HYDRAULIC REPORT

LONGMEADOW PARKWAY BRIDGE OVER FOX RIVER

SECTION NUMBER 94-00215-01-ES
STRUCTURE NUMBER 045-3024

KANE COUNTY, ILLINOIS

Prepared For:

Kane County Division of Transportation
41W011 Burlington Road
St. Charles, IL 60175

Prepared By:

Christopher B. Burke Engineering, Ltd.

CBBEL Project No. 99-236

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Revised April 2011
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SECTION 1

NARRATIVE

NARRATIVE

General Project Description

The hydraulic report is for a proposed bridge carrying Longmeadow Parkway over the Fox River in Kane County, Illinois. Longmeadow Parkway will follow the alignment of Bolz Road east of the River. The proposed bridge will be located approximately 11,150 feet upstream of the Carpentersville Dam. The adjacent areas are generally rural, with surveyed residential structures located inside the Fox River floodplain. A general location drainage map is included.

The proposed bridge is an 8-span structure with an overall span length of 1307'-3", face to face of the abutments. The proposed low chord elevation of 757.22 feet is approximately 28 feet above the 50-year flood elevation of 729.21 feet. The bridge width will be approximately 85 feet, to accommodate the proposed 4-lane roadway, raised median, 6' sidewalk, and 10' bike path. Drawings of the proposed bridge can be found in Section 7.

Field Observations

The Fox River is a single channel in the vicinity of the proposed crossing, extending upstream (north) and downstream (south) with a very slight meandering. The Fox River floodplain contains residential structures adjacent to the proposed crossing. The channel is very well defined throughout this reach and the Fox River generally flows through the west side of the floodplain, with no obvious siltation or scour having been observed. An aerial photo of the area near the proposed bridge is provided in Section 4.

Stream Survey and Benchmark Correlation

A stream survey of the Fox River was performed by Engineering Enterprises, Inc. (EEI) in February, 2004. A benchmark correlation was made based on FEMA Reference Mark RM 70-3, which is on the NGVD 1929 datum. EEI survey datum is 0.16 feet higher than the NGVD 1929 datum. Information on RM 70-3 is provided in Section 5 on 2002 Flood Insurance Rate Map (FIRM) Panel Number 17089C0070F excerpt. The EEI datum correlation is provided at the beginning of Section 6.

Floodplain cross-sections were surveyed, ranging from approximately 1000 feet upstream to 1000 feet downstream of the proposed bridge to an elevation above the FIRM designated 100-year elevation. Survey cross section location information is provided in Section 6.

Historical Flooding Observations

According to the USGS Hydrologic Investigations Atlas HA-253 (1967), Crystal Lake Quadrangle, the flood of record for the Fox River occurred in April, 1960. Figure 8 of HA-253 indicates that the flood stage in the area of the proposed bridge was approximately 726.4 feet based on the NGVD 1929 datum during this event. HA-253 Figure 8 flood profiles are provided in Section 4.

According to flow data from USGS Gage 05550000, Fox River at Algonquin, located approximately 0.9 miles upstream, the peak flow on April 6, 1960 was 6,610 cfs. Similar high flows of 6,720 cfs were subsequently observed on May 22, 2004, and August 25, 2007. Gage data are provided in Section 5. For comparison purposes, peak flows from the USGS Scientific Investigations Report 2004-5103 and from StreamStats were compared to the Flood Insurance Study (FIS) regulatory flows. For all analyzed flood events, the FIS regulatory flows are higher than the gage flows and StreamStats flows at the proposed bridge site.

The FIS regulatory 100-year flood flow is 10,095 cfs, and the 100-year flood elevation is approximately 729.77 feet based on the NGVD 1929 datum, according to Table 6 and Sheet 63P of the FIS for Kane County, Illinois and Incorporated Areas, dated December 20, 2002. The 2002 FIS was subsequently revised August 3, 2009. The only change to the Fox River information in this reach is the adjustment from the NGVD 1929 datum to the NAVD 1988 datum, accomplished by subtracting 0.2' from each NGVD 1929 elevation. FIS excerpts are provided in Section 5.

Sensitive Flood Receptors

There are identified buildings and structures in the vicinity of the project site, which are below the existing 100-year flood elevation of the Fox River. The EEI Exhibit, "Location of Buildings and Structures with Potential Flood Damages of the Fox River" is provided in Section 6.

Hydraulic Analysis

A hydraulic analysis of the Fox River was performed to develop flood elevations of the natural conditions and to determine the effect, if any, of the proposed bridge on water surface profiles. The basis for the hydraulic analysis was the hard copy of the regulatory HEC-2 hydraulic model of the Fox River, obtained from the Illinois State Water Survey (ISWS). This model was reportedly created circa 1979, is on the NGVD 1929 datum, and used a different cross section identification scheme than the 2002 FIS. The output received had been hand-annotated to reflect the FIS stationing identification, which indicates the distance in feet upstream from the mouth of the Fox River. The flow rates included in the regulatory HEC-2 model were verified as current and used in the analysis. The regulatory HEC-2 model hard copy is provided in Section 8.

Several hydraulic models were created for this analysis, as summarized in the following sections.

<u>Baseline Model</u>

The regulatory HEC-2 input for the Fox River was entered into HEC-RAS v. 4.1.0. The annotated FIS stationing was used, rather than the original HEC-2 stationing. All geometry, reach lengths, and flow rates for the study reach were copied from the regulatory HEC-2 model printout. The reach lengths were compared to the FIS

stationing and found to be reasonable. In the Baseline model and all subsequent models, the river stations are equal to the stream distance above the mouth of the Fox River, divided by 1000 (i.e. cross section DF at distance 428,504 feet above the mouth is Baseline model cross section 428.504).

The first page of the HEC-2 hardcopy, including the Manning's n-values, was missing. Therefore the Manning's n-values were determined by calibrating to the published output elevations. The Manning's n-values are approximately 0.05 for the channel and 0.10 for the overbank areas. These values represent a range of ground roughness corresponding to a major stream channel (top width > 100 feet) with regular section and brush on the banks, and to medium brush or heavy timber with little undergrowth in the overbank areas. The calibrated n-values are within the range published for the Fox River in FIS Table 5 that is provided in Section 5 of this report.

The HEC-RAS Baseline model was executed to confirm the results reflected in the FIRM Panel 70 of 410 for Kane County, Illinois and Incorporated areas, dated December 20, 2002, as well as the FIS Floodway Data on Table 6. Pertinent FIS excerpts are provided in Section 5. The Baseline model extends from FIS cross section DA located 8,955 feet downstream of the proposed bridge to cross section DF located 4,673 feet upstream. The starting water surface elevations were taken from the regulatory model at cross section DA.

The Baseline model was executed to ensure that the results of the regulatory HEC-2 model had been duplicated. At all cross sections, the HEC-RAS water surface profiles matches the regulatory HEC-2 output within 0.01 feet for all storm events. From this point, the HEC-RAS model was considered to be the Baseline regulatory model. Tables 1 through 4 illustrate the comparison between the regulatory HEC-2 model and the Baseline HEC-RAS model for the 10, 50, 100, and 500-year storm events.

Modified Existing/Natural Conditions Model

Modified Existing and Natural conditions are the same, because there is no existing bridge at the site. The Modified Existing/Natural model was developed by inserting the EEI surveyed stream cross-sections into the baseline regulatory model. The inserted stream cross-sections, ranging from approximately 1000 feet downstream to 1000 feet upstream, include Sections 3073, 2453, 2098, 2000, 1885, 1402, and 912, based on the alignment established by EEI (Section 3073 is EEI cross section 30+73.04). Because the EEI alignment runs from upstream to downstream, opposite normal hydraulic modeling conventions, the cross sections were renumbered to fit within the FIS numbering system.

The Manning's "n" values as determined from the regulatory model were slightly modified for the inserted surveyed sections, so that the Modified Existing/Natural model water surface elevations match the Baseline model water surface elevations within 0.03 feet at all cross section for all analyzed storm events. Tables 1 through 4 illustrate the comparison between the Baseline regulatory model and the Modified Existing/Natural Conditions model for the 10, 50, 100, and 500-year storm events.

Proposed Conditions Model

The final model prepared for the hydraulic analysis was the Proposed Conditions model, which reflects the proposed Longmeadow Parkway Bridge. This model was used to demonstrate that the proposed bridge is sized properly and that there is less than a 0.1 foot raise in flood stages for all storm events up to and including the 100-year storm frequency due to the proposed bridge. Model cross sections 1 foot from the bridge faces were inserted, and the reach lengths were adjusted to reflect a new structure. The proposed bridge has 8 spans totaling 1,300 feet in length, a width of 85 feet, and low chord at 757.22 feet, based on the EEI survey datum.

As the Proposed model reflects, there is a negligible increase in flood stages due to the construction of the proposed Bolz Road/Longmeadow Parkway Bridge. Tables 1 through 4 illustrate the comparison between the Modified Existing/Natural model and the Proposed model for the 10, 50, 100, and 500-year storm events.

Modeling Results

The results of the hydraulic analysis demonstrate that the applicable criteria have been met, specifically that the resulting flood stages do not exceed 0.1 foot rise over the Natural condition flood stages due to implementation of the proposed project for all storm events up to and including the 500-year storm frequency. Four flood frequencies were analyzed for each of the three models summarized above, including the 10-, 50-, 100-, and 500-year events. A summary of the results are included in tables on the following pages, and the input/output of the HEC-RAS hydraulic models are included in Section 8.

TABLE 1
Comparison of 10 Year Water Surface Elevations, NGVD 1929 Datum

10 year	Cross Section			Water Surface Elevation (NGVD 1929)			
X-section	2002 FIS XS Designation	Source	Location	Regulatory HEC-2 Hardcopy	Baseline (Reg. HEC-2 recreated in HEC-RAS)	Modified Existing / Natural	Proposed
428.504	DF	ISWS FIS		729.49	729.49	729.48	729.48
426.207	—	ISWS FIS		728.31	728.31	728.30	728.30
424.800		EEI Section	Approx. 1000' U/S	———	———	727.77	727.77
424.600		EEI Section	Approx. 500' U/S	———	———	727.71	727.70
424.528	DE	ISWS FIS		727.69	727.69	727.66	727.66
423.900		EEI Section	Approx. 100' U/S	———	———	727.53	727.53
423.850		CBBEL	Prop. U/S Face +1'	———	———	———	727.51
423.800		EEI Section	Prop. Centerline	———	———	727.49	———
423.750		CBBEL	Prop. D/S Exit +1'	———	———	———	727.47
423.700		EEI Section	Approx. 100' D/S	———	———	727.45	727.45
423.300		EEI Section	Approx. 500' D/S	———	———	727.28	727.28
422.600		EEI Section	Approx. 1000' D/S	———	———	727.02	727.02
422.521	DD	ISWS FIS		726.91	726.91	726.91	726.91
420.346	DC	ISWS FIS		726.16	726.16	726.16	726.16
417.841	DB	ISWS FIS		725.15	725.15	725.15	725.15
414.015	DA	ISWS FIS		723.86	723.86	723.86	723.86

TABLE 2
Comparison of 50 Year Water Surface Elevations, NGVD 1929 Datum

50 year	Cross Section			Water Surface Elevation (NGVD 1929)			
X-section	2002 FIS XS Designation	Source	Location	Regulatory HEC-2 Hardcopy	Baseline (Reg. HEC-2 recreated in HEC-RAS)	Modified Existing / Natural	Proposed
428.504	DF	ISWS FIS		731.11	731.11	731.11	731.10
426.207	—	ISWS FIS		729.92	729.92	729.91	729.91
424.800		EEI Section	Approx. 1000' U/S	———	———	729.35	729.35
424.600		EEI Section	Approx. 500' U/S	———	———	729.27	729.27
424.528	DE	ISWS FIS		729.23	729.23	729.22	729.22
423.900		EEI Section	Approx. 100' U/S	———	———	729.07	729.07
423.850		CBBEL	Prop. U/S Face +1'	———	———	———	729.06
423.800		EEI Section	Prop. Centerline	———	———	729.03	———
423.750		CBBEL	Prop. D/S Exit +1'	———	———	———	729.02
423.700		EEI Section	Approx. 100' D/S	———	———	728.99	728.99
423.300		EEI Section	Approx. 500' D/S	———	———	728.79	728.79
422.600		EEI Section	Approx. 1000' D/S	———	———	728.51	728.51
422.521	DD	ISWS FIS		728.38	728.39	728.39	728.39
420.346	DC	ISWS FIS		727.55	727.55	727.55	727.55
417.841	DB	ISWS FIS		726.37	726.37	726.37	726.37
414.015	DA	ISWS FIS		724.72	724.72	724.72	724.72

TABLE 3
Comparison of 100 Year Water Surface Elevations, NGVD 1929 Datum

100 year	Cross Section			Water Surface Elevation (NGVD 1929)				
X-section	2002 FIS XS Designation	Source	Location	2002 FIS Floodway Data Table 6	Regulatory HEC-2 Hardcopy	Baseline (Reg. HEC-2 recreated in HEC-RAS)	Modified Existing / Natural	Proposed
428.504	DF	ISWS FIS		***732.0***	732.02	732.02	732.02	732.02
426.207	—	ISWS FIS			730.82	730.82	730.82	730.82
424.800		EEI Section	Approx. 1000' U/S		———	———	730.25	730.26
424.600		EEI Section	Approx. 500' U/S		———	———	730.16	730.16
424.528	DE	ISWS FIS		***730.1***	730.11	730.11	730.11	730.11
423.900		EEI Section	Approx. 100' U/S		———	———	729.95	729.95
423.850		CBBEL	Prop. U/S Face +1'		———	———	———	729.94
423.800		EEI Section	Prop. Centerline		———	———	729.91	———
423.750		CBBEL	Prop. D/S Exit +1'		———	———	———	729.90
423.700		EEI Section	Approx. 100' D/S		———	———	729.87	729.87
423.300		EEI Section	Approx. 500' D/S		———	———	729.65	729.65
422.600		EEI Section	Approx. 1000' D/S		———	———	729.35	729.35
422.521	DD	ISWS FIS		***729.2***	729.23	729.23	729.23	729.23
420.346	DC	ISWS FIS		***728.4***	728.35	728.35	728.35	728.35
417.841	DB	ISWS FIS		***727.1***	727.09	727.09	707.09	727.09
414.015	DA	ISWS FIS		***725.3***	725.25	725.25	725.25	725.25

TABLE 4
Comparison of 500 Year Water Surface Elevations, NGVD 1929 Datum

500 year	Cross Section			Water Surface Elevation (NGVD 1929)			
X-section	2002 FIS XS Designation	Source	Location	Regulatory HEC-2 Hardcopy	Baseline (Reg. HEC-2 recreated in HEC-RAS)	Modified Existing / Natural	Proposed
428.504	DF	ISWS FIS		733.13	733.13	733.13	733.13
426.207	—	ISWS FIS		731.92	731.92	731.93	731.93
424.800		EEI Section	Approx. 1000' U/S	———	———	731.35	731.36
424.600		EEI Section	Approx. 500' U/S	———	———	731.25	731.25
424.528	DE	ISWS FIS		731.17	731.17	731.19	731.20
423.900		EEI Section	Approx. 100' U/S	———	———	731.02	731.03
423.850		CBBEL	Prop. U/S Face +1'	———	———	———	731.02
423.800		EEI Section	Prop. Centerline	———	———	730.99	———
423.750		CBBEL	Prop. D/S Exit +1'	———	———	———	730.96
423.700		EEI Section	Approx. 100' D/S	———	———	730.94	730.94
423.300		EEI Section	Approx. 500' D/S	———	———	730.69	730.69
422.600		EEI Section	Approx. 1000' D/S	———	———	730.38	730.38
422.521	DD	ISWS FIS		730.25	730.26	730.26	730.26
420.346	DC	ISWS FIS		729.32	729.32	729.32	729.32
417.841	DB	ISWS FIS		727.97	727.97	727.97	727.97
414.015	DA	ISWS FIS		725.92	725.92	725.92	725.95

IDNR-OWR Floodway Permitting Requirements

A permit is required from the Illinois Department of Natural Resources (IDNR) – Office of Water Resources (OWR) for the work proposed within the floodway of the Fox River. The work includes fill in the floodplain and floodway due to construction of the Longmeadow Parkway bridge piers. The hydraulic modeling demonstrates that flood stages are not increased by more than 0.01 feet at any location for all storm events up to and including the 500-year storm frequency.

It is estimated that construction of the proposed bridge piers will require floodplain fill volume of 88 cubic yards between the ground elevation and the 10-year flood elevation. All of this fill is assumed to be in the floodway. Floodplain fill volume of 144 cubic yards is anticipated between the 10-year flood elevation and the 100-year flood elevation. All of this fill is also assumed to be in the floodway. IDNR-OWR requires compensatory storage for floodway fill at a 1:1 ratio. The Kane County Stormwater Management Ordinance §410(a) requires "compensatory storage volume...shall be at least equal to the regulatory floodplain flood storage volume displaced multiplied by 1.5." Therefore, a minimum compensatory storage volume of 348 cubic yards shall be provided at the appropriate elevations between the ground elevation and the 100-year flood elevation to satisfy the IDNR-OWR floodway permit and the Kane County Ordinance requirements. A Permit Summary Form and fill calculations are included in Section 9.

If temporary construction features are necessary, these must also be permitted.

IDNR-OWR Individual Public Waters Permit Requirements

A permit is required from the IDNR–OWR for work proposed in Public Waters, which includes the channel of the Fox River. The proposed piers span most of the channel, providing approximately 290 feet of horizontal clearance. The proposed bridge also provides over 25 feet of vertical clearance above the design high water level. These clearances exceed the requirements of the Part 720.10 Rules Establishing Horizontal and Vertical Clearances for Bridges over the Fox River. A copy of the Part 720.10 Rules, requiring that "the minimum horizontal clearance for bridges hereafter constructed over the Fox River between Algonquin and the Illinois-Wisconsin State Line shall be 100 feet and the minimum vertical clearance for such bridges shall be 15 feet above the normal pool level," is included in Section 7.

If temporary construction features are necessary, these must also be permitted.

Scour Analysis

The Scout Critical Evaluation Coding Report Form is provided in Section 10, along with scour calculations for the proposed structure. The calculations show that the maximum total scour depth is 6.62 feet for the 500-year storm event. As a result, the

piles will be constructed at the appropriate depth and structure protection will be implemented.

Conclusion and Design Recommendations

The results from the hydraulic analysis are summarized in the Waterway Information Table located in Section 3. The results indicate that the proposed bridge construction will not adversely impact the hydraulics of the Fox River. The proposed bridge will meet the IDOT drainage criteria that the low chord will have a minimum of 2 feet above the 50-year natural water elevation and is not below the all time recorded high water elevation, and that the proposed roadway edge of pavement will be at least 3 feet above the 50-year created headwater elevation.

Additionally the IDNR-OWR requirements will be met, including compensatory storage for fill in the floodway and maintaining a created head of no greater than 0.1 foot for all storm events up to and including the 100-year storm frequency. Adequate horizontal and vertical clearances are provided in accordance with IDNR-OWR Rules. The Kane County Stormwater Ordinance requirement of providing 1.5:1 compensatory storage in the floodplain will also be satisfied.

An IDNR-OWR permit is required because the proposed construction will work at the identified Fox River floodway and because the Fox River is designated as a Public Body of Water.

IAD/BWL/jmc/mk
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SECTION 2

PRELIMINARY BRIDGE DESIGN AND HYDRAULIC REPORT (BLR 10210)

Municipality	Unincorporated
County	Kane
Road District	KDOT
Other Agency	IDOT
Project	Longmeadow Parkway
Section	94-00215-01 ES

Illinois Department of Transportation

Preliminary Bridge Design and Hydraulic Report

Route	Longmeadow Parkway
Stream	Fox River
Ex. St. No.	n/a
Pr. St. No.	045-3024
Prepared by	Ilene Dailey, PE, CFM
Agency/Firm	Christopher B. Burke Eng L
Date	10/08/2012

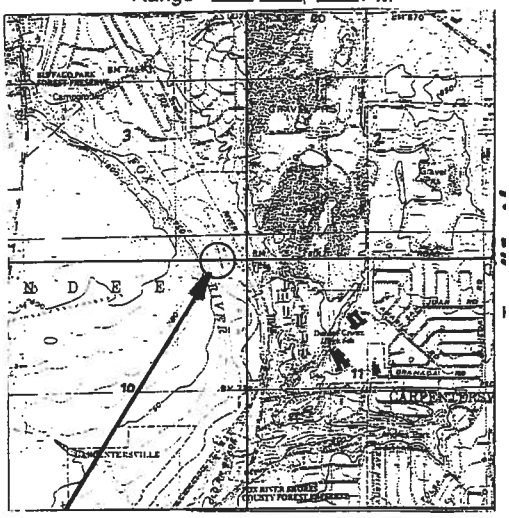
Funding Type: ☐ HBP ☒ STU ☐ STR ☐ Enhancement ☐ TBP ☐ MFT ☒ Non-MFT ☒ Other ( )

Sufficiency Rating n/a Existing clear span length n/a

Functionally Obsolete ☐ Yes ☐ No

Structurally Deficient ☐ Yes ☐ No

Range 8 E 3rd PM



Locate bridge accurately above

Construction Information Proposed Letting Date 09/01/2016

Shop Plan Review by ☐ Local Agency ☒ Consultant ☐ State

Fabrication Inspection by ☐ Local Agency ☐ Consultant ☒ State

Approach Roadway Information

Surface Type:	Existing	n/a	Proposed	Concrete
Surface Width:	Existing	n/a	Proposed	60'
Shldr to Shldr Width:	Existing	n/a	Proposed	64'
Elevation of Low Point:	Existing	n/a	Proposed	764.35

Proposed Side Slopes 3:1

Roadway Functional Classification Minor Arterial

DHV 2050 Current ADT n/a Design Year ADT 26,000

% Trucks 4% Design Speed 50 mph

3R Design Guidelines Used ☐ Yes ☒ No

Proposed Structure Information

Type of Structure Proposed ☒ Bridge ☐ Culvert ☐ "Standard Plans" Bridge ☐ Pedestrian/Bicycle

Vehicle Design Loading HL-93 Pedestrian/Bicycle Design Loading 75 psf

Superstructure Type Steel Plate Girder and Prestressed Concrete Bulb-T

Structure Length Back to Back Abutments 1307'-3" Span Length 120'-200'-300'-200'-120'-120'-120'-120'

Clear Roadway Width 64' Rail Type 42" Type F Crash Tested Rail Required ☒ Yes ☐ No

Wearing Surface Type n/a Wearing Surface Thickness n/a

Deicing Agents Used ☐ Yes ☒ No

Embankment Slope Under Bridge 2:1 Proposed Skew Angle 15 degr Forward on. ☒ Rt. ☐ Lt.

Pier Type solid wall Abutment Type Pile Supported Stub

Proposed Pile Type Steel H

Borings By Wang Engineering, Inc. Expected Submittal Date for Borings

Hydraulic Data

Exist. Br. Cr. El. n/a @ Sta. n/a Prop. Br. Cr. El. 764.53 @ Sta. 2218+65.40

Exist. Low Beam Elev. n/a Proposed Low Beam Elev. 757.22

Exist. Freeboard n/a Proposed Freeboard 34.62 Streambed Elev. 715.16

Drainage Area Appr. 1415 sq. mi. Crossing Location ☐ Rural ☒ Urban

Crossing Located within a Mapped National Flood Insurance Program Area ☒ Yes ☐ No (Map No. 0070F

Crossing Located within a Northeast Region (District #1) FEMA Mapped Floodway ☒ Yes ☐ No

Crossing Located over designated "Public Bodies of Water" ☒ Yes ☐ No

Design Flood Data

Design Flood Frequency 50-yr Design Discharge 8345 cfs Design High Water Elev. 729.21

Exist. Br. Opening n/a Exist. Over-the-Road n/a

Prop. Br. Opening 3990 sft. Prop. Over-the-Road 0 cfs

100 Year Flood Data

100 Year Discharge 10095 cfs 100 Year High Water Elev. 730.09

Exist. Br. Opening n/a Exist. Over-the-Road n/a Exist. Created Head n/a

Prop. Br. Opening 4688 sft. Prop. Over-the-Road 0 cfs Prop. Created Head 0.00'

If proposed structure and over-the-road area will not carry entire flow, state kind and area of additional waterway
n/a

Type of Streambed soil gravelly sand/silt clay loam Will drift or ice permit pier in channel ? ☒ Yes ☐ No
Has scour occurred at or near existing structure ? ☐ Yes ☒ No; If yes, reason for scour n/a

Comments on hydraulic adequacy of existing structure n/a

Has the existing structure been the cause of demonstrable flood damage to adjacent property? ☐ Yes ☐ No
If yes, describe damage n/a

Comments on the hydraulic adequacy of upstream and downstream structures and their comparable relationship to the proposed structure No other bridges are located near the proposed structure. The Carpentersville dam, located approximately 11,150 feet downstream, affects WSELs for this reach of the Fox River.

Will houses, places of business or valuable property be affected by backwater from the proposed bridge? ☐ Yes ☒ No
If yes, describe property and effect of backwater There are buildings located upstream of the proposed bridge with doorways and/or window wells below the 100-year elevation (730.09) of the Fox River. The proposed bridge does not raise water surface elevations more than 0.01' for all flood events up to and including the 500-yr.
Is any channel excavation beyond that required to construct the substructure required in the channel? ☐ Yes ☒ No
If yes, describe extent of channel excavation

Will a channel realignment be required? ☐ Yes ☒ No (If yes, attach Channel Change Sketch)
Are stream flow data (gaging station or flood study) available for the stream at or near the proposed site? ☒ Yes ☐ No
(If yes, attach an analysis of the stream flow data)
Provide information regarding high water from other streams, reservoirs, flood control projects, proposed channel changes, strip mine areas or other controls affecting the hydraulic or hydrologic properties of the crossing site The hydraulic effects of the Carpentersville dam are included in the FEMA modeling used as the basis of the proposed bridge analysis.

Scour Analysis
Was a HEC-18 scour analysis performed? ☒ Yes ☐ No
Were all substructure units being utilized evaluated to consider the effect of anticipated scour? ☒ Yes ☐ No
Will scour protection or corrective actions be required? ☒ Yes ☐ No
If yes, describe protection or corrective actions. Pier foundations within the floodplain will be on piles at the appropriate elevations per the SGR.

Attachments (Check those items below that are included.)
- ☒ Reproduction of applicable portion of USGS quadrangle showing locations of proposed bridge and properties affected by backwater caused by the proposed structure
- ☒ Cross sections as required by WSPRO including floodplain above high water elevation
- ☒ Streambed profile
- ☒ Profile of existing and proposed roadway across floodplain
- ☒ Hydraulic calculations
- ☐ Joint Application Form for construction permit submittals (Joint Form NCR-426)
- ☒ Waterway sketch
- ☐ Channel change sketch
- ☐ Applicable certification(s)
- ☒ Boring data
- ☒ Scour analysis/evaluation
- ☒ Other Permit Summary for Floodway Construction in Northeast Illinois

SECTION 3

WATERWAY INFORMATION TABLE

Illinois Department of Transportation

Waterway Information Table
EEI Datum

Route: Longmeadow Parkway
Section: 94-00212-01-ES
County: Kane
Date: 01-27-11

Existing SN: n/a
Proposed SN: 045-3024
Waterway: Fox River
Prepared by: Ilene A. Dailey, PE, CFM

Existing Overtopping Elev. = n/a at Sta. n/a

Drainage Area = Approx. 1415 sq. mi. Proposed Overtopping Elev. = 764.35 at Sta. 2219+41

Flood	Freq. Yr.	Q Ft^3/s	Opening - ft^2		Natural H.W.E.	Head – ft.		Headwater Elevation	
			Existing	Proposed		Existing	Proposed	Existing	Proposed
	10	5775	n/a	2853	727.67	n/a	0.00	n/a	727.67
Design	50	8345	n/a	3990	729.21	n/a	0.00	n/a	729.21
Base	100	10095	n/a	4688	730.09	n/a	0.00	n/a	730.09
Overtop Existing	n/a								
Overtop Proposed	n/a								
Max. Calc.	500	12525	n/a	5643	731.17	n/a	0.01	n/a	731.18

10 YEAR VELOCITY THROUGH EXISTING BRIDGE = n/a ft/s

10 YEAR VELOCITY THROUGH PROPOSED BRIDGE = 2.02 ft/s

ALL–TIME H.W.E. & DATE: 726.4 (NGVD 1929) in April 1960

Scope of Work: Construct new 8-span bridge to carry proposed Longmeadow Parkway over the Fox River.
Note: All WIT elevations based on EEI datum = FEMA Datum (NGVD 1929) + 0.16'.

EXISTING STRUCTURE

TYPE: n/a
LENGTH: n/a
SPANS: n/a
LOW BEAM: n/a
SKEW: n/a
LOW E.O.P.: n/a

PROPOSED STRUCTURE

TYPE: Steel Plate Girder and Prestressed Concrete Bulb-T
LENGTH: 1307'-3"
SPANS: 120'-200'-300'-200'-120'-120'-120'-120'
LOW BEAM: 757.22
SKEW: 15 degrees
LOW E.O.P.: 763.89

NOTE: PROPOSED STRUCTURE DETAILS ARE PRELIMINARY; SUBJECT TO REFINEMENT IN TSL STAGE.

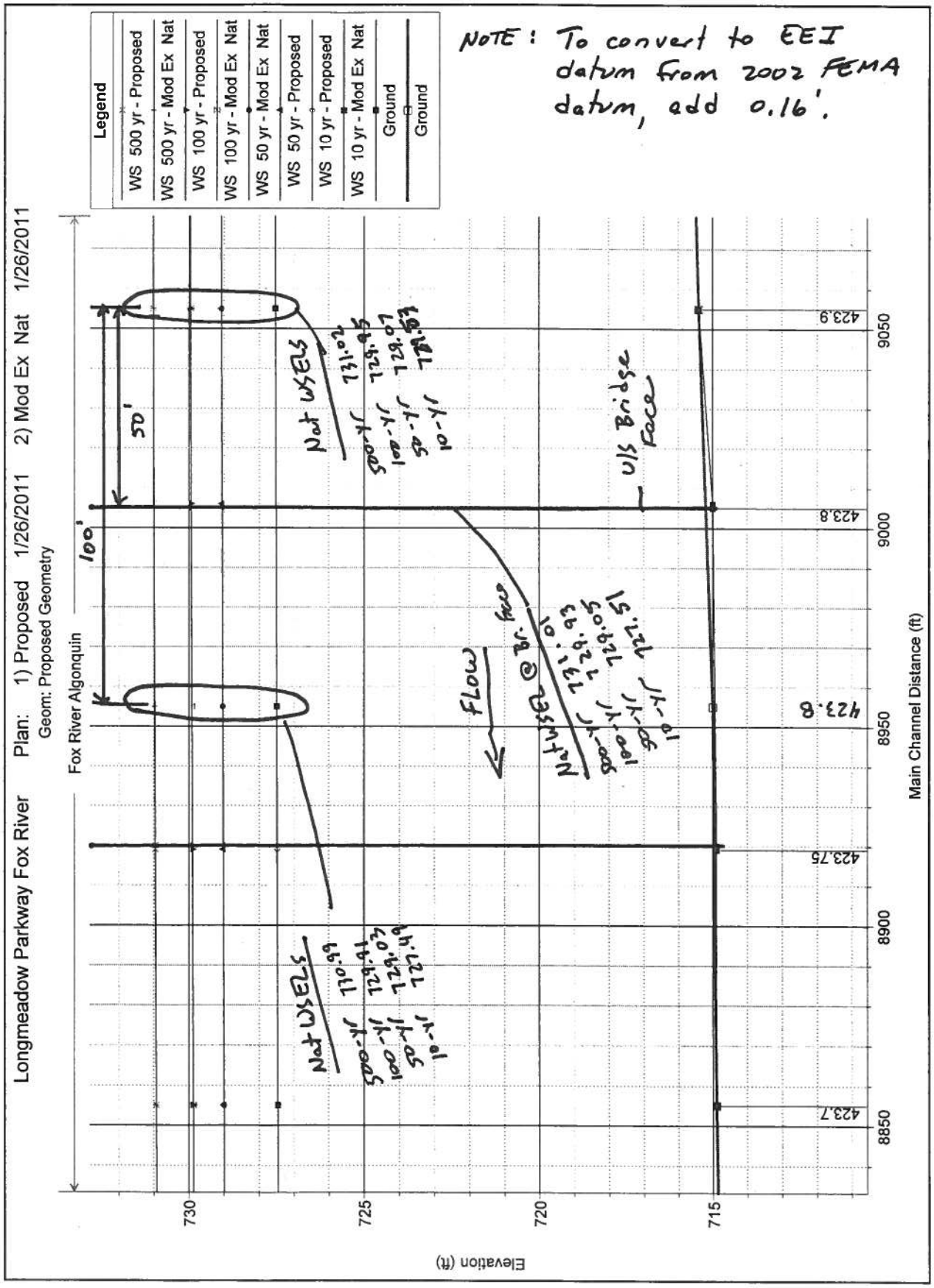
HEC-RAS Locations: User Defined

River	Reach	River Sta	Profile	Plan	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
					(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Fox River	Algonquin	424.528	10 yr	Mod Ex Nat	5775.00	716.60	727.66		727.73	0.000272	2.10	3250.66	782.36	0.12
Fox River	Algonquin	424.528	10 yr	Proposed	5775.00	716.60	727.66		727.72	0.000272	2.10	3248.52	781.70	0.12
Fox River	Algonquin	424.528	50 yr	Mod Ex Nat	8345.00	716.60	729.22		729.31	0.000299	2.45	4580.96	888.50	0.13
Fox River	Algonquin	424.528	50 yr	Proposed	8345.00	716.60	729.22		729.31	0.000299	2.45	4580.20	888.46	0.13
Fox River	Algonquin	424.528	100 yr	Mod Ex Nat	10095.00	716.60	730.11		730.21	0.000313	2.64	5386.25	924.34	0.14
Fox River	Algonquin	424.528	100 yr	Proposed	10095.00	716.60	730.11		730.21	0.000313	2.64	5387.38	924.46	0.14
Fox River	Algonquin	424.528	500 yr	Mod Ex Nat	12525.00	716.60	731.19		731.30	0.000328	2.88	6425.82	983.89	0.14
Fox River	Algonquin	424.528	500 yr	Proposed	12525.00	716.60	731.20		731.31	0.000328	2.87	6430.39	984.08	0.14
Fox River	Algonquin	423.9	10 yr	Mod Ex Nat	5775.00	715.40	727.53		727.61	0.000389	2.36	2864.94	623.18	0.14
Fox River	Algonquin	423.9	10 yr	Proposed	5775.00	715.40	727.53		727.61	0.000389	2.36	2863.15	622.98	0.14
Fox River	Algonquin	423.9	50 yr	Mod Ex Nat	8345.00	715.40	729.07		729.18	0.000425	2.75	3940.32	725.39	0.15
Fox River	Algonquin	423.9	50 yr	Proposed	8345.00	715.40	729.07		729.18	0.000425	2.75	3939.75	725.37	0.15
Fox River	Algonquin	423.9	100 yr	Mod Ex Nat	10095.00	715.40	729.95		730.08	0.000444	2.97	4584.19	739.47	0.16
Fox River	Algonquin	423.9	100 yr	Proposed	10095.00	715.40	729.95		730.08	0.000444	2.97	4585.09	739.49	0.16
Fox River	Algonquin	423.9	500 yr	Mod Ex Nat	12525.00	715.40	731.02		731.16	0.000469	3.25	5384.36	756.60	0.16
Fox River	Algonquin	423.9	500 yr	Proposed	12525.00	715.40	731.03		731.17	0.000468	3.24	5388.10	756.68	0.16
Fox River	Algonquin	423.85	10 yr	Proposed	5775.00	715.00	727.51	720.22	727.59	0.000474	2.35	2876.53	671.96	0.15
Fox River	Algonquin	423.85	50 yr	Proposed	8345.00	715.00	729.06	721.10	729.16	0.000472	2.66	4044.34	775.76	0.16
Fox River	Algonquin	423.85	100 yr	Proposed	10095.00	715.00	729.94	721.62	730.05	0.000474	2.83	4762.04	902.82	0.16
Fox River	Algonquin	423.85	500 yr	Proposed	12525.00	715.00	731.02	722.33	731.14	0.000477	3.04	5744.41	920.22	0.16
Fox River	Algonquin	423.8	10 yr	Mod Ex Nat	5775.00	715.00	727.49		727.57	0.000478	2.35	2862.84	671.11	0.15
Fox River	Algonquin	423.8	50 yr	Mod Ex Nat	8345.00	715.00	729.03		729.14	0.000476	2.66	4026.77	775.63	0.16
Fox River	Algonquin	423.8	100 yr	Mod Ex Nat	10095.00	715.00	729.91		730.03	0.000478	2.84	4740.65	902.38	0.16
Fox River	Algonquin	423.8	500 yr	Mod Ex Nat	12525.00	715.00	730.99		731.11	0.000482	3.06	5718.89	920.02	0.16
Fox River	Algonquin	423.75	10 yr	Proposed	5775.00	714.90	727.47		727.55	0.000349	2.30	3146.64	631.97	0.13
Fox River	Algonquin	423.75	50 yr	Proposed	8345.00	714.90	729.02		729.12	0.000384	2.68	4285.09	768.53	0.14
Fox River	Algonquin	423.75	100 yr	Proposed	10095.00	714.90	729.90		730.01	0.000402	2.89	4963.63	776.06	0.15
Fox River	Algonquin	423.75	500 yr	Proposed	12525.00	714.90	730.96		731.09	0.000426	3.16	5797.19	785.20	0.16
Fox River	Algonquin	423.7	10 yr	Mod Ex Nat	5775.00	714.90	727.45		727.53	0.000352	2.31	3132.77	630.79	0.13
Fox River	Algonquin	423.7	10 yr	Proposed	5775.00	714.90	727.45		727.53	0.000352	2.31	3132.77	630.79	0.13
Fox River	Algonquin	423.7	50 yr	Mod Ex Nat	8345.00	714.90	728.99		729.09	0.000387	2.69	4266.73	768.32	0.15
Fox River	Algonquin	423.7	50 yr	Proposed	8345.00	714.90	728.99		729.09	0.000387	2.69	4266.73	768.32	0.15
Fox River	Algonquin	423.7	100 yr	Mod Ex Nat	10095.00	714.90	729.87		729.98	0.000406	2.90	4944.42	775.84	0.15
Fox River	Algonquin	423.7	100 yr	Proposed	10095.00	714.90	729.87		729.98	0.000406	2.90	4944.42	775.84	0.15
Fox River	Algonquin	423.7	500 yr	Mod Ex Nat	12525.00	714.90	730.94		731.07	0.000430	3.17	5776.79	784.98	0.16
Fox River	Algonquin	423.7	500 yr	Proposed	12525.00	714.90	730.94		731.07	0.000430	3.17	5776.79	784.98	0.16

NOTE: To convert to EEI datum from FEMA datum, add 0.16'.

