**

COMPACTION OF SOILS
CHRONIC FLOODING
HYDRIC SOILS
POOR DRAINING SOILS
CHANGING ELEVATIONS
FILLING DEPRESSIONS
HOME GUTTER/SUMP DISCHARGE

THE IMPACT





'NEW' HIGH GROUNDWATER IMPACT

LESS STORAGE

LESS FILTRATION

MORE UNFILTERED RUNOFF DOWNSTREAM

WIDESPREAD FLOODING

STRUCTURE DAMAGE

TREE LOSS

SUMMARY OF DRAIN TILES

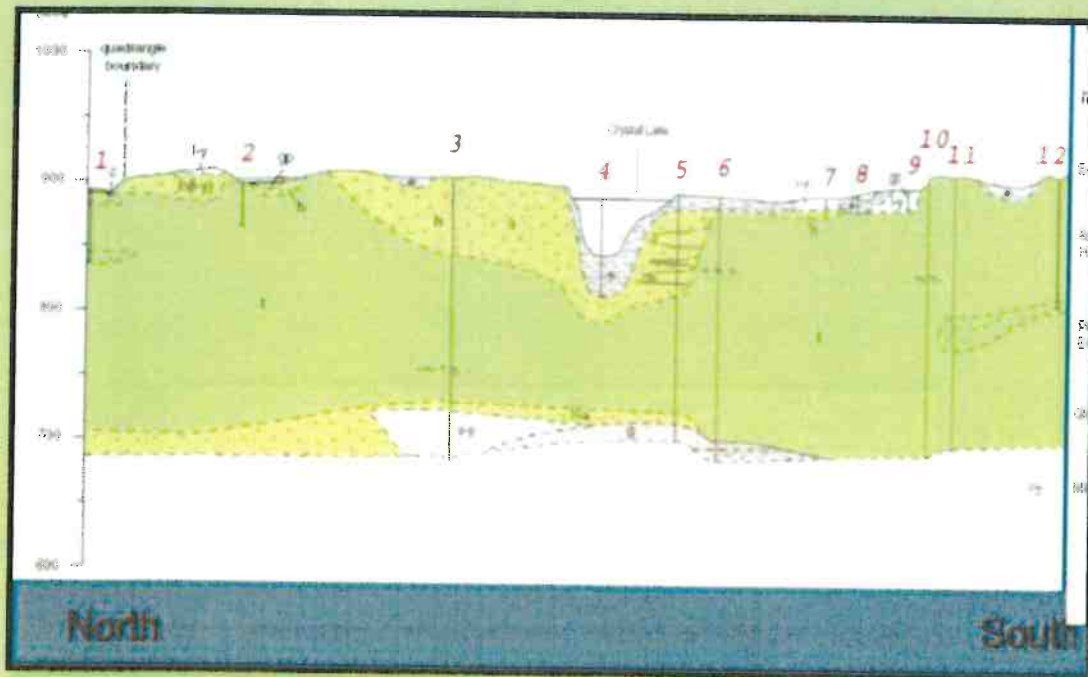
DRAIN TILE SYSTEMS LOWER
GROUNDWATER LEVELS

DRAIN TILE SYSTEMS CREATE A
"SPONGE LAYER"

