
Lake Decatur Dredging: Can We Dig It? Yes We Can!

Keith Alexander

Water Production Manager

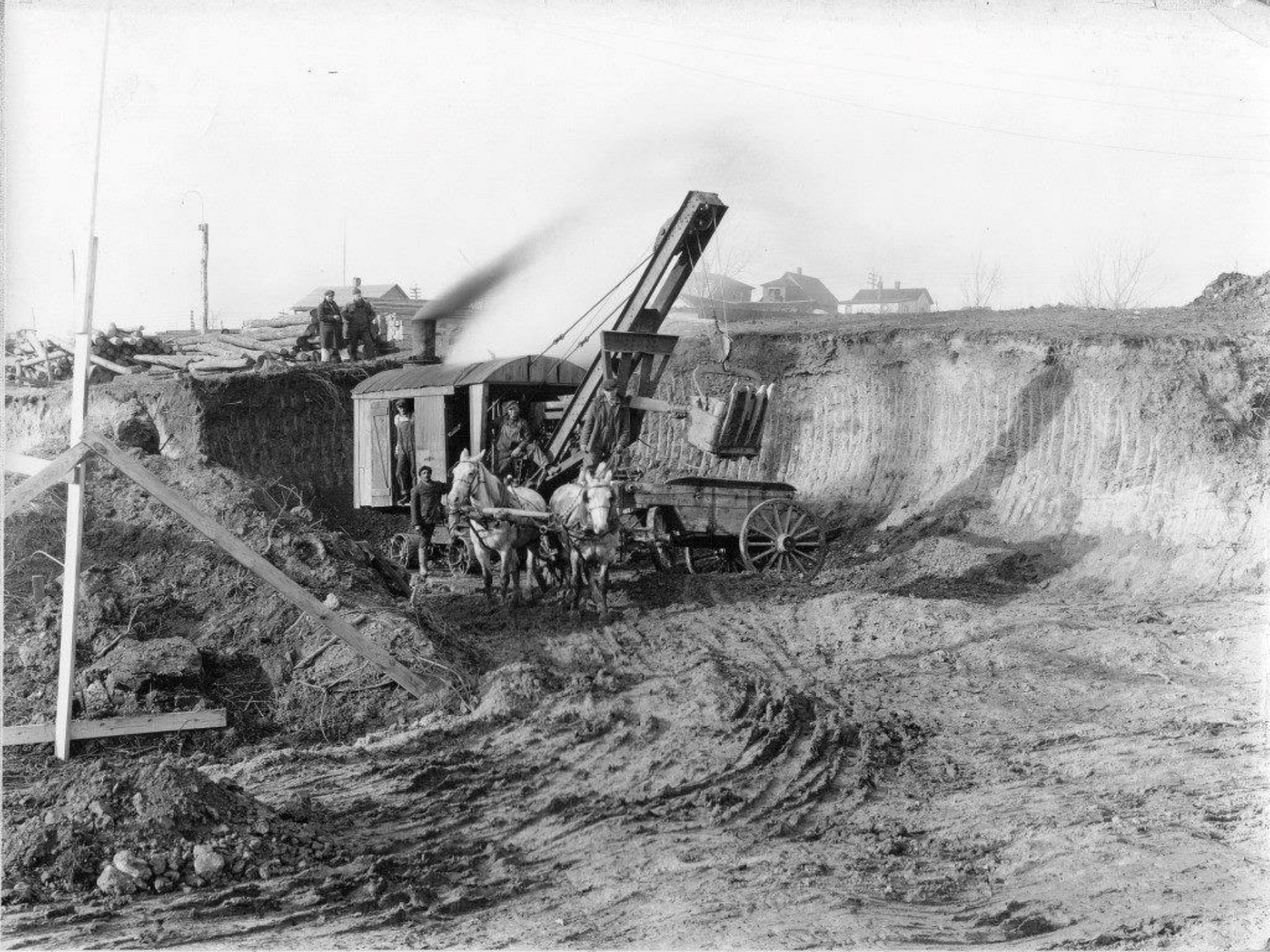
Joe Nihiser

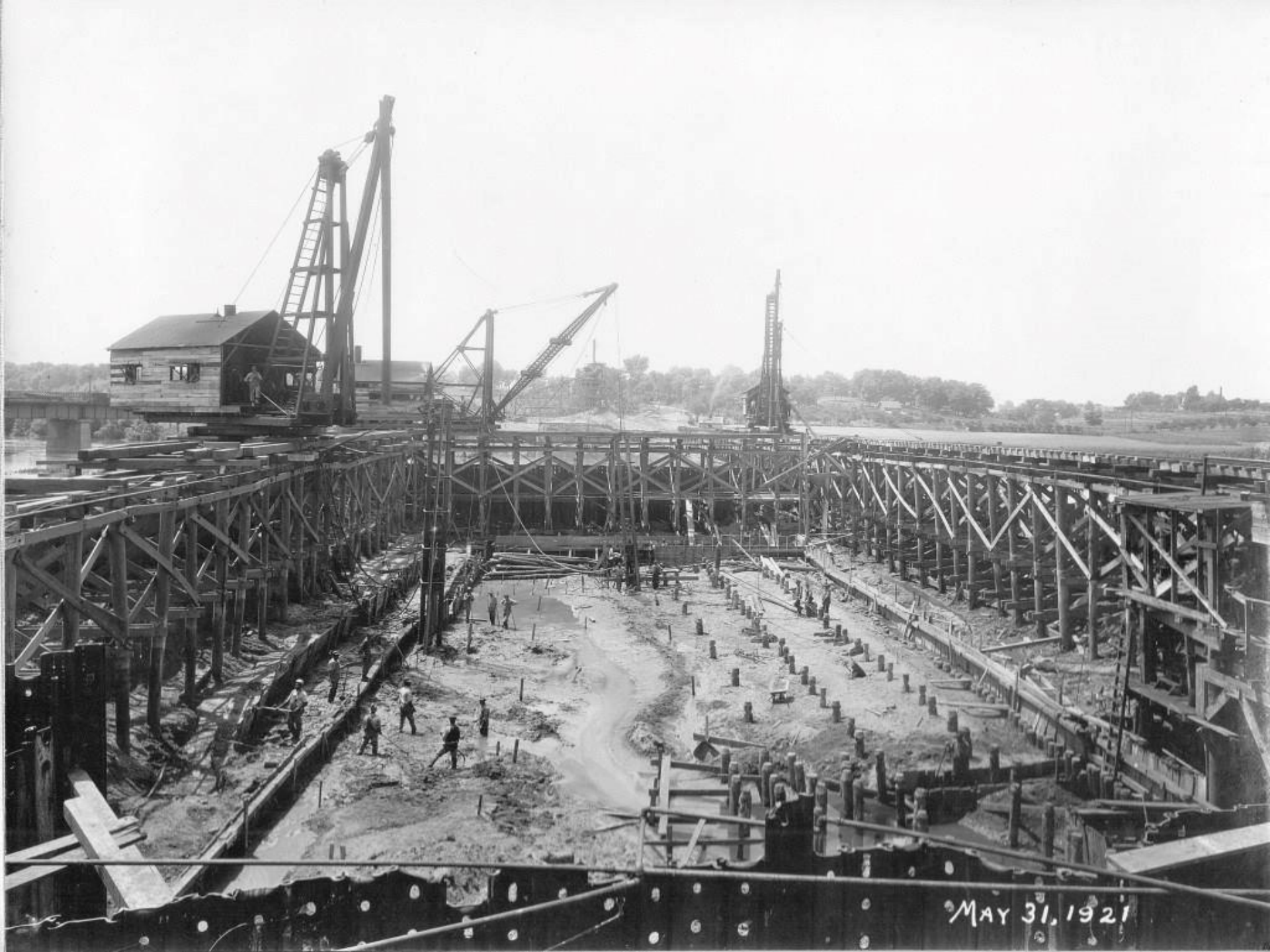
Lake Maintenance Supervisor



Lake Decatur

- Built in 1920-1922
- Primary water supply for Decatur & Mt. Zion
- Contained 7.3 BG or 22,450 AF of water
- Two water treatment plants use 32 MGD
- 5.8 month supply at 37 MGD using 88% of the lake's water
- 925 square mile watershed
- 83% of watershed used for row crops
- Watershed conservation since the 1940s
- Numerous federal and state grants obtained