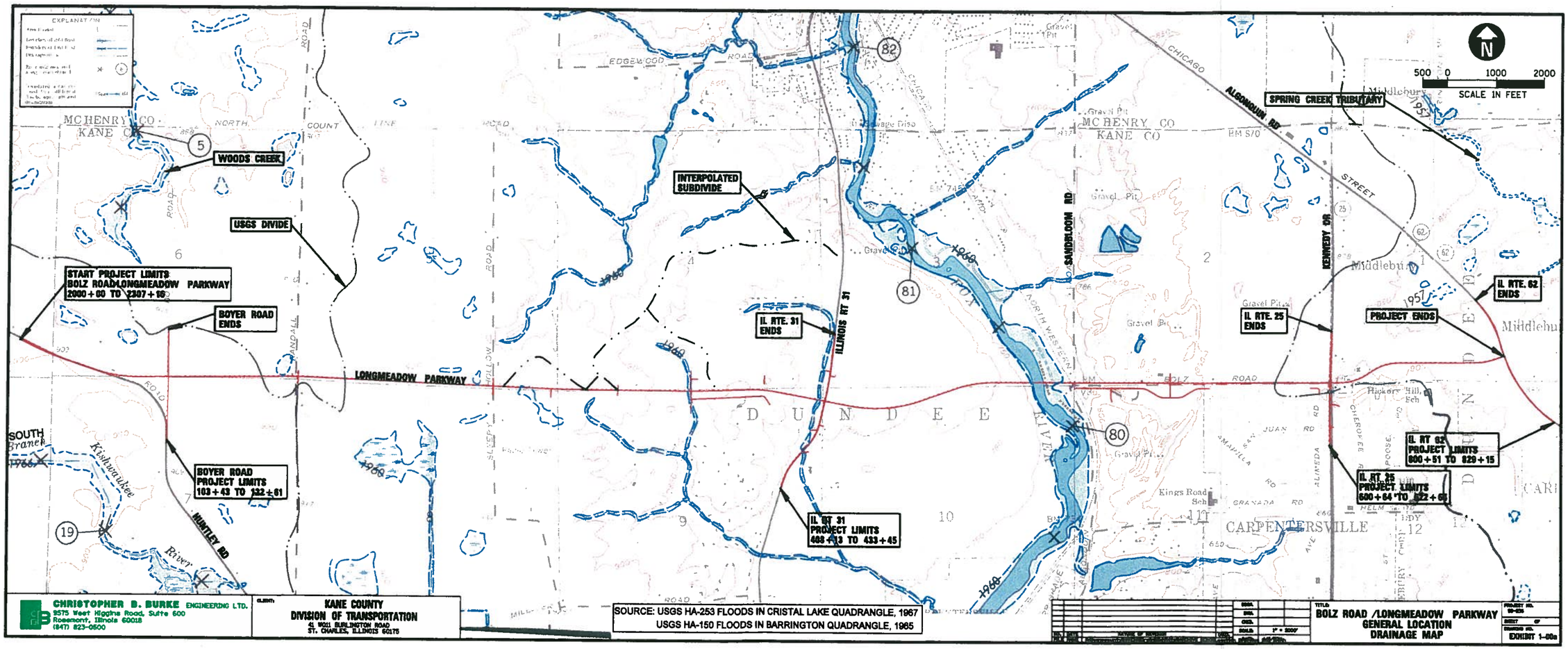
WIT Supporting Data

WIT Natural WSEL



SECTION 4

GENERAL LOCATION DRAINAGE MAP (HA-253 and HA-150)
USGS PROFILES OF FLOODS ON FOX RIVER (HA-253)
AERIAL PHOTO



SOURCE: USGS HA-253 FLOODS IN CRISTAL LAKE QUADRANGLE, 1967
USGS HA-150 FLOODS IN BARRINGTON QUADRANGLE, 1965

CHRISTOPHER B. BURKE ENGINEERING LTD.
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KANE COUNTY
DIVISION OF TRANSPORTATION
41 W011 BURLINGTON ROAD
ST. CHARLES, ILLINOIS 60175

BOLZ ROAD /LONGMEADOW PARKWAY
GENERAL LOCATION
DRAINAGE MAP

EXHIBIT 1-00a

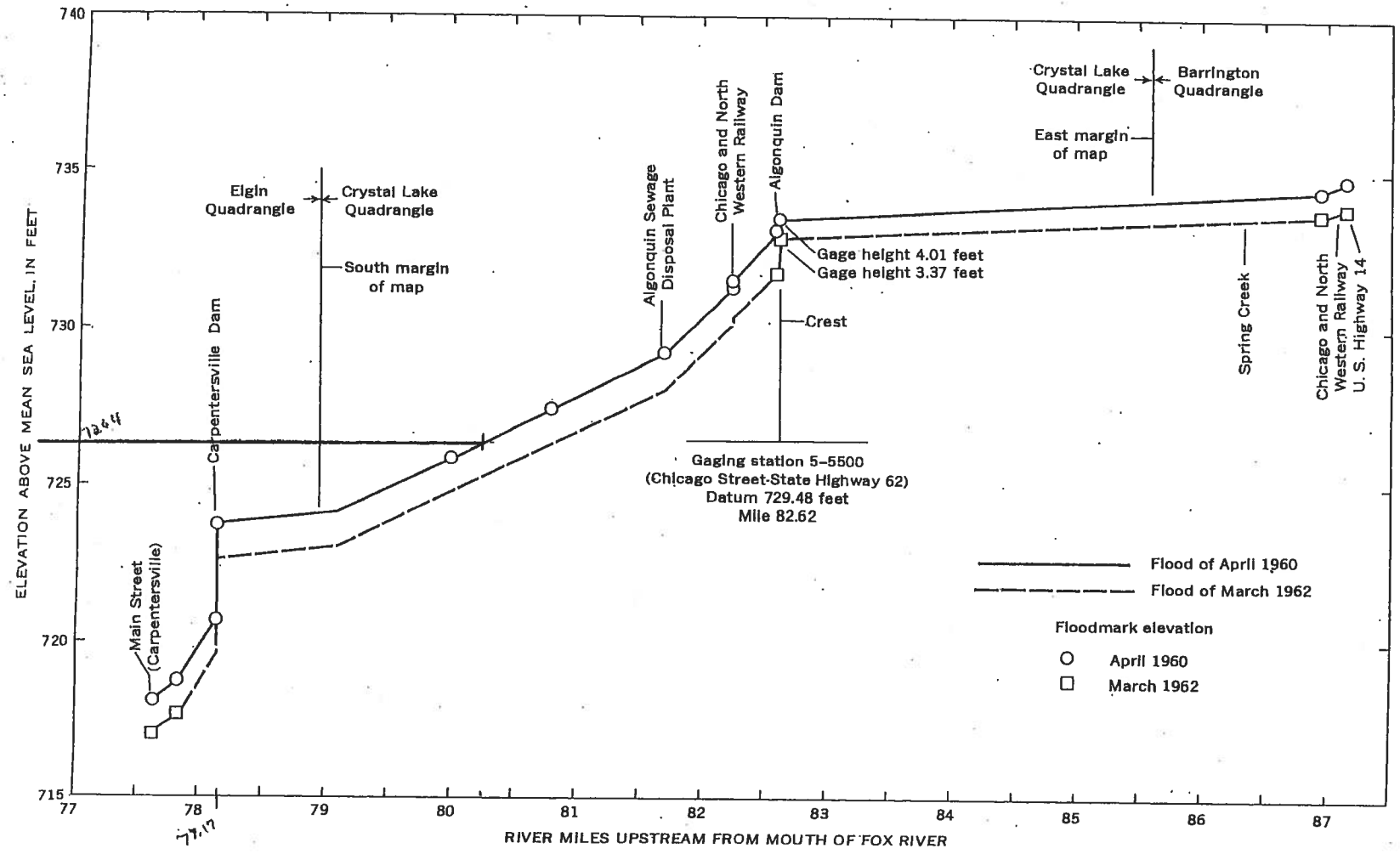
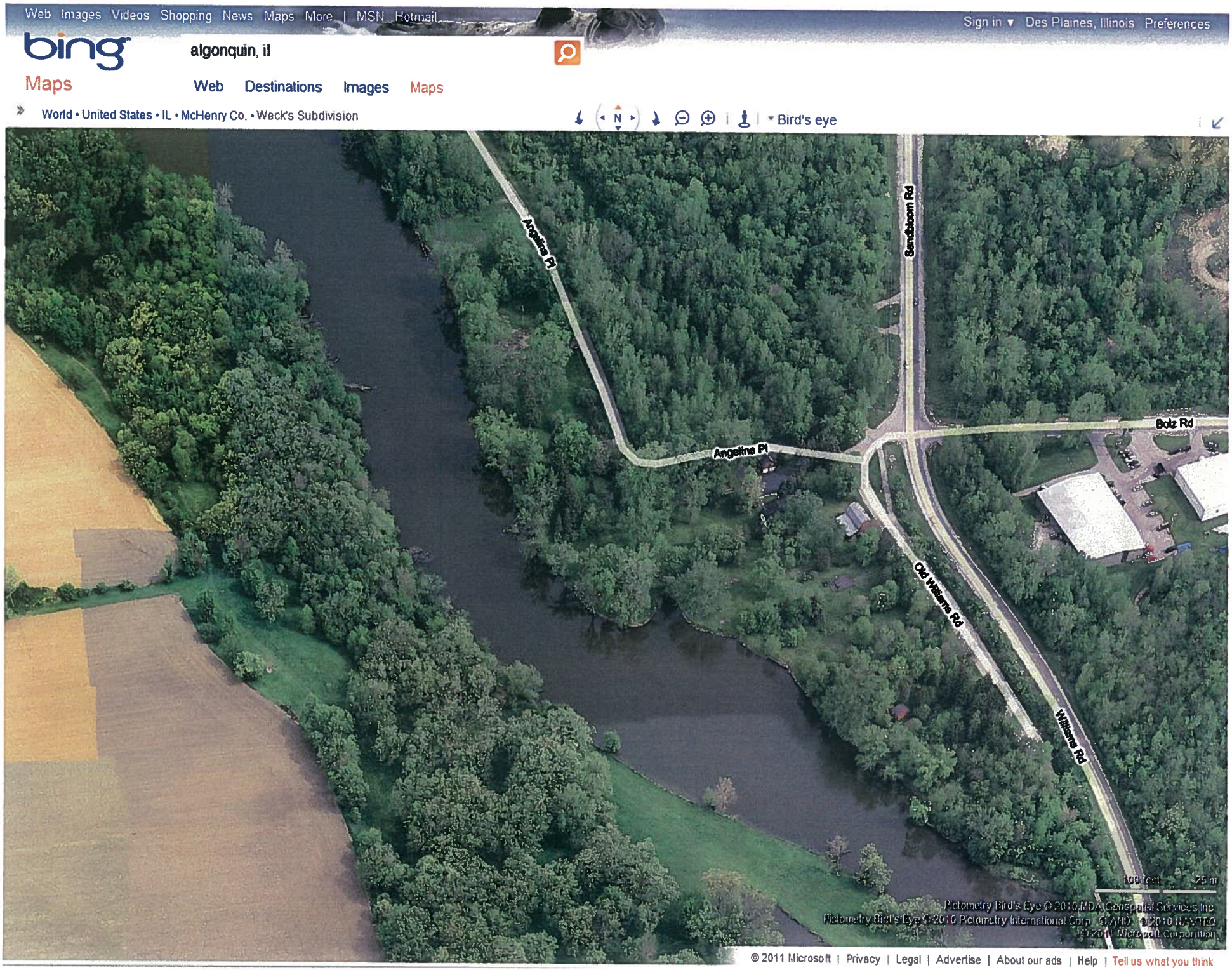


FIGURE 8.—*Profiles of floods on Fox River.*

USGS Hydrologic Investigations Atlas, HA-253 (1967)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SECTION 5

2002 FEMA FLOOD INSURANCE STUDY DATA AND RATE MAP
2009 FEMA FLOOD INSURANCE STUDY DATA AND RATE MAP
USGS GAGE AND STREAMSTATS DATA

2002 FEMA FLOOD INSURANCE STUDY DATA AND RATE MAP

FLOOD INSURANCE STUDY

VOLUME 1 OF 3

KANE COUNTY, ILLINOIS
AND INCORPORATED AREAS

COMMUNITY NAME	COMMUNITY NUMBER
BATAVIA, CITY OF	170321
BIG ROCK, VILLAGE OF	171081
CARPENTERSVILLE, VILLAGE OF	170322
EAST DUNDEE, VILLAGE OF	170323
ELBURN, VILLAGE OF	171026
ELGIN, CITY OF	170087
GENEVA, CITY OF	170325
GILBERTS, VILLAGE OF	170326
HAMPSHIRE, VILLAGE OF	170327
HOFFMAN ESTATES, VILLAGE OF	170107
KANE COUNTY (UNINCORPORATED AREAS)	170896
LILY LAKE, VILLAGE OF	171023
MAPLE PARK, VILLAGE OF	171018
MONTGOMERY, VILLAGE OF	170328
NORTH AURORA, VILLAGE OF	170329
PINGREE GROVE, VILLAGE OF	171078
SLEEPY HOLLOW, VILLAGE OF	170331
SOUTH ELGIN, VILLAGE OF	170332
ST. CHARLES, CITY OF	170330
SUGAR GROVE, VILLAGE OF	170333
VIRGIL, VILLAGE OF	171024
WEST DUNDEE, VILLAGE OF	170335

DECEMBER 20, 2002

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER
17089CV001A

TABLE 4 - SUMMARY OF DISCHARGES - continued

FLOODING SOURCE AND LOCATION	DRAINAGE AREA (sq. miles)	PEAK DISCHARGES (cfs) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
FOX RIVER					
Upstream of U.S. 30 and downstream of Ashland Avenue	1,710	12,100	17,050	18,700	24,100
Approximately 1.2 miles downstream of North Avenue	1,705	12,100	17,000	18,600	24,100
At Aurora Dam	1,705	5,950	8,400	9,180	11,900
At North Aurora	1,680	8,565	12,770	14,350	18,760
At confluence of Mill Creek	1,670	8,565	12,770	14,350	18,760
Approximately 319,757 feet from mouth	1,649	7,535	11,225	12,250	16,875
At River Station 294,500	1,629	8,500	12,500	13,500	17,630
At Geneva Dam	1,580	7,535	11,225	12,250	16,875
Approximately 356,400 feet from mouth	1,568	7,535	11,225	12,250	16,875
Approximately 359,964 feet from mouth	1,556	6,870	9,965	11,350	14,680
Just upstream of confluence of Norton Creek	1,540	7,535	11,225	12,250	16,875
At U.S. Route 20	1,532	6,870	9,965	11,305	14,680
At Lawrence Avenue	1,509	5,910	8,950	10,540	13,475
Approximately 8,400 feet upstream of confluence of Jelkes Creek	1,446	5,910	8,950	10,540	13,475
At Carpentersville Dam	1,425	5,775	8,345	10,095	12,525
At Algonquin approximately 428,541 feet from mouth	1,403	5,480	7,990	9,690	11,800
Approximately 7,000 feet downstream of upstream county boundary	1,390	5,775	8,345	10,095	12,525
FOX RIVER EAST CHANNEL					
At Aurora Dam	1,705	6,150	8,600	9,420	12,200

SITE

TABLE 5 - MANNING'S "n" VALUES - continued

Stream	Channel "n"	Overbank "n"
Bowes Creek	0.035-0.072	0.065-0.100
Bowes Creek Tributary	0.045	0.070
Brewster Creek	0.060	0.140
Carpenter Creek	0.10	0.12
Eakin Creek	0.05	0.06
Ferson Creek	0.030-0.08	0.070-0.100
Fitchie Creek	0.035-0.104	0.070-0.100
Four Winds Way Creek	0.10	0.12
Fox River	0.025-0.10	0.035-0.10
Fox River East Channel	0.025-0.040	0.060-0.070
Fox River Tributary (East Branch)	0.040	0.050
Fox River Tributary	0.020-0.060	0.050-0.080
Geneva Creek	0.040-0.085	0.04-0.10
Hampshire Creek	0.046-0.150	0.035-0.145
Hampshire Creek Tributary No. 1	0.050-0.120	0.050
Hampshire Creek Tributary No. 2	0.035-0.110	0.040-0.090
Hampshire Creek Tributary No. 3	0.065-0.075	0.050
Hampshire Creek Tributary No. 4	0.075-0.080	*
Hampshire Creek Tributary	0.030-0.100	0.030-0.080
Indian Creek	0.030-0.055	0.040-0.150
Indian Creek Tributary B	0.050-0.070	0.070-0.095
Jelkes Creek	0.035-0.070	0.050-0.090
Mahoney Creek	0.100	0.120
Main Street Ditch	0.07	0.08
McKee Road Tributary	0.035-0.090	0.050-0.100
Mill Creek	0.020-0.100	0.040-0.140
Mill Creek Tributary No. 2	0.060	0.080-0.100
North Arm Brewster Creek	0.080	0.120
Norton Creek	0.045-0.15	0.05-0.150
Norton Creek Tributary	0.030-0.055	0.045-0.055
Otter Creek	0.035-0.075	0.070-0.090
Otter Creek Tributary	0.035-0.055	0.070-0.085
Pingree Creek	0.055-0.065	0.05-0.08
Poplar Creek	0.015-0.040	0.060-0.080
Sandy Creek	0.04-0.09	0.07-0.12
Selmarten Creek	0.030-0.060	0.070-0.100
Sleepy Creek	0.05-0.100	0.10
South Tributary	0.050-0.060	0.075-0.150
Stoney Creek	0.030-0.072	0.060-0.110
Tyler Creek	0.045-0.07	0.05-0.1
Waubansee Creek	0.035-0.055	0.050-0.070
Welch Creek	0.045-0.090	0.050-0.090
Welch Creek Tributary No. 1	0.045-0.090	0.050-0.090

*Data not available

FLOODING SOURCE		FLOODWAY			BASE FLOOD WATER-SURFACE ELEVATION (FEET NGVD)			
CROSS SECTION	DISTANCE[1]	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
Fox River (continued)								
CL	379,621	456	5,782	1.8	713.5	713.5	713.5	0.0
CM	381,396	720	6,117	1.7	713.7	713.7	713.7	0.0
CN	384,653	492	2,928	3.6	714.3	714.3	714.3	0.0
CO	387,061	517	5,643	1.9	715.1	715.1	715.2	0.1
CP	389,516	652	6,004	1.8	715.4	715.4	715.4	0.0
CQ	391,116	644	7,038	1.5	715.6	715.6	715.6	0.0
CR	392,769	576	5,783	1.8	715.7	715.7	715.8	0.1
CS	395,700	619	5,758	1.8	716.0	716.0	716.1	0.1
CT	397,400	1,101	7,398	1.4	716.3	716.3	716.4	0.1
CU	402,518	469	2,669	3.9	718.0	718.0	718.1	0.1
CV	404,511	281	2,865	3.7	719.8	719.8	719.9	0.1
CW	406,439	381	3,508	3.0	720.2	720.2	720.3	0.1
CX	407,468	374	3,841	2.7	720.6	720.6	720.7	0.1
CY	409,944	227	2,352	4.5	721.4	721.4	721.5	0.1
CZ	410,874	708	5,994	1.8	722.3	722.3	722.4	0.1
DA	414,015	575	4,181	2.4	725.3	725.3	725.4	0.1
DB	417,841	558	4,139	2.4	727.1	727.1	727.2	0.1
DC	420,346	650	4,101	2.5	728.4	728.4	728.5	0.1
DD — SITE	422,521	643	4,035	2.5	729.2	729.2	729.3	0.1
DE	424,528	787	5,117	2.0	730.1	730.1	730.2	0.1
DF	428,504	878	5,043	2.0	732.0	732.0	732.1	0.1

STUDY REACH

[1]Feet above mouth

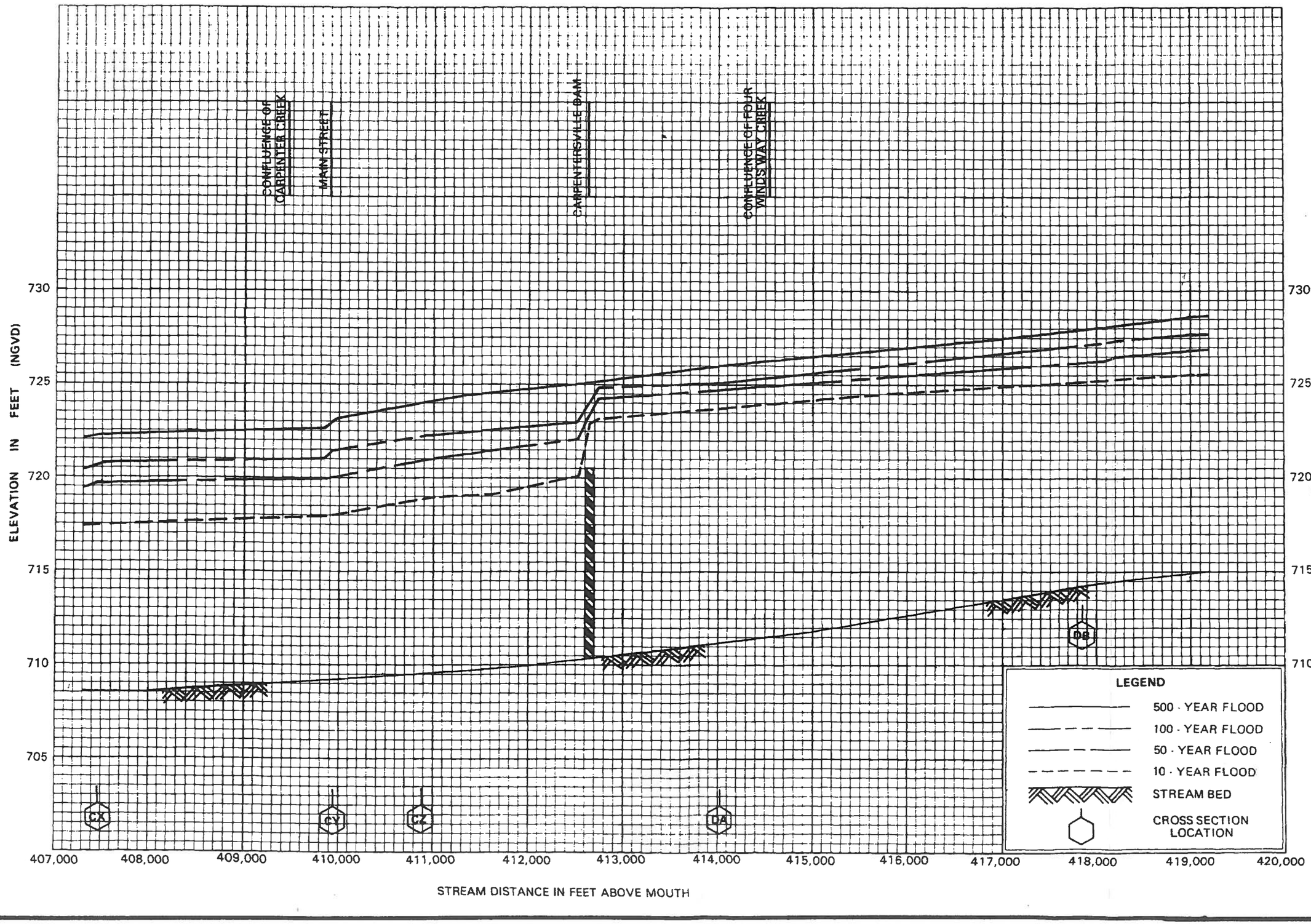
TABLE 6

FEDERAL EMERGENCY MANAGEMENT AGENCY

KANE COUNTY, IL AND INCORPORATED AREAS

FLOODWAY DATA 2002 FIS

FOX RIVER



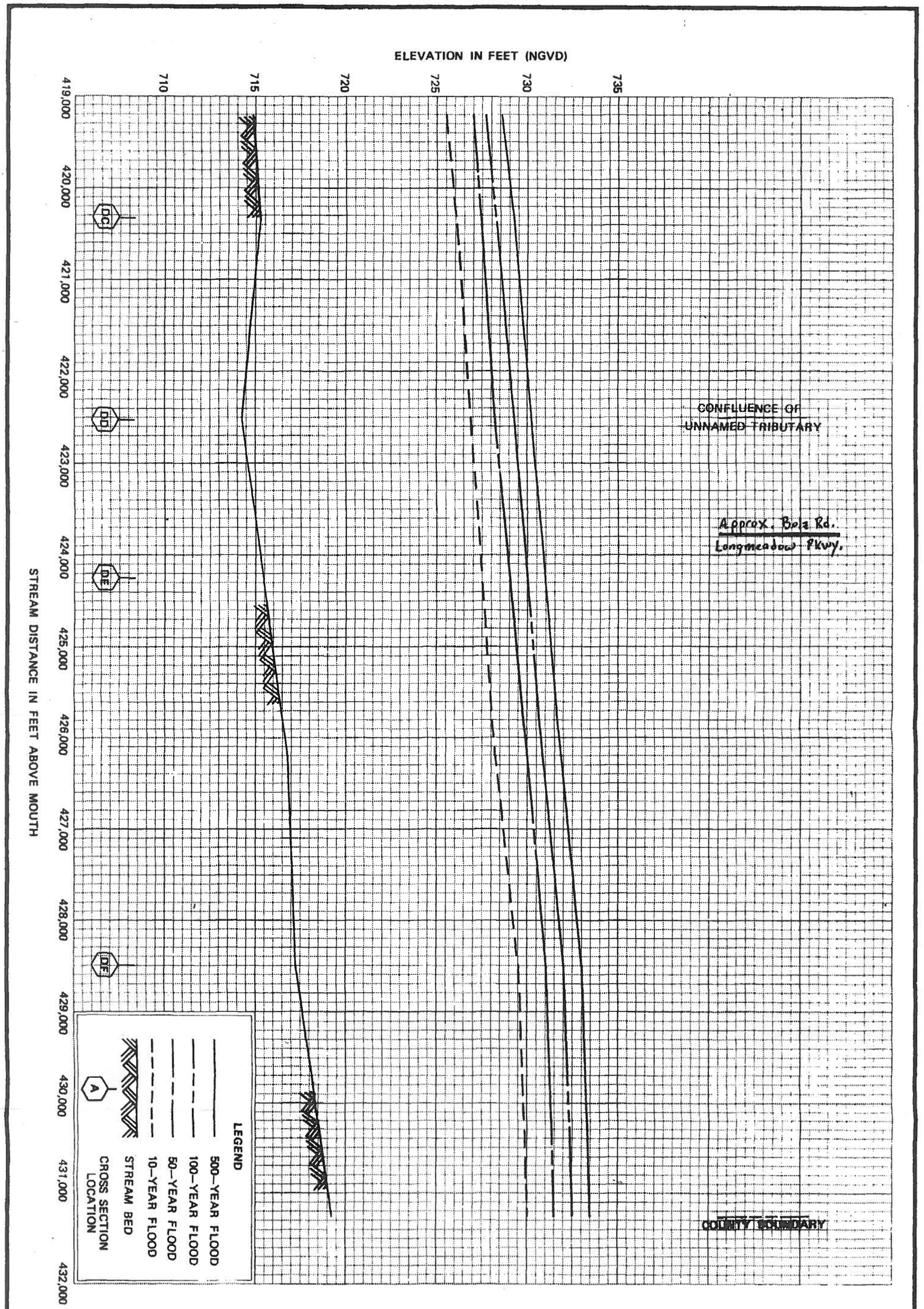
FLOOD PROFILES 2002 FIS

FOX RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

KANE COUNTY, IL AND INCORPORATED AREAS

62P



63P

FEDERAL EMERGENCY MANAGEMENT AGENCY

KANE COUNTY, IL AND INCORPORATED AREAS

FLOOD PROFILES 2002 FIS

FOX RIVER

ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION IN FT. (NGVD)[1]	DESCRIPTION OF LOCATION
RM 70-1	734.52	U.S. Coast and Geodetic Survey standard disk located approximately 87 feet east-southeast of intersection of Boltz Road and Algonquin Road, approximately 32 feet northeast of Chicago and North Western Railroad.
RM 70-2	733.78	Metal rivet in south end of west stone culvert headwall of Chicago and North Western Railroad located approximately 350 feet north of intersection of Algonquin Road and Chicago and North Western Railroad.
RM 70-3	777.91	60d nail driven into northwest side of power pole located at southeast corner of Lake Shore Drive and Algonquin Road.

[1] National Geodetic Vertical Datum of 1929

JOINS PANEL 0065

APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

KANE COUNTY,
ILLINOIS
AND INCORPORATED AREAS

PANEL 70 OF 410

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

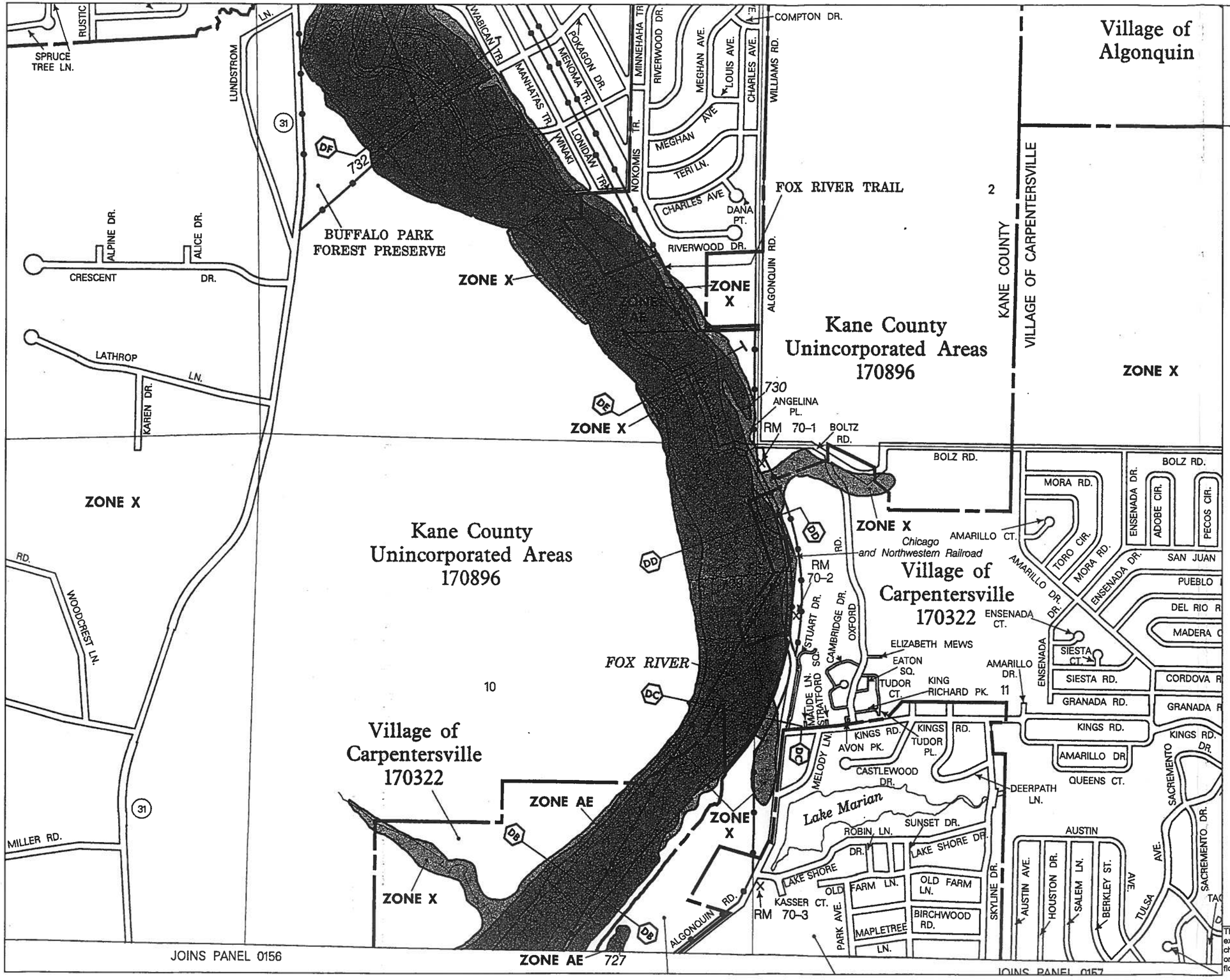
COMMUNITY	NUMBER	PANEL	SUFFIX
CARPENTERSVILLE, VILLAGE OF	170322	0070	F
KANE COUNTY	170896	0070	F

Notice to User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER
17089C0070F

EFFECTIVE DATE:
DECEMBER 20, 2002

Federal Emergency Management Agency



APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

KANE COUNTY, ILLINOIS AND INCORPORATED AREAS

PANEL 70 OF 410

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CARPENTERSVILLE, VILLAGE OF	170322	0070	F
KANE COUNTY	170896	0070	F

Notice to User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on Insurance applications for the subject community.