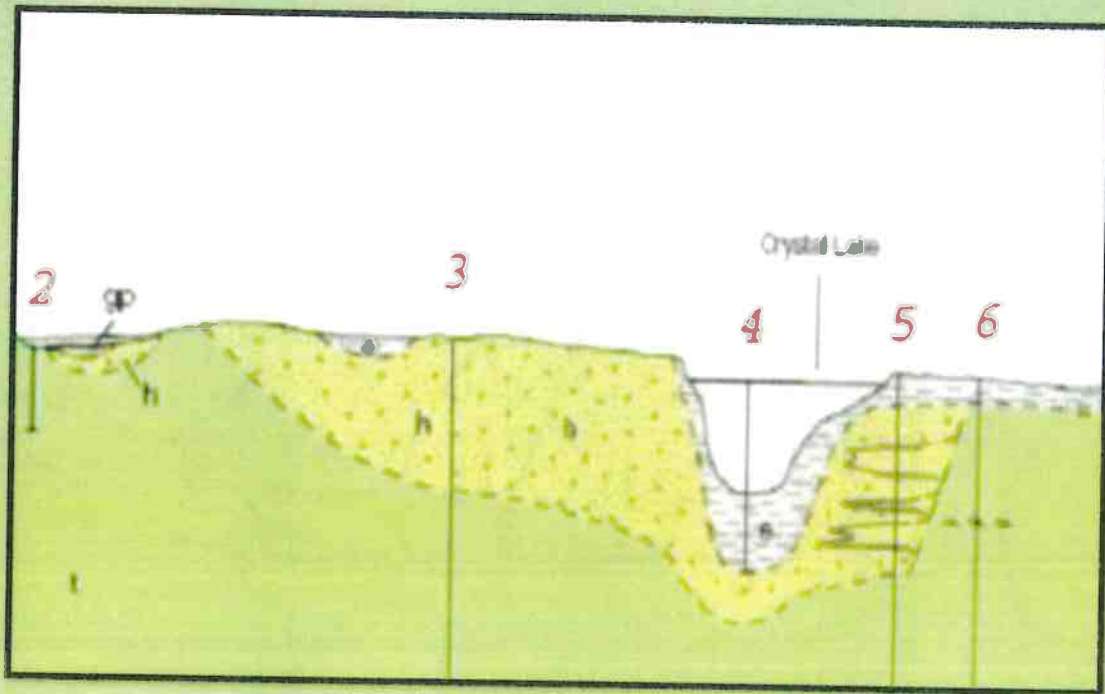
DRAIN TILE SYSTEMS REDUCE MANY OF
THE IMPACTS FROM HIGH
GROUNDWATER

LOSS OF DRAIN TILE SYSTEMS CREATE
NEW OR RETURN OF PREVIOUS
WETLANDS = LOSS OF SPONGE LAYER

THE BIRTH OF A LAKE

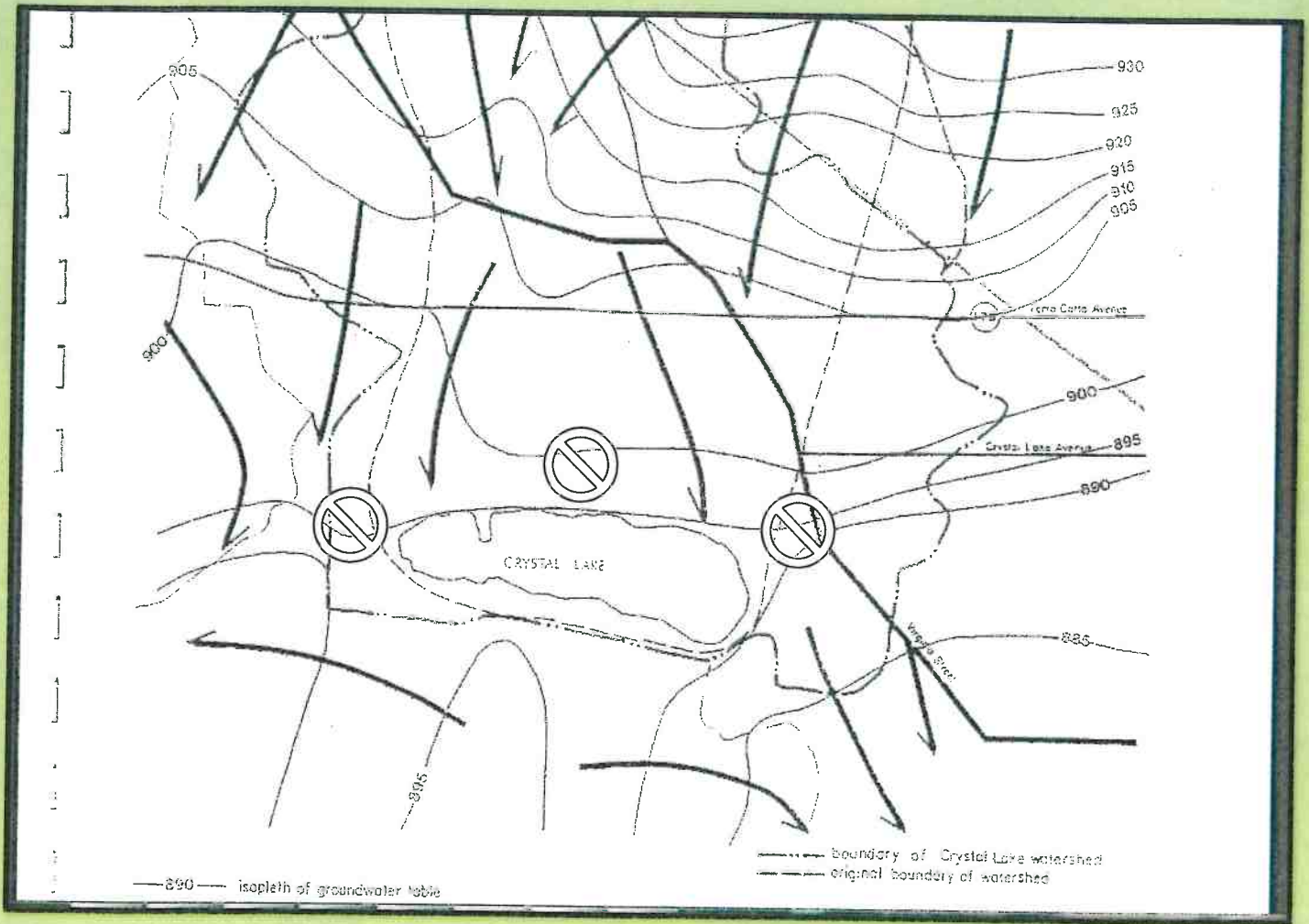


CREATED BY GLACIERS
FED BY LATERAL GROUNDWATER AS
PART OF A NATURAL AQUIFER



DIRECTION OF GROUNDWATER

46

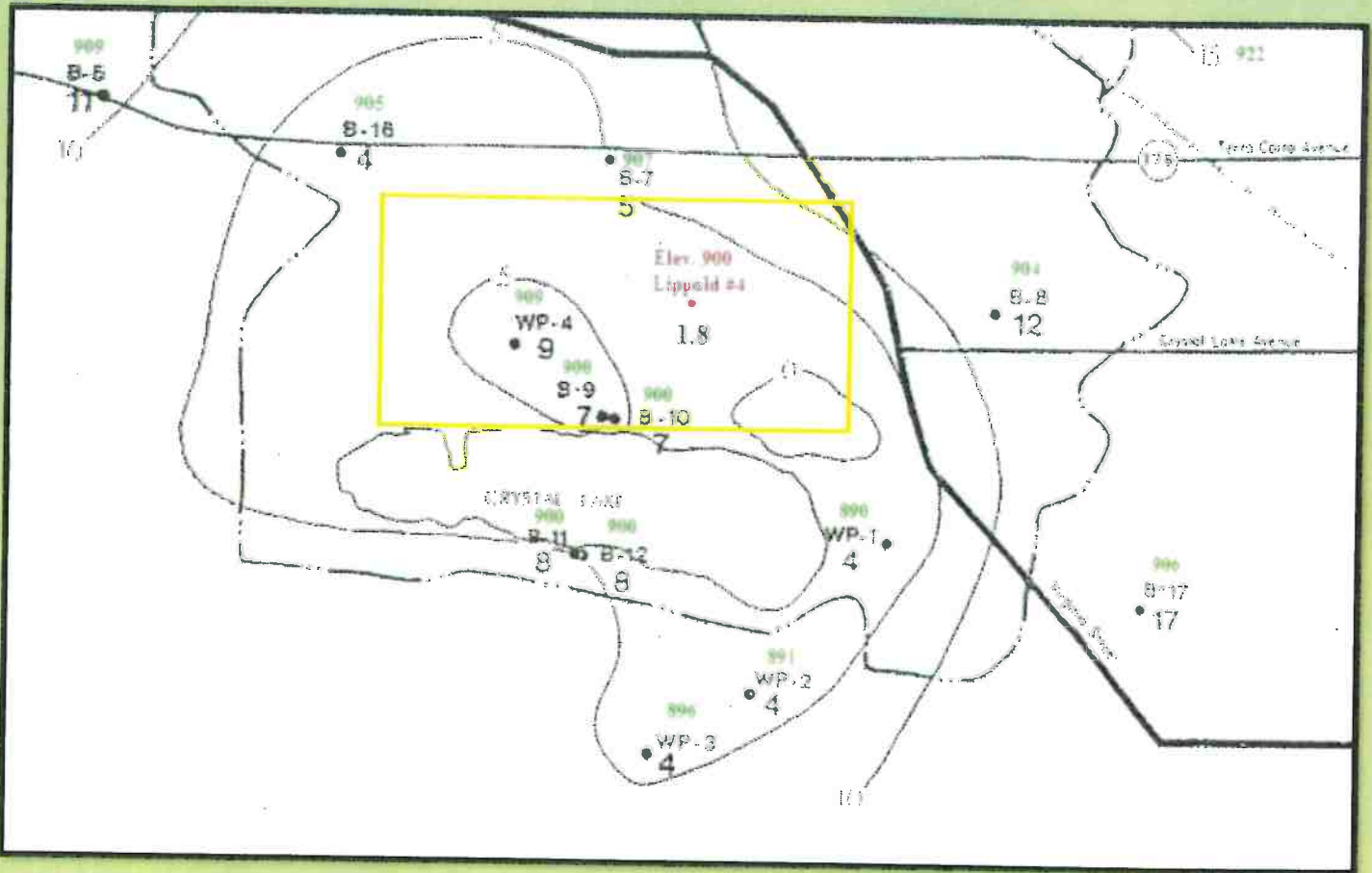


TOPOGRAPHY FOR RUNOFF/DEPRESSIONS



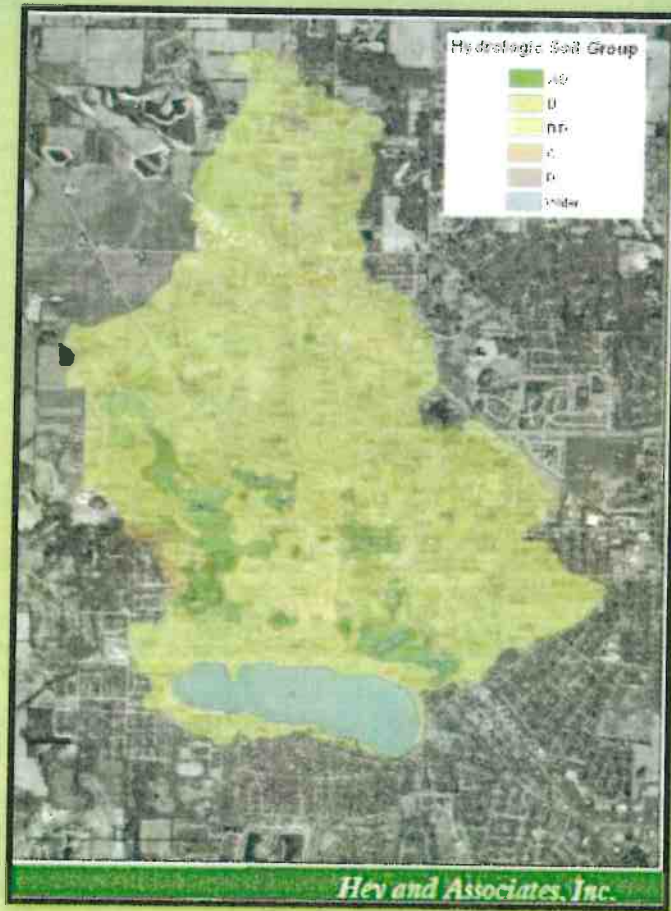
NATURAL HIGH RISK FLOOD AREAS





GROUNDWATER LEVELS IN 1974

FAIRLY GOOD DRAINING SOILS UNLESS THEY ARE SATURATED