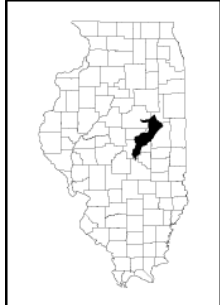




MAY 31, 1921



7-2-21



FORD

Rantoul



Monticello

PIATT CHAMPAIGN

I  **Decatur**

South WTP

Decatur

MACON

CHRISTIAN MOULTRIE

MCLEAN

DEWITT

Arrowsmith

Ellsworth

Saybrook

Gibson City

Foosland

Fisher

Bellflower

Rantoul

Mansfield

Mahomet

Lake of the Woods

Weldon

Deland

Friends Creek

Goose Creek

Camp Creek

Cisco

Monticello

Sangamon River

Argenta

Oreana

North WTP

Cerro Gordo

PIATT

CHAMPAIGN

Decatur

Lake Decatur

Long Creek

Big Creek

Long Creek

Mt Zion

Watershed Boundary

Major Stream

County Boundary

Town



0 2 4 8 12 16 Miles

1953-54 Drought



1988 Drought



2011 Drought



2012 Drought



Available Water Sources

- Lake Decatur
 - DeWitt Co. Well Field – 7.8 MGD to Lake
 - Former Sand & Gravel Pit – 3.5 MGD to Plant
 - ADM Vertical Wells – 4.4 MGD to ADM Plant
 - ADM Collector Wells – 7 MGD to ADM Plant
 - Treated Wastewater – 10 MGD to Plant
-

Previous Dredging Projects

- Basin 5 (Faries Park Basin)
 - 1993-1995
 - Increased storage capacity by 6% (10 days)
 - \$6.5M project

 - Basin 6
 - 2004-2011
 - Increased storage capacity by 11% (20 days)
 - \$20.8M project
-

Lake Decatur Dredging Project

- Dredge Basins 1 through 4
 - Increase the lake's water storage by 30% (52 days)
 - Reuse existing sediment storage basin
 - Create 2 new sediment traps, clean 1 existing trap
 - Contractor is Great Lakes Dredge & Dock
 - \$91.7M project over 6 years
-

How Much Sediment Will Be Dredged?

- 10.7 million cubic yards
 - 6,658 acre feet
 - Over 3.2 feet of sediment covering the area between:
 - Pershing Road to the north
 - Eldorado Street to the south
 - Jasper Street to the east
 - Oakland Avenue to the west
-







The
L.W.