MAP NUMBER 17089C0070F

EFFECTIVE DATE: DECEMBER 20, 2002

Federal Emergency Management Agency

2009 FEMA FLOOD INSURANCE STUDY DATA AND RATE MAP

FLOOD INSURANCE STUDY

KANE COUNTY, ILLINOIS
AND INCORPORATED AREAS

Volume 1 of 3

COMMUNITY NAME	COMMUNITY NUMBER
ALGONQUIN, VILLAGE OF	170474
AURORA, CITY OF	170320
BARRINGTON HILLS, VILLAGE OF	170058
BARTLETT, VILLAGE OF	170059
BATAVIA, CITY OF	170321
BIG ROCK, VILLAGE OF	171081
*BURLINGTON, VILLAGE OF	171077
CAMPTON HILLS, VILLAGE OF	171396
CARPENTERSVILLE, VILLAGE OF	170322
EAST DUNDEE, VILLAGE OF	170323
ELBURN, VILLAGE OF	171026
ELGIN, CITY OF	170087
GENEVA, CITY OF	170325
GILBERTS, VILLAGE OF	170326
HAMPSHIRE, VILLAGE OF	170327
*HOFFMAN ESTATES, VILLAGE OF	170107
HUNTLEY, VILLAGE OF	170480
KANE COUNTY (UNINCORPORATED AREAS)	170896

COMMUNITY NAME	COMMUNITY NUMBER
*KANEVILLE, VILLAGE OF	171396
LILY LAKE, VILLAGE OF	171023
MAPLE PARK, VILLAGE OF	171018
MONTGOMERY, VILLAGE OF	170328
NORTH AURORA, VILLAGE OF	170329
PINGREE GROVE, VILLAGE OF	171078
SLEEPY HOLLOW, VILLAGE OF	170331
SOUTH ELGIN, VILLAGE OF	170332
ST. CHARLES, CITY OF	170330
SUGAR GROVE, VILLAGE OF	170333
VIRGIL, VILLAGE OF	171024
WAYNE, VILLAGE OF	170865
WEST DUNDEE, VILLAGE OF	170335

* NO SPECIAL FLOOD HAZARD AREAS IDENTIFIED IN KANE COUNTY

Revised August 3, 2009

Federal Emergency Management Agency

FLOOD INSURANCE STUDY NUMBER

17089CV001C

to the present. Historic floods and the corresponding river stages are shown in Table 7, "Historical Flood Data."

Table 7 – Historical Flood Data

Fox River at Algonquin, Illinois - USGS Gage Number 05550000

Datum of gage is 729.48 feet NGVD 1929

Flood Stage 3 Feet

Date	Peak Streamflow (cfs)	River Stage (feet)
5/22/2004	6,720	3.09
4/2/1979	6,610	4.00
10/3/1987	6,170	3.99
4/23/1993	6,150	3.75
4/1/1916	5,850	4.50
7/5/1938	5,630	4.37
3/16/1929	5,450	4.42
6/17/2000	5,080	3.42
5/23/1996	4,570	3.43

Flooding and damages in the Blackberry Creek watershed area have increased over the past two decades. Major flood damage in the Blackberry Creek watershed area resulted during the storms of July 1983, July 1996, and February 1997. The storm of July 17-18, 1996 caused damage to over 1,000 homes and over $13 million in damages (Reference 44)

In Batavia, the primary cause of flooding in the Mahoney Creek basin is usually a combination of snowmelt and rainfall. The approximately 2.39 square mile Mahoney Creek watershed is located entirely within Batavia's planning boundaries. Because of extensive urban development and steep overland slopes in the watershed, storm water runoff moves quickly toward the Mahoney Creek Tributary and rapidly through the stream channel itself. Consequently, high intensity, short duration storms tend to produce higher flood flows (Reference 45).

In Hampshire, the primary cause of flooding in the Hampshire Creek basin is usually a combination of snowmelt and rainfall events. Known flood events on Hampshire Creek South occurred in 1960, 1968, 1972, and 1979. Information on historical floods in the area was obtained from a gaging station on Hampshire Creek from the Village of Hampshire.

In Maple Park, the principal flooding problems are caused by the overflow of Union Ditch No. 2 in the southern section of the village.

In Montgomery, severe flooding occurs along the Fox River and the Waubonsee Creek near the Parkview Estates area. The principal causes of the Waubonsee Creek flooding include the channel's inadequate hydraulic capacity and a severe flow restriction caused by a railroad crossing. The flood of August 26, 1972,

Table 8 - Summary of Discharges (Continued)

Flooding Source and Location	Drainage Area (square miles)	Peak Discharges (cubic feet per second) 10-Percent-Annual-Chance	2-Percent-Annual-Chance	1-Percent-Annual-Chance	0.2-Percent-Annual-Chance
FOX RIVER (Continued)					
Approximately 356,400 feet from mouth	1,568	7,535	11,225	12,250	16,875
Approximately 359,964 feet from mouth	1,556	6,870	9,965	11,350	14,680
Just upstream of confluence of Norton Creek	1,540	7,535	11,225	12,250	16,875
At U.S. Route 20	1,532	6,870	9,965	11,305	14,680
At Lawrence Avenue	1,509	5,910	8,950	10,540	13,475
Approximately 8,400 feet upstream of confluence of Jelkes Creek	1,446	5,910	8,950	10,540	13,475
At Carpentersville Dam	1,425	5,775	8,345	10,095	12,525
At Algonquin approximately 428,541 feet from mouth	1,403	5,480	7,990	9,690	11,800
Approximately 7,000 feet downstream of upstream county boundary	1,390	5,775	8,345	10,095	12,525
FOX RIVER EAST CHANNEL					
At Aurora Dam	1,705	6,150	8,600	9,420	12,200
FOX RIVER TRIBUTARY					
Upstream of confluence with Fox River	1.9	134	282	360	510
FOX RIVER TRIBUTARY (EAST BRANCH)					
Upstream of confluence with Fox River Tributary	0.3	25	56	75	105
GENEVA CREEK					
Just downstream of the Chicago and North Western railroad yard	1.2	323	521	539	689
At South Street	1.1	305	466	568	784
HAMPSHIRE CREEK					
Approximately 80 feet downstream of confluence of Hampshire Creek South	5.8	745	*	1,406	*

*Data not available

The water-surface elevations for Mill Creek were determined by the slope/area method and a rating curve from a cross section located 2,714 feet downstream of Kaneville Road.

Starting water-surface elevations were calculated using corresponding flood elevations on the main stem, flood profiles from previous studies by the State of Illinois for Brewster Creek, Ferson Creek, Hampshire Creek South, Mahoney Creek, McKee Road Tributary, Mill Creek, and North Arm Brewster Creek, and rating curves (Reference 4, 72, 73).

The water-surface elevations on the Fox River, the Fox River East Channel, and Waubonsee Creek were computed using the USACE HEC-2 step-backwater program (Reference 69). Cross sections and structural data for the Fox River and the Fox River East Channel were provided by the IDOT-DWR from a 1960 field survey (Reference 74, 75). Cross sections and structural data for Waubonsee Creek were obtained from the Illinois State Water Survey (Reference 72). Cross sections for the backwater analyses were located at close intervals above and below bridges and culverts in order to compute the significant backwater effects from these structures.

The only serious backwater effect due to bridge constriction is on Waubonsee Creek. Backwater effects from Montgomery Dam have become a problem according to residents in the area. This situation was also studied.

In the unincorporated areas of Kane, starting water-surface elevations on the Fox River, the Fox River East Channel, and Waubonsee Creek were based on the slope/area method. Starting elevations for the 10-, 2-, 1-, and 0.2-percent-annual-chance floods for the Fox River, in other communities, were based upon the discharge recurrence interval rating curves at Carpentersville Dam, Elgin Dam, Geneva Dam, and South Elgin Dam (Reference 76).

In Montgomery, water-surface profiles for Fox River Tributary and Fox River Tributary (East Branch) were determined for the 10-, 2-, 1-, and 0.2-percent-annual-chance floods by use of the USACE HEC-2 computer program. Starting water-surface elevations were determined with either known high-water marks, by assuming critical depth, or by the slope/area method.

Water-surface elevation for floods of the selected recurrence intervals of Four Winds Way Creek and Carpenter Creek were computed through use of the USACE HEC-2 step-backwater computer program (Reference 69). This program relates stream geometry, characteristics, and discharge to stream elevation. Flood profiles were drawn showing computed water-surface elevations to an accuracy of 0.5 foot for floods of selected recurrence intervals.

Starting water-surface elevations for Carpenter Creek and Four Winds Way Creek were determined using normal depth analysis. Flood elevations can often be increased by ice jams during spring thaws or by debris clogging bridges.

Water-surface elevations of floods of the selected recurrence intervals of Geneva Creek were computed through use of the USACE HEC-2 backwater computer program (Reference 69). The starting water-surface elevation for Geneva Creek

3.3 Vertical Datum

All FISs and FIRMs are referenced to a specific vertical datum. The vertical datum provides a starting point against which flood, ground, and structure elevations can be referenced and compared. Until recently, the standard vertical datum in use for newly created or revised FISs and FIRMs was the National Geodetic Vertical Datum of 1929 (NGVD 29). With the finalization of the North American Vertical Datum of 1988 (NAVD 88), many FIS and FIRMs are being prepared using NAVD 88 as the referenced vertical datum.

All flood elevations shown in this FIS and on the FIRM are referenced to NAVD 88. Structure and ground elevations in the community must, therefore, be referenced to NAVD 88. It is important to note that adjacent counties may be referenced to NGVD 29. This may result in differences in base flood elevations (BFEs) across the county boundary.

Effective information for this FIS was converted from NGVD 29 to NAVD 88 based on data presented in Figure 1 and Table 11a. Computations show an average conversion factor of -0.206 feet (NGVD 29 – 0.206 = NAVD 88) for the county. The Single Conversion Factor (countywide) method was applied uniformly across the county, except as noted below, and used to prepare the Summary of Stillwater Elevations Table, Floodway Data Tables, Flood Profiles, and FIRMs.

The Multiple Conversion Factors (stream-by-stream) method was implemented for a stream when a detailed study reach was located in two or more counties (multi-county stream) and the countywide conversion factor for each county differed by more than one-tenth of a foot. For the stream-by-stream method, the stream is assigned an average conversion factor based on the conversion factors computed at three points along the stream. These results are shown in Table 11b.

For more information on NAVD 88, see *Guidelines and Specifications for Flood Hazard Mapping Partners Appendix B: Guidance for Converting to the North American Vertical Datum of 1988* (Reference 85) available at http://www.fema.gov/plan/prevent/fhm/dl_cgs.shtm or contact the Vertical Network Branch, National Geodetic Survey, Coast and Geodetic Survey, National Oceanic and Atmospheric Administration, Rockville, Maryland 20910 (Internet address http://www.ngs.noaa.gov).

Temporary vertical monuments are often established during the preparation of a flood hazard analysis for the purpose of establishing local vertical control. Although these monuments are not shown on the FIRM, they may be found in the Technical Support Data Notebook associated with the FIS report and FIRM for this county. Interested individuals may contact FEMA to access these data.

FLOODING SOURCE		FLOODWAY			1-PERCENT-ANNUAL-CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD)			
CROSS SECTION	DISTANCE	WIDTH (FEET)	SECTION AREA (SQUARE FEET)	MEAN VELOCITY (FEET PER SECOND)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE (FEET)
Fox River (Continued)								
CY	410,874[14]	708	5,994	1.8	722.1	722.1	722.2	0.1
CZ (DA)	414,015[14]	575	4,181	2.4	725.1	725.1	725.2	0.1
DA (DB)	417,841[14]	558	4,139	2.4	726.9	726.9	727.0	0.1
DB (DC)	420,346[14]	650	4,101	2.5	728.2	728.2	728.3	0.1
DC (DD)	422,521[14]	643	4,035	2.5	729.0	729.0	729.1	0.1
DD (DE)	424,528[14]	787	5,117	2.0	729.9	729.9	730.0	0.1
DE (DF)	428,504[14]	878	5,043	2.0	731.8	731.8	731.9	0.1
(2002 FIS)								
Fox River East Channel								
A	253,290[1]	144	1,335	6.3	624.8	624.8	624.8	0.0
B	254,170[1]	156	1,471	5.7	626.1	626.1	626.2	0.1
C	254,360[1]	160	1,261	6.7	626.3	626.3	626.4	0.1
D	257,060[1]	164	1,815	5.2	629.1	629.1	629.2	0.1
E	257,060[1]	162	1,725	5.5	629.3	629.3	629.4	0.1
F	257,060[1]	171	1,580	6.0	629.4	629.4	629.5	0.1
G	257,060[1]	171	1,680	5.9	629.6	629.6	629.7	0.1
H	257,060[1]	235	2,716	3.5	634.8	634.8	634.8	0.0
Fox River Tributary								
A	2,300[16]	250	223	1.61	640.6	640.6	640.7	0.1

Std. 0.2' subtraction to convert from NGVD29 to NAVD 88, per page 62 of 2002 FIS.

[1]Feet above confluence with Fox River
[14]Feet above mouth at Illinois River
[16]Feet above confluence with Fox River Tributary (East Branch)

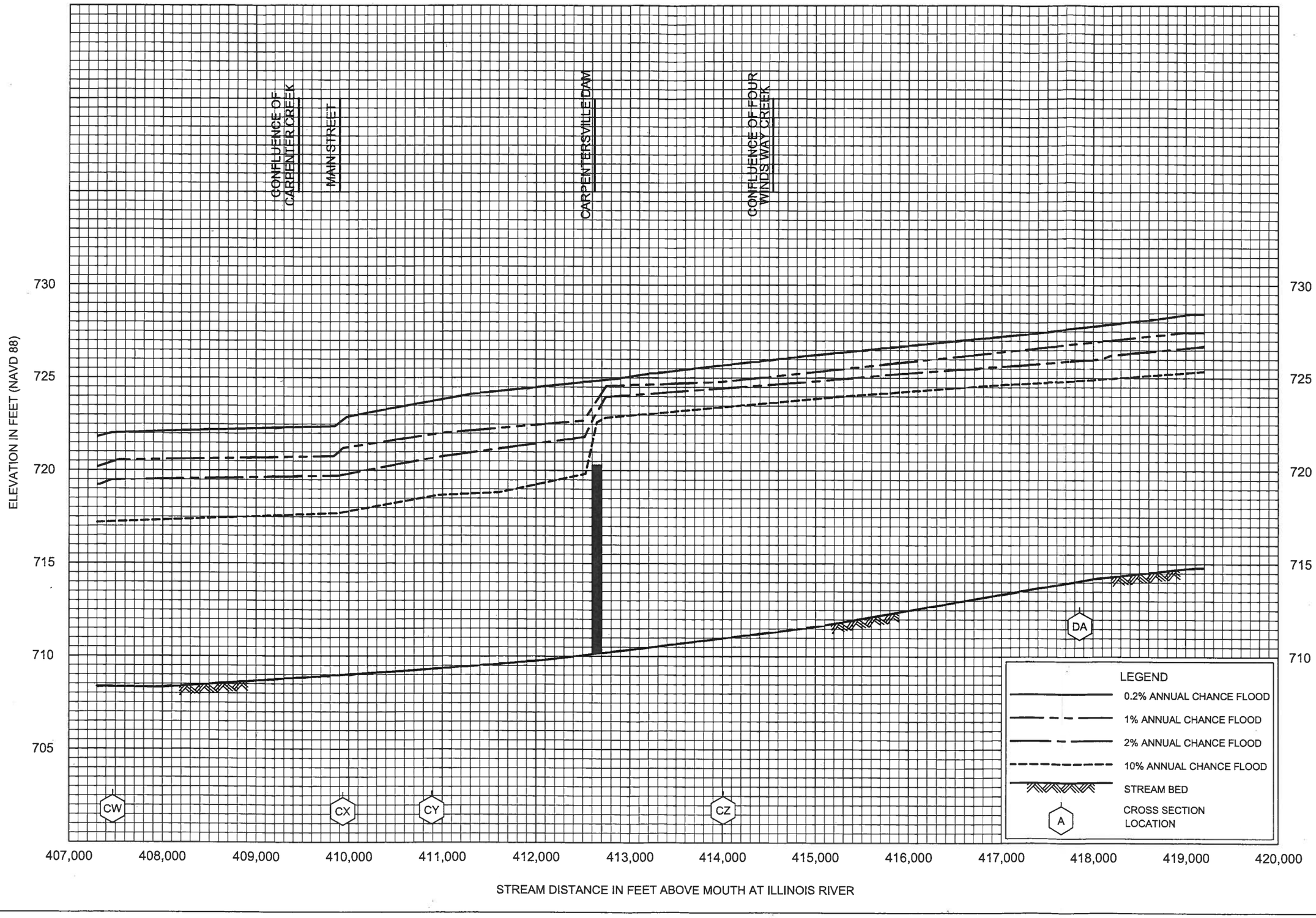
TABLE 12

FEDERAL EMERGENCY MANAGEMENT AGENCY

KANE COUNTY, IL AND INCORPORATED AREAS

FLOODWAY DATA

FOX RIVER - FOX RIVER EAST CHANNEL - FOX RIVER TRIBUTARY



FLOOD PROFILES 2009 FIS

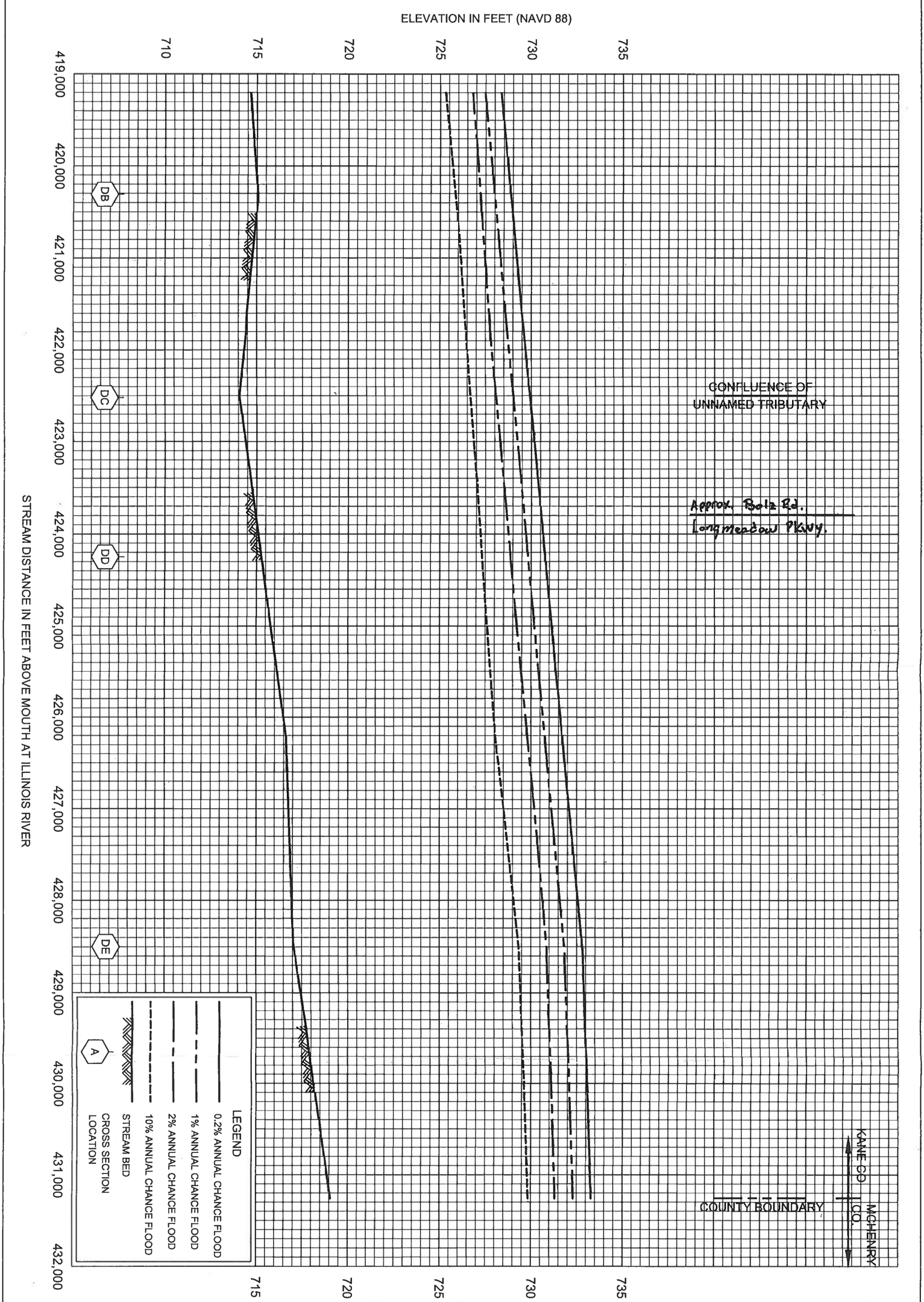
FOX RIVER

FEDERAL EMERGENCY MANAGEMENT AGENCY

KANE COUNTY, IL

AND INCORPORATED AREAS

64P



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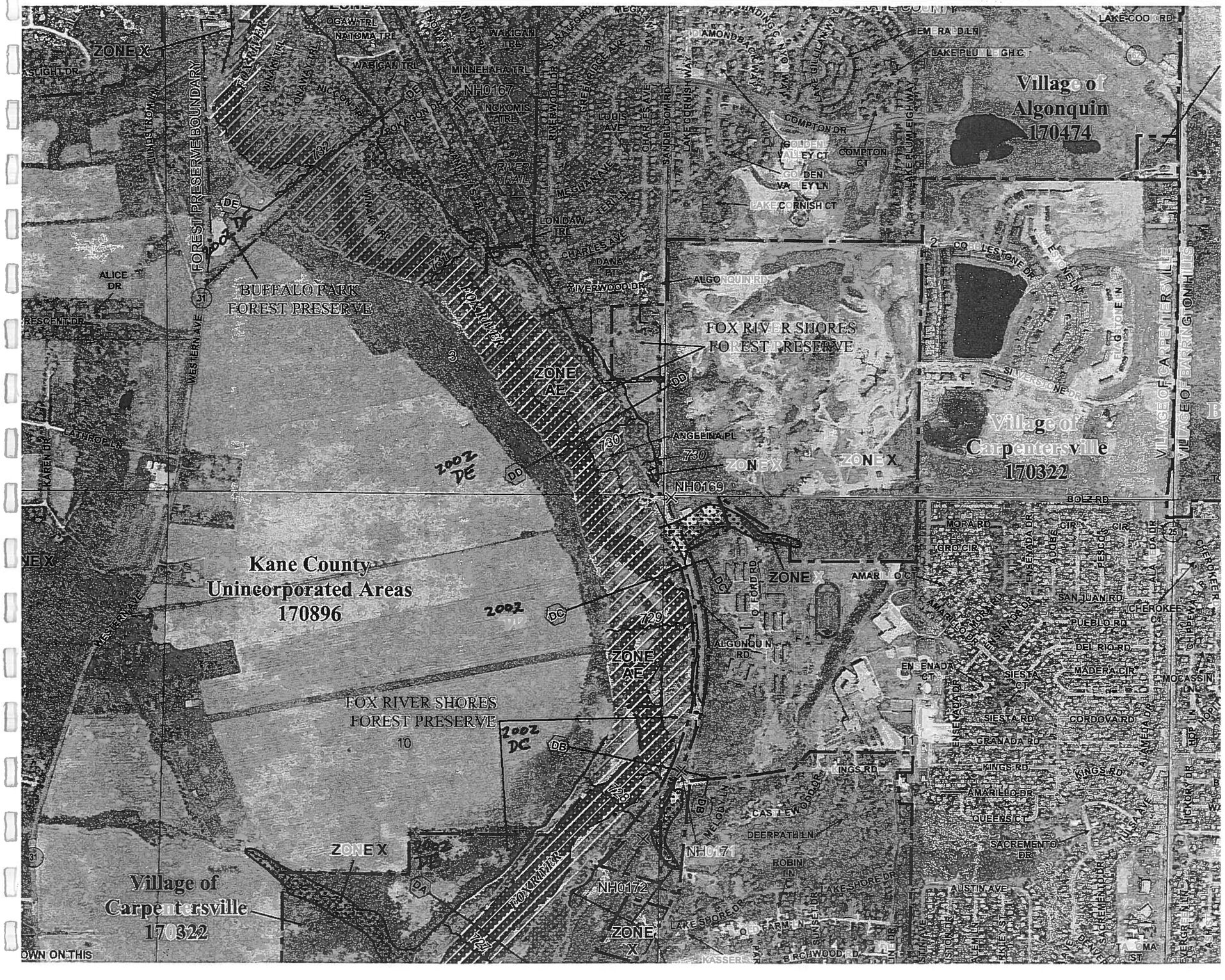
FEDERAL EMERGENCY MANAGEMENT AGENCY

KANE COUNTY, IL

AND INCORPORATED AREAS

FLOOD PROFILES 2009 F15

FOX RIVER



NFIP

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0070H

FIRM

FLOOD INSURANCE RATE MAP

KANE COUNTY, ILLINOIS

AND INCORPORATED AREAS

PANEL 70 OF 410

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALGONQUIN, VILLAGE OF	170474	0070	H
BARRINGTON HILLS, VILLAGE OF	170058	0070	H
CARPENTERSVILLE, VILLAGE OF	170322	0070	H
KANE COUNTY	170896	0070	H

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
17089C0070H

MAP REVISED
AUGUST 3, 2009

Federal Emergency Management Agency

USGS GAGE AND STREAMSTATS DATA

USGS
science for a changing world

GAGE DATA

Water-Data Report 2009

05550000 FOX RIVER AT ALGONQUIN, IL

Upper Illinois Basin
Upper Fox Subbasin

LOCATION.--Lat 42°09'59", long 88°17'25" referenced to North American Datum of 1927, in SW ¼ NE ¼ NW ¼ sec.34, T.43 N., R.8 E., McHenry County, IL, Hydrologic Unit 07120006, on right bank 20 ft upstream from bridge on State Highway 62 (Algonquin Road) in Algonquin, 140 ft upstream from Algonquin Dam, and at mile 81.6.

DRAINAGE AREA.--1,403 mi².

SURFACE-WATER RECORDS

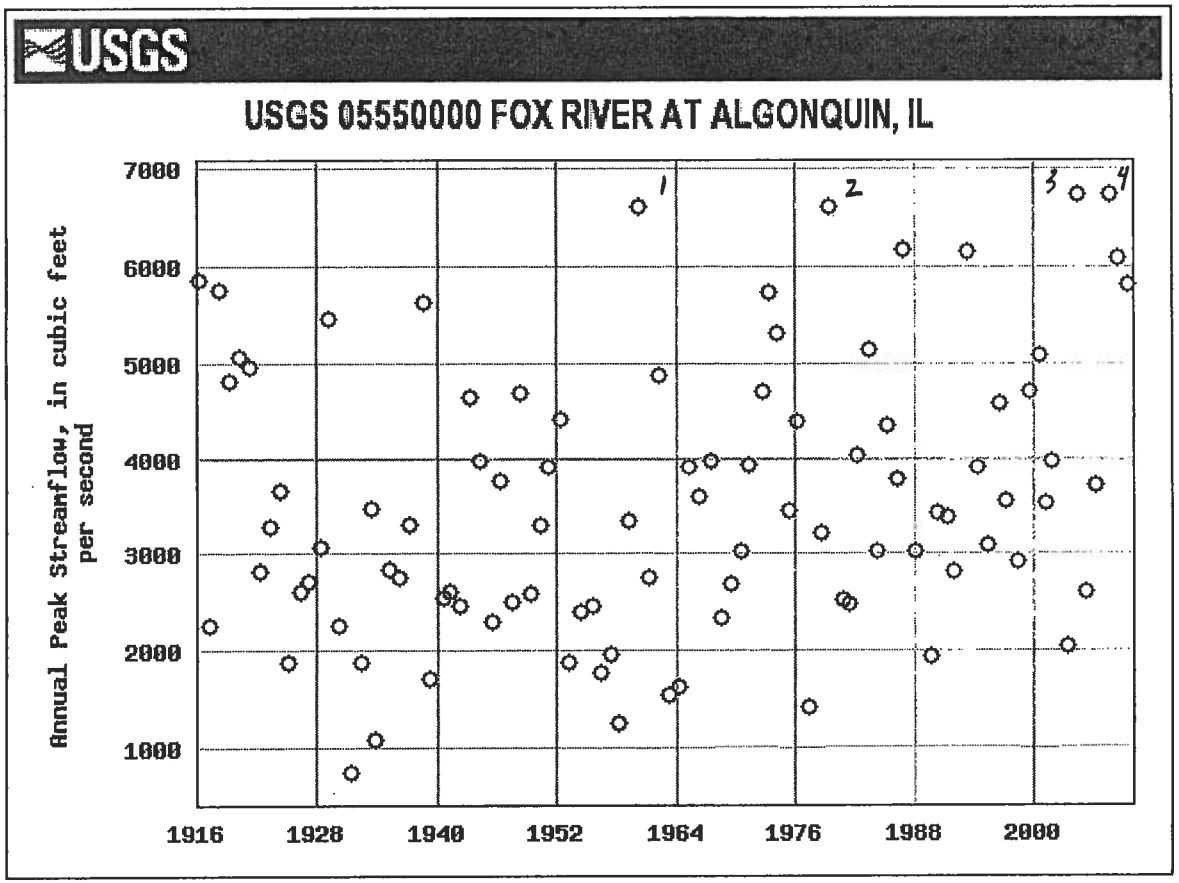
PERIOD OF RECORD.—
SURFACE-WATER DISCHARGE AND STAGE
DISCHARGE: October 1915 to September 2009. Monthly discharge only for some periods, published in WSP 1308.
STAGE: Water years 1994 to current year.
BIOLOGICAL
ALGAE: Water years 1989-90.

REVISED RECORDS.--WSP 1175: 1916. WDR IL-75-1: Drainage area.

GAGE.--Water-stage recorder, phone telemeter, and concrete dam with adjustable gate. Datum of gage is 729.48 ft above NGVD of 1929 (729.29 ft NAVD 1988). Prior to Oct. 20, 1933, non-recording gage at site 20 ft downstream at same datum.

REMARKS.--Records fair except for estimated daily discharges, which are poor. Flow regulated by gate in Algonquin Dam, Stratton Lock and Dam (previously known as McHenry Dam) 16 mi upstream from station, and occasionally affected by wind action. Adjustable gate installed in 2002.

EXTREMES FOR PERIOD OF RECORD.--
SURFACE-WATER DISCHARGE AND STAGE: Maximum discharge, 6,720 ft³/s, May 22, 2004 and Aug. 25, 2007, gage heights 3.09 ft and 3.50 ft respectively, due to regulation; maximum gage height, 4.50 ft, April 1, 1916; from graph based on gage readings; no flow, Nov. 26, 1952, Nov. 20, 1953, Oct. 25, 1956 and Sept. 9, 14, 1958, result of windstorm.

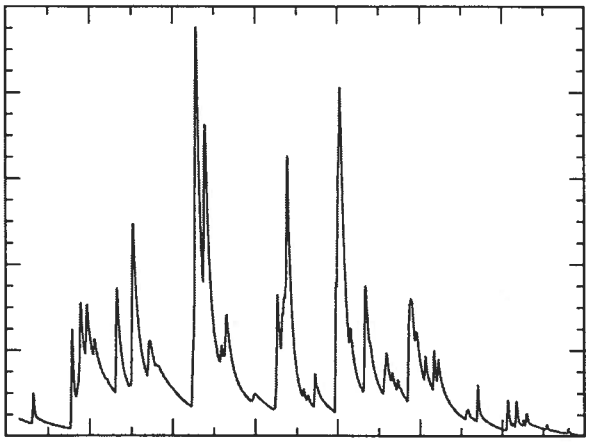


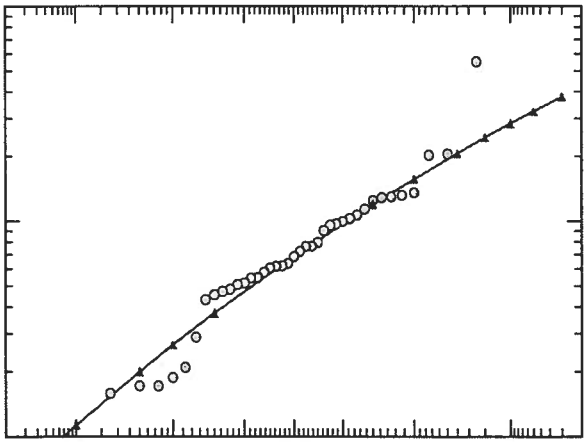
1. April 6, 1960 6,610 cfs
2. April 2, 1979 6,610 cfs
3. May 22, 2004 6,720 cfs
4. Aug. 25, 2007 6,720 cfs

USGS
science for a changing world

In cooperation with the Illinois Department of Natural Resources, Offices of Water Resources, Realty and Environmental Planning–Conservation 2000 Program, and Resource Conservation; and with the Illinois Department of Transportation

Estimating Flood-Peak Discharge Magnitudes and Frequencies for Rural Streams in Illinois





Scientific Investigations Report 2004-5103

U.S. Department of the Interior
U.S. Geological Survey

Table 1. Flood-peak discharges for recurrence intervals, *T*, of 2, 5, 10, 25, 50, 100, and 500 years estimated from the annual maximum series at streamflow-gaging stations in Illinois and adjacent States.