HEALTH OF LAKE AND BAUER STUDY
IN 1974 STARTED MANY CHANGES TO
THE THINKING ON LAKE PROTECTION
STOP ALL SURFACE RUNOFF LIKE
CREEKS AND STREAMS
NO ADDED STORM SEWERS
CLDD FERTILIZER IMPACT
REMOVE SEPTIC TANKS
FIND AND PROTECT WETLANDS
REDUCE IMPERVIOUS

SUMMARY OF LAKE HISTORY

CRYSTAL LAKE IS A LOW SPOT IN A
SUPERFICIAL AQUIFER MOSTLY TO
THE NORTH

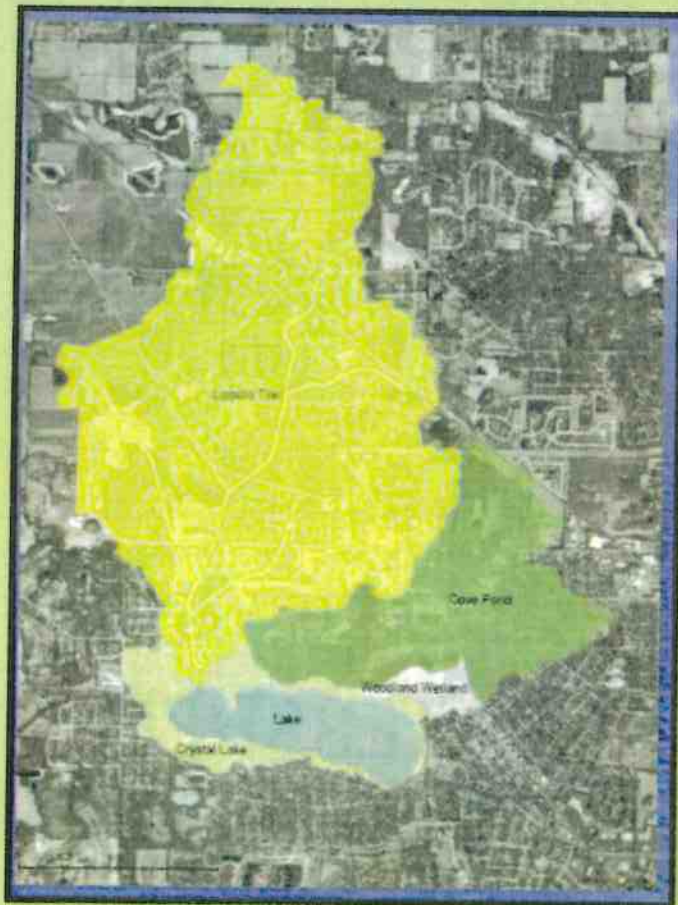
ELEVATIONS, SOIL TYPES, AND
DRAINAGE FACTORS INFLUENCE
WATER BEHAVIOR

MANAGEMENT OF STORMWATER IS
CRITICAL TO LAKE HEALTH

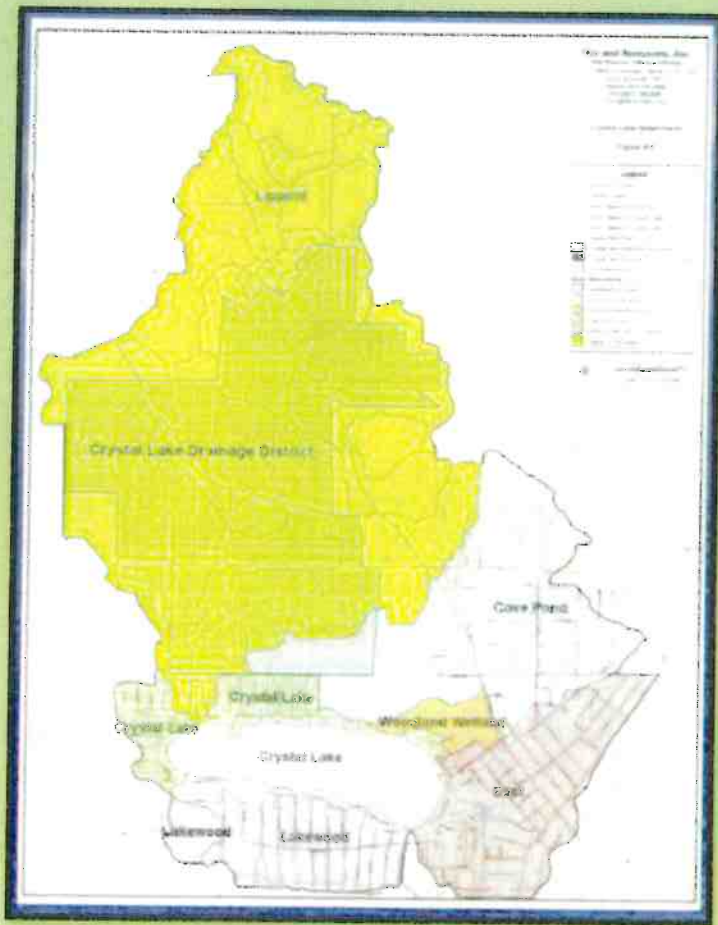
CRYSTAL LAKE
DRAINAGE
DISTRICT

*

THE
WATERSHED







WATERSHED ACRES(2009)