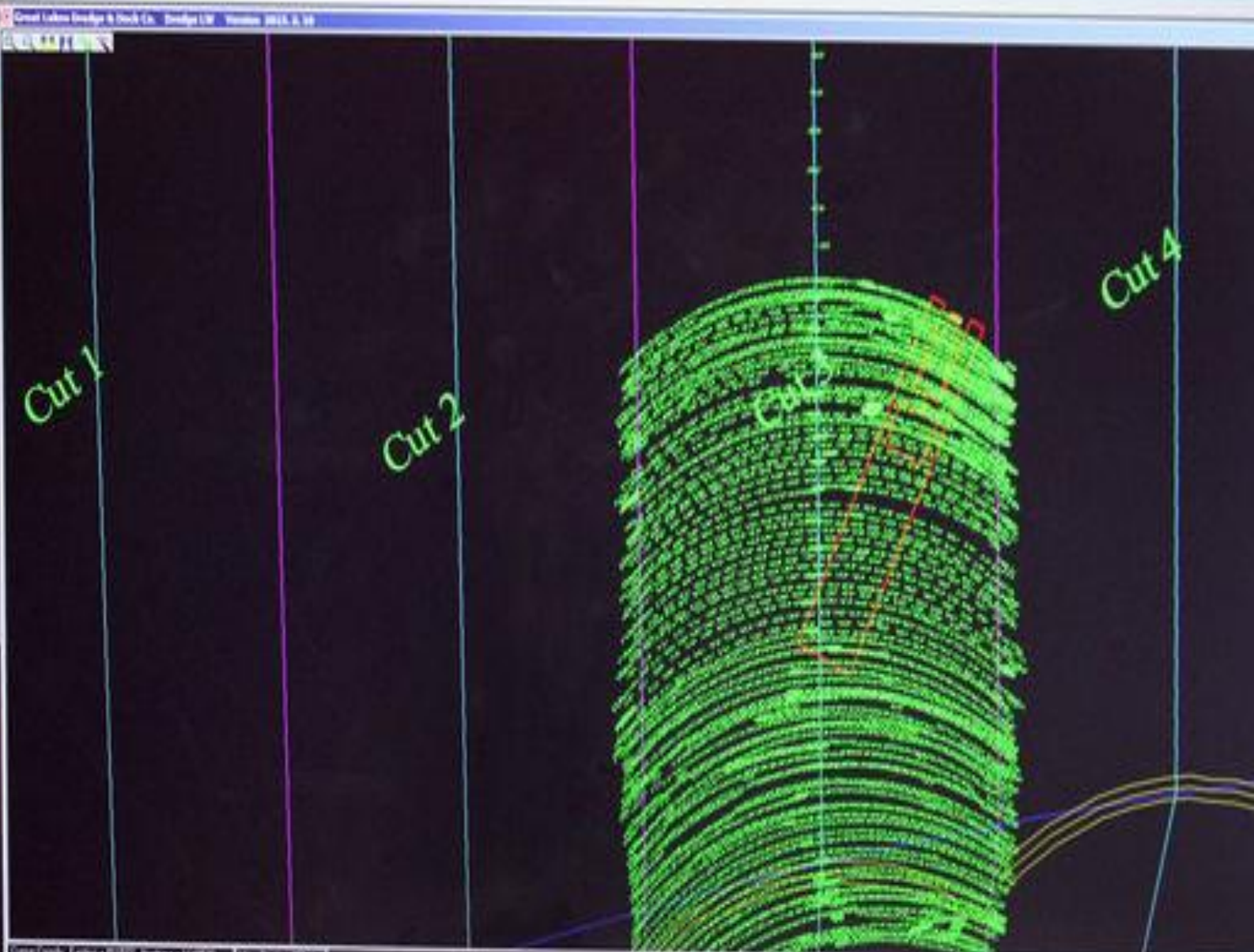
01/01/2006



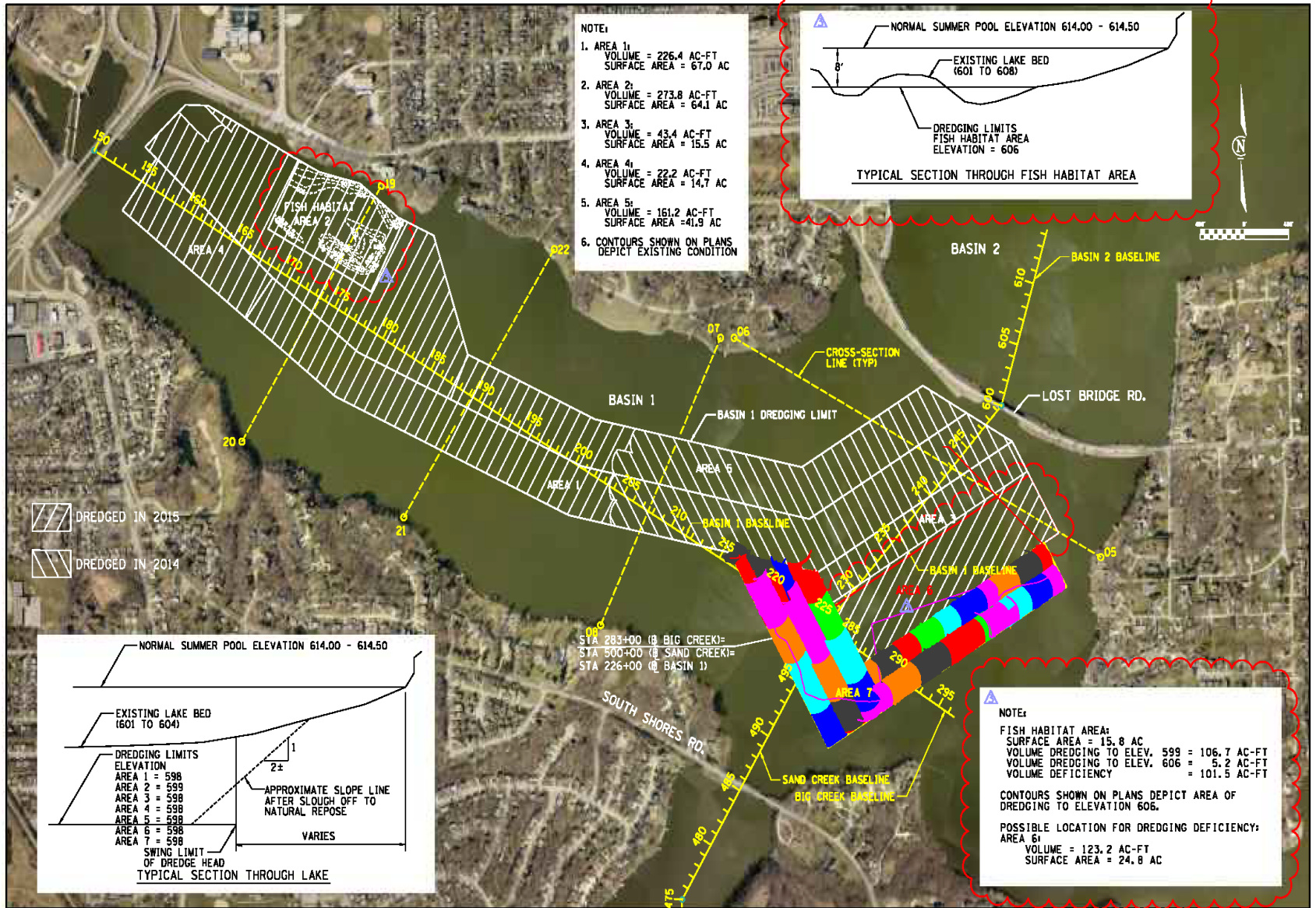


Cutter S. 2364
 Cutter R. **755**
 Heading 333.7
 Spud S. 2512
 Spud R. 681
 Drg Spud S. 2512
 Drg Spud R. 681
 No Tide ---
 Last
 Ladder 13.4 ft
 Cutter Cl. Sta 2350.2
 GPS Status Undefined
 Num. Sats.
 HDOP 1.2
 Northing 1148764.70
 Easting 811768.771
 Latitude 33° 49' 28.27533" N
 Longitude 88° 58' 58.17867" W
 Time 11:28:47
 Date 04/12/2011
 User Drg

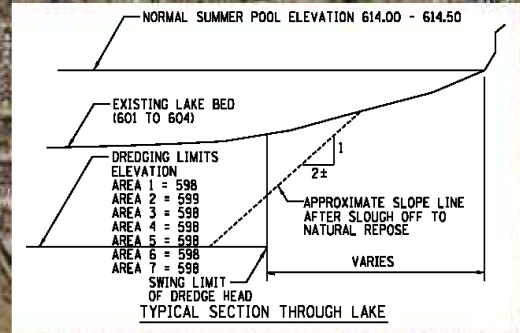
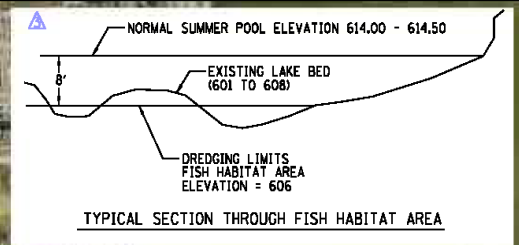
Finish



Great Lakes Bridge & Dock Co. - Bridge LW - Version 2011.3.10
 Great Lakes Bridge & Dock Co. - Bridge LW - Version 2011.3.10



- NOTE:
- AREA 1:
VOLUME = 226.4 AC-FT
SURFACE AREA = 67.0 AC
 - AREA 2:
VOLUME = 273.8 AC-FT
SURFACE AREA = 64.1 AC
 - AREA 3:
VOLUME = 43.4 AC-FT
SURFACE AREA = 15.5 AC
 - AREA 4:
VOLUME = 22.2 AC-FT
SURFACE AREA = 14.7 AC
 - AREA 5:
VOLUME = 161.2 AC-FT
SURFACE AREA = 41.9 AC
 - CONTOURS SHOWN ON PLANS
DEPICT EXISTING CONDITION



NOTE:

FISH HABITAT AREA:
SURFACE AREA = 15.8 AC
VOLUME DREDGING TO ELEV. 599 = 106.7 AC-FT
VOLUME DREDGING TO ELEV. 606 = 5.2 AC-FT
VOLUME DEFICIENCY = 101.5 AC-FT

CONTOURS SHOWN ON PLANS DEPICT AREA OF DREDGING TO ELEVATION 606.

POSSIBLE LOCATION FOR DREDGING DEFICIENCY:
AREA 6:
VOLUME = 123.2 AC-FT
SURFACE AREA = 24.8 AC

DREDGED IN 2015

DREDGED IN 2014

STA 283+00 @ BIG CREEK=
STA 500+00 @ SAND CREEK=
STA 226+00 @ BASIN 1)

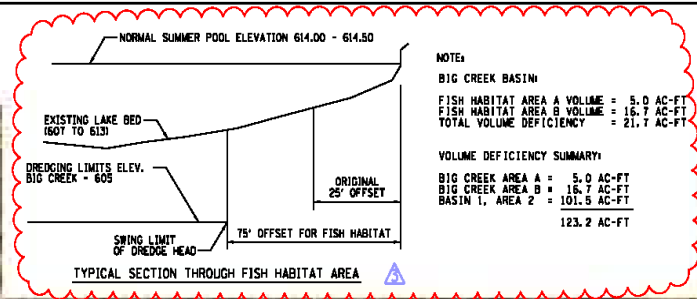
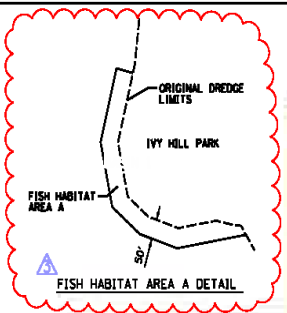
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PILOT DATE : #UNTER	DATE -	REVISED -	REVISED -