[*T*, recurrence interval in years, Q_T, instantaneous peak-flood discharge, in cubic feet per second, for a given *T* of 2-, 5-, 10-, 25-, 50-, 100-, and 500-year flood. Three estimates are listed for each station: the values in the top row are Q_T from at-site frequency curves; values in the middle row are Q_T from regional regression equations; values in the bottom row are Q_T obtained by weighting the at-site and regional regression frequency curves; NA, not assigned; dashes (---) given in any Q_T row indicates that the corresponding frequency curves are not computed. Station noted by an asterisk (*) have anomalous characteristics and are omitted from the regional analysis]

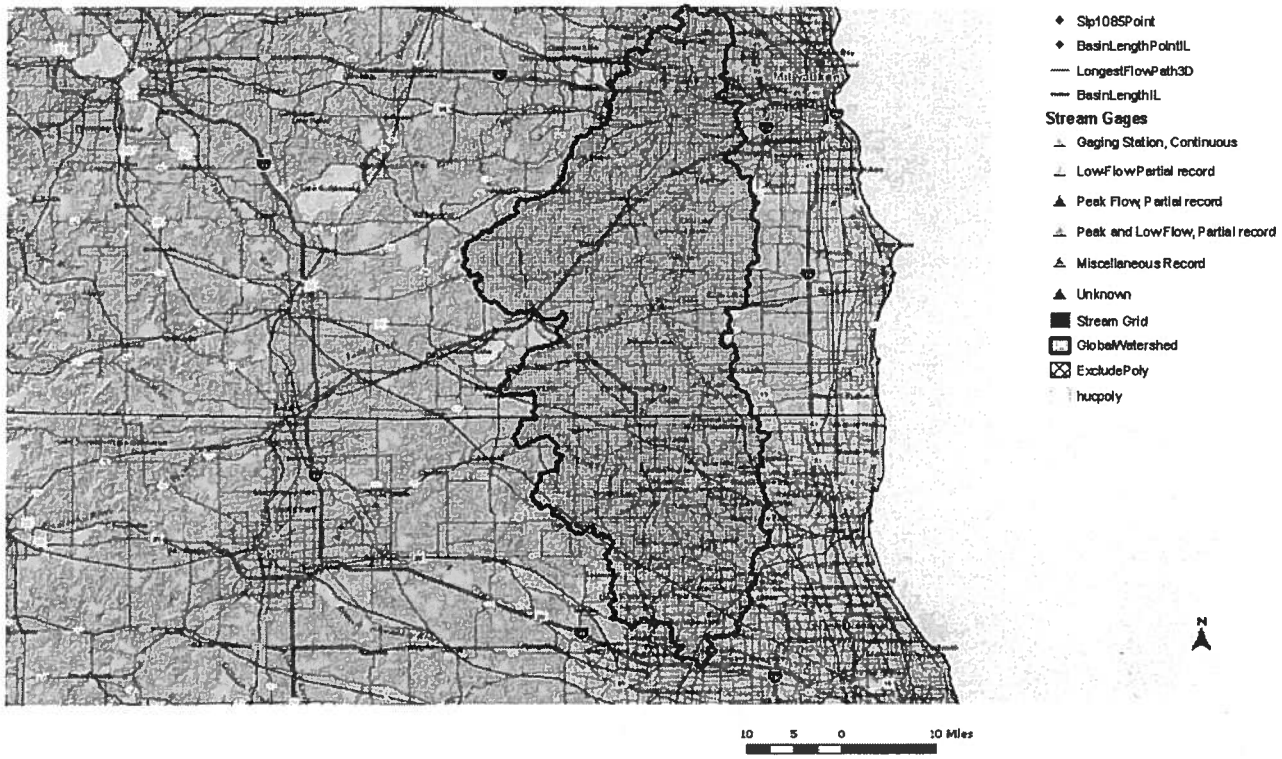
Station number (figs. 2A and 2B)	Station Name	Hydrologic Region	Flood Quantiles of Selected Recurrence Interval						
			Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500}
03336100	Big Four Ditch Tributary near Paxton, Ill.	3	115	183	228	284	324	363	450
			132	251	342	467	565	667	913
			117	192	245	315	368	420	542
03336500	Bluegrass Creek at Potomac, Ill.	3	1,840	2,870	3,580	4,490	5,180	5,870	7,500
			1,310	2,350	3,130	4,160	4,970	5,780	7,750
			1,780	2,810	3,520	4,440	5,150	5,870	7,570
03336645	Middle Fork Vermilion River above Oakwood, Ill.	3	6,500	9,470	11,400	13,800	15,500	17,200	21,000
			5,560	9,510	12,300	16,000	18,800	21,700	28,300
			6,380	9,470	11,500	14,200	16,100	18,100	22,600
03336900	Salt Fork near St. Joseph, Ill.	3	2,530	3,810	4,740	5,990	6,970	8,000	10.600
			2,580	4,560	6,010	7,940	9,420	10,900	14,600
			2,530	3,880	4,870	6,220	7,280	8,390	11,200
03337000	Boneyard Creek at Urbana, Ill.	NA	533	705	815	951	1,050	1,150	1,370
			----	----	----	----	----	----	----
			----	----	----	----	----	----	----
03337500	Saline Branch at Urbana, Ill.	3	1,300	2,110	2,680	3,410	3,970	4,530	5,850
			1,070	1,840	2,380	3,090	3,630	4,170	5,440
			1,280	2,100	2,650	3,380	3,930	4,480	5,790
01	Salt Fork near Homer, Ill.	3	3.780	6,120	7,880	10,330	12,300	14,400	19,800
			4,140	7,120	9,250	12,000	14,200	16,300	21,400
			3,800	6,200	8,000	10,500	12,500	14,600	20,100
03338100	Salt Fork Trib near Catlin, Ill.	3	189	375	515	703	847	991	1,330
			188	354	481	655	792	934	1,280
			189	371	509	693	836	980	1,320
03338500	Vermilion River near Catlin, Ill.	3	8,570	15,000	20,300	27,900	34,500	41,700	61,400
			9,600	16,400	21,200	27,600	32,400	37,300	48,900
			8,700	15,200	20,400	27,900	34,000	40,600	58,100
03338780	North Fork Vermilion River near Bismarck, Ill.	3	8,010	13,300	17,200	22,500	26,600	30,900	41,500
			3,900	6,780	8,870	11,600	13,700	15,800	20,900
			6,900	11,300	14,300	18,200	21,200	24,300	32,000
03338800	N F Vermilion River Tributary near Danville, Ill.	3	292	539	737	1,030	1,270	1,530	2,220
			199	387	535	740	904	1,080	1,500
			274	505	685	941	1,150	1,380	1,960
03339000	Vermilion River near Danville, Ill.	3	14,200	22,200	27,600	34,600	39,900	45,200	57,600
			12,200	20,800	27,000	35,100	41,300	47,500	62,400
			14,200	22,100	27,600	34,700	40,000	45,300	58,000

Station number (figs. 2A and 2B)	Station Name	Hydrologic Region	Flood Quantiles of Selected Recurrence Interval						
			Q_2	Q_5	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500}
05549850	Flint Creek near Fox River Grove, Ill.	2	275	380	449	535	599	663	812
			507	794	987	1,220	1,390	1,560	1,920
			285	401	481	584	660	736	911
05549900	Fox River Tributary near Cary, Ill.	2	11	25	37	56	72	90	139
			18	32	44	58	69	81	107
			12	26	38	56	71	88	131
05550000	Fox River at Algonquin, Ill.	NA	3,270	4,520	5,280	6,190	6,820	7,420	8,730
			----	----	----	----	----	----	----
			----	----	----	----	----	----	----
05550300	Tyler Creek at Elgin, Ill.	2	342	457	531	622	688	753	902
			773	1,270	1,610	2,040	2,350	2,650	3,340
			370	514	618	754	855	955	1,180
05550430	East Branch Poplar Creek near Palatine, Ill.	NA	87	125	151	184	210	235	297
			----	----	----	----	----	----	----
			----	----	----	----	----	----	----
05550450	Poplar Creek near Ontarioville, Ill.	NA	211	290	340	398	440	480	567
			----	----	----	----	----	----	----
			----	----	----	----	----	----	----
05550470	Poplar Creek Trib near Bartlett, Ill.	2	162	240	295	365	419	474	606
			155	257	327	414	477	539	678
			161	242	299	373	429	486	620
05550500	Poplar Creek at Elgin, Ill.	NA	431	643	781	951	1,070	1,190	1,460
			----	----	----	----	----	----	----
			----	----	----	----	----	----	----
05551030	Brewster Creek at Valley View, Ill.	2	236	411	535	695	815	933	1,210
			308	498	627	787	903	1,020	1,270
			242	419	546	709	830	949	1,220
05551050	Norton Creek near Wayne, Ill.	2	97	201	295	443	576	730	1,180
			192	311	392	492	565	635	791
			103	210	305	450	574	713	1,090
05551060	Norton Creek near St. Charles, Ill.	2	123	216	290	397	486	584	845
			292	478	604	762	876	988	1,240
			133	235	319	439	537	641	908
05551200	Ferson Creek near St. Charles, Ill.	2	929	1,530	1,910	2,370	2,680	2,970	3,560
			1,120	1,850	2,370	3,010	3,490	3,960	5,030
			938	1,550	1,940	2,420	2,750	3,070	3,730
05551520	Indian Creek near North Aurora, Ill.	2	133	217	275	350	406	463	595
			92	148	186	232	264	296	365
			129	208	262	329	379	429	543
05551530	Indian Creek at Aurora, Ill.	NA	525	659	733	814	866	913	1,010
			----	----	----	----	----	----	----
			----	----	----	----	----	----	----

USGS
Illinois StreamStats

StreamStats Print Page

Fox River at Longmeadow Parkway



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STREAM STATS

USGS
Illinois StreamStats

Streamstats Ungaged Site Report

Date: Fri Apr 1 2011 13:06:31 Mountain Daylight Time
Site Location: Illinois
NAD27 Latitude: 42.1395 (42 08 22)
NAD27 Longitude: -88.2801 (-88 16 48)
NAD83 Latitude: 42.1396 (42 08 22)
NAD83 Longitude: -88.2802 (-88 16 49)
Drainage Area: 1436.03 mi2

Peak Flow Basin Characteristics			
100% Region 2 AMS (1440 mi2)			
Parameter	Value	Regression Equation Valid Range	
		Min	Max
Drainage Area (square miles)	1440	0.03	9554
Stream Slope 10 and 85 Method (feet per mi)	1.030	0.81	317
Percent Open Water AND Herb Wetland (percent)	7.419	0	8

Peak Flow Streamflow Statistics					
Statistic	Flow (ft^3/s)	Prediction Error (percent)	Equivalent years of record	90-Percent Prediction Interval	
				Minimum	Maximum
PK2	3360	40	2.6	1760	6440
PK5	4760	41	3.1	2480	9150
PK10	5610	5975 * 42	3.8	2860	11000
PK25	6580	45	4.6	3220	13400
PK50	7280	8345 * 47	5.2	3460	15300
PK100	7860	10,095 * 49	5.6	3610	17100
PK500	9220	12,575 * 55	6.2	3900	21800

* FIS Regulatory Flows

SECTION 6

DATUM CORRELATION
STREAMBED PLAN AND PROFILE
STREAM CROSS-SECTIONS
DAMAGEABLE BUILDINGS AND STRUCTURES IN FLOODPLAIN

+	HI	−	Elev	
2.45	739.31	6.98	732.33	Begin CP 1032 = 736.86
0.95	733.28	7.22	726.06	
7.77	733.83	3.12	730.71	
7.41	738.12	1.03	737.09	
5.62	742.76	2.70	740.06	
10.75	750.81	1.22	749.59	
14.58	764.17	9.64	754.53	
11.57	766.10	1.19	764.91	
14.55	779.46	1.98	777.48	RR SPIKE
		1.96	777.50	16d nail
		1.39	778.07	16d nail
1.29	779.36	14.48	764.88	
2.89	762.77	8.03	759.74	
0.08	759.82	14.36	745.46	
0.39	745.85	8.67	737.18	
3.91	741.09	9.06	732.03	
4.66	736.69	8.29	728.40	
3.08	731.48	3.68	727.80	
10.07	737.87	3.57	734.30	
5.37	739.62	2.70	736.92	

close to pt 1032

JB-RC MW 2-27-04

Vertical Closure = 0.06'

loop from 1032 to RM 70-3 (Firm) is approx. 1½ miles

EEI Topographic survey datum is 0.16 higher than Firm datum based on RM 70-3

KC0110 EEI JOB #

Long Beach Blvd Parkway 2/27/04

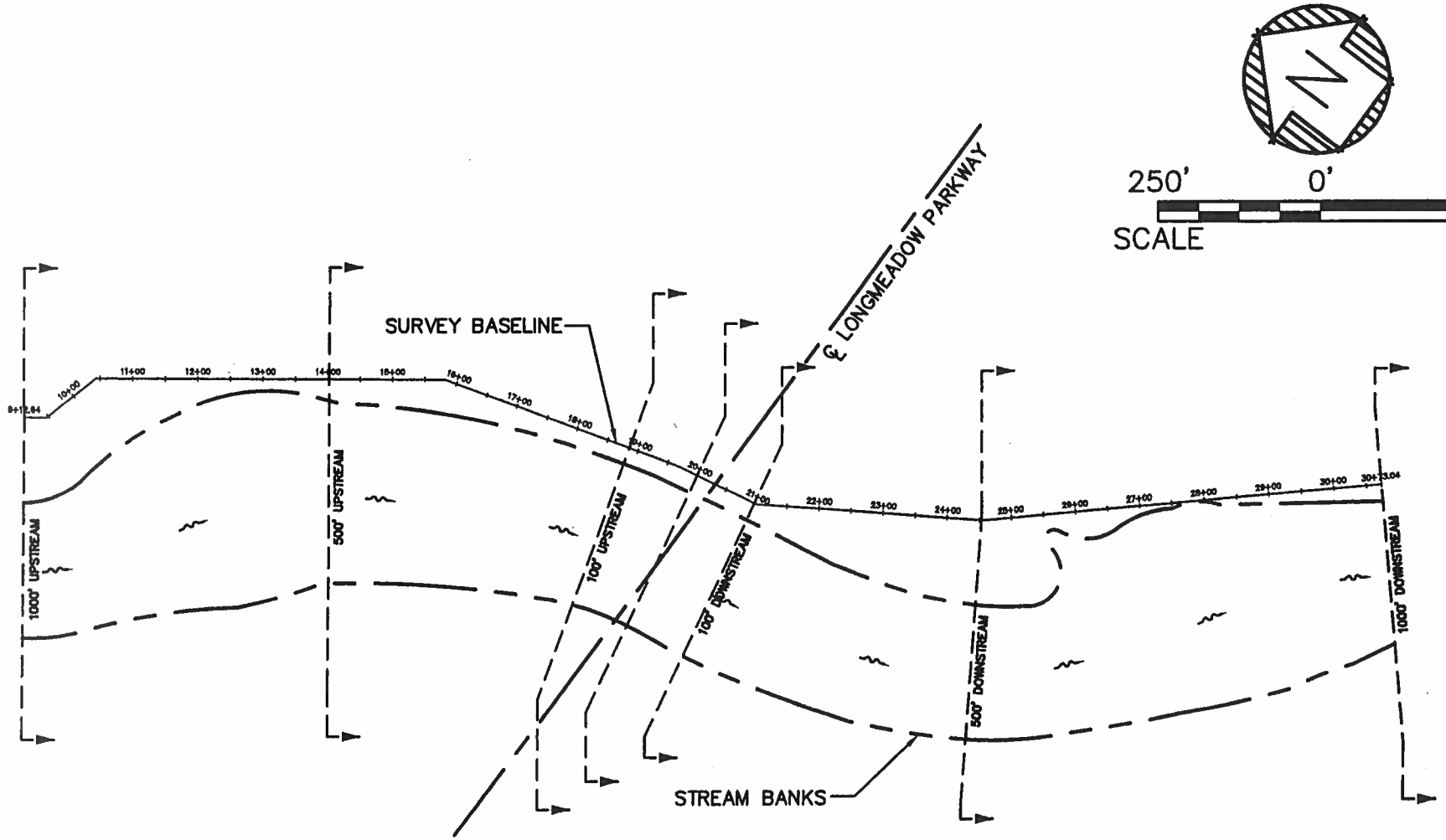
JB/RC/MW

marked 777.35 on U. pole in field

in utility pole

in utility pole = 777.91 = RM 70-3 F

Datum Correlation



ROUTE:	LONGMEADOW PARKWAY
WATERCOURSE:	FOX RIVER
SCALE: HOR:	1"= 250' VERT: 1"=_____
PLOTTED BY:	CLN DATE: 03/29/04
CHECKED BY:	JTW DATE: 03/29/04
SURVEY DATE:	02/26/04

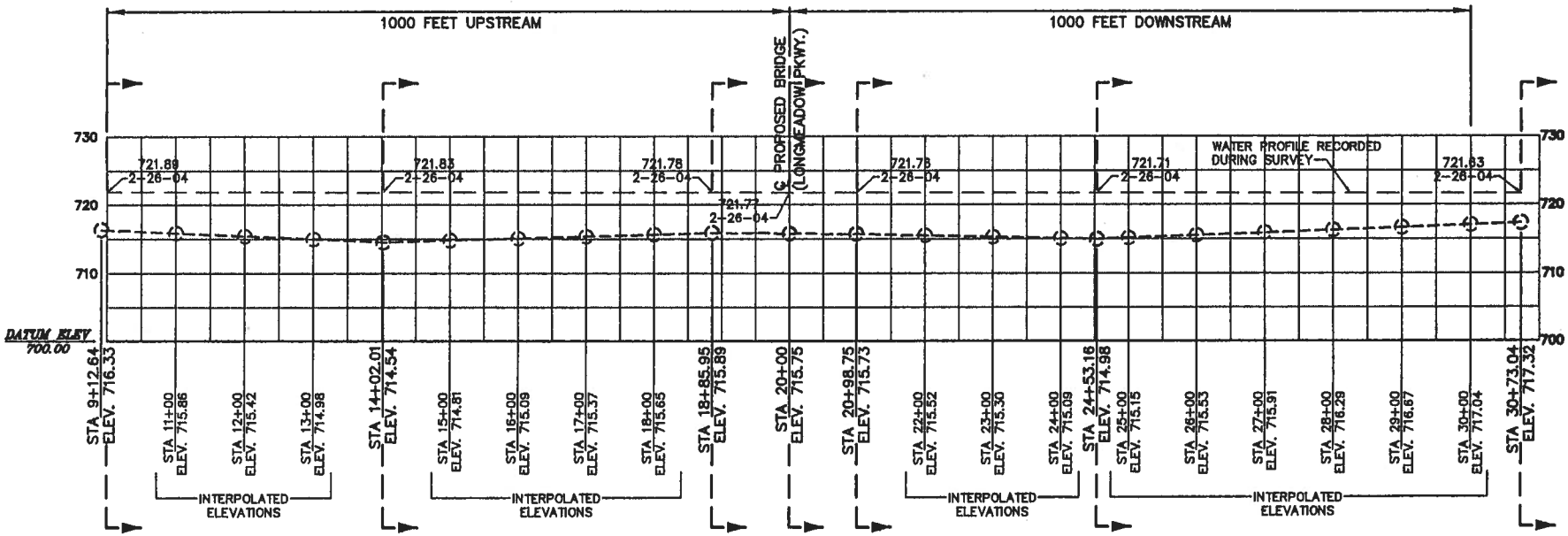
Engineering Enterprises, Inc.
Consulting Engineers
52 Wheeler Road
Sugar Grove, Illinois 60554 630/466-9350

LONGMEADOW PARKWAY CORRIDOR
FOX RIVER CHANNEL AND FLOODPLAIN
GUIDE FOR SURVEY

DATE	MO, YR
PROJ. NO.	KC0110
FILE NO.	KC011005
SHEET	1 OF 9

STREAMBED PROFILE

(LOOKING EAST)



ROUTE:	LONGMEADOW PARKWAY
WATERCOURSE:	FOX RIVER
SCALE: HOR: 1"= 250' VERT: 1"= 25'	
PLOTTED BY:	CLN DATE: 03/29/04
CHECKED BY:	JTW DATE: 03/29/04
SURVEY DATE:	02/26/04

Engineering Enterprises, Inc.
Consulting Engineers
52 Wheeler Road
Sugar Grove, Illinois 60554 630/466-9350

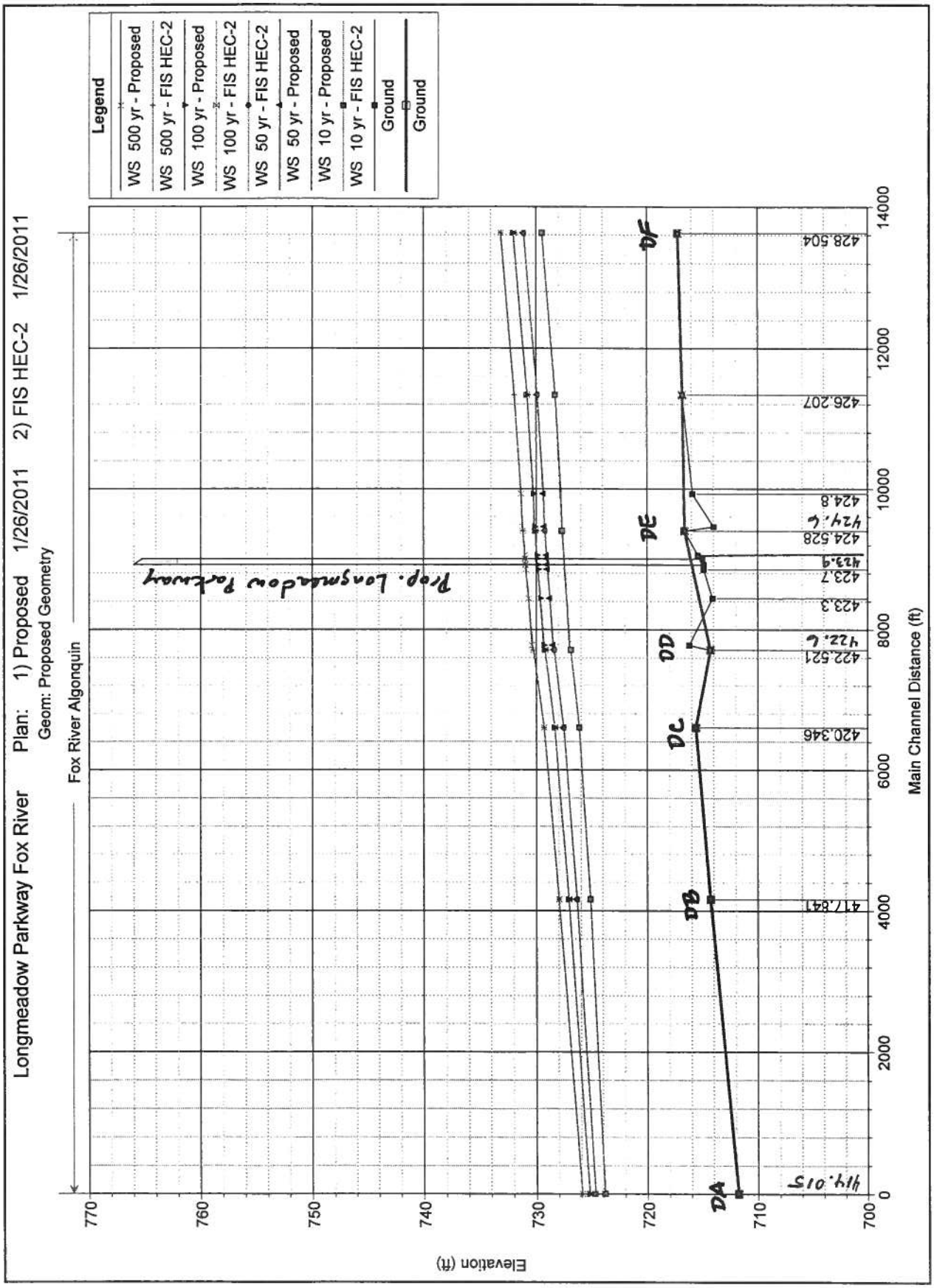
LONGMEADOW PARKWAY CORRIDOR
FOX RIVER CHANNEL AND FLOODPLAIN
STREAMBED PROFILE @ CENTERLINE OF CHANNEL

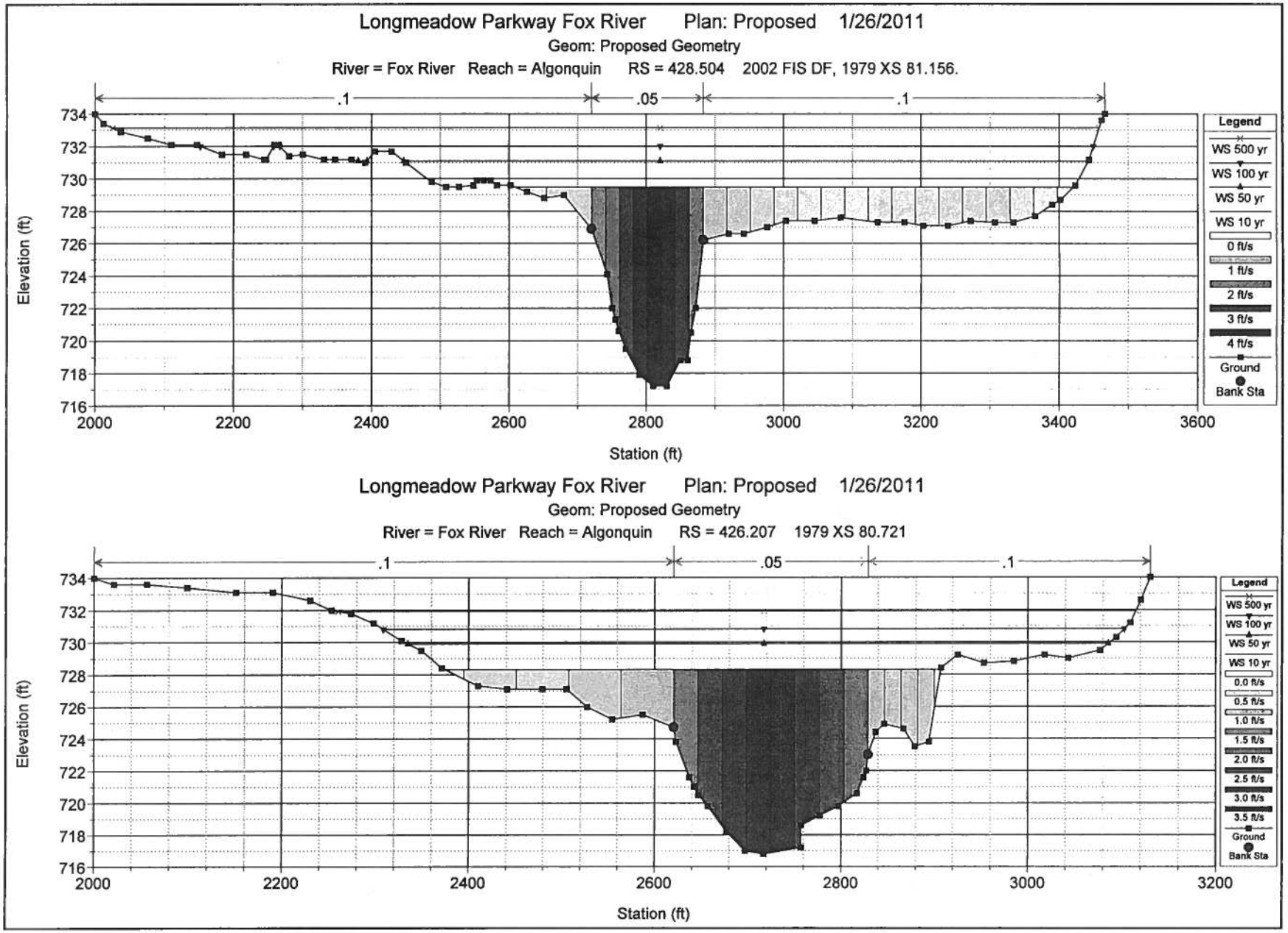
PATH: N:\ENGPRO\KC0110\DWG\KC011005

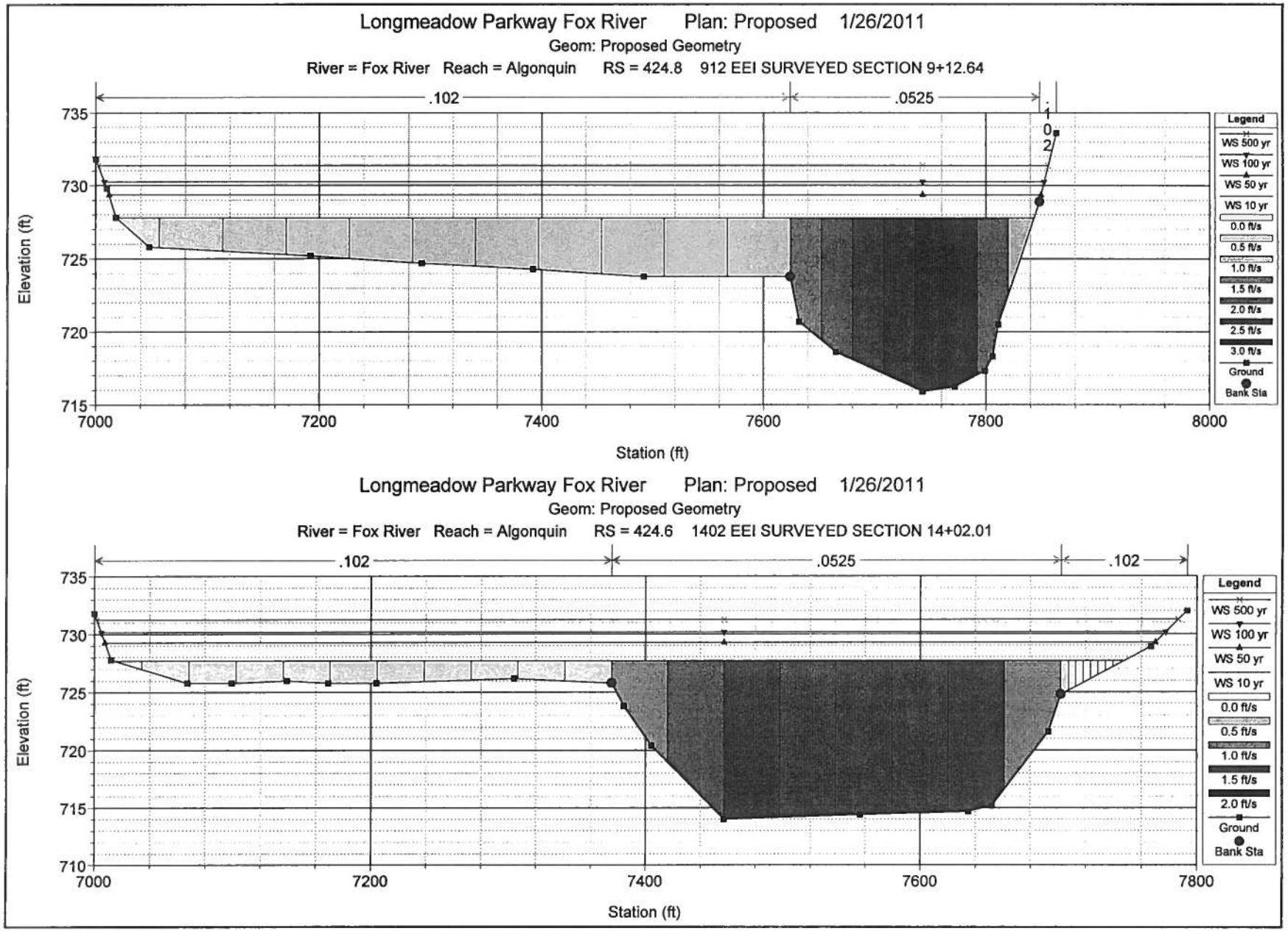
DATE	MO, YR
PROJ. NO.	KC0110
FILE NO.	KC011005
SHEET	2 OF 9

N:\engpro\kc0110\dwg\kc011005.dwg, 11x25 (U4), 3/29/2004 4:38:33 PM, indian

Fox River Profile




Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 428.504 2002 FIS DF, 1979 XS 81.156.
.1
.05
.1
Elevation (ft)
734
732
730
728
726
724
722
720
718
716
2000
2200
2400
2600
2800
3000
3200
3400
3600
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta
Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 426.207 1979 XS 80.721
.1
.05
.1
Elevation (ft)
734
732
730
728
726
724
722
720
718
716
2000
2200
2400
2600
2800
3000
3200
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
3.5 ft/s
Ground
Bank Sta


Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 424.8 912 EEI SURVEYED SECTION 9+12.64
.102
.0525
Elevation (ft)
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
Ground
Bank Sta
Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
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.0525
.102
Elevation (ft)
Station (ft)
Legend
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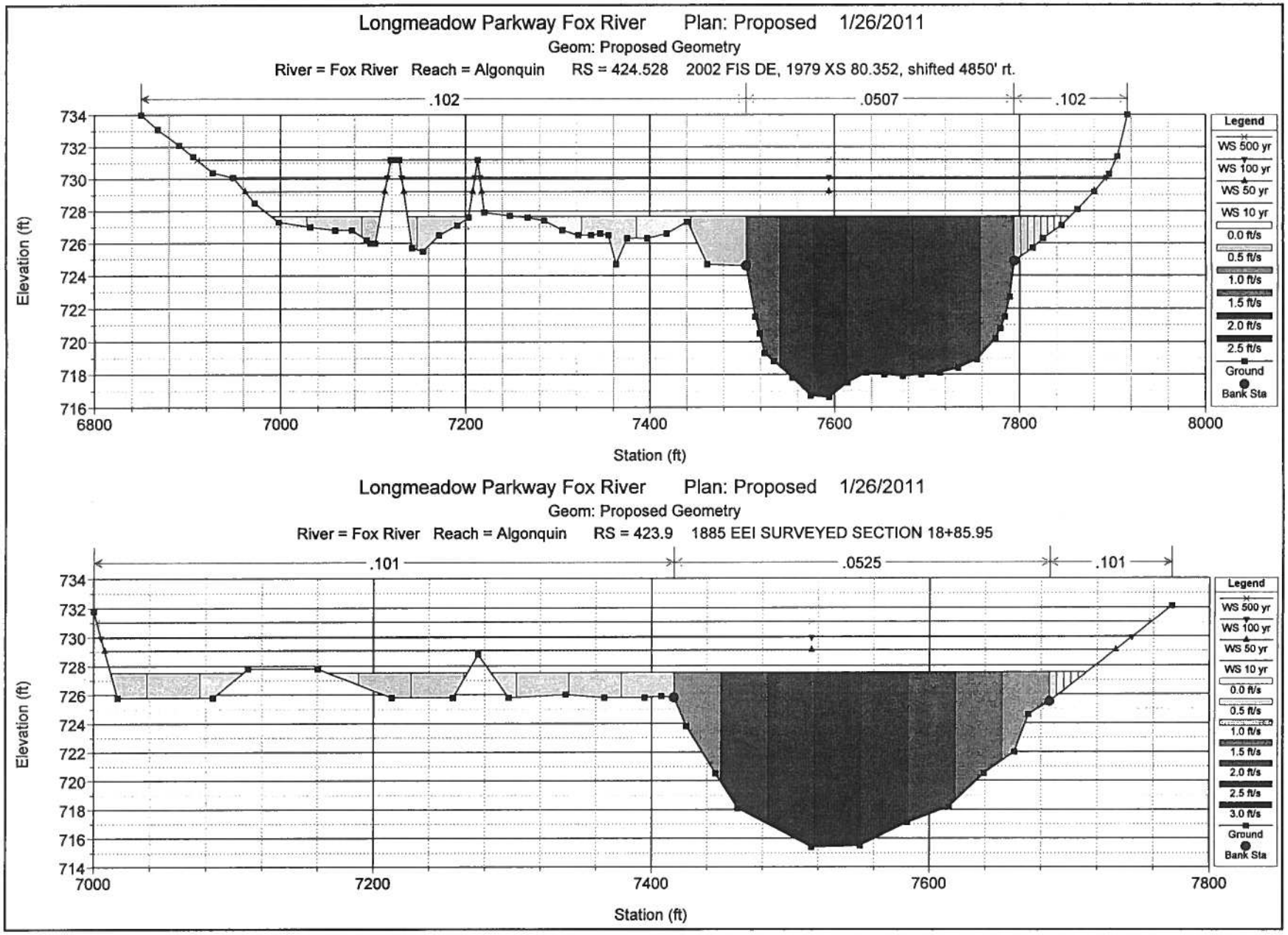
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
Ground
Bank Sta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Geom: Proposed Geometry
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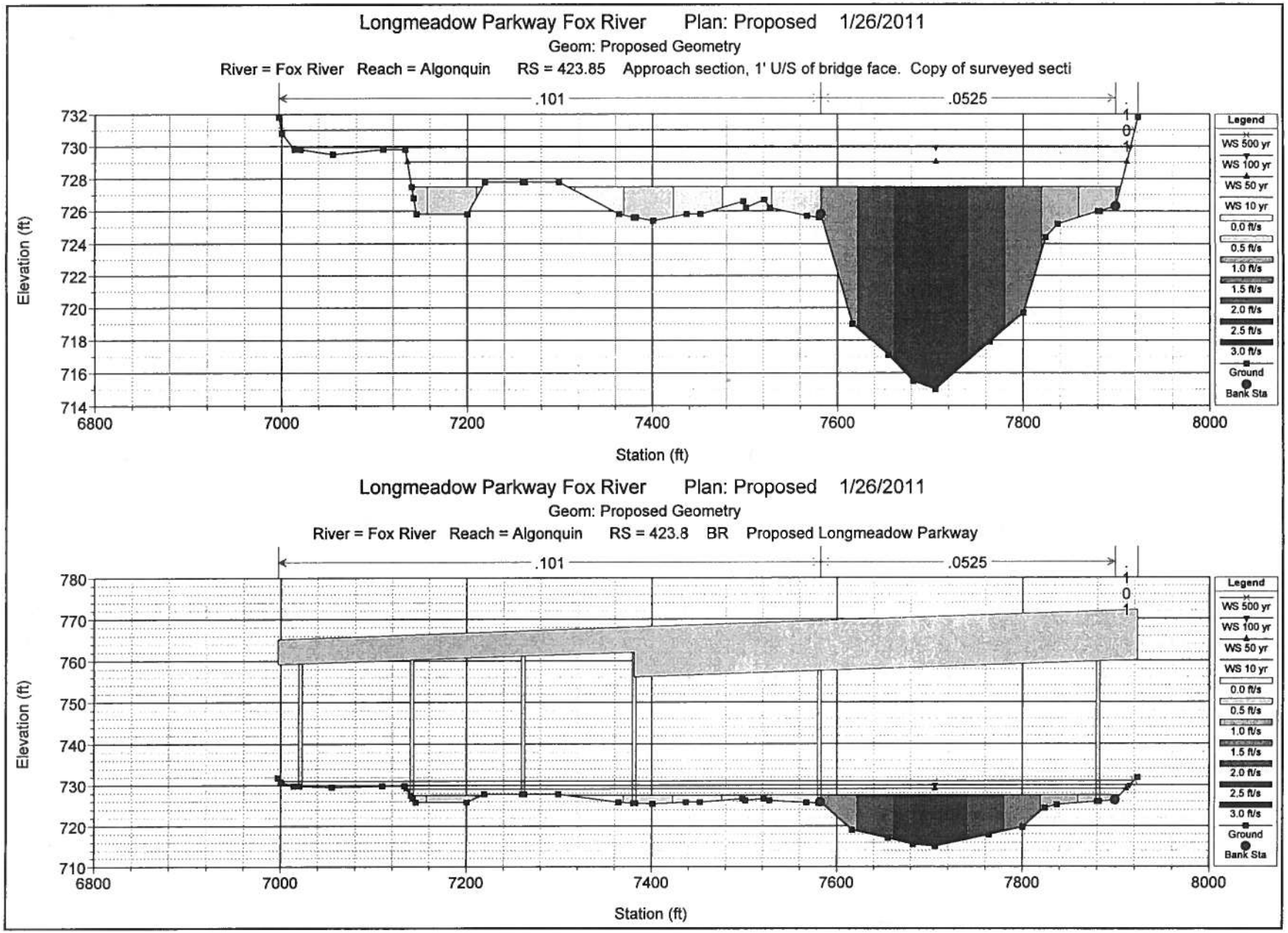
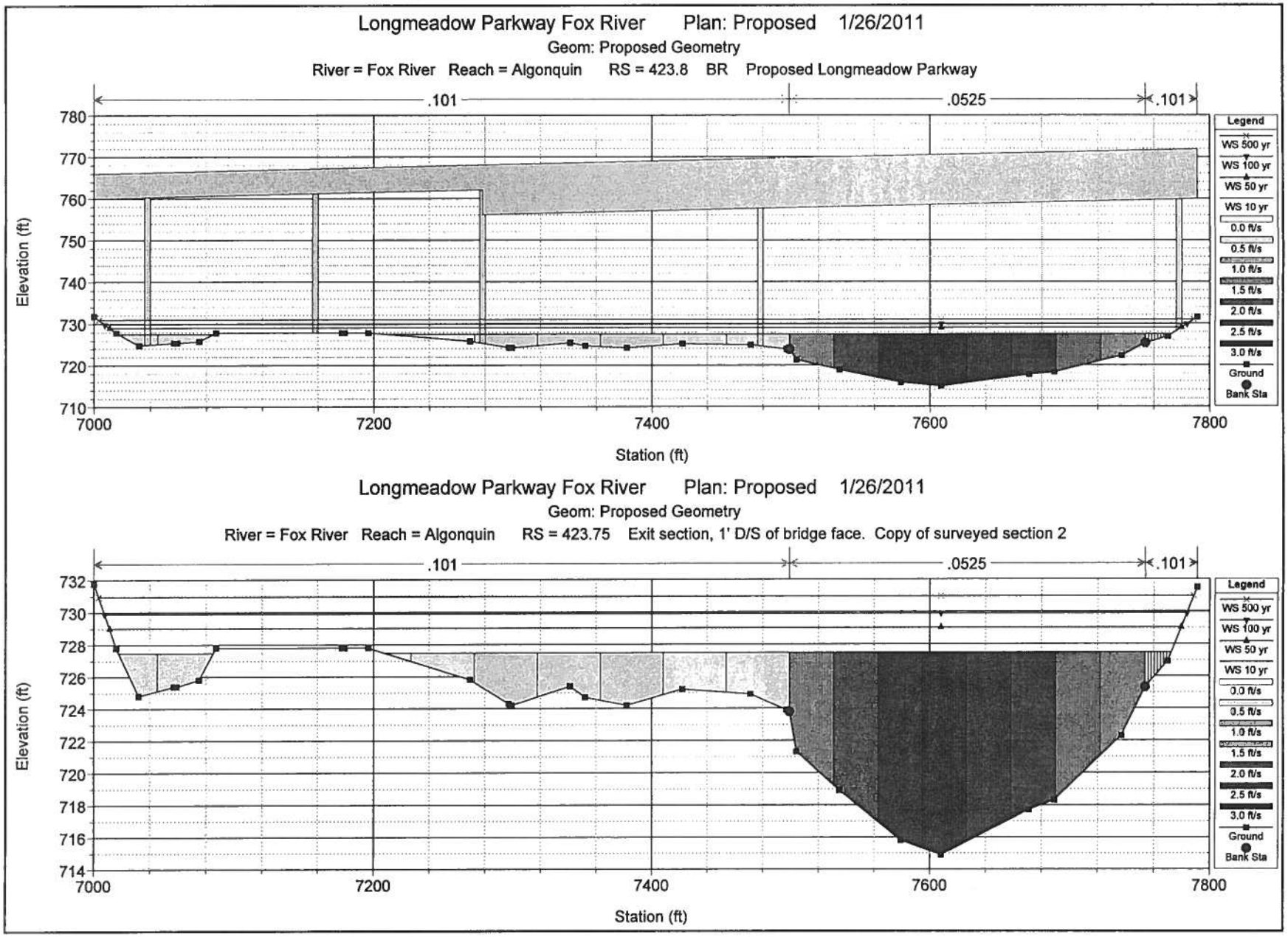
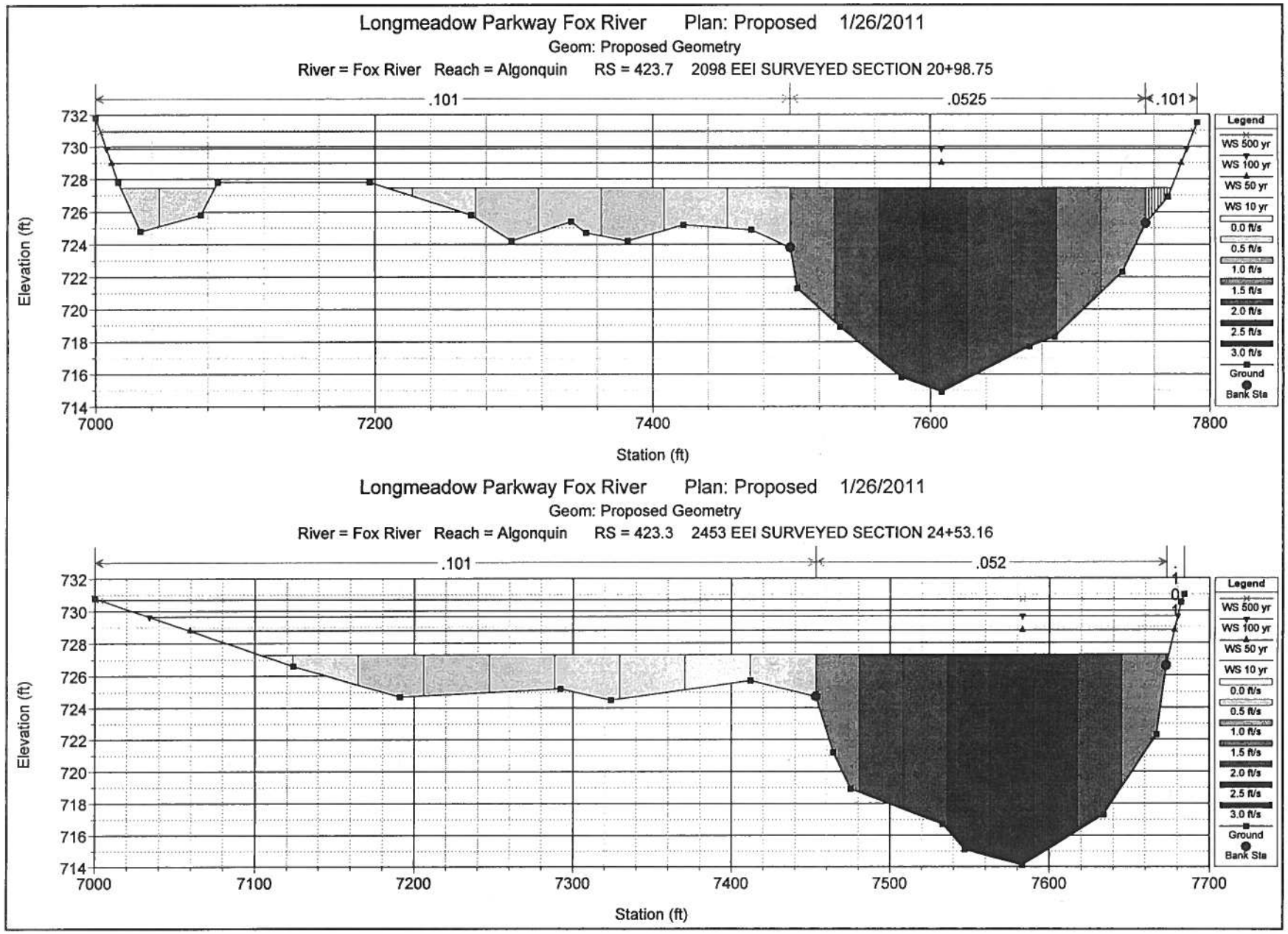
.0507
.102
Elevation (ft)
734
732
730
728
726
724
722
720
718
716
6800
7000
7200
7400
7600
7800
8000
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
Ground
Bank Sta
Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 423.9 1885 EEI SURVEYED SECTION 18+85.95
.101
.0525
.101
Elevation (ft)
734
732
730
728
726
724
722
720
718
716
714
7000
7200
7400
7600
7800
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
Ground
Bank Sta


Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 423.85 Approach section, 1' U/S of bridge face. Copy of surveyed secti
.101
.0525
Elevation (ft)
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
Ground
Bank Sta
Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 423.8 BR Proposed Longmeadow Parkway
.101
.0525
Elevation (ft)
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
Ground
Bank Sta


Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 423.8 BR Proposed Longmeadow Parkway
.101
.0525
.101
Elevation (ft)
780
770
760
750
740
730
720
710
7000
7200
7400
7600
7800
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
Ground
Bank Sta
Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 423.75 Exit section, 1' D/S of bridge face. Copy of surveyed section 2
.101
.0525
.101
Elevation (ft)
732
730
728
726
724
722
720
718
716
714
7000
7200
7400
7600
7800
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
Ground
Bank Sta


Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
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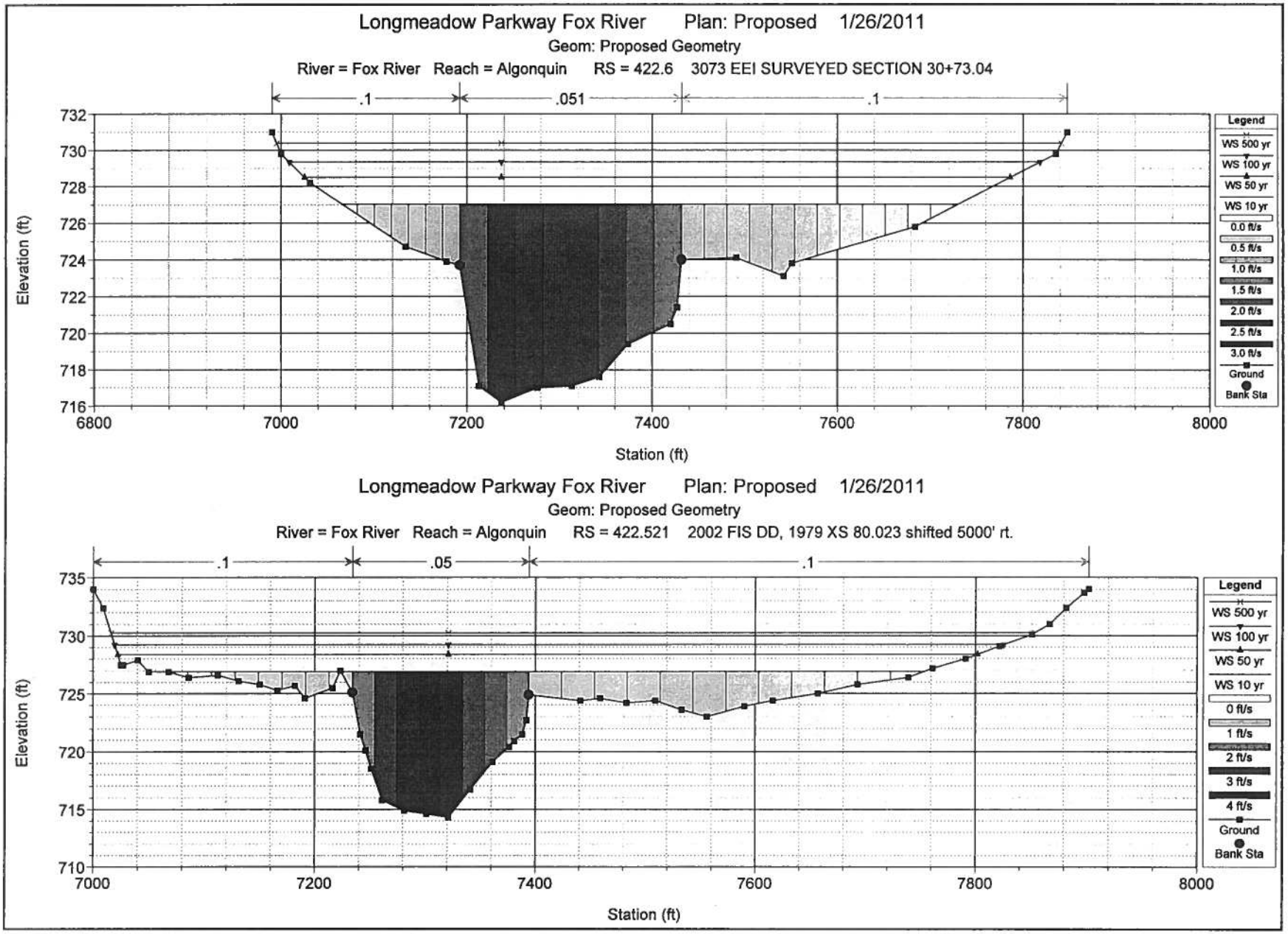
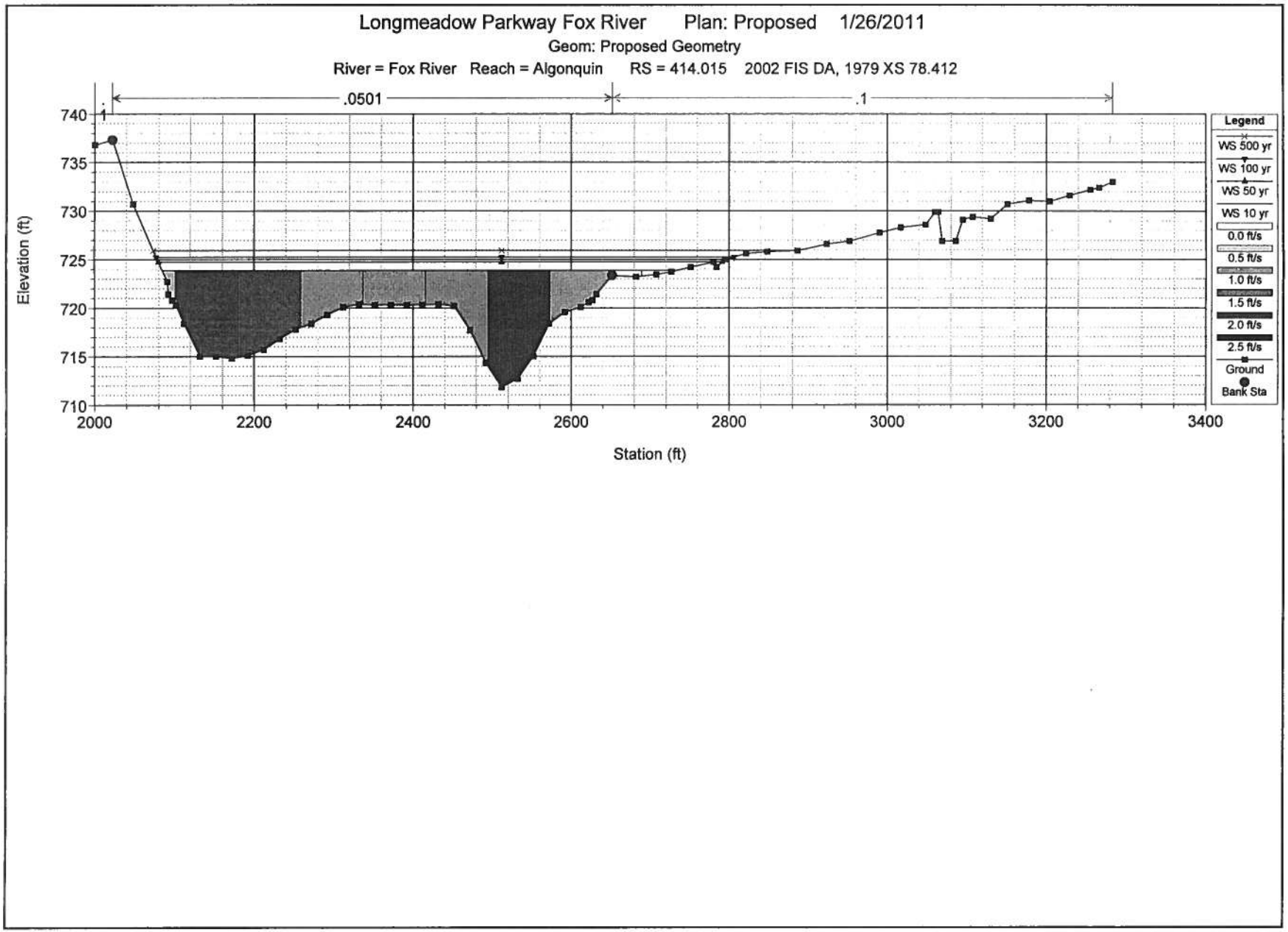
.0525
.101
Elevation (ft)
732
730
728
726
724
722
720
718
716
714
7000
7200
7400
7600
7800
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
Ground
Bank Sta
Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 423.3 2453 EEI SURVEYED SECTION 24+53.16
.101
.052
Elevation (ft)
732
730
728
726
724
722
720
718
716
714
7000
7100
7200
7300
7400
7500
7600
7700
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
Ground
Bank Sta


Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 422.6 3073 EEI SURVEYED SECTION 30+73.04
.1
.051
.1
Elevation (ft)
732
730
728
726
724
722
720
718
716
6800
7000
7200
7400
7600
7800
8000
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
3.0 ft/s
Ground
Bank Sta
Longmeadow Parkway Fox River Plan: Proposed 1/26/2011
Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 422.521 2002 FIS DD, 1979 XS 80.023 shifted 5000' rt.
.1
.05
.1
Elevation (ft)
735
730
725
720
715
710
7000
7200
7400
7600
7800
8000
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0 ft/s
1 ft/s
2 ft/s
3 ft/s
4 ft/s
Ground
Bank Sta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Geom: Proposed Geometry
River = Fox River Reach = Algonquin RS = 414.015 2002 FIS DA, 1979 XS 78.412
.0501
.1
Elevation (ft)
740
735
730
725
720
715
710
2000
2200
2400
2600
2800
3000
3200
3400
Station (ft)
Legend
WS 500 yr
WS 100 yr
WS 50 yr
WS 10 yr
0.0 ft/s
0.5 ft/s
1.0 ft/s
1.5 ft/s
2.0 ft/s
2.5 ft/s
Ground
Bank Sta

o xxxx	DAMAGEABLE ELEVATION AND LOCATION (DOORWAY, WINDOW WELL, ETC.)
⊠	BUILDINGS / STRUCTURES (HOUSE, GARAGE, BUSINESS, ETC.)
X	BUILDINGS / STRUCTURES NO LONGER EXISTING

ROUTE: LONGMEADOW PARKWAY
WATERCOURSE: FOX RIVER
SCALE: HOR: 1"= 100' VERT: 1"= N/A
PLOTTED BY: CLN DATE: 04/26/04
CHECKED BY: JTW DATE: 04/26/04
SURVEY DATE: 03/29/04

LOCATION OF BUILDINGS & STRUCTURES WITH POTENTIAL FLOOD DAMAGES

Building or Structure #	Description	Address	Damageable Location	Elevation	Station Along Survey Baseline	Offset Distance From Survey Baseline
1	Frame One Story Name: Teckla Zordini	19N056 Angelina Pl.	Vents into Crawl space west side of house	726.39	19+50	25'L
2	Frame One Story Name: unknown	none found	Window sill into crawl space	726.01	20+12	25'L
3	Frame Shed	same parcel	doorway into shed	725.06	20+42	17'R
4	Frame Shed 4,5,8 same parcel	19N058 Sandbloom Rd.	Garage door East side	728.52	21+71	524'L
5	Frame Two Story Name: Robby Krluczek	19N058 Sandbloom Rd.	Vent into crawl space near NW corner Bldg	728.80	22+10	520'L
6	Frame Garage	19N058 Sandbloom Rd.	Garage door East side	729.71	22+40	518'L
7	Frame Garage	18N988 Williams	Garage door Soth side slab	727.99	24+06	280'L
8	Brick & Frame Two Story Name: Mike Zarback	18N988 Williams	window sill into basement West side of house	729.70	25+43	198'L
9	Barn	18N988 Williams	Doorway at NW corner slab	730.83	26+38	277'L
10	Frame Shed	18N824 Williams	Doorway on South side	726.81	27+77	43'L
11	Frame One Story	18N814 Williams	Vents on North side Bldg	726.27	28+41	63'L
12	Frame Shed	18N814 Williams	Doorway into shed East side	726.25	28+43	19'L
13	Metal Shed Name: Frank Trajo	18N908 Williams	ground at shed	726.29	28+75	44'L
14	Metal Shed	18N908 Williams	ground at shed	726.14	28+89	23'L
15	Frame One Story	18N908 Williams	Doorway @ SW Bldg corner 1st floor, house on crawl	726.80	29+03	98'L
16	Frame Outhouse like Bldg	18N898 Williams	Doorway on West side conc.	727.83	29+58	116'L
17	Frame One Story	18N898 Williams	Vents on North side into cra Doorway on Southside	727.00 726.48	29+79	61'L
18	Frame One Story	18N898 Williams	Doorway on Southside slab	726.33	30+11	61'L
19	Frame Outhouse like Bldg	18N898 Williams	Doorway on West side conc.	727.29	30+45	101'L
20	Metal Shed	18N898 Williams	Doorway on North side conc.	726.06	30+22	22'L

NOTE: A PORTION OF THE FOLLOWING INFORMATION WAS PROVIDED IN PART BY THE KANE COUNTY GIS DEPT. UNAUTHORIZED USE OF THIS INFORMATION BY PARTIES OTHER THAN THOSE AUTHORIZED BY MUNICIPALITIES WITHIN KANE COUNTY IS PROHIBITED.

Engineering Enterprises, Inc.
Consulting Engineers
52 Wheeler Road
Sugar Grove, Illinois 60554 630/466-9350

NO.	DATE	REVISIONS

LONGMEADOW PARKWAY CORRIDOR

LOCATION OF BUILDINGS & STRUCTURES WITH POTENTIAL FLOOD DAMAGES OF THE FOX RIVER

PATH=H:\SDSKPROJ\KC0110\DWG\KC011006

DATE	APRIL 2004
PROJ. NO.	KC0110
FILE NO.	KC011006
SHEET	1 OF 1

H:\SDSKPROJ\KC0110\dwg\KC011006.dwg, 4/26/2004 (FLOC...), 4/26/2004 11:00:58 AM, ntuan

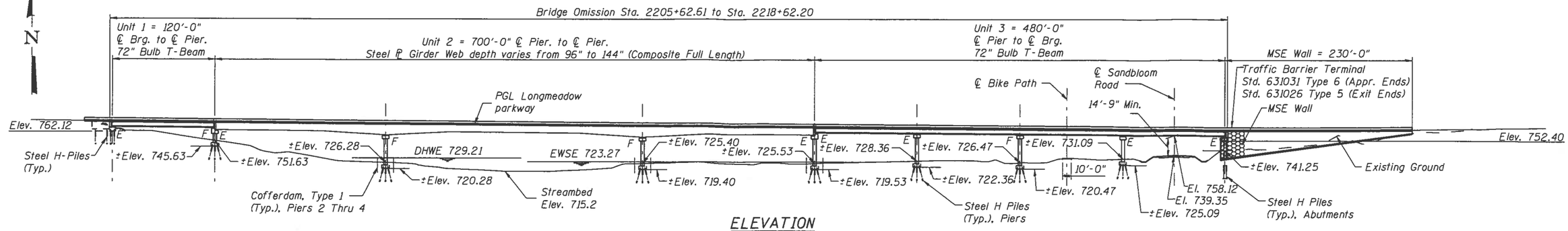
SECTION 7

PROPOSED BRIDGE TS&L
PROPOSED PARKWAY PLANS AND PROFILES
RULES ESTABLISHING CLEARANCES FOR BRIDGES OVER THE FOX RIVER

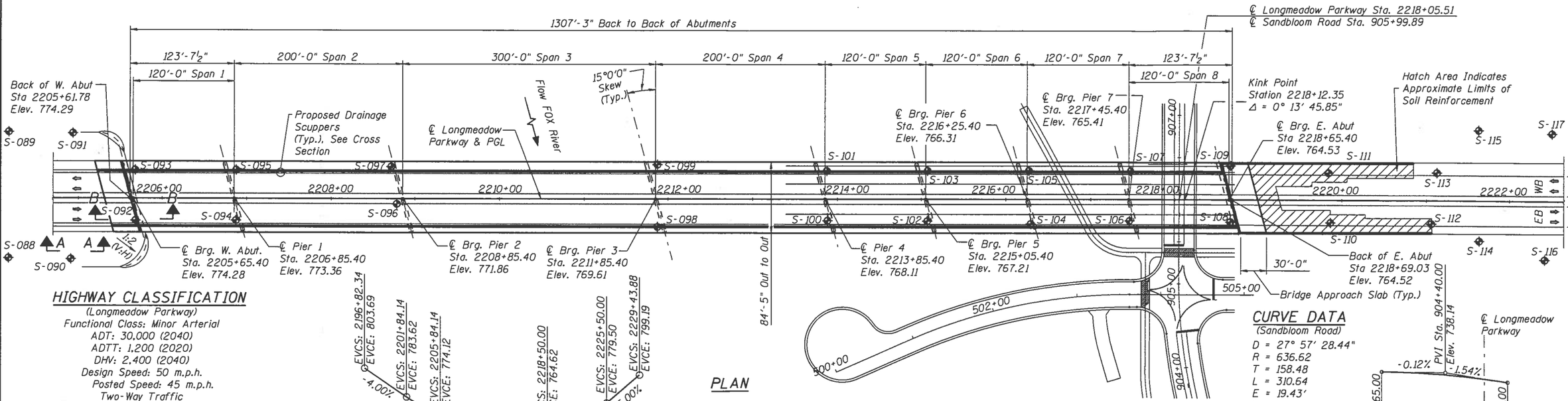
PROPOSED BRIDGE TS&L

Bench Mark: Chis. " □ " S.E. COR. CONC. SLAB.
The INT. of ILL. 31 and Miller Rd. go N. 0.9 MI ± to Mark.
Elev. 806.34

Existing Structure: None



ELEVATION



PLAN

PVI STA=2203+84.14
PVI ELEV=775.62
A.D.=-3.25
K=123.08

PVI STA=2222+00
PVI ELEV=762.00
LOW PT STA 2219+41.30
LOW PT ELEV. 764.28
A.D.=-5.75
K=121.74

PROFILE GRADE
(Along Longmeadow Parkway)

LEGEND
◆ Soil Boring Location

HIGHWAY CLASSIFICATION
(Longmeadow Parkway)
Functional Class: Minor Arterial
ADT: 30,000 (2040)
ADTT: 1,200 (2020)
DHV: 2,400 (2040)
Design Speed: 50 m.p.h.
Posted Speed: 45 m.p.h.
Two-Way Traffic
Directional Distribution: 50/50

LOADING HL-93
Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS
2010 AASHTO LRFD Bridge Design Specifications
Including 2010 Interims

DESIGN STRESSES
FIELD UNITS
f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)
PRECAST PRESTRESSED UNITS
f'c = 6,000 psi
fpu = 270,000 psi (low lax. strands)

SEISMIC DATA
Seismic Performance Zone (SPZ)=1
Design Spectral Acceleration at 1.0 sec. (S_{D1})=8.2
Design Spectral Acceleration at 0.2 sec. (S_{DS})=14.4
Soil Site Class = D

WATERWAY INFORMATION

Drainage Area = 1364 sq. mi. Low Grade Elev. n/a ✪ n/a

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head - Ft. Exist.	Head - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	5775	-	2853	727.67	0.00	0.00	0.00	727.67
Design	50	8345	-	3990	729.21	0.00	0.00	0.00	729.21
Base	100	10095	-	4688	730.09	0.00	0.00	0.00	730.09
Overtopping	-	-	-	-	-	-	-	-	-
Max. Calc.	500	12525	-	5643	731.17	0.00	0.01	0.00	731.18

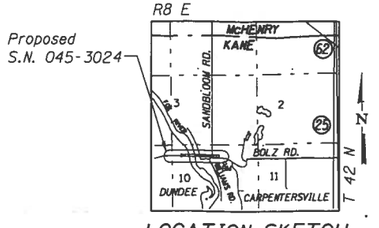
DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	E. Abut.
0.100	762.12	751.63	720.02	719.14	719.07	721.90	720.01	724.63	741.25
0.500	762.12	751.63	719.87	718.99	718.91	721.74	719.85	724.47	741.25

HIGHWAY CLASSIFICATION
(Sandbloom Road)
Functional Class: Local
ADT: 2,814 (2004)
ADTT: 2,814 (2004)
DHV: 422 (2004)
Design Speed: 40 m.p.h.
Posted Speed: 35 m.p.h.
Two-Way Traffic
Directional Distribution: 57/43

CURVE DATA
(Sandbloom Road)
D = 27° 57' 28.44"
R = 636.62
T = 158.48
L = 310.64
E = 19.43'
S.E. = 5.8%
P.C. Sta. = 901+98.34
P.T. Sta. = 905+08.98

PROFILE GRADE
(Along Sandbloom Road)



LOCATION SKETCH

GENERAL PLAN & ELEVATION
LONGMEADOW PARKWAY OVER FOX RIVER
SEC 94-00215-01-ES
KANE COUNTY
STATION 2210+35.40
SN. 045-3024

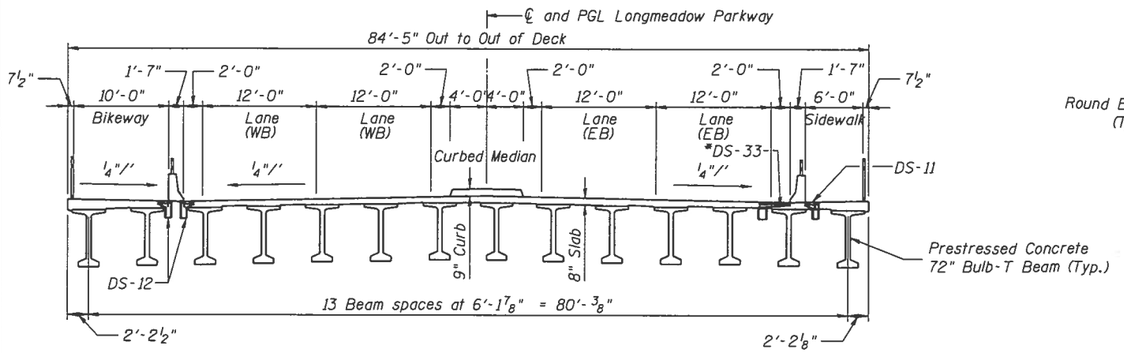
McDonough Associates Inc.
Engineers / Architects
100 East Randolph Street Chicago, Illinois 60601

FILE NAME = *FILE*	USER NAME =	DESIGNED -	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE =	DRAWN -	REVISED -
	PLOT DATE =	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 1 OF 3 SHEETS

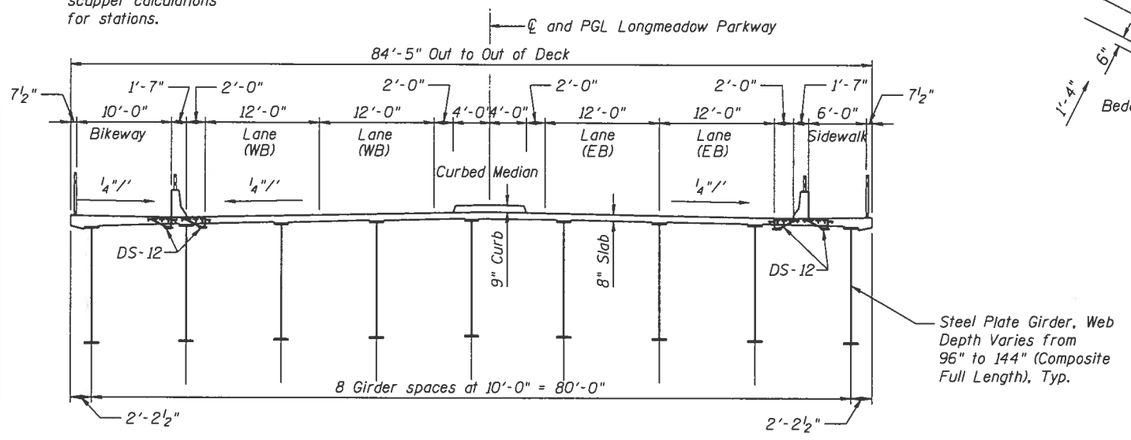
SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94-00215-01 ES	KANE		
	CONTRACT NO.		
ILLINOIS FED. AID PROJECT			



CROSS SECTION - UNIT 1

(Looking East)

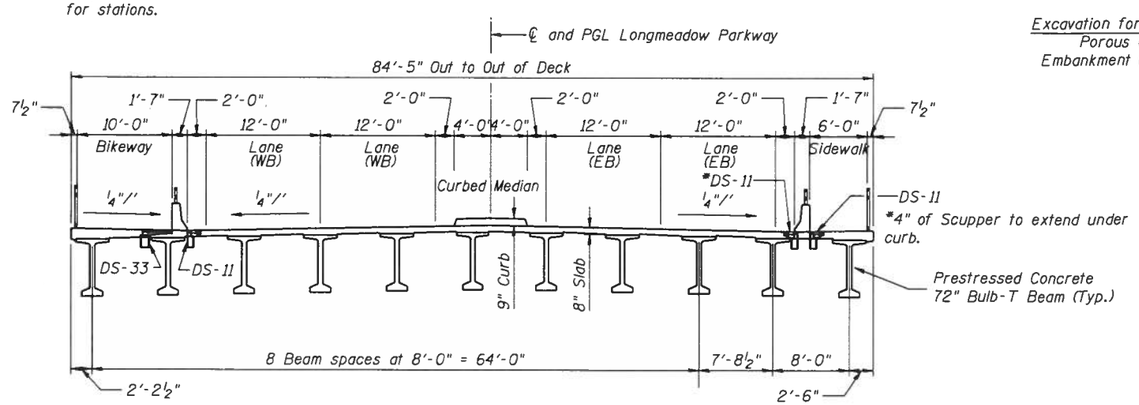
Note:
Scuppers for Unit-1 are at 23ft C/C. See scupper calculations for stations.