LAKEWOOD 299

COVE POND 640

WOODLAND WETLAND 55

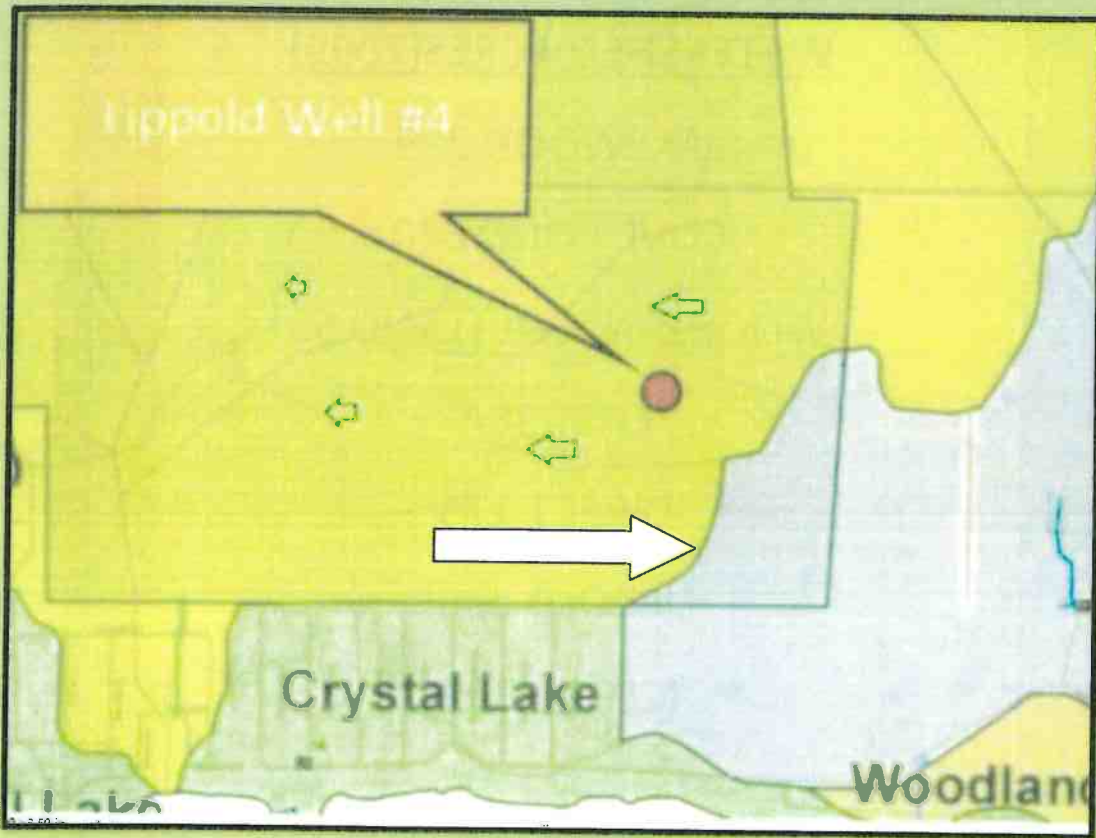
EAST 384

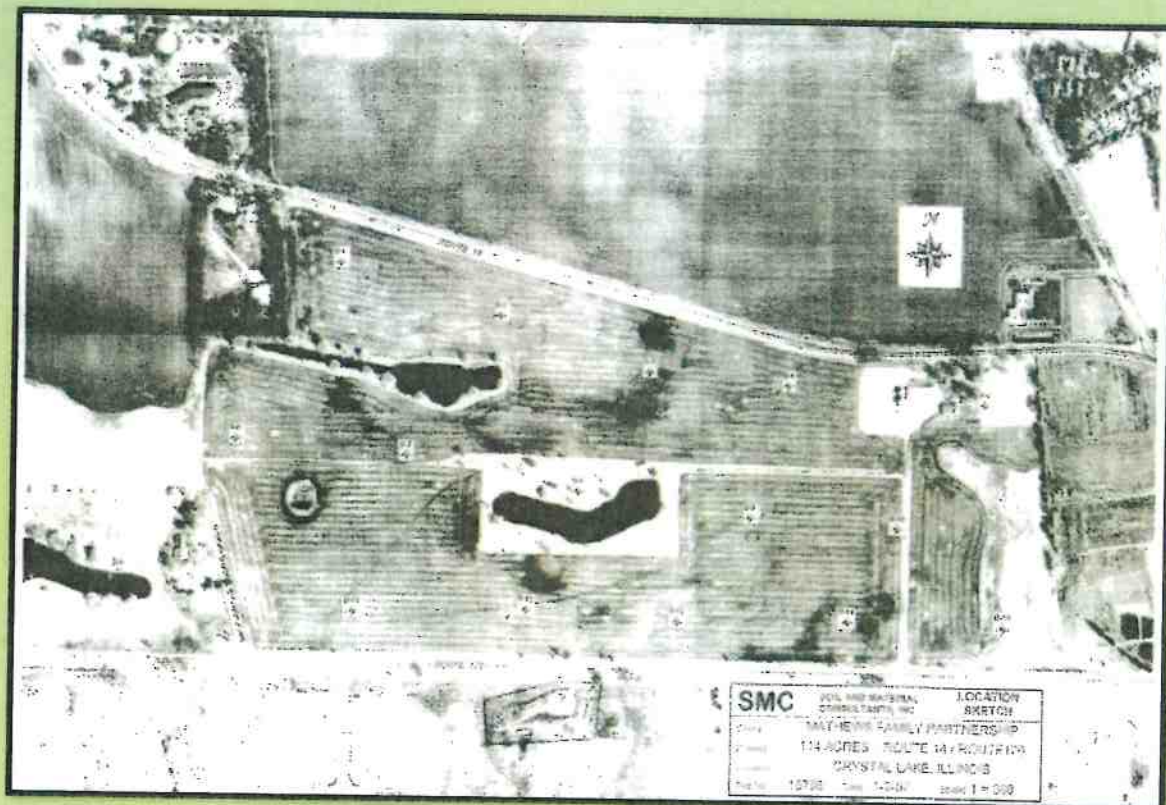
DIRECT 175

LIPPOLD 2305

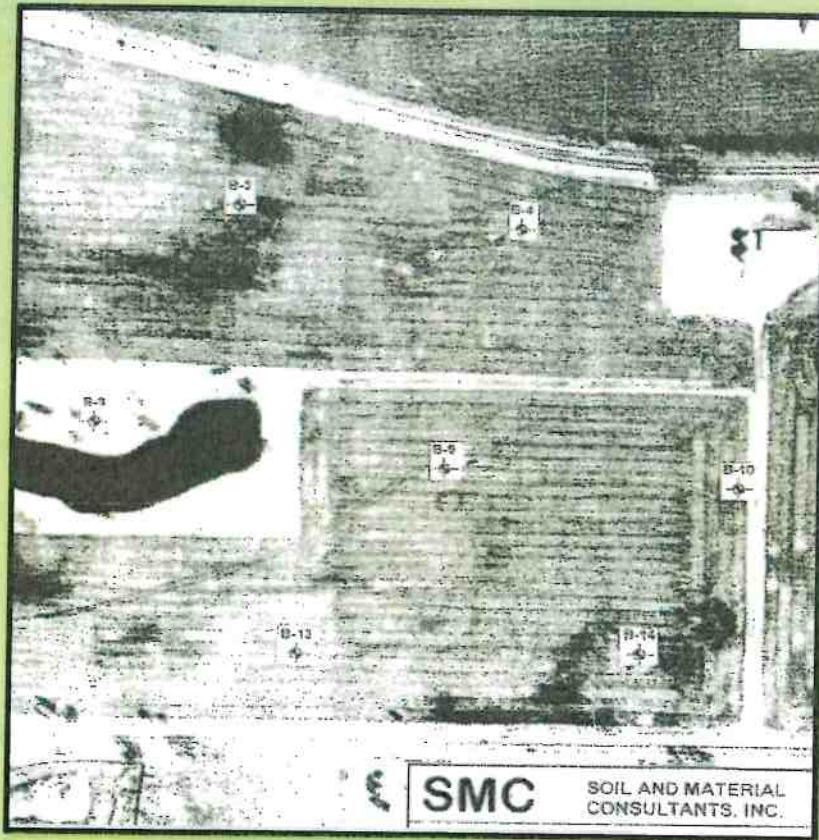
(CLDD 1305)