CHASTAIN & ASSOCIATES LLC
 CHICAGO (217) 492-8644
 ROCKFORD (773) 714-0050
 ROCKFORD (815) 450-0050
 114-00397

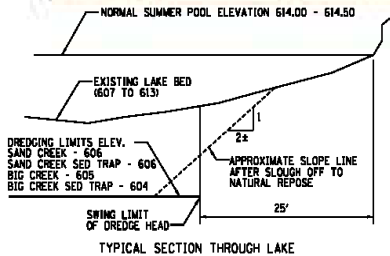
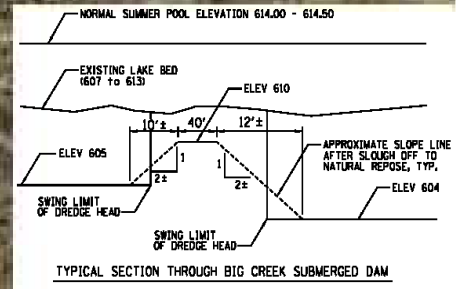
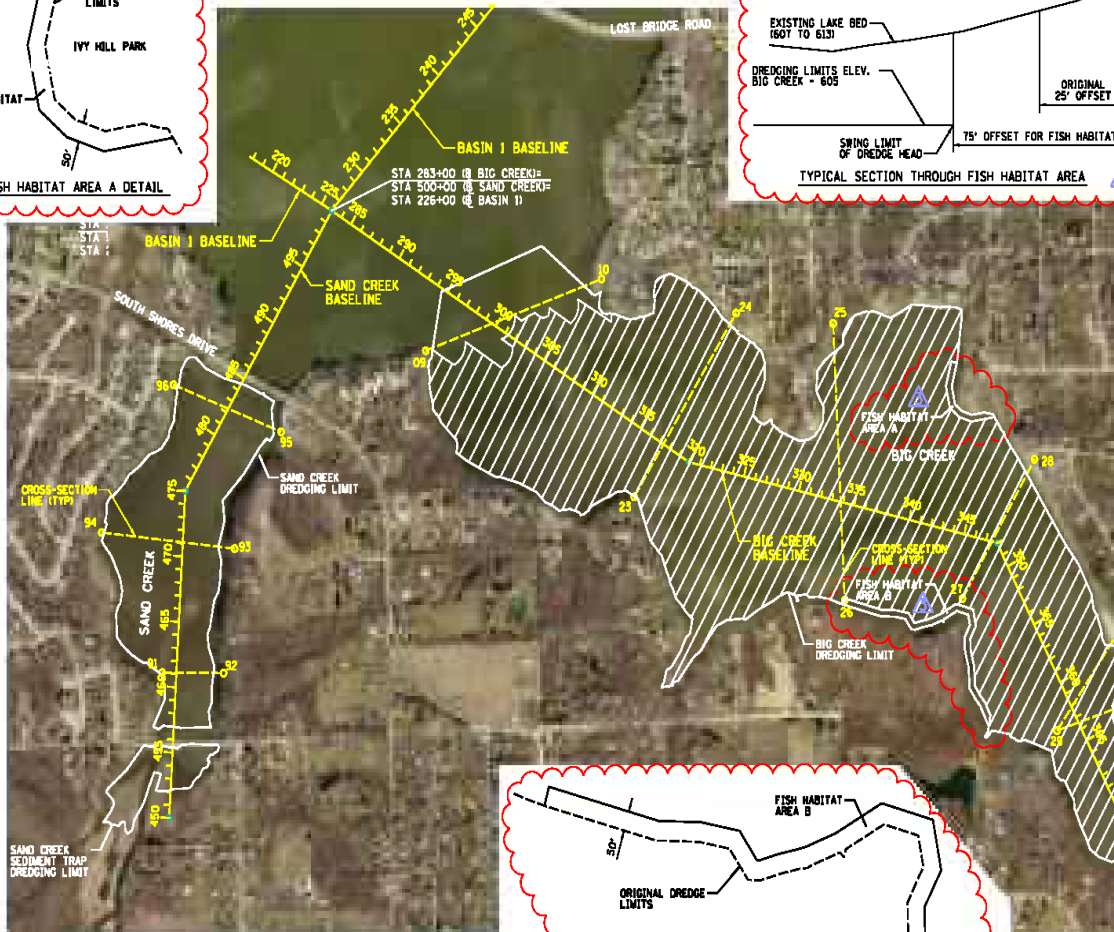
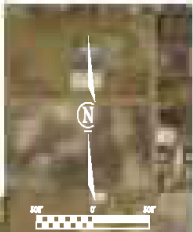
BASIN 1 DREDGE PLAN			
LAKE DECATUR DREDGING OF BASINS 1-4			
SCALE:	SHEET NO.	OF SHEETS	STA. TO STA.

MUNICIPALITY	COUNTY	TOTAL SHEET NO.
CITY OF DECATUR	MACON	7
HLC PROJECT 5111		
BLUMHUISER, AID PROJECT		

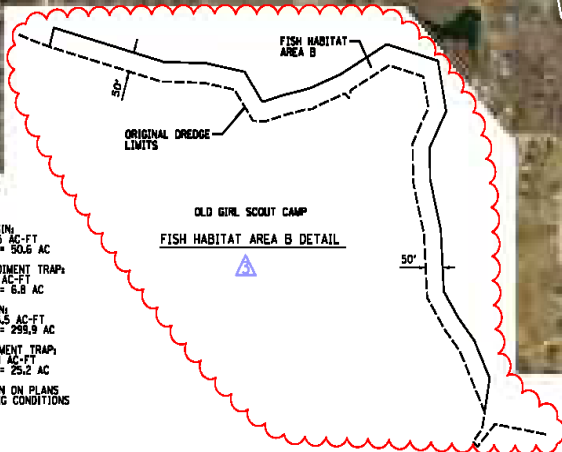


NOTE:
BIG CREEK BASIN
FISH HABITAT AREA A VOLUME = 5.0 AC-FT
FISH HABITAT AREA B VOLUME = 16.7 AC-FT
TOTAL VOLUME DEFICIENCY = 21.7 AC-FT

VOLUME DEFICIENCY SUMMARY:
BIG CREEK AREA A = 5.0 AC-FT
BIG CREEK AREA B = 16.7 AC-FT
BASIN 1, AREA 2 = 101.5 AC-FT
123.2 AC-FT



- NOTE:
- SAND CREEK BASIN
VOLUME = 284.5 AC-FT
SURFACE AREA = 206.6 AC
 - SAND CREEK SEDIMENT TRAP
VOLUME = 41.0 AC-FT
SURFACE AREA = 6.8 AC
 - BIG CREEK BASIN
VOLUME = 134.3 AC-FT
SURFACE AREA = 259.9 AC
 - BIG CREEK SEDIMENT TRAP
VOLUME = 215.8 AC-FT
SURFACE AREA = 25.2 AC
 - CONTOURS SHOWN ON PLANS DEPICT EXISTING CONDITIONS