CROSS SECTION - UNIT 2

(Looking East)

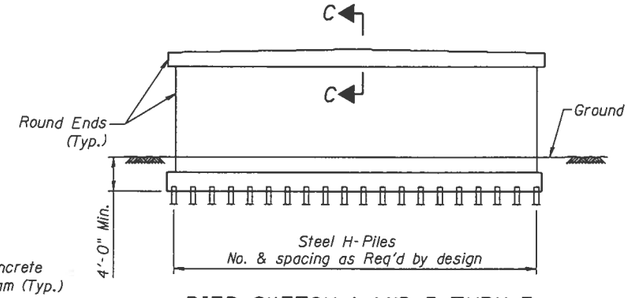
Note:
Scuppers for Unit-2 are at 20ft C/C. See scupper calculations for stations.



CROSS SECTION - UNIT 3

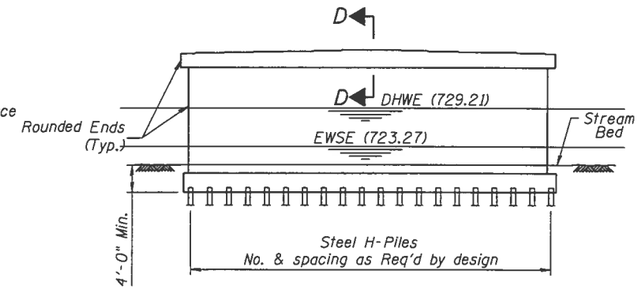
(Looking East)

Note:
Scuppers for Unit-3 are at 18ft C/C. See scupper calculations for stations



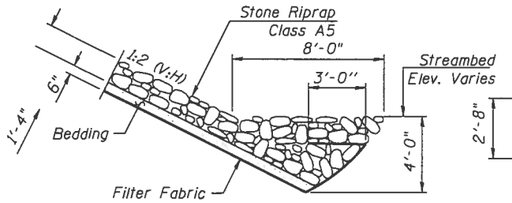
PIER SKETCH 1 AND 5 THRU 7

(Looking East)

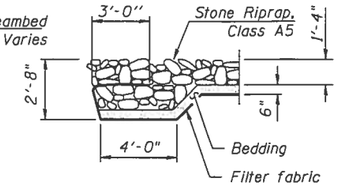


PIER SKETCH - PIERS 2 THRU 4

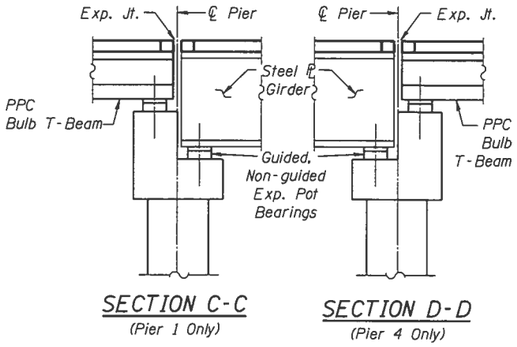
(Looking East)



SECTION B-B



SECTION A-A

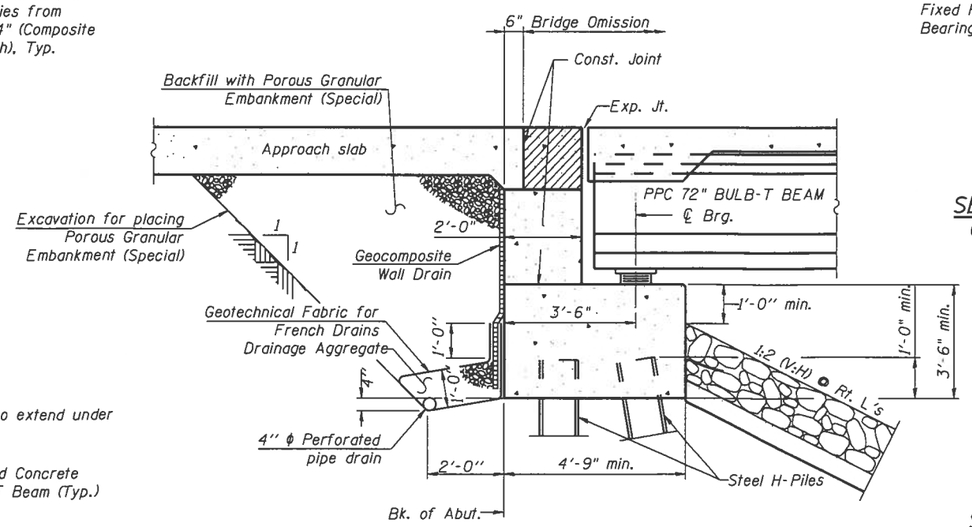


SECTION C-C

(Pier 1 Only)

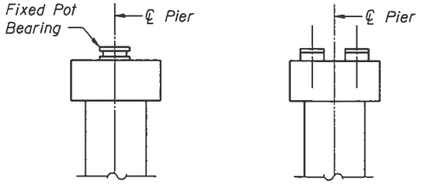
SECTION D-D

(Pier 4 Only)



SECTION THRU PILE SUPPORTED STUB WEST ABUTMENT

(Horiz. dim. ℄ Rt. L's)



SECTION D-D

(Piers 2 and 3)

SECTION C-C

(Piers 5 thru 7)

SECTIONS & DETAILS 1 OF 2
LONGMEADOW PARKWAY OVER FOX RIVER
SEC 94-00215-01-ES
KANE COUNTY
STATION 2210+35.40
SN. 045-3024

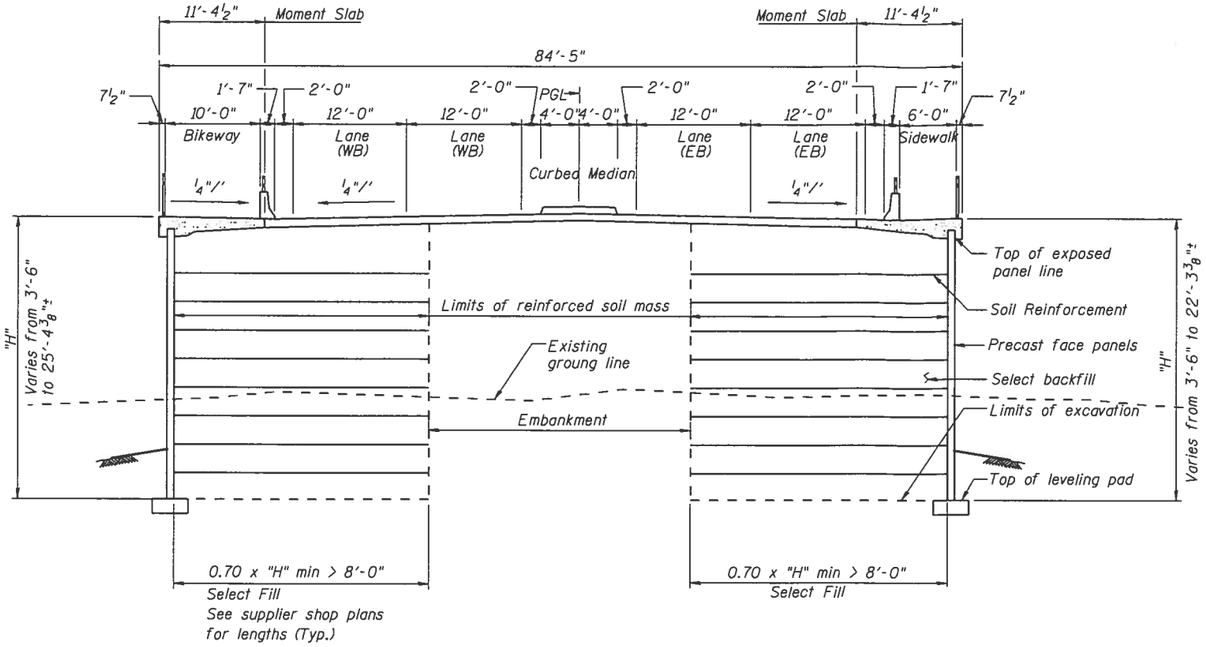
McDonough Associates Inc.
Engineers / Architects
180 East Randolph Street Chicago, Illinois 60601

FILE NAME = TSL-802.dgn	USER NAME = MBaig	DESIGNED -	REVISED -
		CHECKED -	REVISED -
	PLOT SCALE = 1:16	DRAWN -	REVISED -
	PLOT DATE = 9/10/2012	CHECKED -	REVISED -

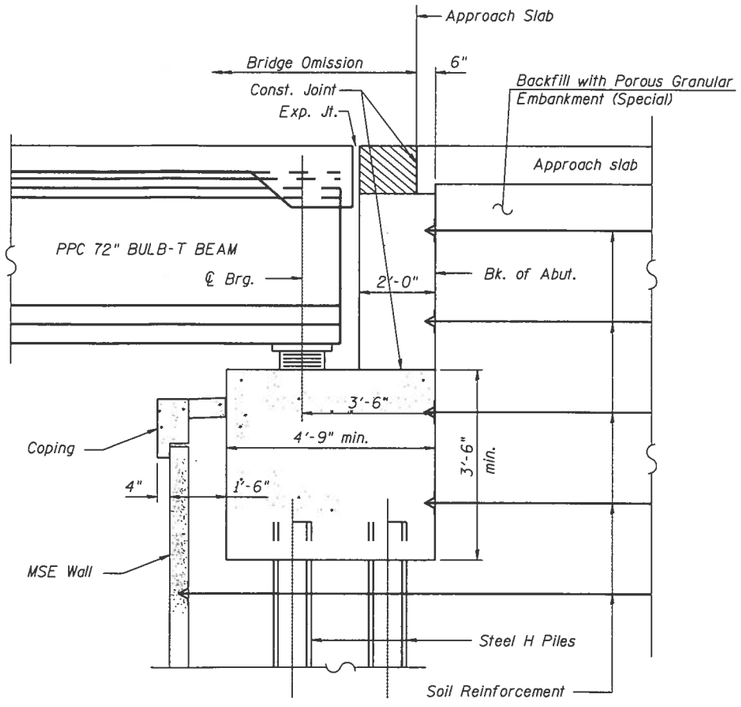
STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 2 OF 3 SHEETS

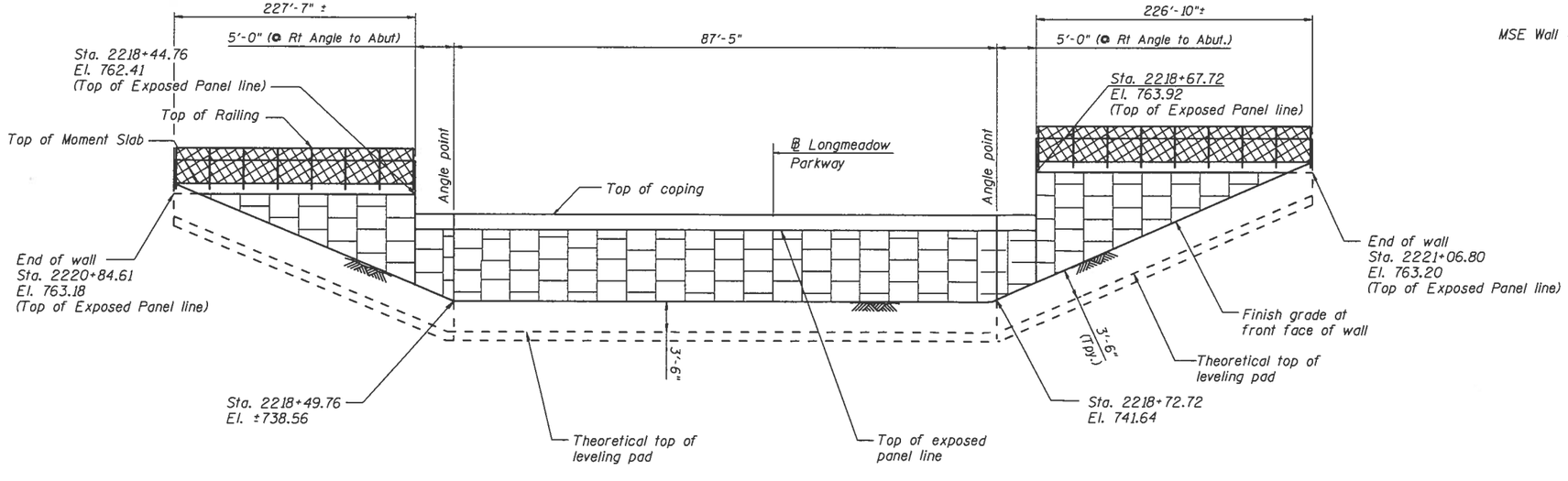
SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94-00215-01 ES	KANE		
	CONTRACT NO.		
ILLINOIS FED. AID PROJECT			



EAST ABUTMENT SECTION
(Looking East)



SECTION THRU PILE SUPPORTED STUB EAST ABUTMENT
(Horiz. dim. ℄ Rt. L's)



EAST ABUTMENT WALL
(Developed elevation along front face of wall)

SECTIONS & DETAILS 2 OF 2
LONGMEADOW PARKWAY OVER FOX RIVER
SEC 94-00215-01-ES
KANE COUNTY
STATION 2210+35.40
SN. 045-3024

McDonough Associates Inc.
Engineers / Architects
180 East Randolph Street Chicago, Illinois 60601

FILE NAME = TSL-803.dgn	USER NAME = MBaig	DESIGNED -	REVISED -
		CHECKED -	REVISED -
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	PLOT DATE = 9/18/2012	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. 3 OF 3 SHEETS

SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
94-00215-01 ES	KANE		
	CONTRACT NO.		
	ILLINOIS FED. AID PROJECT		

Ilene Dailey PRELIM. PIER SHAPE & DIMENSIONS

From: Chin Wang [cwang@cbbel.com]
Sent: Wednesday, February 09, 2011 1:20 PM
To: 'Nathaniel K. Utz'
Cc: mantas@cbbel.com; idailey@cbbel.com
Subject: RE: Pier Dimensions Longmeadow parkway Premiminary TSL drawing

Nathan:

We will recalculate the pier scour depth based on rounded ends.

Chinliang R. Wang, PE
Vice President
Head, Drainage Department
Christopher B. Burke Engineering, Ltd.
9575 W. Higgins Road, Suite 600 Rosemont, IL 60018
Phone: (847) 823-0500 Fax: (847) 823-0520
E-Mail: cwang@cbbel.com

From: Nathaniel K. Utz [mailto:NUtz@Maiengr.com]
Sent: Wednesday, February 09, 2011 1:15 PM
To: Nathaniel K. Utz; cwang@cbbel.com
Cc: mantas@cbbel.com
Subject: RE: Pier Dimensions Longmeadow parkway Premiminary TSL drawing

Chin:

All piers will have rounded ends. The revised TSL showing the scour elevations will be forwarded shortly.

Nathan

From: Nathaniel K. Utz
Sent: Wednesday, February 09, 2011 9:44 AM
To: 'cwang@cbbel.com'
Cc: Nathaniel K. Utz
Subject: Pier Dimensions Longmeadow parkway Premiminary TSL drawing

Chin:

It's my understanding from our structural people that the dimensions below should be sufficient for hydraulic studies. IDOT no longer requires all these dimensions on the TS&L, as they used to 10 years ago. I will follow up with a phone call today to close the loop on this issue.

Nathan

From: Baig Mirza
Sent: Wednesday, February 09, 2011 9:40 AM
To: Nathaniel K. Utz
Subject: FW: Longmeadow parkway Premiminary TSL drawing

These are preliminary dimensions. They are good enough for hydraulic studies and SGR.

From: Baig Mirza
Sent: Friday, January 14, 2011 12:10 PM
To: Nathaniel K. Utz; 'cwang@cbbel.com'
Cc: Gerald Koylass
Subject: RE: Longmeadow parkway Premiminary TSL drawing

Nathan/C Wang

Pier shapes/types are already shown on the drawings, Abutment shapes are already shown on drawings.
Elevations at Top of deck and at bottom of footing at abutment locations at the centerline of bridge are already shown on drawings.
Elevations at Top of deck and stream bed elevations at pier locations at the centerline of bridge are already shown on drawings.
At this point where we have only preliminary studies done. The following minimum dimensions can suitable be assumed.

1) pier widths as 4'-0", pier cap widths as 8'-0", pier footing widths as 9'-0", pier footing depths as 4'-0", depth of bottom of
   pier footing to top of stream bed as 7'-0".
2) Abutment widths as 7'-0" and abutment depths as 4'-6"

I am including Wang's draft SGR for your information only. For any questions please give me a call.

McDonough Associates Inc.
Engineers/Architects

Mirza G Baig ME. PE.
Associate
Structural Engineer
130 E Randolph Street, Suite 1000
Chicago, IL 60601

(312)946-7144 **Direct** (312)946-8600 **Main** (312)946-7199 **Fax**

www.mbaig@maiengr.com

From: Nathaniel K. Utz
Sent: Friday, January 14, 2011 11:05 AM
To: Baig Mirza; Gerald Koylass
Subject: FW: Longmeadow parkway Premiminary TSL drawing

From: Chin Wang [mailto:cwang@cbbel.com]
Sent: Friday, January 14, 2011 10:25 AM
To: Nathaniel K. Utz
Cc: mantas@cbbel.com
Subject: RE: Longmeadow parkway Premiminary TSL drawing

Nathan:

To determine the scour depth, we need data such as pier shape/type, dimensions and elevations, abutment shape, dimensions and elevation, structure boring logs.

Chinliang R. Wang, PE
Vice President
Head, Drainage Department
Christopher B. Burke Engineering, Ltd.
9575 W. Higgins Road, Suite 600 Rosemont, IL 60018
Phone: (847) 823-0500 Fax: (847) 823-0520
E-Mail: cwang@cbbel.com

From: Nathaniel K. Utz [mailto:NUtz@Maiengr.com]
Sent: Thursday, January 13, 2011 12:14 PM
To: cwang@cbbel.com
Cc: mantas@cbbel.com; Nathaniel K. Utz
Subject: FW: Longmeadow parkway Premiminary TSL drawing

Chin, let me know if you need anything more for the bridge. These are DRAFT.

Nathan

From: Baig Mirza
Sent: Thursday, January 13, 2011 11:58 AM
To: Nathaniel K. Utz
Cc: Gerald Koylass
Subject: Longmeadow parkway Premiminary TSL drawing

Nathan

These are the preliminary TSL drawings for Longmeadow parkway.
Please forward these drawings for hydraulic studies and scupper calculations.
In our drawings we have shown some of the scuppers that will fit in
Our beam spacing. These are only for study purposes.

Mirza

PROPOSED PARKWAY PLANS AND PROFILES

GRAPHIC SCALE
0 50 100 150
(IN FEET)

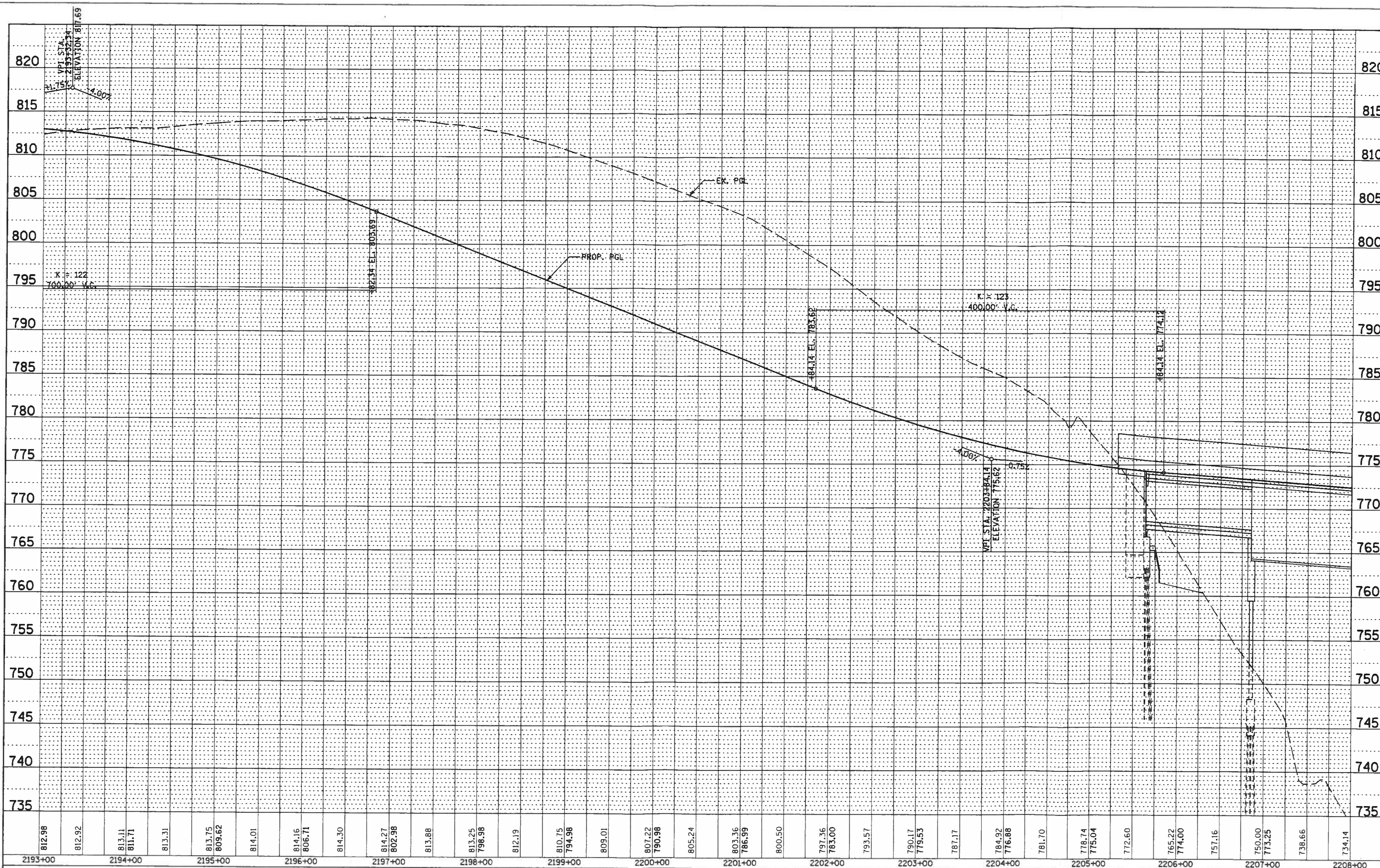
KANE COUNTY HIGHWAY DEPARTMENT

LONGMEADOW PARKWAY / BOLZ ROAD
FOX RIVER BRIDGE
PLAN

McDonough Associates Inc. Engineers/Architects

DESIGNED BY:
CHECKED BY:

SCALE: 1" = 50'



PLAN		BY	DATE
NOTE BOOK NO.	SURVEYED		
	PLOTTED		
	ALIGNMENT CHECKED		
	R/L OF WAY CHECKED		
	CADD FILE NAME		

PROFILE		BY	DATE
NOTE BOOK NO.	SURVEYED		
	PLOTTED		
	GRADES CHECKED		
	B.M. NOTED		
	STRUCTURE NOTATIONS CHKD		

McDonough Associates Inc.
Engineers / Architects
180 East Randolph Street Chicago, Illinois 60601

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	PLOT DATE = 4/23/2012	DATE - 3/27/09	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROFILE – LONGMEADOW PARKWAY

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

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
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	PG-08	CONTRACT NO. 63073		
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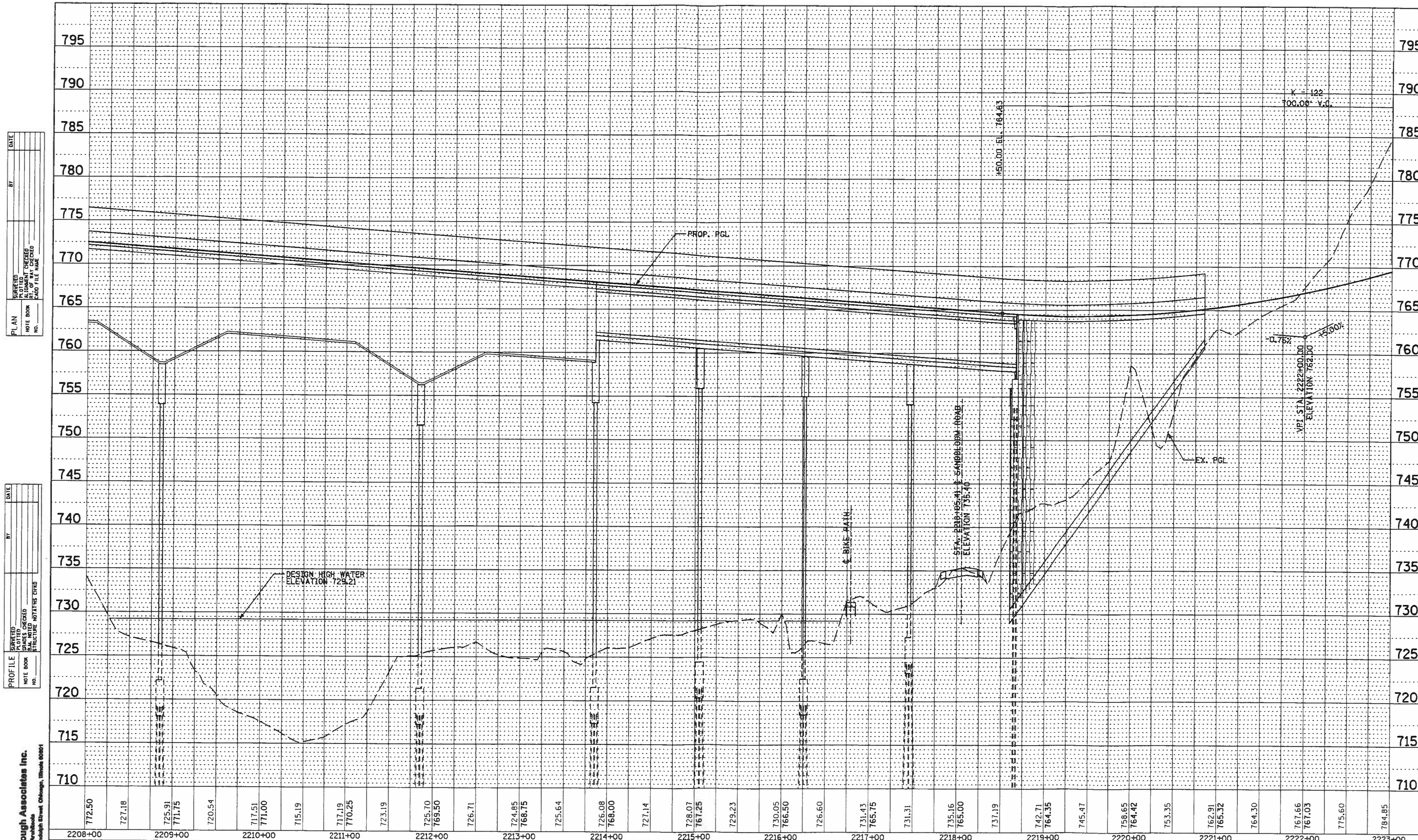

McDonough Associates Inc.
Engineers / Architects
130 East Randolph Street Chicago, Illinois 60601

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	PLOT DATE = 4/23/2012	DATE - 3/27/09	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

PROFILE - LONGMEADOW PARKWAY

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

F.A.P RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
361	06-00214-10-BR	KANE	219	
	PG-09	CONTRACT NO. 63073		
	ILLINOIS FED. AID PROJECT			

RULES ESTABLISHING CLEARANCES FOR BRIDGES OVER THE FOX RIVER

JUL 0 1

Certificate of Amended Part

The Illinois Department of Transportation certifies that the attached hereto is a true and correct copy of:

Heading of Part: Rules Establishing Horizontal and Vertical Clearances for Bridges Over the Fox River

Code Citation: 92 Ill. Adm. Code 720

Sections Involved: 720.10

which was duly adopted by this agency on the 7th day of June, 1991.

Statutory Authority:
Illinois Revised Statutes 19 (Chapter) 52 et seq. (Paragraphs)

Signature of Officer

Secretary
Title of Officer

FILED
STATE LIBRARY
ADM. CODE UNIT

JUN 10 1991

IN THE OFFICE OF
SECRETARY OF STATE

TITLE 92: TRANSPORTATION
CHAPTER I: DEPARTMENT OF TRANSPORTATION
SUBCHAPTER i: WATER RESOURCES

PART 720
RULES ESTABLISHING HORIZONTAL AND VERTICAL CLEARANCES FOR BRIDGES OVER THE FOX RIVER

Section
720.10 Authority and Clearances

AUTHORITY: Implementing and authorized by "An Act in relation to the regulation of the rivers, lakes and streams of the State of Illinois" (Ill. Rev. Stat. 1989, ch. 19, pars. 52 et seq.)

SOURCE: Filed March 4, 1958; codified at 6 Ill. Reg. 14689; amended at 15 Ill. Reg. 9068, effective June 10, 1991.

Section 720.10 Authority and Clearances

The Department of Transportation, acting under authority conferred upon it by "AN ACT in relation to the regulation of rivers, lakes and streams of the State of Illinois", approved June 10, 1911, effective July 1, 1911, as amended (Ill. Rev. Stat. 1989, ch. 19, pars. 52 et seq.), does hereby declare and order, pursuant to an investigation and hearing concerning the adequacy of horizontal and vertical bridge clearance of a new bridge proposed to be constructed by the Department's Division of Highways to replace the existing five arch structure known as Burton's Bridge in Section 19, Township 44 North, Range 9 East of the Third Principal Meridian, McHenry County, Illinois, that the minimum horizontal clearance for bridges hereafter constructed over the Fox River between Algonquin and the southern (downstream) right-of-way limit of route 173 shall be 100 feet and minimum vertical clearance for such bridges shall be 15 feet, above normal pool level.

(SOURCE: Amended at 15 Ill. Reg. _____, effective _____)

Vertical Clearances - Fox River Bridges

Pursuant to the request of the Commission for the Development of the Fox River at its meeting in St. Charles on February 24, 1958, there is attached a tabulation of existing bridges ove the Fox River, beginning at its mouth at Ottawa and progressing in upstream order, and showing the vertical clearances afforded by each structure under existing conditions.

The clearances noted are measured from the water surface at that stage which closely approximates the normal flow of the river, in its present condition, during the boating season. The clearance data for those bridges upstream from Yorkville is considered more accurate than that for those structures between Ottawa and Yorkville for the reason that detailed flow studies have not yet been made in the latter reach.

It will also be noted that, in many cases, two sets of clearance figures are given. This arises from the fact that the low steel elevation of the main span of some of the bridges is not constant across the span, due to the fact that some are arch structures and others are built on a grade determined by local conditions. Hence the available vertical clearance varies within the limits stated, depending upon one's transverse location alon the span in question.

No attempt has been made, in this report, to show vertical clearances above high water. Such data has been omitted, since this would require a concensus both as to whether clearances should be given above ordinary, mean, or extreme record

high water or for the high water to be expected from some particular frequency of flood and as to whether the particular high water chosen should be that representing all-year conditions or during the boating season only.

In this general connection, the Commission is advised that, by order of the Department of Public Works and Buildings dated April 20, 1953, "the minimum horizontal clearance for bridges hereafter constructed over the Fox River between Algonquin and the Illinois-Wisconsin State Line shall be 100 feet and the minimum vertical clearance for such bridges shall be 15 feet, above normal pool level".