RESEARCH CONTINUES ON SUBWATERSHED LINES

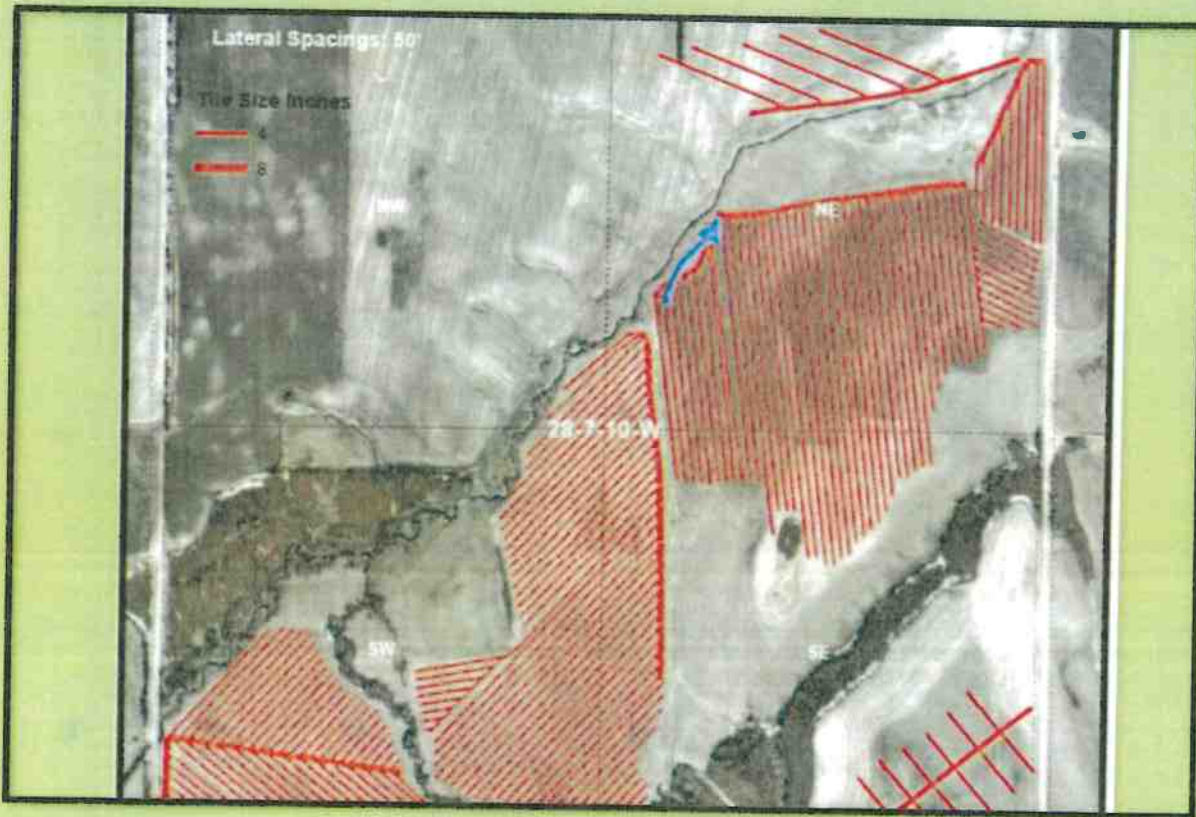




PROPERTY NORTH OF 176



DRAINAGE DISTRICT DRAIN TILE EXAMPLE
IMPACT ON GROUNDWATER



FARMERS CONNECT SMALL TILES TO THE MAIN LARGE TILE LINES - REQUIRE REGULAR MAINTENANCE





SUMMARY OF CLDD REVIEW

THE DRAINAGE DISTRICT BUILT IN 1917 WAS IN A CRITICAL LOCATION FOR WATER MOVEMENT CHANGE

THE DRAIN TILES FUNCTIONED TO CREATE A 1300 ACRE 'SPONGE' 4-5 FEET DEEP

THE AREA HAD A FLAT TERRAIN, VARYING DEPRESSIONS, HIGH GROUNDWATER RUNNING S/SE, AND POOR SOILS ON THE SURFACE

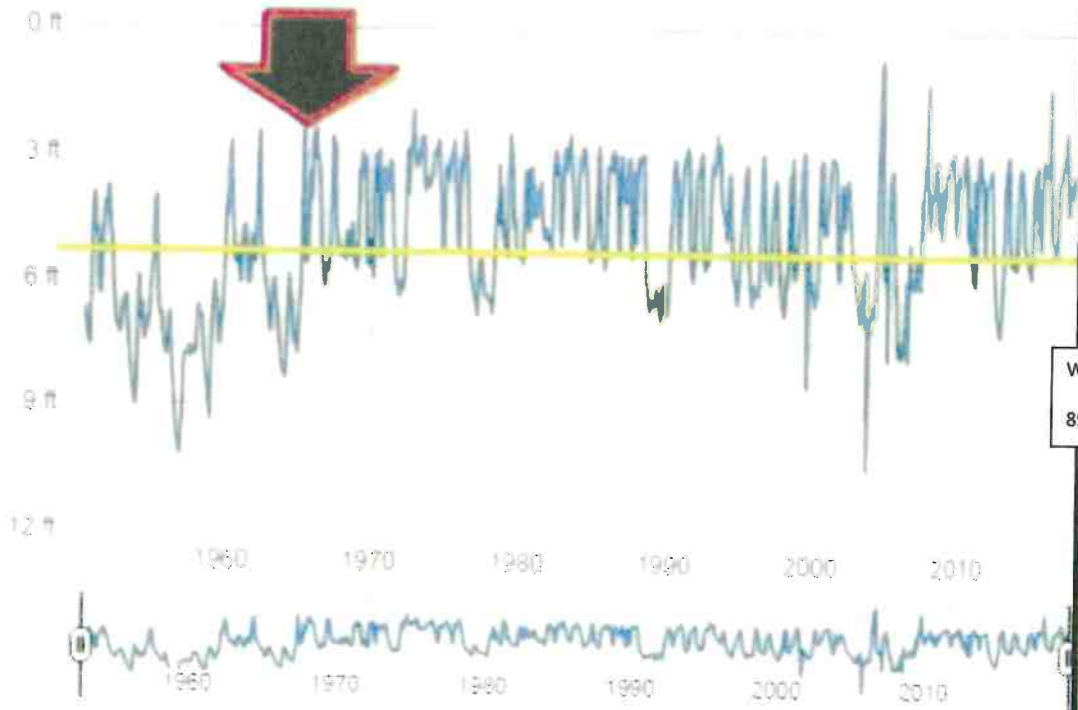
THE CLDD AS BUILT SENT TOO MUCH FERTILIZER TO THE LAKE

Rain And Lake level Data