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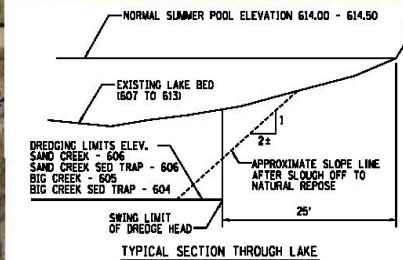
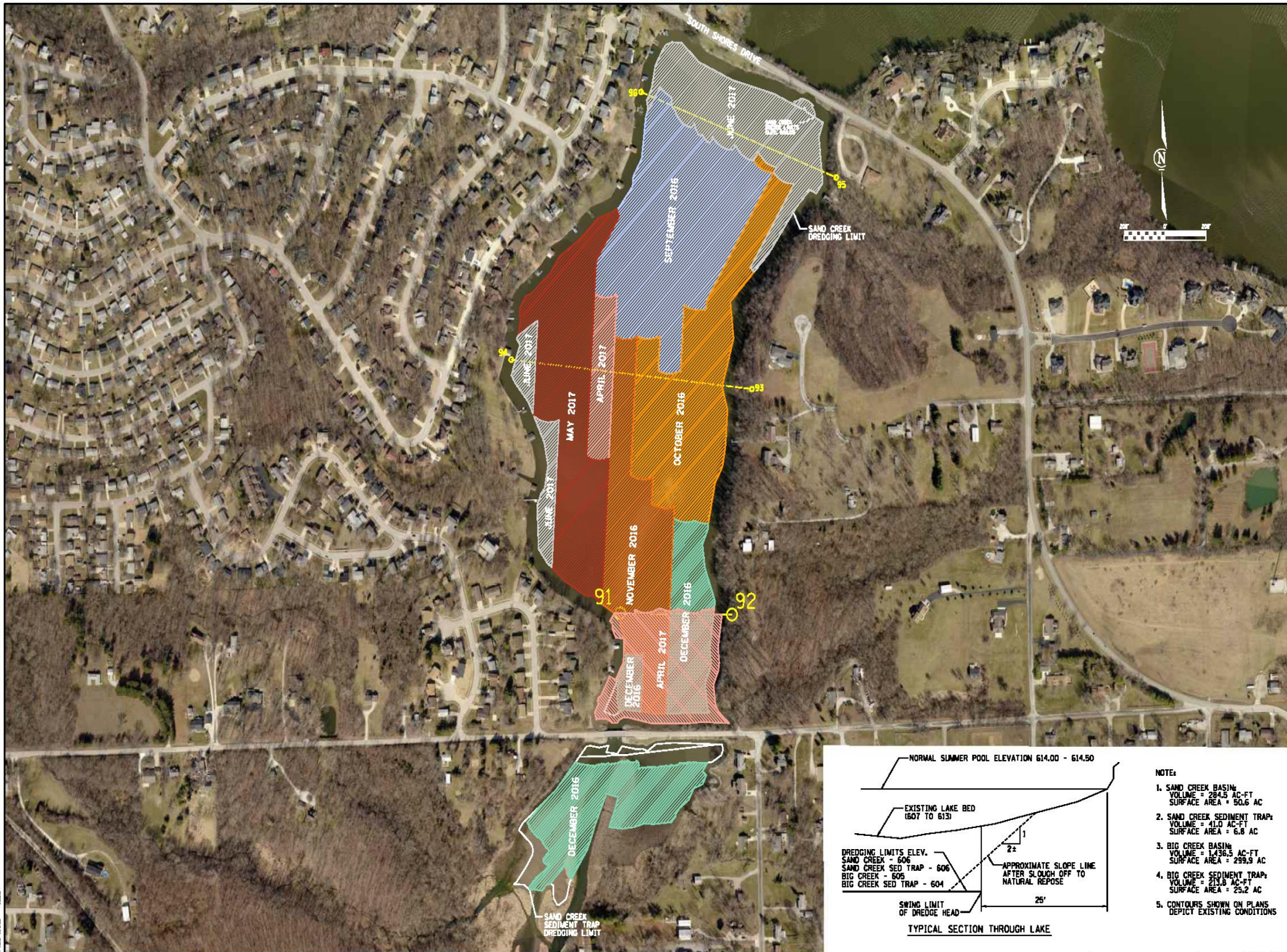
CHASTAIN & ASSOCIATES LLC
2008 W. 110th Street, Chicago, IL 60643
TEL: (773) 744-0100 FAX: (773) 744-0101

DECATUR (317) 429-8544
CHICAGO (773) 744-0100
ROCKFORD (815) 489-0050
184-009397

SAND CREEK AND BIG CREEK DREDGE PLAN
LAKE DECATUR DREDGING OF BASINS 1-4

SCALE: SHEET NO. OF SHEETS STA. TO STA.

MUNICIPALITY	COUNTY	TOTAL SHEETS	SHEET NO.
CITY OF DECATUR	MACON	10	10
ILLINOIS FISH AND WILDLIFE PROJECT		M.C. PROJECT 5111	



- NOTES:
1. SAND CREEK BASIN:
 VOLUME = 2845 AC-FT
 SURFACE AREA = 90.6 AC
 2. SAND CREEK SEDIMENT TRAP:
 VOLUME = 41.0 AC-FT
 SURFACE AREA = 6.8 AC
 3. BIG CREEK BASIN:
 VOLUME = 4376.5 AC-FT
 SURFACE AREA = 259.9 AC
 4. BIG CREEK SEDIMENT TRAP:
 VOLUME = 211.9 AC-FT
 SURFACE AREA = 25.2 AC
 5. CONTOURS SHOWN ON PLANS DEPICT EXISTING CONDITIONS