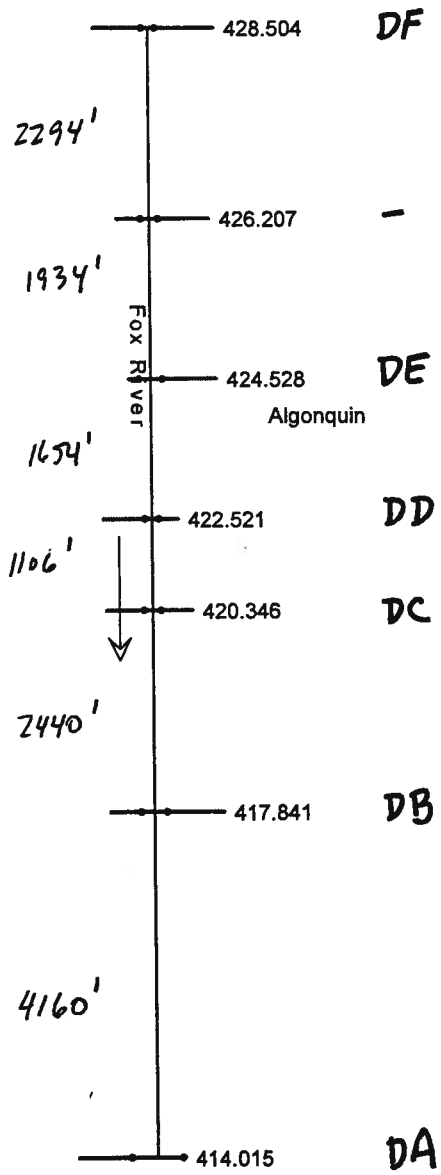
SECTION 8

HYDRAULIC ANALYSIS (HEC-RAS)
COMPACT DISK

REGULATORY HEC-2 MODEL HARDCOPY

FIS Regulatory Model

HEC-2 (NGVD29)



None of the XS's are Geo-Referenced (- Geo-Ref user entered XS - Geo-Ref interpolated XS - Non Geo-Ref user entered XS - Non Geo-Ref interpolated XS)

Saylor, Bill

From: Saylor, Bill
Sent: Wednesday, February 18, 2004 1:31 PM
To: 'Chinliang R. Wang'
Subject: RE: Fox R HEC-2 Carpentersville dam to Algonquin dam

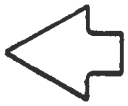
FRP1012.zip

Our administration office received your payment.

Attached is a WinXP zipped text file that includes your reach of interest. This is the data I believe to include 1993 revisions in certain parts. (Note: the filedate is not the data vintage.) Note also that the X1 labeling scheme changes three or four times in this file!

If you have trouble extracting the attachment, let me know and I can resend by pasting the text straight into email.

I will mail the c. 1979 run printout today.



Thanks,
-Bill Saylor

William Saylor — Illinois State Water Survey
Associate Supportive Scientist — 2204 Griffith Drive
Watershed Science Section — Champaign, IL 61820-7495 MC-674

Surface Water & Floodplain Information — (217) 333-0447
(217) 333-2304 (fax)

Fox River

= Kane Co FIS 2003 (DA) - (DF), but see instead DWR c. 1993 revised version w/ add'l xsecs! —WS/SWS 4/25/03
u/s (Carpentersville Dam)

MISSING 1st pp. (may be in FRIO text file)

my starting XS
0

DA
414,015

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GR	720.800	2097.000	720.300	2102.000	718.400	2112.000	715.000	2132.000	715.000	2152.000
GR	714.800	2172.000	715.100	2192.000	715.700	2212.000	716.800	2232.000	717.800	2252.000
GR	718.400	2272.000	719.300	2292.000	720.100	2312.000	720.400	2332.000	720.300	2352.000
GR	720.300	2372.000	720.300	2392.000	720.300	2412.000	720.400	2432.000	720.200	2452.000
GR	717.700	2472.000	714.300	2492.000	711.800	2512.000	712.700	2532.000	715.000	2552.000
GR	718.400	2572.000	719.600	2592.000	720.100	2612.000	720.600	2622.000	720.800	2627.000
GR	721.400	2632.000	723.300	2652.000	723.200	2682.000	723.400	2708.000	723.700	2727.000
GR	724.200	2751.000	724.700	2780.000	724.200	2784.000	725.000	2795.000	725.600	2821.000
GR	725.800	2848.000	725.900	2886.000	726.600	2923.000	726.900	2952.000	727.800	2990.000
GR	728.300	3017.000	728.600	3048.000	729.900	3060.000	729.900	3064.000	726.900	3069.000
GR	726.900	3086.000	729.100	3095.000	729.400	3107.000	729.200	3130.000	730.700	3151.000
GR	731.100	3178.000	731.000	3204.000	731.600	3229.000	732.200	3255.000	732.400	3266.000
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X

FOX RIVER SHEET #101

DB
417841

X1	79.137	63.000	2684.000	3000.000	3520.000	3746.000	4160.000	-0.	-0.	-0.
GR	733.000	2000.000	731.700	2014.000	729.500	2041.000	728.700	2079.000	727.900	2109.000
GR	727.500	2153.000	726.200	2189.000	726.500	2216.000	724.900	2240.000	726.700	2265.000
GR	730.100	2282.000	730.300	2286.000	730.000	2293.000	728.900	2302.000	725.100	2311.000
GR	727.500	2342.000	726.700	2367.000	727.000	2397.000	727.000	2423.000	726.800	2434.000
GR	727.100	2445.000	727.300	2467.000	727.000	2492.000	726.000	2525.000	724.900	2556.000
GR	724.600	2593.000	723.300	2635.000	722.400	2684.000	721.400	2685.000	721.100	2685.000
GR	720.800	2690.000	720.400	2695.000	719.700	2705.000	718.400	2725.000	716.400	2745.000
GR	715.200	2765.000	714.400	2785.000	714.300	2805.000	714.600	2825.000	715.400	2845.000
GR	715.800	2865.000	716.200	2885.000	716.400	2905.000	716.200	2925.000	716.100	2945.000
GR	718.400	2965.000	720.400	2985.000	720.700	2992.000	721.400	2999.000	722.700	3000.000
GR	723.400	3030.000	723.300	3047.000	723.700	3072.000	724.400	3102.000	724.400	3129.000
GR	725.000	3160.000	725.300	3188.000	726.400	3238.000	727.500	3274.000	728.500	3293.000
GR	729.600	3325.000	731.800	3360.000	733.000	3375.000	-0.	-0.	-0.	-0.

input 01/21/11
DC
420346

X1	79.611	51.000	2386.000	2587.000	2454.000	2400.000	2440.000	-0.	-0.	-0.
GR	733.000	2000.000	729.000	2007.000	729.200	2021.000	732.000	2043.000	732.800	2068.000
GR	733.100	2085.000	732.800	2111.000	731.200	2129.000	728.900	2143.000	725.900	2161.000
GR	724.900	2176.000	725.200	2192.000	725.200	2213.000	724.600	2236.000	724.400	2263.000
GR	724.000	2295.000	724.100	2320.000	723.800	2352.000	723.300	2386.000	721.400	2392.000
GR	720.500	2397.000	720.000	2402.000	719.100	2412.000	717.400	2432.000	716.100	2452.000
GR	715.600	2472.000	715.700	2492.000	716.600	2512.000	716.900	2532.000	718.400	2552.000
GR	719.200	2562.000	720.500	2572.000	720.700	2577.000	721.400	2582.000	722.200	2585.000
GR	724.000	2587.000	723.700	2622.000	723.700	2633.000	723.500	2665.000	723.200	2683.000
GR	723.200	2708.000	723.500	2736.000	724.100	2776.000	724.800	2808.000	725.700	2850.000
GR	726.500	2892.000	727.900	2934.000	729.500	2965.000	731.500	3000.000	732.800	3030.000
GR	733.000	3044.000	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.

DD input 01/21/11 ✓
422.52

X1	80.023	50.000	2234.000	2394.000	2280.000	1654.000	1106.000	-0.	-0.	-0.
GR	734.000	2000.000	732.400	2009.000	727.500	2025.000	727.500	2027.000	727.900	2040.000
GR	726.900	2050.000	726.900	2068.000	726.400	2086.000	726.600	2112.000	726.100	2131.000
GR	725.800	2150.000	725.300	2166.000	725.700	2182.000	724.600	2191.000	725.500	2216.000
GR	727.000	2223.000	725.100	2234.000	721.500	2241.000	720.100	2246.000	718.500	2251.000
GR	715.800	2261.000	714.900	2281.000	714.600	2301.000	714.300	2321.000	716.700	2341.000
GR	719.100	2361.000	720.400	2376.000	720.900	2381.000	721.500	2388.000	722.700	2392.000
GR	724.900	2394.000	724.400	2441.000	724.600	2459.000	724.200	2483.000	724.200	2509.000
GR	723.600	2533.000	723.000	2556.000	723.900	2590.000	724.400	2616.000	725.000	2657.000
GR	725.800	2693.000	726.400	2739.000	727.200	2761.000	728.000	2791.000	729.100	2822.000
GR	730.100	2851.000	731.000	2867.000	732.400	2882.000	733.700	2898.000	734.000	2902.000

DE input 01/21/11 ✓
Bolz?
424.528

					RL LOB	RL ROB	RL CH			
X1	80.352	68.000	2654.000	2944.000	1746.000	1666.000	1694.000	-0.	-0.	-0.
GR	734.000	2000.000	733.100	2018.000	732.100	2041.000	731.400	2056.000	730.400	2077.000
GR	730.100	2099.000	728.500	2122.000	727.300	2148.000	727.000	2182.000	726.800	2209.000
GR	726.800	2227.000	726.200	2243.000	726.000	2247.000	726.000	2252.000	731.200	2269.000
GR	731.200	2273.000	731.200	2278.000	725.700	2292.000	725.500	2304.000	726.500	2321.000
GR	727.100	2341.000	727.600	2353.000	731.200	2363.000	727.900	2370.000	727.700	2398.000
GR	727.600	2417.000	727.400	2435.000	726.800	2455.000	726.500	2472.000	726.500	2486.000
GR	726.600	2496.000	726.500	2505.000	724.700	2513.000	726.300	2525.000	726.300	2547.000

[redacted]

see next ps.

MISSING LINE AVAILABLE IN [illegible] TEXT [illegible] INPUT [illegible] 1424.5 to)

GR	729.600	2568.000	727.300	2590.000	727.300	2590.000	724.700	2616.000	724.800	2654.000
GR	721.500	2664.000	720.500	2669.000	719.300	2674.000	718.800	2684.000	717.800	2704.000
GR	716.700	2724.000	716.600	2744.000	717.500	2764.000	718.100	2784.000	718.000	2804.000
GR	717.900	2824.000	718.000	2844.000	718.100	2864.000	718.400	2884.000	718.900	2904.000
GR	720.200	2924.000	720.800	2929.000	721.500	2934.000	722.700	2939.000	724.900	2944.000
GR	725.700	2964.000	726.300	2975.000	727.100	2995.000	728.100	3012.000	729.200	3030.000
GR	730.300	3046.000	731.400	3055.000	734.000	3066.000	-0.	-0.	-0.	-0.
X1	80.721	53.000	2620.000	2829.000	1960.000	1946.000	1934.000	-0.	-0.	-0.
GR	734.000	2000.000	733.600	2021.000	733.600	2056.000	733.400	2099.000	733.100	2151.000
GR	733.100	2190.000	732.600	2230.000	732.000	2253.000	731.800	2274.000	731.200	2298.000
GR	730.100	2328.000	729.500	2349.000	728.400	2371.000	727.300	2410.000	727.100	2441.000
GR	727.100	2479.000	727.100	2505.000	726.000	2527.000	725.200	2554.000	725.500	2587.000
GR	724.700	2620.000	723.800	2623.000	721.600	2637.000	721.000	2642.000	720.500	2647.000
GR	719.800	2657.000	718.200	2677.000	717.000	2697.000	716.800	2717.000	717.200	2757.000
GR	718.600	2757.000	719.200	2777.000	719.800	2797.000	720.600	2817.000	721.600	2824.000
GR	722.000	2827.000	723.000	2829.000	724.400	2837.000	724.900	2846.000	724.600	2867.000
GR	723.500	2879.000	723.800	2894.000	728.400	2907.000	729.200	2925.000	728.700	2953.000
GR	728.700	2985.000	729.200	3018.000	729.000	3043.000	729.500	3077.000	730.300	3094.000
GR	731.200	3109.000	732.600	3120.000	734.000	3130.000	-0.	-0.	-0.	-0.
					RL LOB	RL LOB	RL CH			
X1	81.156	67.000	2720.000	2883.000	2094.000	2134.000	2294.000	-0.	-0.	-0.
GR	734.000	2000.000	733.400	2012.000	732.900	2037.000	732.500	2076.000	732.100	2110.000
GR	732.100	2147.000	731.500	2183.000	731.500	2218.000	731.200	2244.000	731.200	2247.000
GR	732.100	2259.000	732.100	2265.000	731.400	2280.000	731.500	2300.000	731.200	2331.000
GR	731.200	2347.000	731.200	2371.000	731.000	2391.000	731.700	2405.000	731.700	2429.000
GR	731.000	2450.000	729.800	2487.000	729.500	2508.000	729.500	2527.000	729.600	2548.000
GR	729.900	2553.000	729.900	2563.000	729.900	2573.000	729.600	2582.000	729.600	2602.000
GR	729.200	2626.000	728.800	2651.000	729.000	2680.000	726.900	2720.000	724.100	2743.000
GR	722.000	2750.000	721.300	2755.000	720.600	2760.000	719.500	2770.000	717.900	2790.000
GR	717.200	2810.000	717.200	2830.000	718.800	2850.000	718.800	2860.000	720.500	2865.000
GR	722.000	2872.000	726.200	2883.000	726.600	2920.000	726.600	2942.000	727.000	2976.000
GR	727.400	3003.000	727.400	3045.000	727.600	3083.000	727.300	3137.000	727.300	3176.000
GR	727.100	3203.000	727.100	3239.000	727.400	3272.000	727.300	3307.000	727.300	3334.000
GR	727.700	3365.000	728.400	3390.000	728.700	3402.000	729.600	3423.000	731.200	3443.000
GR	733.600	3461.000	734.000	3466.000	-0.	-0.	-0.	-0.	-0.	-0.
EJ	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.	-0.

input 01/21/11

426.210

DF

input 01/21/11

428.500

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VOL	AREA	.01K
78.151	=0.	0.	0.	714.70	5775.00	722.94	0.	723.32	105.21	4.63	1183.17	.563.02
78.151	=0.	0.	0.	714.70	8345.00	723.46	0.	724.01	123.24	5.88	1427.18	751.72
78.151	=0.	0.	0.	714.70	10095.00	723.80	0.	724.45	128.51	6.54	1593.40	890.50
78.151	=0.	0.	0.	714.70	12525.00	724.22	0.	725.00	134.96	7.34	1838.46	1078.13
78.172	110.00	0.	0.	716.60	5775.00	723.51	0.	723.54	2.93	1.52	3802.25	.3371.96
78.172	110.00	0.	0.	716.60	8345.00	724.24	0.	724.30	3.95	1.92	4373.08	4200.65
78.172	110.00	0.	0.	716.60	10095.00	724.71	0.	724.78	4.47	2.15	4748.97	4774.18
78.172	110.00	0.	0.	716.60	12525.00	725.30	0.	725.39	5.11	2.43	5238.96	5541.38
78.412	1186.00	0.	0.	711.80	5775.00	723.86	0.	723.91	3.22	1.73	3371.56	3217.21
78.412	1186.00	0.	0.	711.80	8345.00	724.72	0.	724.79	4.27	2.17	3954.44	4038.15
78.412	1186.00	0.	0.	711.80	10095.00	725.25	0.	725.34	4.83	2.42	4336.27	4591.55
78.412	1186.00	0.	0.	711.80	12525.00	725.92	0.	726.03	5.52	2.74	4839.29	5333.34
79.137	4160.00	0.	0.	714.30	5775.00	725.15	0.	725.22	3.04	2.13	3031.77	.3312.78
79.137	4160.00	0.	0.	714.30	8345.00	726.37	0.	726.47	3.79	2.60	3903.71	4286.26
79.137	4160.00	0.	0.	714.30	10095.00	727.09	0.	727.21	4.16	2.86	4539.26	4947.60
79.137	4160.00	0.	0.	714.30	12525.00	727.97	0.	728.11	4.55	3.16	5492.39	5869.09
79.611	2440.00	0.	0.	715.60	5775.00	726.16	0.	726.29	6.40	3.08	2660.01	2282.40
79.611	2440.00	0.	0.	715.60	8345.00	727.55	0.	727.71	6.73	3.49	3698.57	3216.64
79.611	2440.00	0.	0.	715.60	10095.00	728.35	0.	728.52	6.90	3.73	4326.79	3842.58
79.611	2440.00	0.	0.	715.60	12525.00	729.32	0.	729.51	7.16	4.03	5110.95	4682.21
80.023	1106.00	0.	0.	714.30	5775.00	726.91	0.	727.07	6.46	3.36	2503.40	2271.42
80.023	1106.00	0.	0.	714.30	8345.00	728.38	0.	728.57	6.87	3.81	3598.46	3183.91
80.023	1106.00	0.	0.	714.30	10095.00	729.23	0.	729.43	7.04	4.05	4267.24	3805.44
80.023	1106.00	0.	0.	714.30	12525.00	730.25	0.	730.46	7.25	4.34	5107.27	4650.79
TROP BRIDGE												
80.352	1694.00	0.	0.	716.60	5775.00	727.69	0.	727.75	2.61	2.10	3273.70	.3573.26
80.352	1694.00	0.	0.	716.60	8345.00	729.23	0.	729.32	2.89	2.45	4592.88	4906.84
80.352	1694.00	0.	0.	716.60	10095.00	730.11	0.	730.21	3.04	2.64	5387.07	5793.37
80.352	1694.00	0.	0.	716.60	12525.00	731.17	0.	731.28	3.21	2.88	6405.71	6990.90
80.721	1934.00	0.	0.	716.80	5775.00	728.31	0.	728.42	4.44	2.74	2676.71	.2741.60
80.721	1934.00	0.	0.	716.80	8345.00	729.92	0.	730.06	4.81	3.18	3724.29	.3804.37
80.721	1934.00	0.	0.	716.80	10095.00	730.82	0.	730.98	4.98	3.41	4424.86	4524.97
80.721	1934.00	0.	0.	716.80	12525.00	731.92	0.	732.09	5.17	3.68	5323.22	5510.56

SECNO	XLCH	ELTRD	ELLC	ELMIN	Q	CWSEL	CRIWS	EG	10K*S	VOL	AREA	.01K
81.156	2294.00	0.	0.	717.20	5775.00	729.49	0.	729.64	6.34	3.28	2774.40	2293.23
81.156	2294.00	0.	0.	717.20	8345.00	731.11	0.	731.26	5.87	3.52	4312.76	.3443.41
81.156	2294.00	0.	0.	717.20	10095.00	732.02	0.	732.17	5.64	3.63	5382.93	4252.27
81.156	2294.00	0.	0.	717.20	12525.00	733.13	0.	733.27	5.29	3.74	6915.81	.5445.41

NGVD29

TEST RUN 10 YEAR FREQL

SUMMARY PRINTOUT TABLE 150

SECNO	Q	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
78.151	5775.00	722.94	0.	0.	0.	458.01	-0.
78.151	8345.00	723.46	.52	0.	0.	482.65	-0.
78.151	10095.00	723.80	.34	0.	0.	496.02	-0.
78.151	12925.00	724.22	.42	0.	0.	627.58	-0.
78.172	5775.00	723.51	0.	.57	0.	736.89	110.00
78.172	8345.00	724.24	.74	.78	0.	792.50	110.00
78.172	10095.00	724.71	.47	.91	0.	812.54	110.00
78.172	12925.00	725.30	.59	1.08	0.	866.79	110.00
78.412	5775.00	723.86	0.	.36	0.	650.36	1186.00
78.412	8345.00	724.72	.86	.48	0.	711.15	1186.00
78.412	10095.00	725.25	.53	.54	0.	728.99	1186.00
78.412	12925.00	725.92	.67	.62	0.	813.67	1186.00
79.137	5775.00	725.15	0.	1.29	0.	633.55	4160.00
79.137	8345.00	726.37	1.22	1.65	0.	806.83	4160.00
79.137	10095.00	727.09	.72	1.84	0.	999.62	4160.00
79.137	12925.00	727.97	.88	2.05	0.	1143.73	4160.00
79.611	5775.00	726.16	0.	1.01	0.	714.76	2440.00
79.611	8345.00	727.55	1.39	1.18	0.	772.47	2440.00
79.611	10095.00	728.35	.80	1.26	0.	796.46	2440.00
79.611	12925.00	729.32	.97	1.35	0.	836.48	2440.00
80.023	5775.00	726.91	0.	.75	0.	702.17	1106.00
80.023	8345.00	728.38	1.48	.83	0.	779.74	1106.00
80.023	10095.00	729.23	.84	.88	0.	806.36	1106.00
80.023	12925.00	730.25	1.02	.93	0.	837.63	1106.00
80.352	5775.00	727.69	0.	.78	0.	788.92	1694.00
80.352	8345.00	729.23	1.55	.85	0.	888.97	1694.00
80.352	10095.00	730.11	.88	.88	0.	924.29	1694.00
80.352	12925.00	731.17	1.06	.92	0.	983.02	1694.00
80.721	5775.00	728.31	0.	.63	0.	532.74	1934.00
80.721	8345.00	729.92	1.60	.69	0.	751.58	1934.00
80.721	10095.00	730.82	.91	.71	0.	794.49	1934.00
80.721	12925.00	731.92	1.10	.75	0.	853.24	1934.00
81.156	5775.00	729.49	0.	1.18	0.	812.07	2294.00
81.156	8345.00	731.11	1.62	1.19	0.	1008.73	2294.00
81.156	10095.00	732.02	.91	1.20	0.	1288.40	2294.00
81.156	12925.00	733.13	1.11	1.21	0.	1431.86	2294.00

SUMMARY OF ERRORS

****
HEC2 RELEASE DATED NOV 76 UPDATED JULY 1979
ERROR OCCR = 01,02,03
MODIFICATION = 50,51,52,53
****

NOTE- ASTERISK (*) AT LEFT OF CROSS-SECTION NUMBER INDICATES MESSAGE IN SUMMARY OF ERRORS LIST

TEST RUN 10 YEAR FREQU

SUMMARY PRINTOUT TABLE 110

SECNO	CWSEL	DIFKWS	EG	TOPWID	QLOB	QCH	QROB	PERENC	STENCL	STCHL	STCHR	STENCR
78,151	723,80	0,00	724,45	496,02	3180,22	6830,79	83,98	0,00	0,00	2381,00	2766,00	0,00
78,151	723,90	,10	724,57	436,24	2856,02	7238,98	,00	,05	2219,10	2381,00	2766,00	2863,37
78,172	724,71	0,00	724,78	812,54	0,00	10079,03	15,97	0,00	0,00	2171,00	2917,00	0,00
78,172	724,83	,12	724,90	743,13	0,00	10095,00	0,00	,00	2171,00	2171,00	2917,00	2917,00
78,412	725,25	0,00	725,34	728,99	0,00	10000,65	94,35	0,00	0,00	2022,00	2652,00	0,00
78,412	725,35	,10	725,44	575,27	0,00	10095,00	0,00	,01	2022,00	2022,00	2652,00	2652,00
79,137	727,09	0,00	727,21	999,62	365,05	9336,55	393,40	0,00	0,00	2684,00	3000,00	0,00
79,137	727,18	,08	727,30	557,87	289,37	9487,88	317,75	,02	2571,14	2684,00	3000,00	3129,01
79,611	728,35	0,00	728,52	796,46	889,46	7893,06	1312,48	0,00	0,00	2386,00	2587,00	0,00
79,611	728,44	,09	728,62	649,88	817,11	8021,69	1256,21	,02	2195,11	2386,00	2587,00	8845,00
80,023	729,23	0,00	729,43	806,36	542,18	7684,12	1868,70	0,00	0,00	2234,00	2394,00	0,00
80,023	729,31	,09	729,52	642,89	465,56	7797,65	1831,79	,02	2087,99	2234,00	2394,00	2730,89
80,352	730,11	0,00	730,21	924,29	1051,28	8872,73	170,99	0,00	0,00	2654,00	2944,00	0,00
80,352	730,20	,09	730,30	767,76	1005,95	9003,33	85,72	,02	2182,46	2654,00	2944,00	2969,91
80,721	730,82	0,00	730,98	794,49	995,64	8379,39	719,98	0,00	0,00	2620,00	2829,00	0,00
80,721	730,92	,09	731,07	581,75	938,40	8501,59	655,01	,02	2400,60	2620,00	2829,00	2982,35
81,156	732,02	0,00	732,17	1288,40	556,03	7008,85	2530,12	0,00	0,00	2720,00	2883,00	0,00
81,156	732,12	,10	732,27	878,49	478,03	7113,60	2503,37	,02	2507,24	2720,00	2883,00	3385,73

TEST RUN 10 YEAR FREQL

SUMMARY PRINTOUT TABLE 150

SECNO	XLOB	ELTRD	ELLC	ELMIN	Q	CWSEL	CRITWS	EG	10K*S	VOL	AREA	.01K
78.151	0.00	0.00	0.00	714.70	10095.00	723.80	0.00	724.45	128.51	6.54	1593.40	890.50
78.151	0.00	0.00	0.00	714.70	10095.00	723.90	0.00	724.57	128.21	6.69	1544.04	891.56
78.172	110.00	0.00	0.00	716.60	10095.00	724.71	0.00	724.78	4.47	2.15	4748.97	4774.18
78.172	110.00	0.00	0.00	716.60	10095.00	724.83	0.00	724.90	4.22	2.11	4786.86	4955.46
78.412	1186.00	0.00	0.00	711.80	10095.00	725.25	0.00	725.34	4.83	2.42	4336.27	4591.55
78.412	1186.00	0.00	0.00	711.80	10095.00	725.35	0.00	725.44	4.74	2.41	4180.64	4636.16
79.137	4160.00	0.00	0.00	714.30	10095.00	727.09	0.00	727.21	4.16	2.86	4539.26	4947.60
79.137	4160.00	0.00	0.00	714.30	10095.00	727.18	0.00	727.30	4.19	2.89	4138.92	4934.64
79.611	2440.00	0.00	0.00	715.60	10095.00	728.35	0.00	728.52	6.90	3.73	4326.79	3842.58
79.611	2440.00	0.00	0.00	715.60	10095.00	728.44	0.00	728.62	6.93	3.76	4101.46	3834.63
80.023	1106.00	0.00	0.00	714.30	10095.00	729.23	0.00	729.43	7.04	4.05	4267.24	3805.44
80.023	1106.00	0.00	0.00	714.30	10095.00	729.31	0.00	729.52	7.08	4.08	4034.70	3795.04
80.352	1694.00	0.00	0.00	716.60	10095.00	730.11	0.00	730.21	3.04	2.64	5387.07	5793.37
80.352	1694.00	0.00	0.00	716.60	10095.00	730.20	0.00	730.30	3.04	2.66	5117.05	5786.04
80.721	1934.00	0.00	0.00	716.80	10095.00	730.82	0.00	730.98	4.98	3.41	4424.86	4524.97
80.721	1934.00	0.00	0.00	716.80	10095.00	730.92	0.00	731.07	4.99	3.43	4143.25	4519.25
81.156	2294.00	0.00	0.00	717.20	10095.00	732.02	0.00	732.17	5.64	3.63	5382.93	4292.27
81.156	2294.00	0.00	0.00	717.20	10095.00	732.12	0.00	732.27	5.64	3.66	5043.28	4249.63

TEST RUN 10 YEAR FREQ

SUMMARY PRINTOUT TABLE 150

SECNO	G	CWSEL	DIFWSP	DIFWSX	DIFKWS	TOPWID	XLCH
78.151	10095.00	723.80	0.00	0.00	0.00	496.02	0.00
78.151	10095.00	723.90	.10	0.00	.10	436.24	0.00
78.172	10095.00	724.71	0.00	.91	0.00	812.54	110.00
78.172	10095.00	724.83	.12	.93	.12	743.13	110.00
78.412	10095.00	725.25	0.00	.54	0.00	728.99	1186.00
78.412	10095.00	725.35	.10	.52	.10	575.27	1186.00
79.137	10095.00	727.09	0.00	1.84	0.00	999.62	4160.00
79.137	10095.00	727.18	.08	1.83	.08	557.87	4160.00
79.611	10095.00	728.35	0.00	1.26	0.00	796.46	2440.00
79.611	10095.00	728.44	.09	1.26	.09	649.88	2440.00
80.023	10095.00	729.23	0.00	.88	0.00	806.36	1106.00
80.023	10095.00	729.31	.09	.87	.09	642.89	1106.00
80.352	10095.00	730.11	0.00	.88	0.00	924.29	1694.00
80.352	10095.00	730.20	.09	.89	.09	767.76	1694.00
80.721	10095.00	730.82	0.00	.71	0.00	794.49	1934.00
80.721	10095.00	730.92	.09	.71	.09	581.75	1934.00
81.156	10095.00	732.02	0.00	1.20	0.00	1288.40	2294.00
81.156	10095.00	732.12	.10	1.20	.10	878.49	2294.00

SUMMARY OF ERRORS

FLOODWAY DATA, TEST RUN 10 YEAR FREQU
PROFILE NO. 2

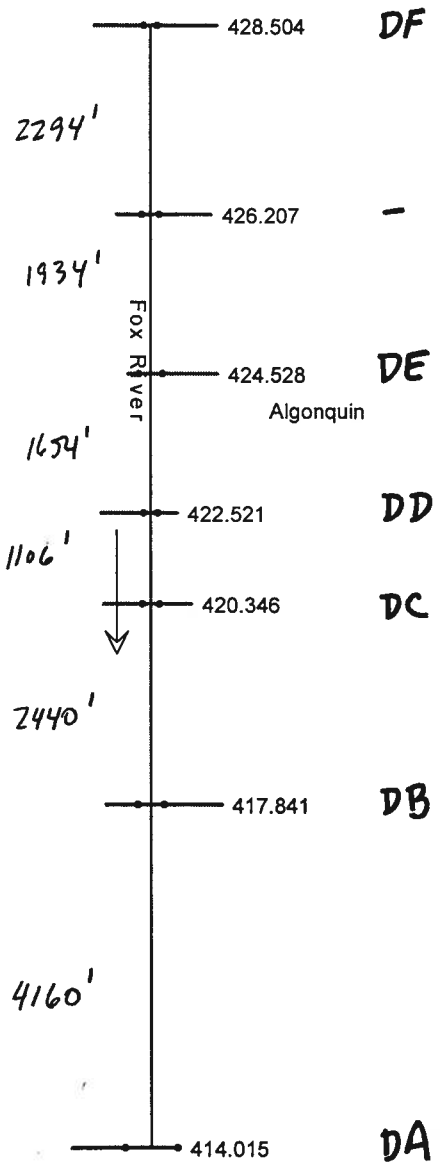
STATION	FLOODWAY WIDTH (FT)	FLOODWAY SECTION AREA	FLOODWAY MEAN VELOCITY	WATER SURFACE ELEVATION WITH FLOODWAY	WITHOUT FLOODWAY	DIFFERENCE
78,151	644.	1544.	6.5	723.9	723.8	.1
78,172	743.	4787.	2.1	724.8	724.7	.1
78,4120	575.	4181.	2.4	725.4	725.3	.1
79,137E	558.	4139.	2.4	727.2	727.1	.1
79,611E	650.	4101.	2.5	728.5	728.4	.1
80,023G	643.	4035.	2.5	729.3	729.2	.1
80,352A	787.	5117.	2.0	730.2	730.1	.1
80,721	582.	4143.	2.4	730.9	730.8	.1
81.156B	878.	5043.	2.0	732.1	732.0	.1

DA

DF

BASELINE HEC-RAS MODEL

Baseline
FIS Regulatory Model
from HEC-2 (NGVD29)



one of the XS's are Geo-Referenced (- Geo-Ref user entered XS - Geo-Ref interpolated XS - Non Geo-Ref user entered XS - Non Geo-Ref interpolated XS)

FIS Regulatory Model from HEC-2 (NGVD2

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX   XXXX        XXXX       XX      XXXX
X     X  X       X    X      X   X     X  X    X
X     X  X       X           X   X    X    X   X
XXXXXXX  XXXX    X      XXX  XXXX     XXXXXX    XXXX
X     X  X       X           X  X     X    X       X
X     X  X       X    X      X   X    X    X       X
X     X  XXXXXX   XXXX       X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Longmeadow Parkway Fox River
Project File : LongmeadowParkway.prj
Run Date and Time: 1/26/2011 3:00:59 PM

Project in English units

Project Description:
Conversion of HEC-2 for analysis of proposed Longmeadow Parkway bridge over Fox River. CBBEL 2011 PROPOSED BOLZ ROAD HYDRAULIC MODEL
REGULATORY MODEL

WAT10(FRE1003)
FOX RIVER - EAST DUNDEE
1 YR FLOOD

PLAN DATA

Plan Title: FIS Regulatory HEC-2
Plan File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.p02

Geometry Title: FIS Regulatory Geometry
Geometry File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.g02

Flow Title : FIS Regulatory Flows and Starting WSELs
Flow File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.f02

Plan Description:
HEC-2 model circa 1979, hardcopy received from ISWS Feb. 2004. Truncated to include all sections from DA (78.151) to DF (81.156).