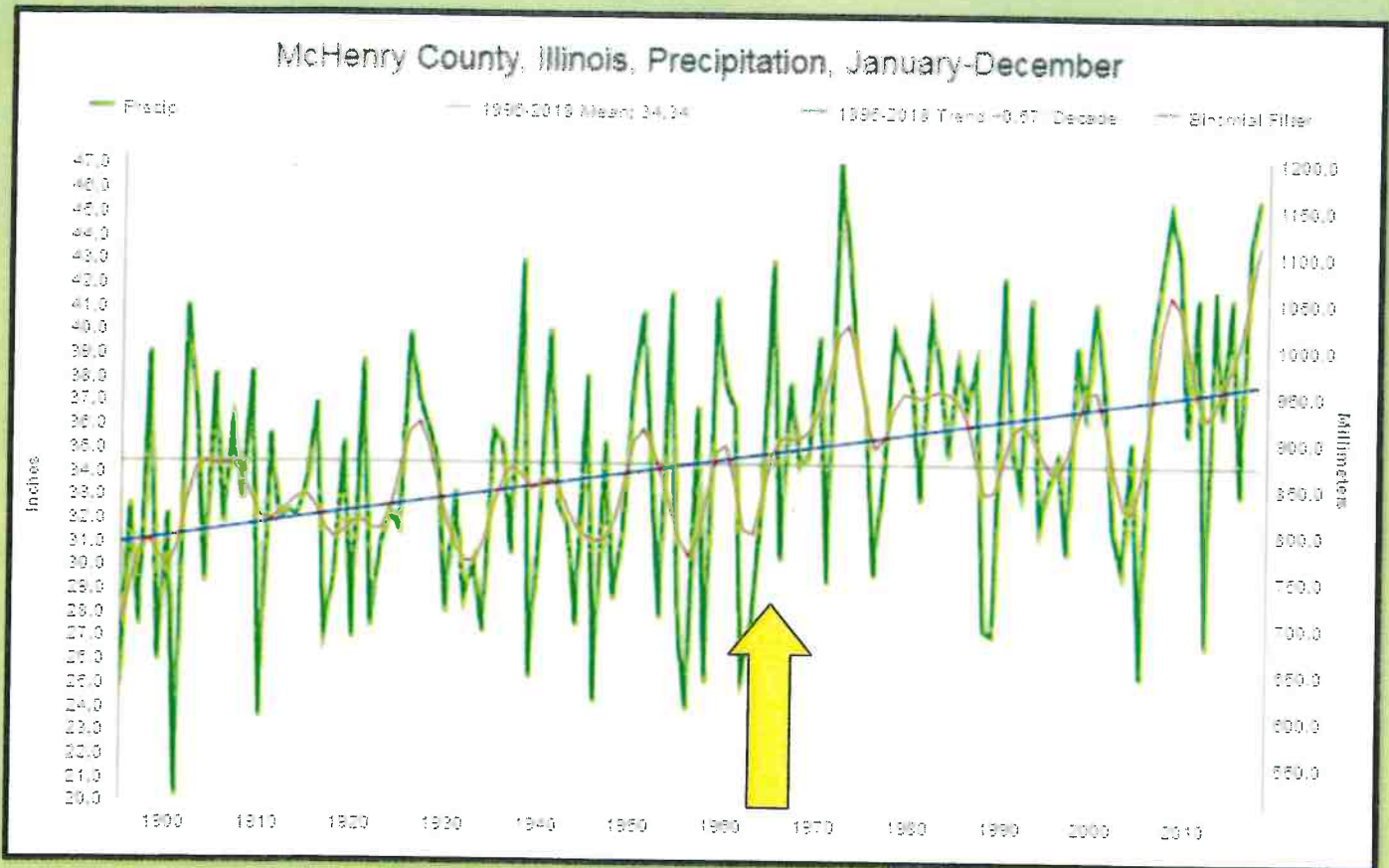
Illinois
State
Water
Survey

2204
Griffith Dr
Champaign, IL
61820-7463

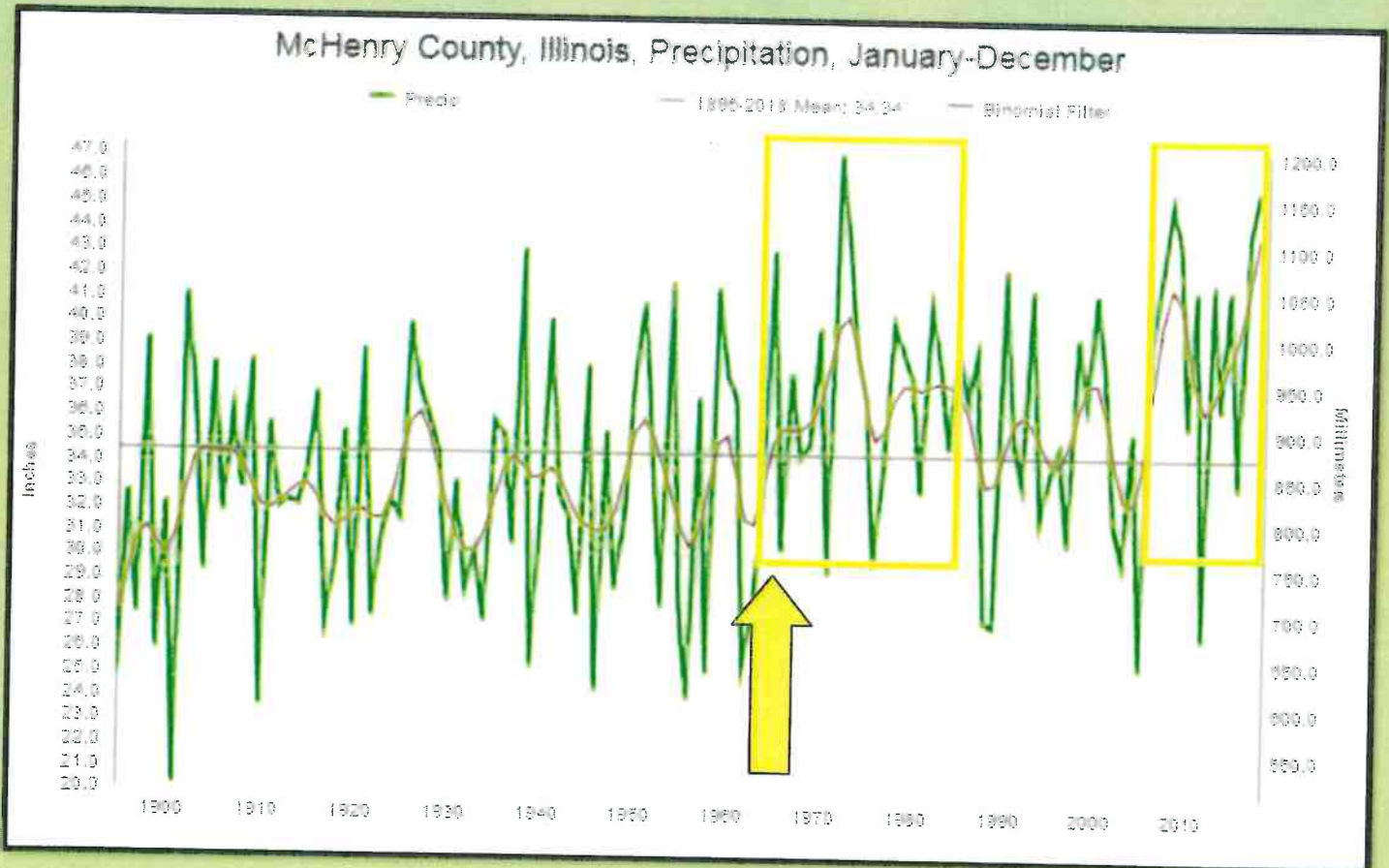
Depth-to-Water Data for Crystal Lake



SINCE ABOUT 1965 THE LAKE IS MOSTLY AT OR OVER THE WEIR
OCCASIONAL DROUGHT YEARS STILL OCCUR

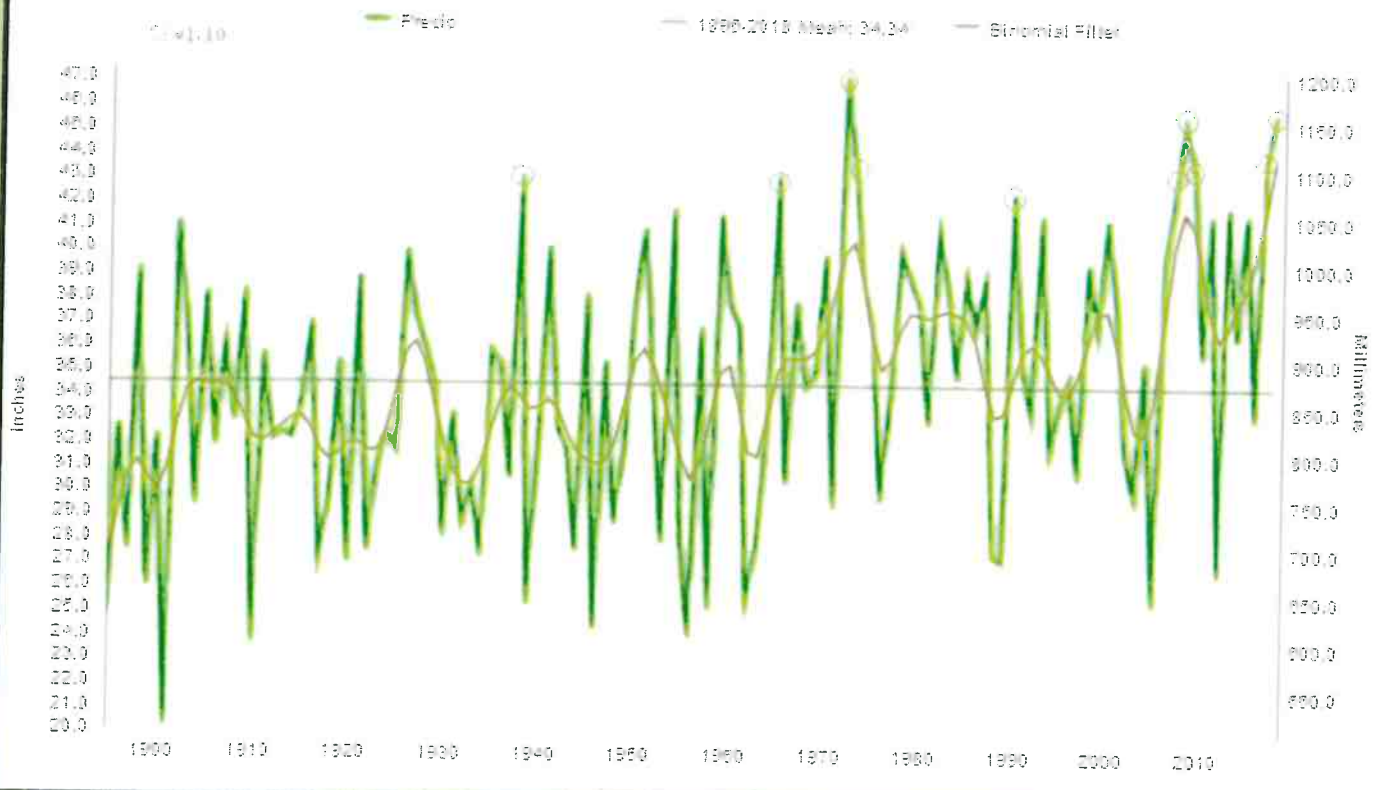


1965 MARKS A TURNING POINT IN RAIN FALL COMPARED TO PRIOR 80 YEARS

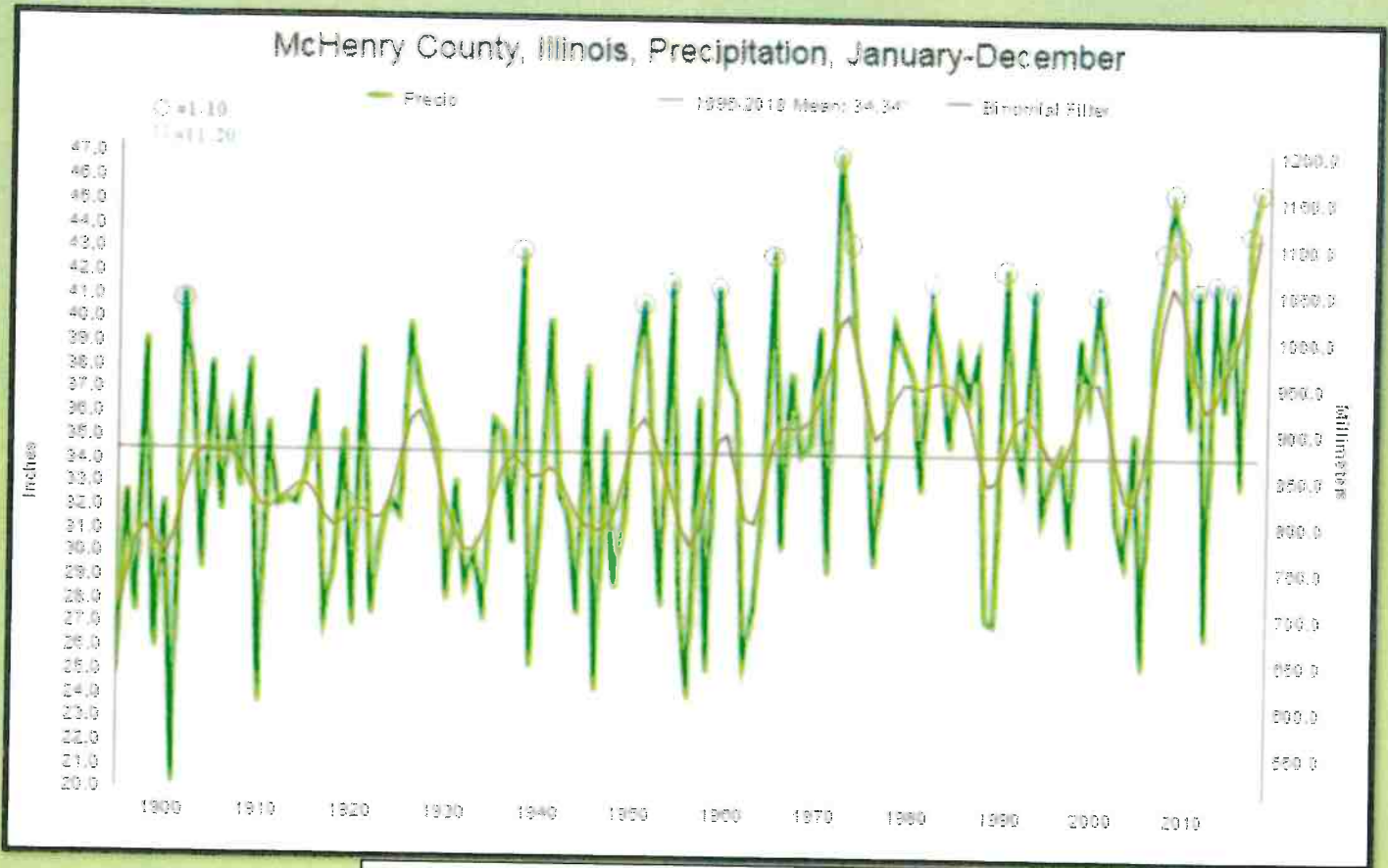


**THE YEARS 1965-1985 MARKED THE WETTEST 20 YEARS IN HISTORY AT THAT TIME
UNTIL 2007-2017, NOW THE WETTEST 10 YEARS IN HISTORY**

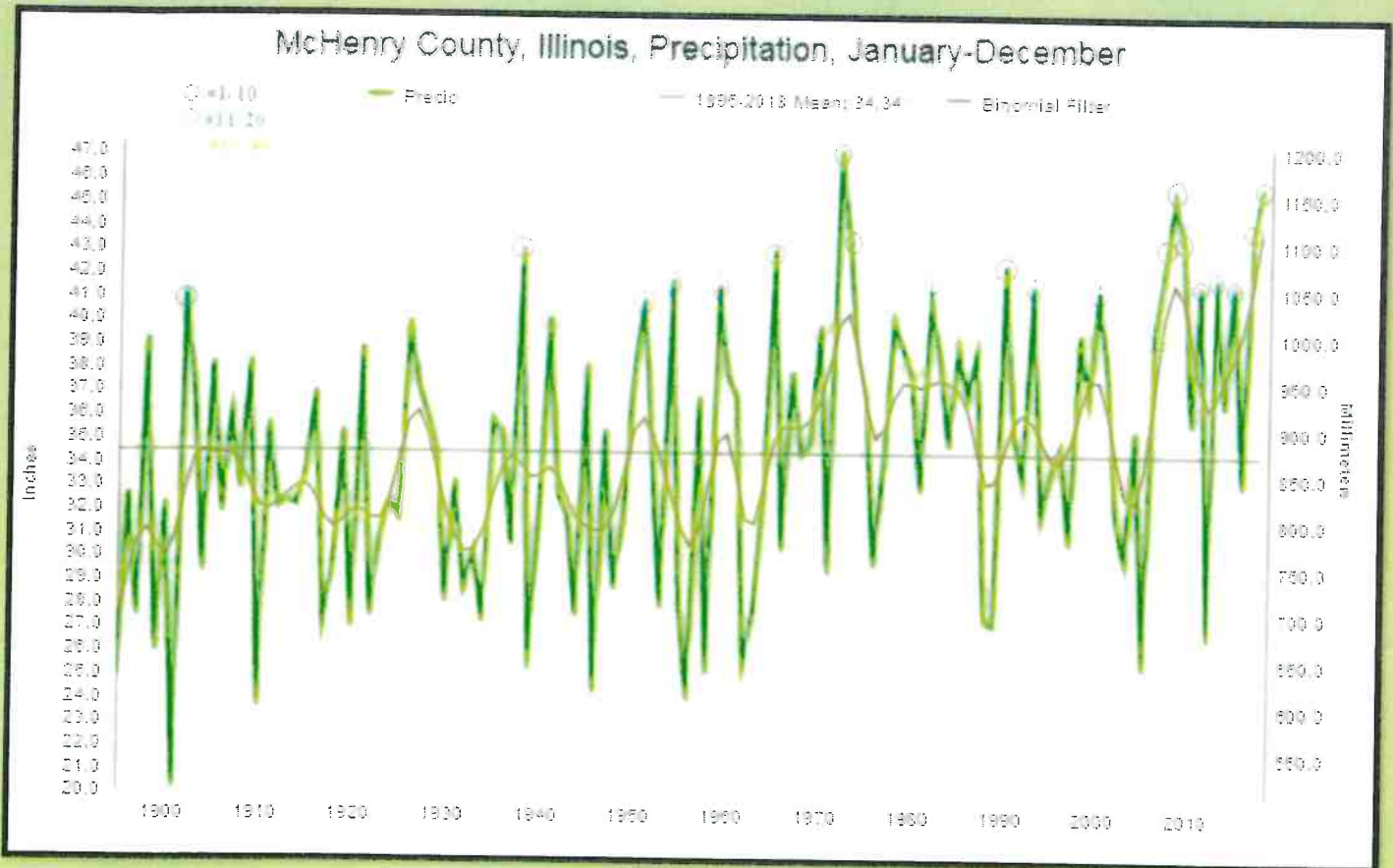
McHenry County, Illinois, Precipitation, January-December