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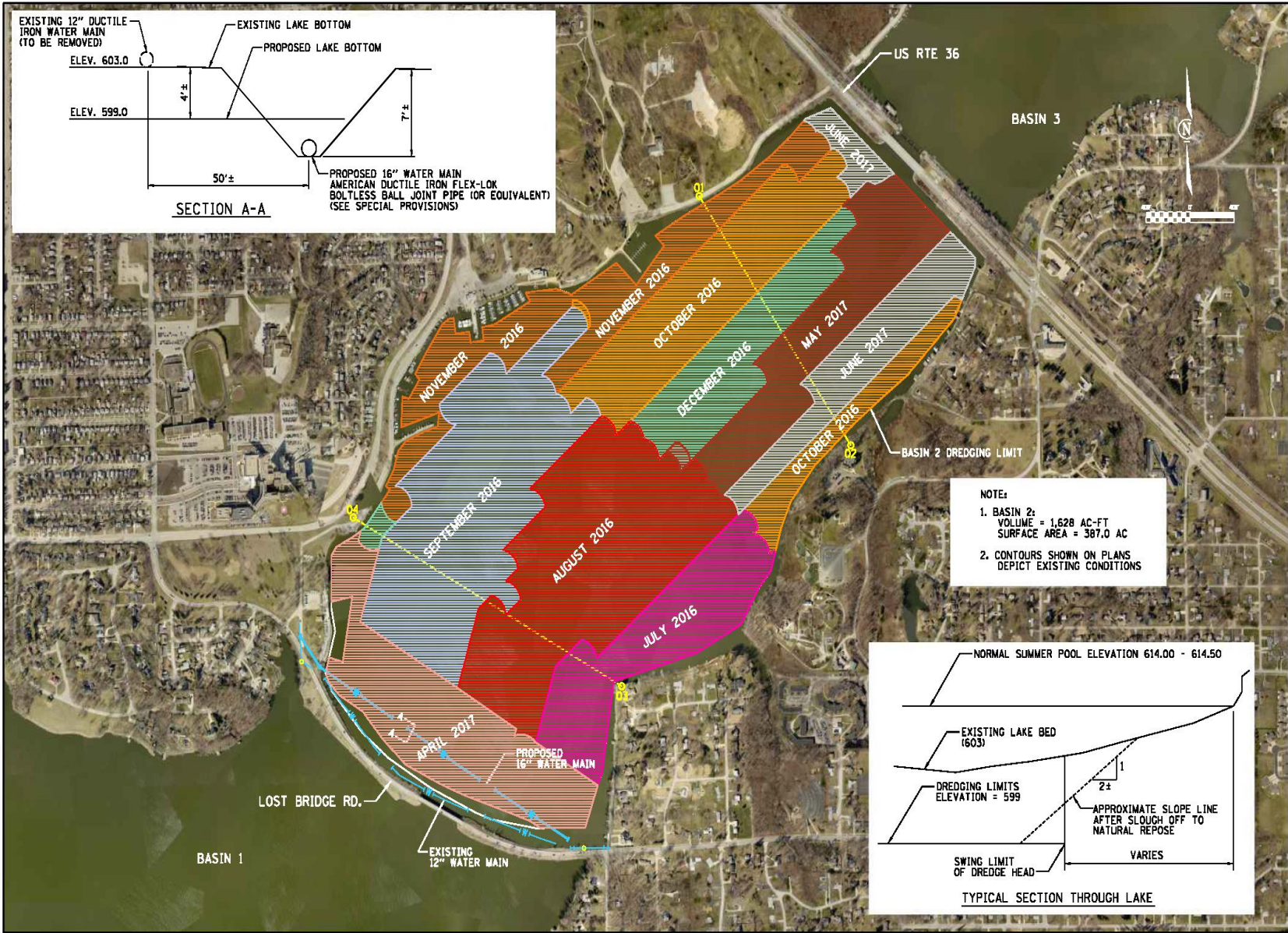
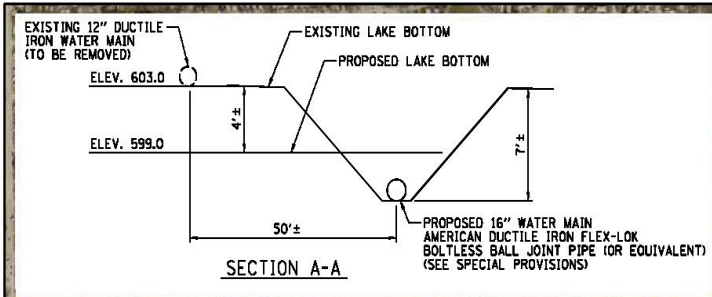
CHASTAIN & ASSOCIATES LLC
 2000 S. WILSON AVENUE
 CHICAGO, IL 60608

DECATUR CHICAGO (312) 422-8644
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 (815) 486-0050
 184-000997

SAND CREEK DREDGING PROGRESS EXHIBIT
LAKE DECATUR DREDGING OF BASINS 1-4

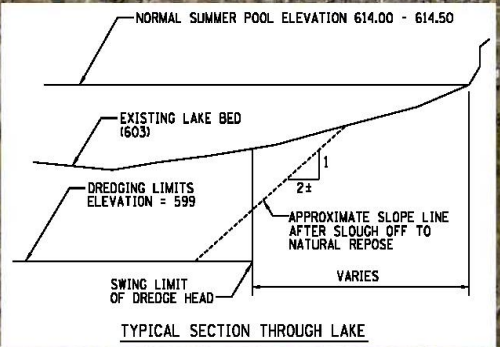
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MUNICIPALITY	COUNTY	TOTAL SHEETS
CITY OF DECATUR	MACON	NO.
MHC PROJECT 6067		
ILLINOIS FISH AND WILDLIFE PROJECT		



NOTE:

1. BASIN 2:
VOLUME = 1,628 AC-FT
SURFACE AREA = 387.0 AC
2. CONTOURS SHOWN ON PLANS
DEPICT EXISTING CONDITIONS



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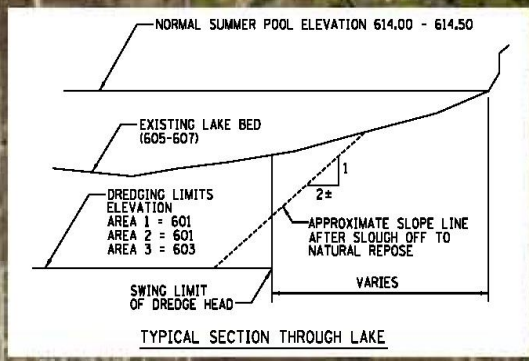
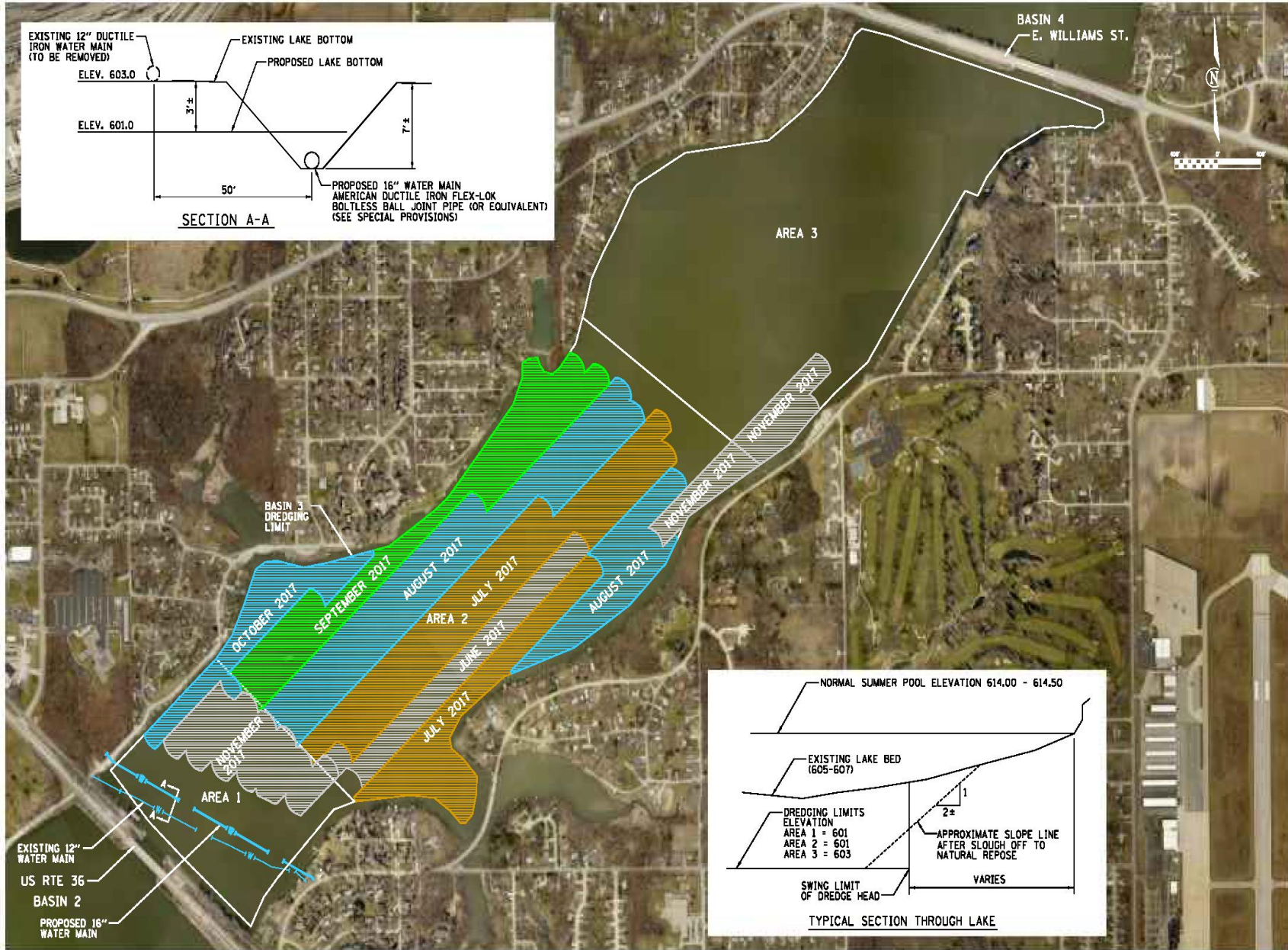
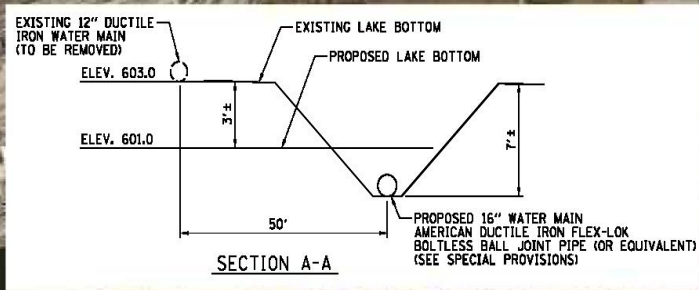
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CHASTAIN & ASSOCIATES LLC
REGISTERED PROFESSIONAL ENGINEERS

DECATUR CHICAGO (312) 499-8644
ROCKFORD (773) 734-0050
184-00997 (815) 486-0050

BASIN 2 DREDGING PROGRESS EXHIBIT			
LAKE DECATUR DREDGING OF BASINS 1-4			
SCALE:	SHEET NO. OF	SHEETS STA.	TO STA.

MUNICIPALITY	COUNTY	TOTAL SHEET NO.
CITY OF DECATUR	MACON	
HLC PROJECT 6067		
ILLINOIS FISH AND WILDLIFE PROJECT		



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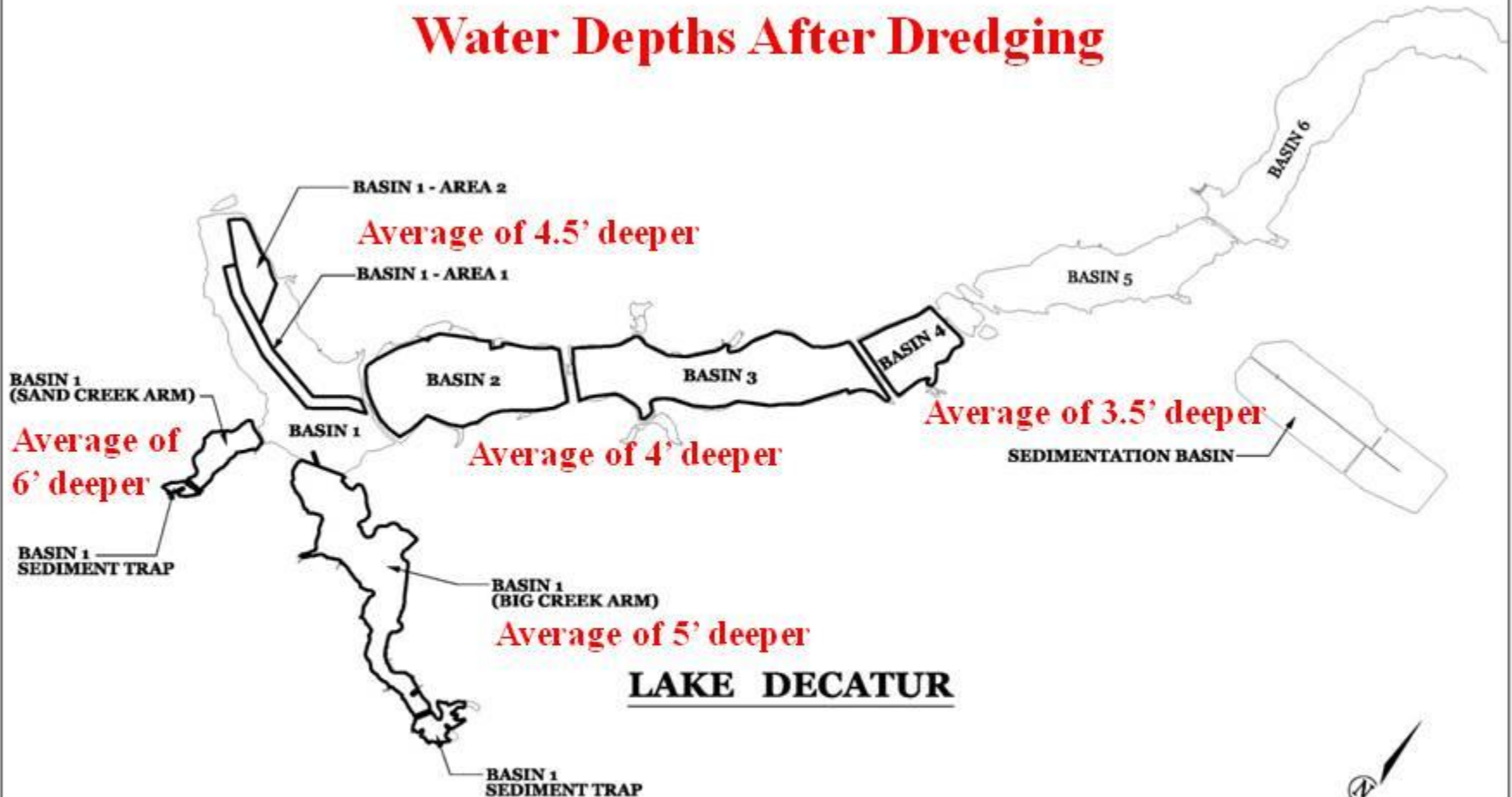
CHASTAIN & ASSOCIATES LLC
 200 S. WASHINGTON ST. - SUITE 200
 CHICAGO, IL 60604