125 YEAR ANNUAL RAINFALL
TOP TEN WORST YEARS

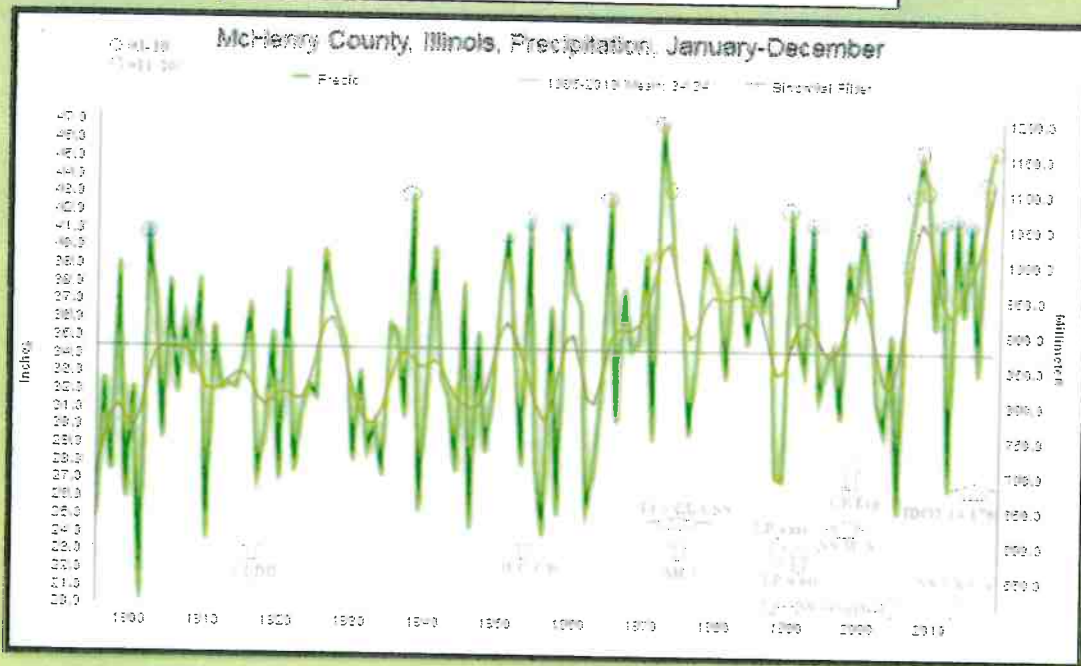


125 YEAR ANNUAL RAINFALL
TOP TWENTY WORST YEARS



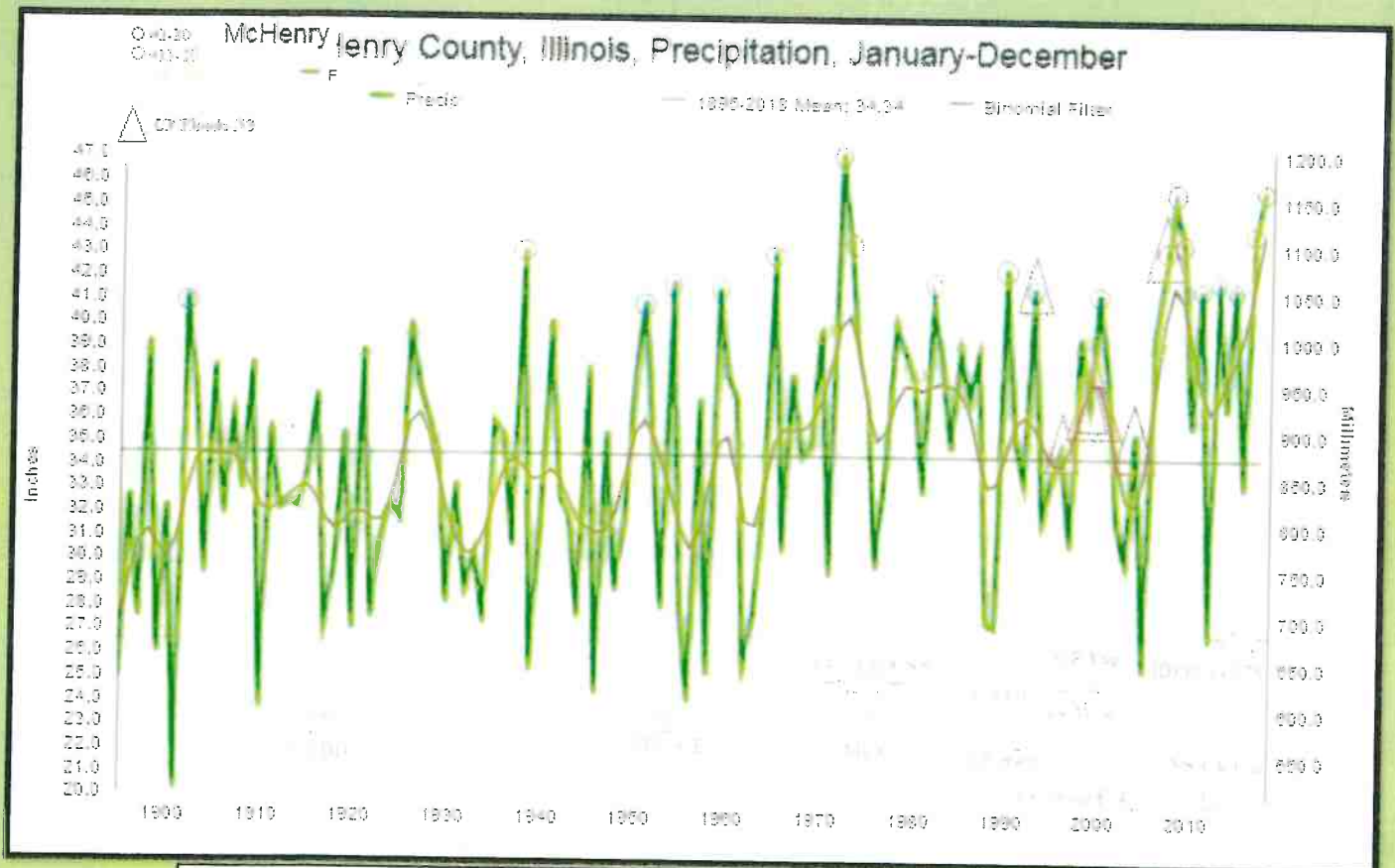
125 YEAR ANNUAL RAINFALL
TOP THIRTY WORST YEARS

CHANGES TO WATERSHED UPSTREAM TO THE LAKE

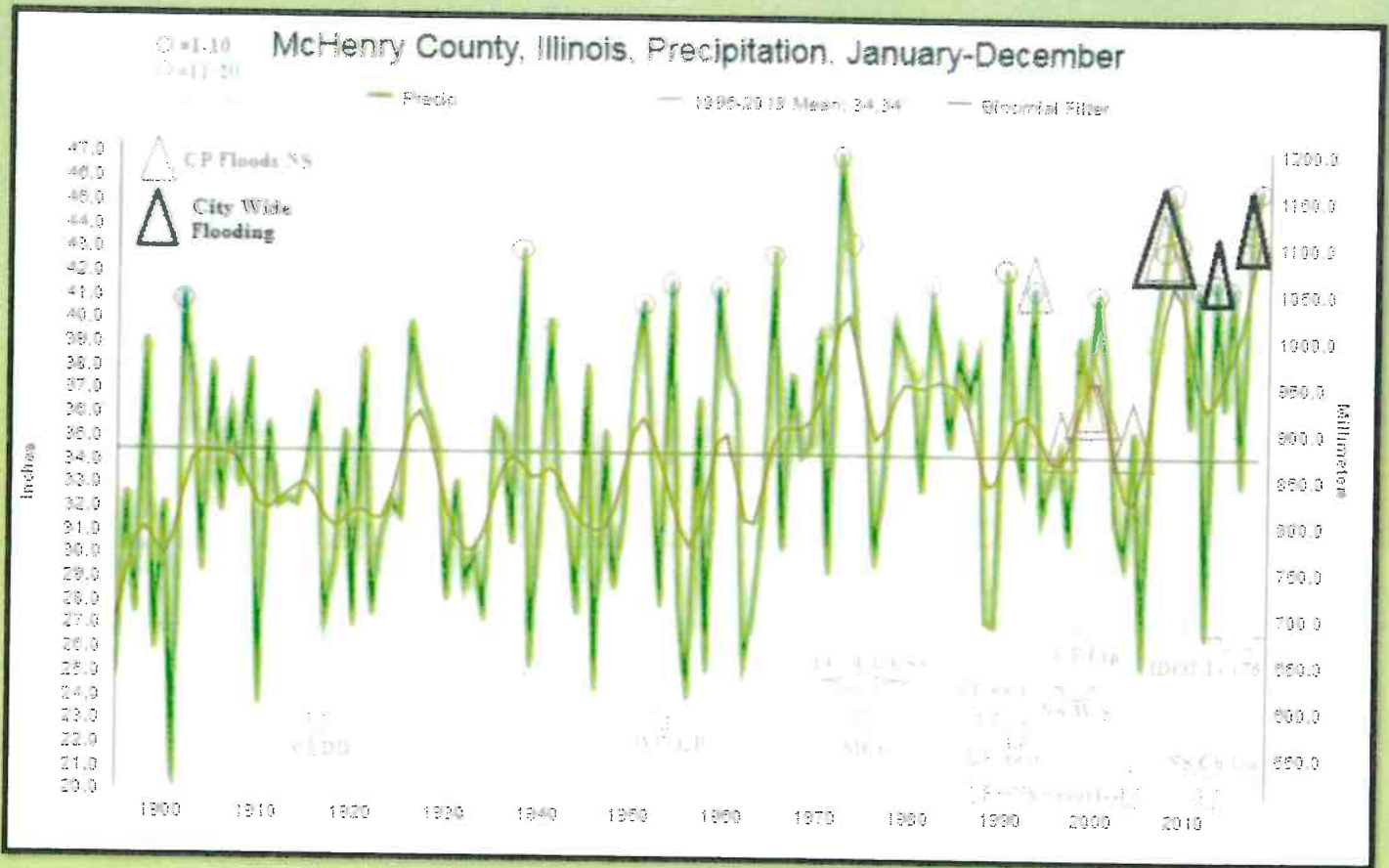


WATERSHED CHANGE LEGEND

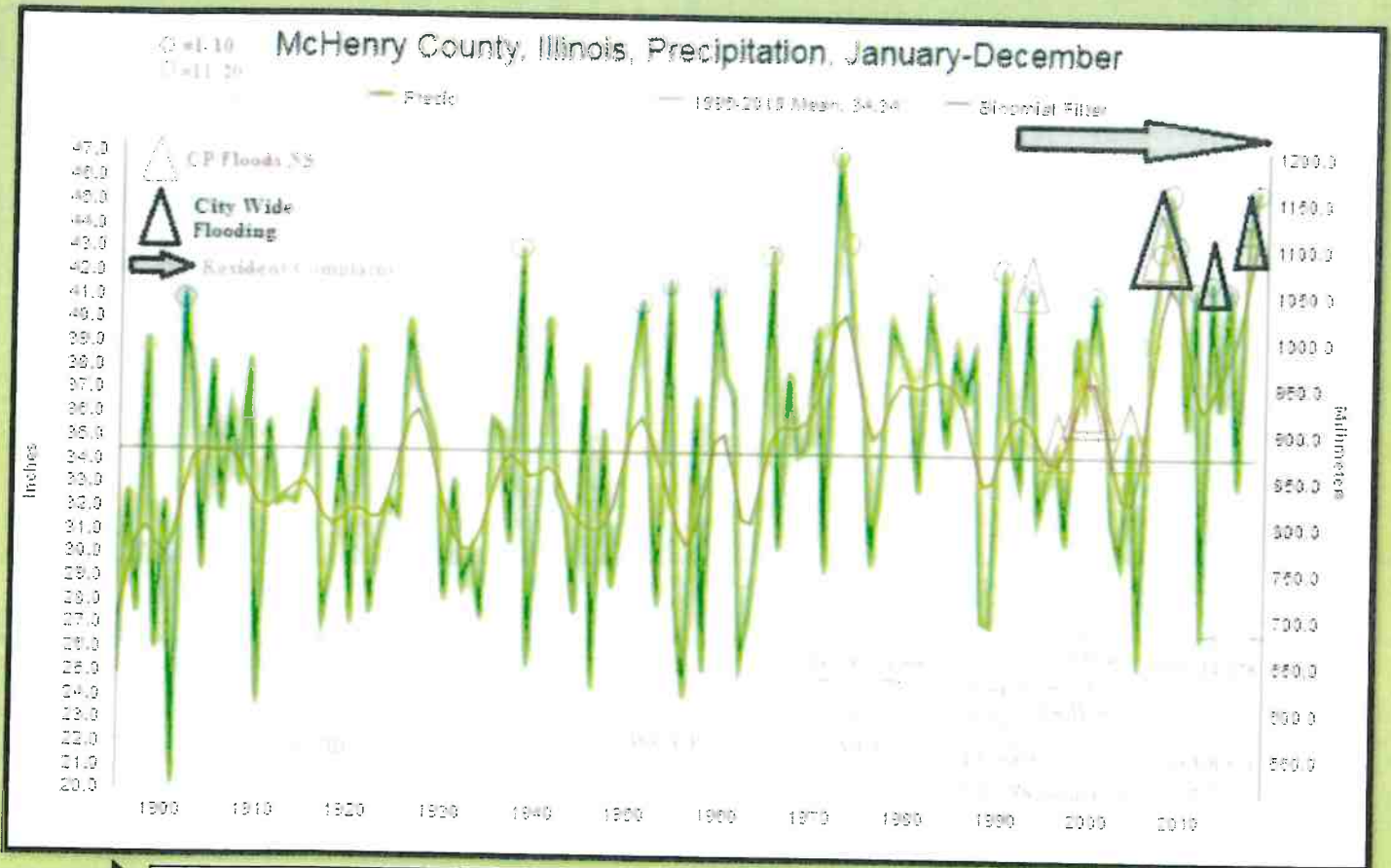
- 1916 - CLDD-CRYSTAL LAKE DRAINAGE DISTRICT BUILT
- 1955 - WC/CP-WOODLAND CHANNEL AND COVE POND DRAIN PIPES
- 1975 - MCC-MCHENRY COUNTY COLLEGE BUILT
- 1975 - 14 CLA SS - RT 14 AND CRYSTAL LAKE AVE STORM SEWERS BUILT
- 1988 - LP EAST - LIPPOLD PARK EAST BUILT
- 1992 - LP WEST - LIPPOLD PARK WEST WITH WETLANDS BUILT
- 1999 - CP exp- COVE POND EXPANSION
- 1997-99 - NS W/S - NORTH SHORE WATER AND SEWER INSTALLED
- 1988 & 2004 - NS RESURF - NORTH SHORE DRIVE RESURFACED
- 2012 NC Ch/Cu - NORTH SHORE CHANNEL AND CULVERT WORK WITH ROADWAY RAISED



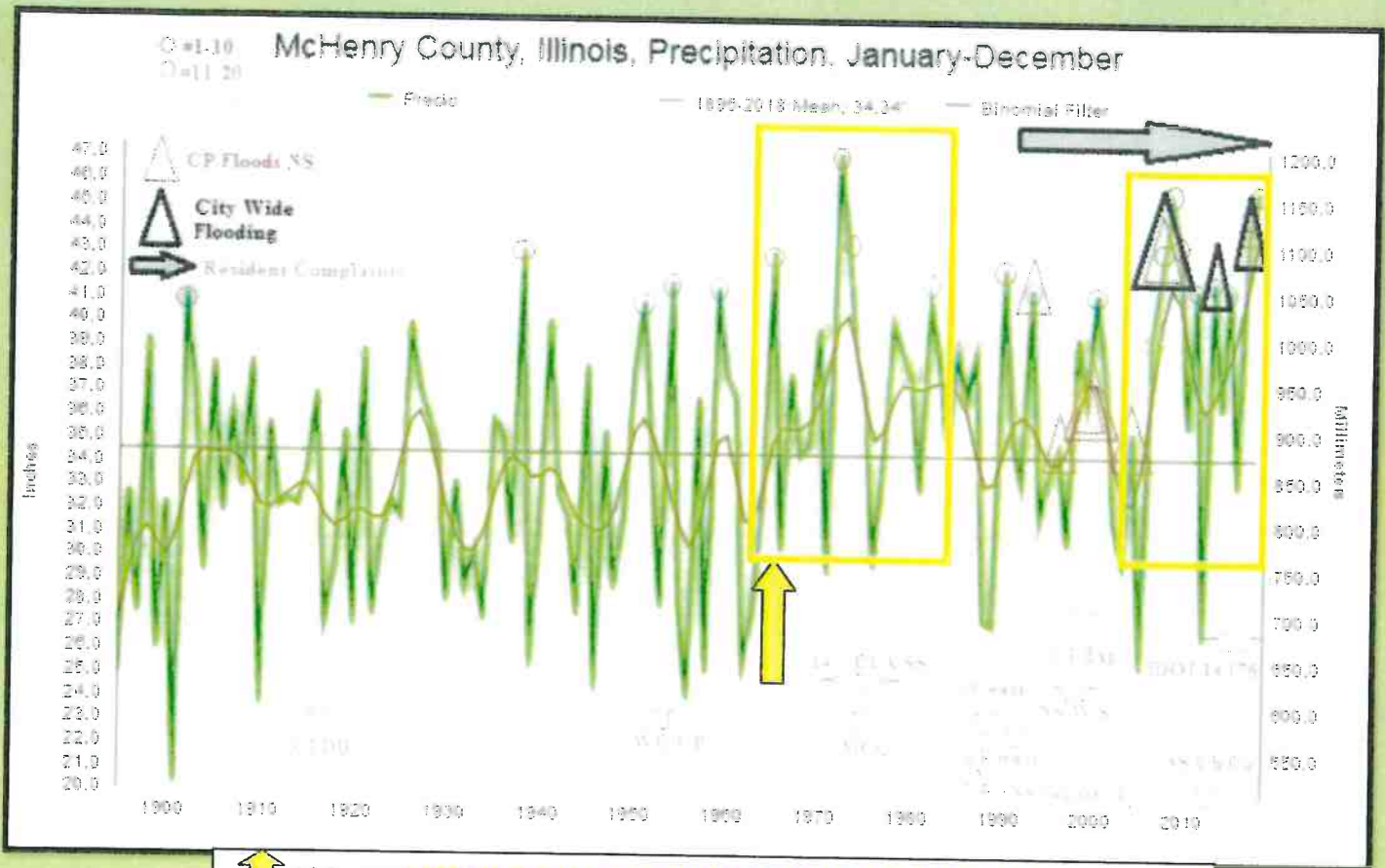
COVE POND OVERFLOWS NORTH SHORE DRIVE 1993,
1996, 1999(2X), 2004, AND CONTINUES UNTIL 2012 NEW
CHANNEL AND CULVERTS



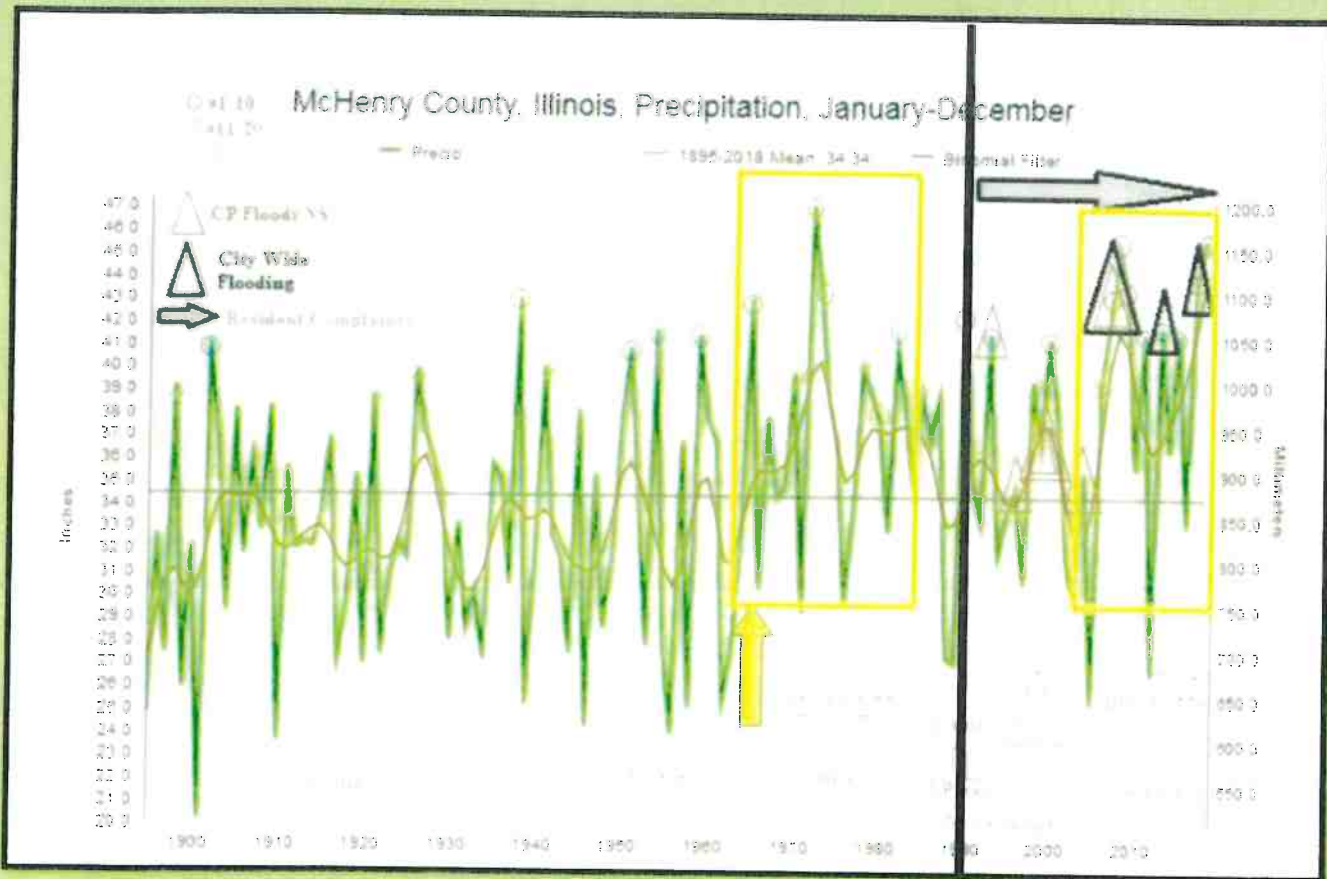
CITY WIDE FLOODING 2007, 2013, 2017



RESIDENT COMPLAINTS ABOUT CHANGES TO WATERSHED AND ASSOCIATED FLOODING IN THE PRONE AREAS BEGINS IN 1991 (CITY COUNCIL MEETING MINUTES 1972 TO 2017)



↑ 1965 MARKED THE CHANGE IN HISTORIC RAINFALL AND LAKE LEVELS
WORST 20 YEARS WERE 1965-1985 UNTIL NEW
WORST TEN YEARS 2007-2017



RESIDENT COMPLAINTS BEGIN AROUND 1990
WHEN DISCOLORED WATER ENTERS THE LAKE FROM COVE POND EFFLUENT

1990

TIMELINE OF RESIDENT COMPLAINTS

SUMMARY OF RAIN DATA REVIEW

- *PRE-1965 MANY DROUGHTS
- *POST-1965 A SUSTAINED INCREASE IN ANNUAL RAIN AND RAIN EXTREMES
1965-1985 WORST 20 YEARS
UNTIL
2007-2017 WORST TEN YEARS IN RECORDED HISTORY
- *VARIOUS WATERSHED CHANGES
- *RESIDENT COMPLAINTS STARTED ~1990 AND CONTINUE TO TODAY
- *COVE POND FLOODING STARTED 1993
- *CITY WIDE FLOODING IN THE HIGH RISK AREAS IN 2007, 2013, 2017