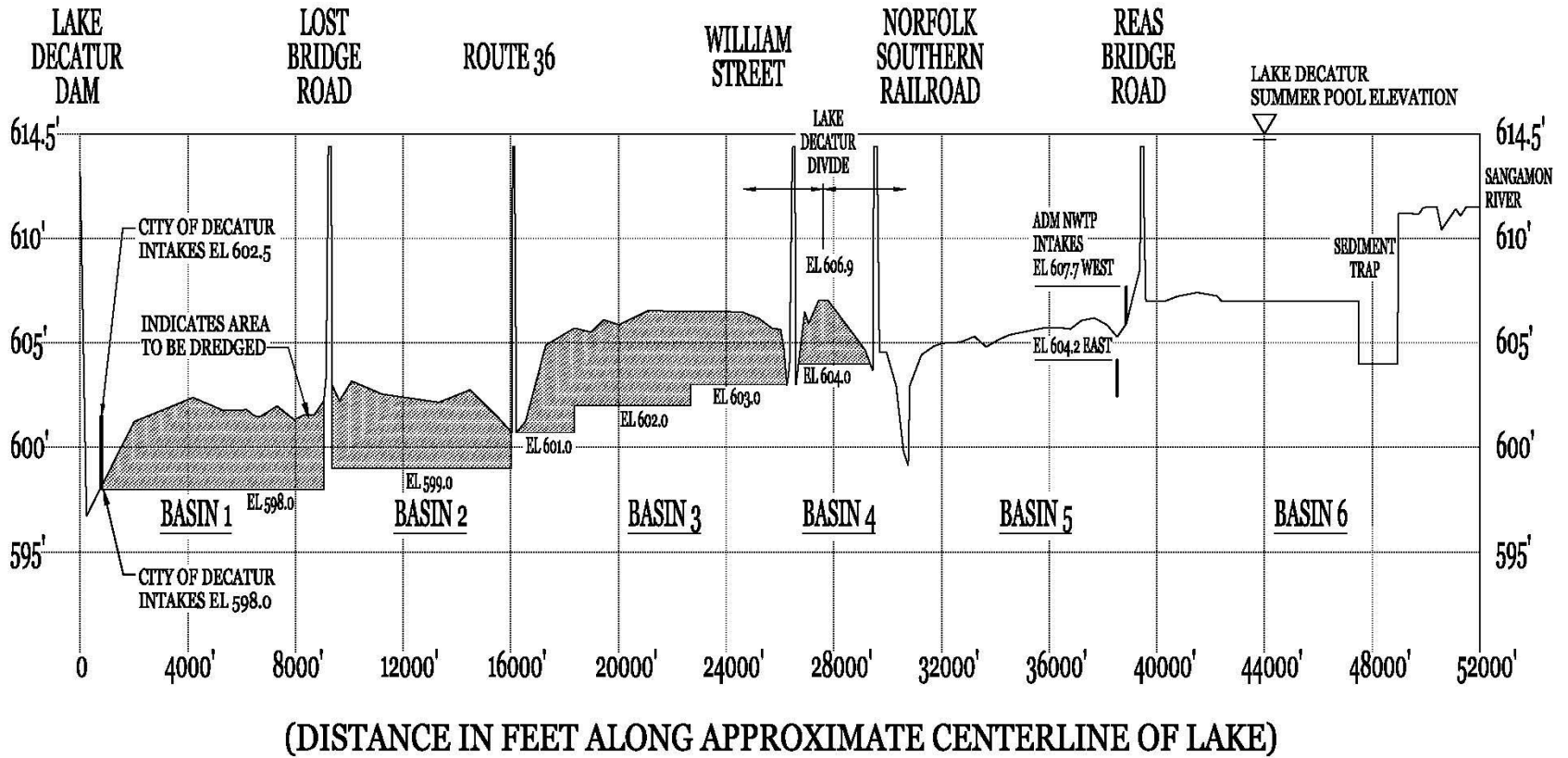
DECATUR CHICAGO (312) 422-9544
 KOCKFORD (773) 714-0020
 (815) 486-0050
 104-009397

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SCALE:	SHEET NO. OF	SHEETS	STA. TO STA.

MUNICIPALITY	COUNTY	TOTAL SHEETS
CITY OF DECATUR	MACON	
HLC PROJECT 6067		
ILLINOIS FED. AID PROJECT		

Water Depths After Dredging









01/01/2006



01/01/2006

13,200 VOLTS

WARNING
DANGEROUS VOLTAGE
PRESENT BEHIND PANEL



DANGER
HIGH VOLTAGE
KEEP OUT
PELIGRO
ALTO VOLTAJE
MANTENGASE AFUERA

ERACV- #38106 BRADYEL.COM Y5726

01/01/2006





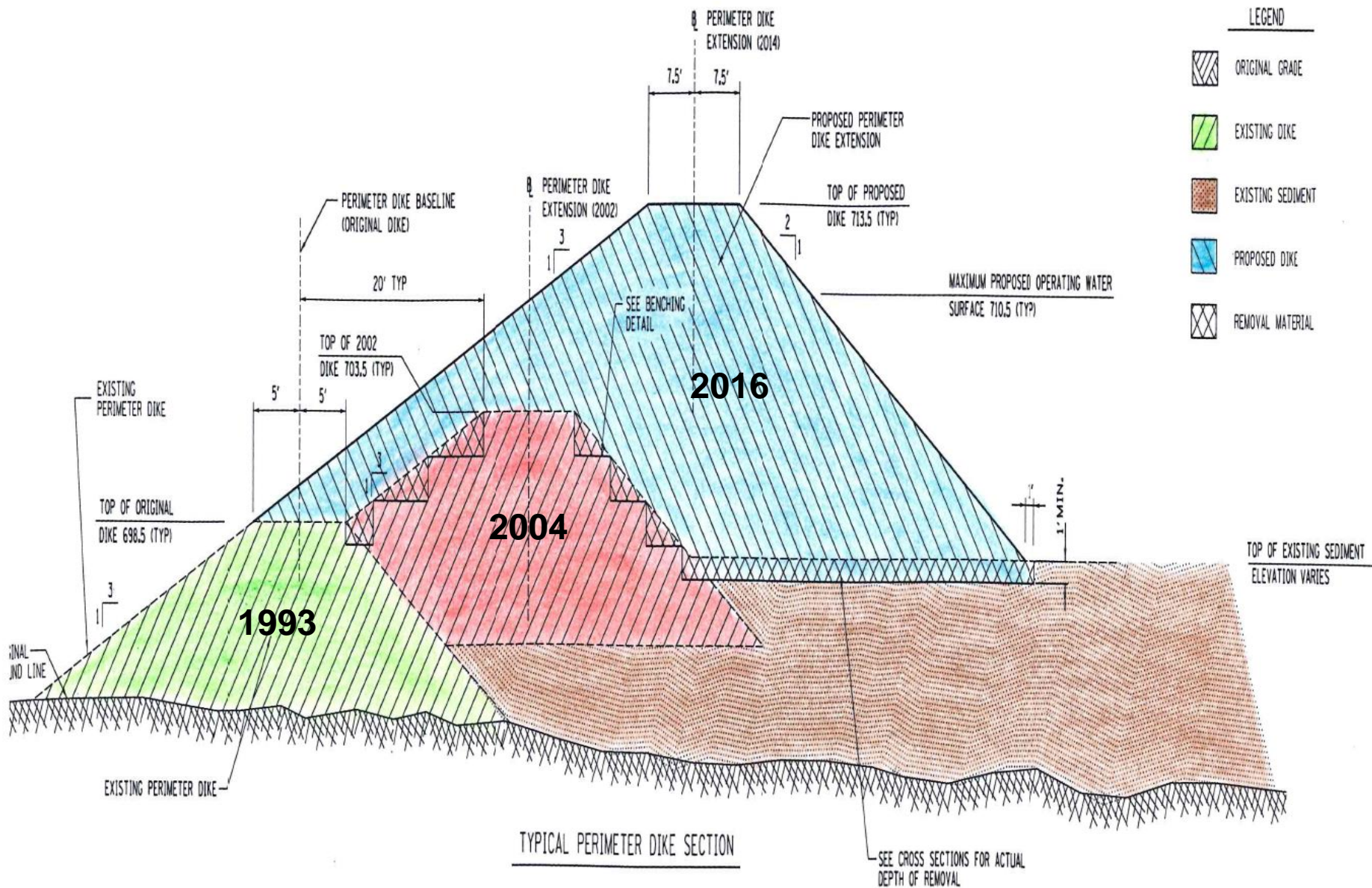
08/25/2015





08/25/2015







08/25/2015



KOMATSU

NASDI

HM 300

KOMATSU

08/25/2015





08/25/2015



10 13 2014













09.26.2017 09:50











09/27/2016

How much water is in Lake Decatur?

- The equivalent of 202 Willis Towers!
- After dredging it will be 262 Willis Towers!