Plan Summary Information:

Number of:	Cross Sections	= 7	Multiple Openings	=	0
	Culverts	= 0	Inline Structures	=	0
	Bridges	= 0	Lateral Structures	=	0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: Between every coordinate point (HEC2 Style)
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 422.521

INPUT
Description: 2002 FIS DD, 1979 XS 80.023
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	734	2009	732.4	2025	727.5	2027	727.5	2040	727.9
2050	726.9	2068	726.9	2086	726.4	2112	726.6	2131	726.1
2150	725.8	2166	725.3	2182	725.7	2191	724.6	2216	725.5
2223	727	2234	725.1	2241	721.5	2246	720.1	2251	718.5
2261	715.8	2281	714.9	2301	714.6	2321	714.3	2341	716.7
2361	719.1	2376	720.4	2381	720.9	2388	721.5	2392	722.7
2394	724.9	2441	724.4	2459	724.6	2483	724.2	2509	724.4
2533	723.6	2556	723	2590	723.9	2616	724.4	2657	725
2693	725.8	2739	726.4	2761	727.2	2791	728	2822	729.1
2851	730.1	2867	731	2882	732.4	2898	733.7	2902	734

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2234	.05	2394	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2234	2394	2280	1106	1654	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 420.346

INPUT
Description: 2002 FIS DC, 1979 XS 79.611
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	733	2007	729	2021	729.2	2043	732	2068	732.8
2085	733.1	2111	732.8	2129	731.2	2143	728.9	2161	725.9
2176	724.9	2192	725.2	2213	725.2	2236	724.6	2263	724.4
2295	724	2320	724.1	2352	723.8	2386	723.3	2392	721.4
2397	720.5	2402	720	2412	719.1	2432	717.4	2452	716.1
2472	715.6	2492	715.7	2512	716.6	2532	716.9	2552	718.4
2562	719.2	2572	720.5	2577	720.7	2582	721.4	2585	722.2
2587	724	2622	723.7	2633	723.7	2665	723.5	2683	723.2
2708	723.2	2736	723.5	2776	724.1	2808	724.8	2850	725.7
2892	726.5	2934	727.9	2965	729.5	3000	731.5	3030	732.8
3044	733								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2386	.0506	2587	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2386	2587	2454	2440	2400	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 417.841

INPUT
Description: 2002 FIS DB, 1979 XS 79.137
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	733	2014	731.7	2041	729.5	2079	728.7	2109	727.9
2153	727.5	2189	726.2	2216	726.5	2240	724.9	2265	726.7
2282	730.1	2286	730.3	2293	730	2302	728.9	2311	725.1
2342	727.5	2367	726.7	2397	727	2423	727	2434	726.8
2445	727.1	2467	727.3	2492	727	2525	726	2556	724.9
2593	724.6	2635	723.3	2684	722.4	2685	721.4	2685	721.1
2690	720.8	2695	720.4	2705	719.7	2725	718.4	2745	716.4
2765	715.2	2785	714.4	2805	714.3	2825	714.6	2845	715.4
2865	715.8	2885	716.2	2905	716.4	2925	716.2	2945	716.1
2965	718.4	2985	720.4	2992	720.7	2999	721.4	3000	722.7
3030	723.4	3047	723.3	3072	723.7	3102	724.4	3129	724.4
3160	725	3188	725.3	3238	726.4	3274	727.5	3293	728.5
3325	729.6	3360	731.8	3375	733				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2684	.05	3000	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2684	3000	3520	4160	3746	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 414.015

INPUT
Description: 2002 FIS DA, 1979 XS 78.412
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	736.8	2022	737.3	2048	730.7	2091	722.7	2092	721.4
2097	720.8	2102	720.3	2112	718.4	2132	715	2152	715
2172	714.8	2192	715.1	2212	715.7	2232	716.8	2252	717.8
2272	718.4	2292	719.3	2312	720.1	2332	720.4	2352	720.3
2372	720.3	2392	720.3	2412	720.3	2432	720.4	2452	720.2
2472	717.7	2492	714.3	2512	711.8	2532	712.7	2552	715
2572	718.4	2592	719.6	2612	720.1	2622	720.6	2627	720.8
2632	721.4	2652	723.3	2682	723.2	2708	723.4	2727	723.7
2751	724.2	2780	724.7	2784	724.2	2795	725	2821	725.6
2848	725.8	2886	725.9	2923	726.6	2952	726.9	2990	727.8
3017	728.3	3048	728.6	3060	729.9	3064	729.9	3069	726.9
3086	726.9	3095	729.1	3107	729.4	3130	729.2	3151	730.7
3178	731.1	3204	731	3229	731.6	3255	732.2	3266	732.4
3283	733								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2022	.0501	2652	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2022	2652	0	0	0	.1 .3

SUMMARY OF MANNING'S N VALUES

River:Fox River

Reach	River Sta.	n1	n2	n3
Algonquin	428.504	.1	.05	.1
Algonquin	426.207	.1	.05	.1
Algonquin	424.528	.102	.0507	.102
Algonquin	422.521	.1	.05	.1
Algonquin	420.346	.1	.0506	.1
Algonquin	417.841	.1	.05	.1
Algonquin	414.015	.1	.0501	.1

SUMMARY OF REACH LENGTHS

River: Fox River

Reach	River Sta.	Left	Channel	Right
Algonquin	428.504	2094	2294	2134
Algonquin	426.207	1960	1934	1946
Algonquin	424.528	1746	1694	1666
Algonquin	422.521	2280	1106	1654
Algonquin	420.346	2454	2440	2400
Algonquin	417.841	3520	4160	3746
Algonquin	414.015	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Fox River

Reach	River Sta.	Contr.	Expan.
Algonquin	428.504	.1	.3
Algonquin	426.207	.1	.3
Algonquin	424.528	.1	.3
Algonquin	422.521	.1	.3
Algonquin	420.346	.1	.3
Algonquin	417.841	.1	.3
Algonquin	414.015	.1	.3

Errors Warnings and Notes for Plan : FIS HEC-2

Location:	River: Fox River Reach: Algonquin RS: 428.504 Profile: 10 yr
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 428.504 Profile: 50 yr
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 428.504 Profile: 100 yr
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 428.504 Profile: 500 yr
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 424.528 Profile: 10 yr
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 424.528 Profile: 50 yr
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 424.528 Profile: 100 yr
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 424.528 Profile: 500 yr
Warning:	Divided flow computed for this cross-section.
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 422.521 Profile: 10 yr
Warning:	Divided flow computed for this cross-section.
Location:	River: Fox River Reach: Algonquin RS: 420.346 Profile: 10 yr
Warning:	The conveyance ratio (upstream conveyance divided by downstream conveyance) is less than 0.7
	or greater than 1.4. This may indicate the need for additional cross sections.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 420.346 Profile: 50 yr
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 420.346 Profile: 100 yr
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 420.346 Profile: 500 yr
Warning:	Divided flow computed for this cross-section.
Warning:	The energy loss was greater than 1.0 ft (0.3 m). between the current and previous cross section.
	This may indicate the need for additional cross sections.
Location:	River: Fox River Reach: Algonquin RS: 417.841 Profile: 10 yr
Warning:	Divided flow computed for this cross-section.

HEC-RAS Plan: FIS HEC-2 River: Fox River Reach: Algonquin

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Algonquin	428.504	10 yr	5775.00	717.20	729.49		729.63	0.000636	3.29	2769.96	811.61	0.19
Algonquin	428.504	50 yr	8345.00	717.20	731.11		731.26	0.000588	3.52	4312.07	1008.62	0.19
Algonquin	428.504	100 yr	10095.00	717.20	732.02		732.17	0.000563	3.63	5387.33	1288.75	0.19
Algonquin	428.504	500 yr	12525.00	717.20	733.13		733.27	0.000530	3.74	6911.69	1431.69	0.18
Algonquin	426.207	10 yr	5775.00	716.80	728.31		728.42	0.000444	2.74	2676.57	532.73	0.16
Algonquin	426.207	50 yr	8345.00	716.80	729.92		730.06	0.000482	3.18	3720.93	751.57	0.17
Algonquin	426.207	100 yr	10095.00	716.80	730.82		730.98	0.000498	3.41	4421.26	794.47	0.18
Algonquin	426.207	500 yr	12525.00	716.80	731.92		732.09	0.000517	3.68	5321.28	853.41	0.18
Algonquin	424.528	10 yr	5775.00	716.60	727.69		727.75	0.000269	2.10	3270.41	788.32	0.12
Algonquin	424.528	50 yr	8345.00	716.60	729.23		729.32	0.000298	2.45	4590.02	888.90	0.13
Algonquin	424.528	100 yr	10095.00	716.60	730.11		730.20	0.000313	2.64	5383.83	924.08	0.14
Algonquin	424.528	500 yr	12525.00	716.60	731.17		731.28	0.000331	2.88	6404.75	983.04	0.14
Algonquin	422.521	10 yr	5775.00	714.30	726.91		727.07	0.000648	3.36	2498.92	702.21	0.19
Algonquin	422.521	50 yr	8345.00	714.30	728.39		728.57	0.000688	3.81	3595.58	779.82	0.20
Algonquin	422.521	100 yr	10095.00	714.30	729.23		729.43	0.000704	4.05	4264.41	806.45	0.21
Algonquin	422.521	500 yr	12525.00	714.30	730.26		730.47	0.000725	4.34	5107.75	837.77	0.21
Algonquin	420.346	10 yr	5775.00	715.60	726.16		726.29	0.000655	3.07	2657.55	714.55	0.19
Algonquin	420.346	50 yr	8345.00	715.60	727.55		727.71	0.000687	3.49	3698.36	772.46	0.20
Algonquin	420.346	100 yr	10095.00	715.60	728.35		728.52	0.000704	3.72	4326.32	796.45	0.20
Algonquin	420.346	500 yr	12525.00	715.60	729.32		729.51	0.000727	4.01	5114.60	836.64	0.21
Algonquin	417.841	10 yr	5775.00	714.30	725.15		725.22	0.000304	2.13	3030.74	633.28	0.13
Algonquin	417.841	50 yr	8345.00	714.30	726.37		726.47	0.000379	2.60	3903.71	806.83	0.15
Algonquin	417.841	100 yr	10095.00	714.30	727.09		727.21	0.000416	2.86	4539.05	999.57	0.16
Algonquin	417.841	500 yr	12525.00	714.30	727.97		728.11	0.000455	3.16	5495.27	1143.89	0.17
Algonquin	414.015	10 yr	5775.00	711.80	723.86	717.77	723.91	0.000325	1.73	3366.13	649.91	0.13
Algonquin	414.015	50 yr	8345.00	711.80	724.72	718.64	724.79	0.000430	2.17	3949.06	711.01	0.15
Algonquin	414.015	100 yr	10095.00	711.80	725.25	719.13	725.34	0.000488	2.43	4329.53	728.54	0.16
Algonquin	414.015	500 yr	12525.00	711.80	725.92	719.73	726.03	0.000555	2.74	4834.96	813.36	0.17

FLOW DATA

Flow Title: FIS Regulatory Flows and Starting WSELs
Flow File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.f02

Flow Data (cfs)

River	Reach	RS	10 yr	50 yr	100 yr	500 yr
Fox River	Algonquin	428.504	5775	8345	10095	12525

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Fox River	Algonquin	10 yr		Known WS = 723.86
Fox River	Algonquin	50 yr		Known WS = 724.72
Fox River	Algonquin	100 yr		Known WS = 725.25
Fox River	Algonquin	500 yr		Known WS = 725.92

GEOMETRY DATA

Geometry Title: FIS Regulatory Geometry
Geometry File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.g02

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 428.504

INPUT
Description: 2002 FIS DF, 1979 XS 81.156.
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	734	2012	733.4	2037	732.9	2076	732.5	2110	732.1
2147	732.1	2183	731.5	2218	731.5	2244	731.2	2247	731.2
2259	732.1	2265	732.1	2280	731.4	2300	731.5	2331	731.2
2347	731.2	2371	731.2	2391	731	2405	731.7	2429	731.7
2450	731	2487	729.8	2508	729.5	2527	729.5	2548	729.6
2553	729.9	2563	729.9	2573	729.9	2582	729.6	2602	729.6
2626	729.2	2651	728.8	2680	729	2720	726.9	2743	724.1
2750	722	2755	721.3	2760	720.6	2770	719.5	2790	717.9
2810	717.2	2830	717.2	2850	718.8	2860	718.8	2865	720.5
2872	722	2883	726.2	2920	726.6	2942	726.6	2976	727
3003	727.4	3045	727.4	3083	727.6	3137	727.3	3176	727.3
3203	727.1	3239	727.1	3272	727.4	3307	727.3	3334	727.3
3365	727.7	3390	728.4	3402	728.7	3423	729.6	3443	731.2
3461	733.6	3466	734						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2720	.05	2883	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2720	2883	2094	2294	2134	.1	.3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 426.207

INPUT
Description: 1979 XS 80.721
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	734	2021	733.6	2056	733.6	2099	733.4	2151	733.1
2190	733.1	2230	732.6	2253	732	2274	731.8	2298	731.2
2328	730.1	2349	729.5	2371	728.4	2410	727.3	2441	727.1
2479	727.1	2505	727.1	2527	726	2554	725.2	2587	725.5
2620	724.7	2623	723.8	2637	721.6	2642	721	2647	720.5
2657	719.8	2677	718.2	2697	717	2717	716.8	2757	717.2
2757	718.6	2777	719.2	2797	719.8	2817	720.6	2824	721.6
2827	722	2829	723	2837	724.4	2846	724.9	2867	724.6
2879	723.5	2894	723.8	2907	728.4	2925	729.2	2953	728.7
2985	728.8	3018	729.2	3043	729	3077	729.5	3094	730.3
3109	731.2	3120	732.6	3130	734				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2620	.05	2829	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2620	2829	1960	1934	1946	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 424.528

INPUT
Description: 2002 FIS DE, 1979 XS 80.352
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	734	2018	733.1	2041	732.1	2056	731.4	2077	730.4
2099	730.1	2122	728.5	2148	727.3	2182	727	2209	726.8
2227	726.8	2243	726.2	2247	726	2252	726	2269	731.2
2273	731.2	2278	731.2	2292	725.7	2304	725.5	2321	726.5
2341	727.1	2353	727.6	2363	731.2	2370	727.9	2398	727.7
2417	727.6	2435	727.4	2455	726.8	2472	726.5	2486	726.5
2496	726.6	2505	726.5	2513	724.7	2525	726.3	2547	726.3
2568	726.6	2590	727.3	2591	727.3	2612	724.7	2654	724.6
2664	721.5	2669	720.5	2674	719.3	2684	718.8	2704	717.8
2724	716.7	2744	716.6	2764	717.5	2784	718.1	2804	718
2824	717.9	2844	718	2864	718.1	2884	718.4	2904	718.9
2924	720.2	2929	720.8	2934	721.5	2939	722.7	2944	724.9
2964	725.7	2975	726.3	2995	727.1	3012	728.1	3030	729.2
3046	730.3	3055	731.4	3066	734				

Manning's n Values num= 3

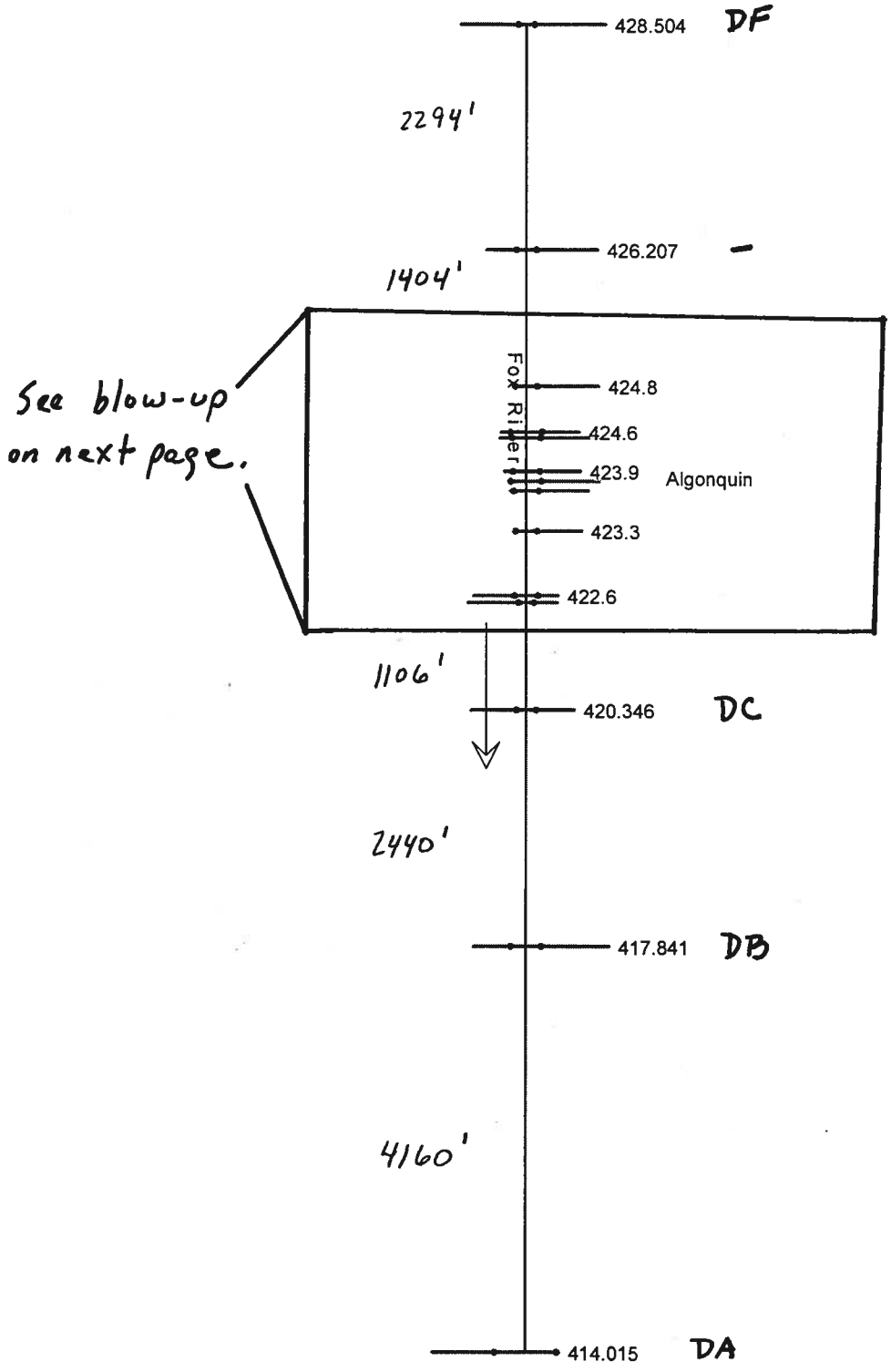
Sta	n Val	Sta	n Val	Sta	n Val
2000	.102	2654	.0507	2944	.102

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2654	2944	1746	1694	1666	.1 .3

MODIFIED EXISTING/NATURAL CONDITIONS MODEL

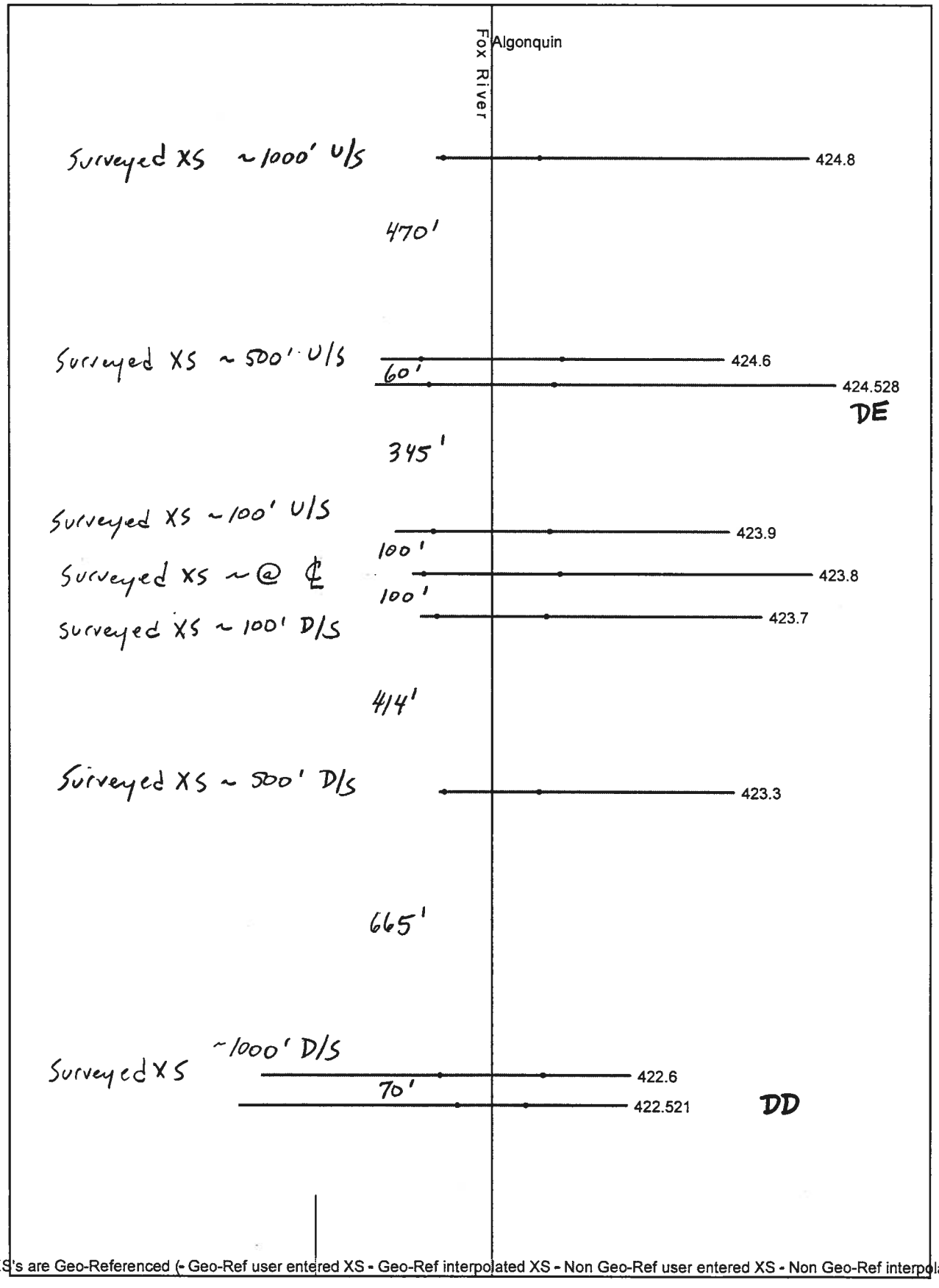
Mod. Ex. / Nat. Model

(NGVD 29)



None of the XS's are Geo-Referenced (- Geo-Ref user entered XS - Geo-Ref interpolated XS - Non Geo-Ref user entered XS - Non Geo-Ref interpolated XS)

Mod. Ex./Nat. Model



one of the XS's are Geo-Referenced (- Geo-Ref user entered XS - Geo-Ref interpolated XS - Non Geo-Ref user entered XS - Non Geo-Ref interpolated XS)

Mod. Ex./Nat. Model
(NGVD 29)

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X     X    X   X
XXXXXXX  XXXX     X       XXX  XXXX     XXXXXX    XXXX
X     X  X        X            X  X     X    X        X
X     X  X        X    X       X   X     X    X        X
X     X  XXXXXX    XXXX        X    X   X    X   XXXXX
```

PROJECT DATA
Project Title: Longmeadow Parkway Fox River
Project File : LongmeadowParkway.prj
Run Date and Time: 1/26/2011 3:00:59 PM

Project in English units

Project Description:
Conversion of HEC-2 for analysis of proposed Longmeadow Parkway bridge over Fox River. CBBEL 2011 PROPOSED BOLZ ROAD HYDRAULIC MODEL
NATURAL / EXISTING MODEL

WAT10(FRE1003)
FOX RIVER -
EAST DUNDEE
1 YR FLOOD

PLAN DATA

Plan Title: Mod Ex / Natural
Plan File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.p03

Geometry Title: Mod Ex / Nat Geometry
Geometry File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.g01

Flow Title : FIS Regulatory Flows and Starting WSELs
Flow File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.f02

Plan Description:
EEI surveyed XS inserted into HEC-2 model circa 1979, hardcopy received from ISWS Feb. 2004. Truncated to include all sections from DA (78.151) to DF (81.156).

Plan Summary Information:

Number of:	Cross Sections	= 14	Multiple Openings	=	0
	Culverts	= 0	Inline Structures	=	0
	Bridges	= 0	Lateral Structures	=	0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: Between every coordinate point (HEC2 Style)
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: FIS Regulatory Flows and Starting WSELs
Flow File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.f02

Flow Data (cfs)

River	Reach	RS	10 yr	50 yr	100 yr	500 yr
Fox River	Algonquin	428.504	5775	8345	10095	12525

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Fox River	Algonquin	10 yr		Known WS = 723.86
Fox River	Algonquin	50 yr		Known WS = 724.72
Fox River	Algonquin	100 yr		Known WS = 725.25
Fox River	Algonquin	500 yr		Known WS = 725.92

GEOMETRY DATA

Geometry Title: Mod Ex / Nat Geometry
Geometry File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.g01

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 428.504

INPUT
Description: 2002 FIS DF, 1979 XS 81.156.
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	734	2012	733.4	2037	732.9	2076	732.5	2110	732.1
2147	732.1	2183	731.5	2218	731.5	2244	731.2	2247	731.2
2259	732.1	2265	732.1	2280	731.4	2300	731.5	2331	731.2
2347	731.2	2371	731.2	2391	731	2405	731.7	2429	731.7
2450	731	2487	729.8	2508	729.5	2527	729.5	2548	729.6
2553	729.9	2563	729.9	2573	729.9	2582	729.6	2602	729.6
2626	729.2	2651	728.8	2680	729	2720	726.9	2743	724.1
2750	722	2755	721.3	2760	720.6	2770	719.5	2790	717.9
2810	717.2	2830	717.2	2850	718.8	2860	718.8	2865	720.5
2872	722	2883	726.2	2920	726.6	2942	726.6	2976	727
3003	727.4	3045	727.4	3083	727.6	3137	727.3	3176	727.3
3203	727.1	3239	727.1	3272	727.4	3307	727.3	3334	727.3
3365	727.7	3390	728.4	3402	728.7	3423	729.6	3443	731.2
3461	733.6	3466	734						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2720	.05	2883	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2720	2883	2094	2134	.1	.3

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    6997    .101    7582   .0525    7899    .101

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          7582    7899              100     100     100             .1       .3

CROSS SECTION


RIVER: Fox River
REACH: Algonquin          RS: 423.7

INPUT
Description: 2098 EEI SURVEYED SECTION 20+98.75
Station Elevation Data    num=      24
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    7000   731.8    7016   727.8    7032   724.8    7075   725.8    7087   727.8
    7196   727.8    7269   725.8    7298   724.2    7341   725.4    7352   724.7
    7382   724.2    7422   725.2    7471   724.9    7499   723.8    7504   721.3
    7535   718.9    7579   715.8    7608   714.9    7671   717.7    7689   718.3
    7737   722.3    7754   725.3    7770   726.9    7791   731.5

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    7000    .101    7499   .0525    7754    .101

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          7499    7754              426     414     410             .1       .3

CROSS SECTION


RIVER: Fox River
REACH: Algonquin          RS: 423.3

INPUT
Description: 2453 EEI SURVEYED SECTION 24+53.16
Station Elevation Data    num=      17
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    7000   730.8    7124   726.6    7191   724.7    7292   725.2    7324   724.5
    7412   725.7    7453   724.7    7464   721.2    7475   718.9    7533   716.7
    7547   715.1    7583   714.1    7634   717.3    7667   722.3    7673   726.6
    7682   730.5    7684     731

Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    7000    .101    7453    .052    7673    .101

Bank Sta: Left   Right    Lengths: Left Channel   Right     Coeff Contr.   Expan.
          7453    7673              690     665     650             .1       .3

CROSS SECTION


RIVER: Fox River
REACH: Algonquin          RS: 422.6

INPUT
Description: 3073 EEI SURVEYED SECTION 30+73.04
ISWS REGULATORY MODEL PRIOR TO
            THIS POINT
Station Elevation Data    num=      21
     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev     Sta    Elev
    6990     731    7000   729.8    7031   728.2    7134   724.7    7178   723.9
    7192   723.7    7213   717.1    7237   716.2    7276     717    7313   717.1
    7343   717.6    7374   719.4    7420   720.5    7427   721.4    7432     724
    7491   724.1    7542   723.1    7551   723.8    7684   725.8    7835   729.8
    7847     731
```

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6990	.1	7192	.051	7432	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7192	7432	75	70	68	.1	.3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 422.521

INPUT
Description: 2002 FIS DD, 1979 XS 80.023 shifted 5000' rt.
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	734	7009	732.4	7025	727.5	7027	727.5	7040	727.9
7050	726.9	7068	726.9	7086	726.4	7112	726.6	7131	726.1
7150	725.8	7166	725.3	7182	725.7	7191	724.6	7216	725.5
7223	727	7234	725.1	7241	721.5	7246	720.1	7251	718.5
7261	715.8	7281	714.9	7301	714.6	7321	714.3	7341	716.7
7361	719.1	7376	720.4	7381	720.9	7388	721.5	7392	722.7
7394	724.9	7441	724.4	7459	724.6	7483	724.2	7509	724.4
7533	723.6	7556	723	7590	723.9	7616	724.4	7657	725
7693	725.8	7739	726.4	7761	727.2	7791	728	7822	729.1
7851	730.1	7867	731	7882	732.4	7898	733.7	7902	734

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.1	7234	.05	7394	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7234	7394	2280	1106	1654	.1	.3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 420.346

INPUT
Description: 2002 FIS DC, 1979 XS 79.611
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	733	2007	729	2021	729.2	2043	732	2068	732.8
2085	733.1	2111	732.8	2129	731.2	2143	728.9	2161	725.9
2176	724.9	2192	725.2	2213	725.2	2236	724.6	2263	724.4
2295	724	2320	724.1	2352	723.8	2386	723.3	2392	721.4
2397	720.5	2402	720	2412	719.1	2432	717.4	2452	716.1
2472	715.6	2492	715.7	2512	716.6	2532	716.9	2552	718.4
2562	719.2	2572	720.5	2577	720.7	2582	721.4	2585	722.2
2587	724	2622	723.7	2633	723.7	2665	723.5	2683	723.2
2708	723.2	2736	723.5	2776	724.1	2808	724.8	2850	725.7
2892	726.5	2934	727.9	2965	729.5	3000	731.5	3030	732.8
3044	733								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2386	.0506	2587	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2386	2587	2454	2440	2400	.1	.3

HEC-RAS Plan: Mod Ex Nat River: Fox River Reach: Algonquin

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Algonquin	428.504	10 yr	5775.00	717.20	729.48		729.63	0.000638	3.29	2764.66	811.07	0.19
Algonquin	428.504	50 yr	8345.00	717.20	731.11		731.25	0.000589	3.52	4305.54	1007.57	0.19
Algonquin	428.504	100 yr	10095.00	717.20	732.02		732.17	0.000564	3.63	5383.40	1288.44	0.19
Algonquin	428.504	500 yr	12525.00	717.20	733.13		733.27	0.000529	3.74	6919.99	1432.03	0.18
Algonquin	426.207	10 yr	5775.00	716.80	728.30		728.41	0.000446	2.75	2670.30	532.28	0.16
Algonquin	426.207	50 yr	8345.00	716.80	729.91		730.05	0.000484	3.18	3712.67	750.95	0.17
Algonquin	426.207	100 yr	10095.00	716.80	730.82		730.97	0.000499	3.41	4417.33	794.25	0.18
Algonquin	426.207	500 yr	12525.00	716.80	731.93		732.10	0.000515	3.68	5329.20	854.46	0.18
Algonquin	424.8	10 yr	5775.00	715.90	727.77		727.84	0.000359	2.33	3858.08	824.55	0.14
Algonquin	424.8	50 yr	8345.00	715.90	729.35		729.43	0.000371	2.60	5176.69	837.67	0.14
Algonquin	424.8	100 yr	10095.00	715.90	730.25		730.34	0.000378	2.77	5933.84	844.60	0.14
Algonquin	424.8	500 yr	12525.00	715.90	731.35		731.45	0.000391	2.99	6864.19	853.57	0.15
Algonquin	424.6	10 yr	5775.00	714.00	727.71		727.74	0.000114	1.52	4372.44	733.44	0.08
Algonquin	424.6	50 yr	8345.00	714.00	729.27		729.32	0.000144	1.86	5547.92	762.54	0.09
Algonquin	424.6	100 yr	10095.00	714.00	730.16		730.22	0.000161	2.06	6231.29	772.67	0.10
Algonquin	424.6	500 yr	12525.00	714.00	731.25		731.32	0.000184	2.31	7074.87	785.01	0.11
Algonquin	424.528	10 yr	5775.00	716.60	727.66		727.73	0.000272	2.10	3250.66	782.36	0.12
Algonquin	424.528	50 yr	8345.00	716.60	729.22		729.31	0.000299	2.45	4580.96	888.50	0.13
Algonquin	424.528	100 yr	10095.00	716.60	730.11		730.21	0.000313	2.64	5386.25	924.34	0.14
Algonquin	424.528	500 yr	12525.00	716.60	731.19		731.30	0.000328	2.88	6425.82	983.89	0.14
Algonquin	423.9	10 yr	5775.00	715.40	727.53		727.61	0.000389	2.36	2864.94	623.18	0.14
Algonquin	423.9	50 yr	8345.00	715.40	729.07		729.18	0.000425	2.75	3940.32	725.39	0.15
Algonquin	423.9	100 yr	10095.00	715.40	729.95		730.08	0.000444	2.97	4584.19	739.47	0.16
Algonquin	423.9	500 yr	12525.00	715.40	731.02		731.16	0.000469	3.25	5384.36	756.60	0.16
Algonquin	423.8	10 yr	5775.00	715.00	727.49		727.57	0.000478	2.35	2862.84	671.11	0.15
Algonquin	423.8	50 yr	8345.00	715.00	729.03		729.14	0.000476	2.66	4026.77	775.63	0.16
Algonquin	423.8	100 yr	10095.00	715.00	729.91		730.03	0.000478	2.84	4740.65	902.38	0.16
Algonquin	423.8	500 yr	12525.00	715.00	730.99		731.11	0.000482	3.06	5718.89	920.02	0.16
Algonquin	423.7	10 yr	5775.00	714.90	727.45		727.53	0.000352	2.31	3132.77	630.79	0.13
Algonquin	423.7	50 yr	8345.00	714.90	728.99		729.09	0.000387	2.69	4266.73	768.32	0.15
Algonquin	423.7	100 yr	10095.00	714.90	729.87		729.98	0.000406	2.90	4944.42	775.84	0.15
Algonquin	423.7	500 yr	12525.00	714.90	730.94		731.07	0.000430	3.17	5776.79	784.98	0.16

HEC-RAS Plan: Mod Ex Nat River: Fox River Reach: Algonquin (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Algonquin	423.3	10 yr	5775.00	714.10	727.28		727.37	0.000383	2.53	2853.89	570.64	0.14
Algonquin	423.3	50 yr	8345.00	714.10	728.79		728.92	0.000444	3.00	3752.99	618.77	0.16
Algonquin	423.3	100 yr	10095.00	714.10	729.65		729.80	0.000478	3.27	4296.38	646.11	0.17
Algonquin	423.3	500 yr	12525.00	714.10	730.69		730.87	0.000522	3.61	4987.51	679.64	0.18
Algonquin	422.6	10 yr	5775.00	716.20	727.02		727.11	0.000407	2.49	3056.90	664.44	0.15
Algonquin	422.6	50 yr	8345.00	716.20	728.51		728.62	0.000445	2.89	4116.26	761.05	0.16
Algonquin	422.6	100 yr	10095.00	716.20	729.35		729.48	0.000466	3.11	4779.42	809.30	0.16
Algonquin	422.6	500 yr	12525.00	716.20	730.38		730.52	0.000490	3.39	5633.65	845.57	0.17
Algonquin	422.521	10 yr	5775.00	714.30	726.91		727.07	0.000648	3.36	2498.92	702.21	0.19
Algonquin	422.521	50 yr	8345.00	714.30	728.39		728.57	0.000688	3.81	3595.58	779.82	0.20
Algonquin	422.521	100 yr	10095.00	714.30	729.23		729.43	0.000704	4.05	4264.41	806.45	0.21
Algonquin	422.521	500 yr	12525.00	714.30	730.26		730.47	0.000725	4.34	5107.75	837.77	0.21
Algonquin	420.346	10 yr	5775.00	715.60	726.16		726.29	0.000655	3.07	2657.55	714.55	0.19
Algonquin	420.346	50 yr	8345.00	715.60	727.55		727.71	0.000687	3.49	3698.36	772.46	0.20
Algonquin	420.346	100 yr	10095.00	715.60	728.35		728.52	0.000704	3.72	4326.32	796.45	0.20
Algonquin	420.346	500 yr	12525.00	715.60	729.32		729.51	0.000727	4.01	5114.60	836.64	0.21
Algonquin	417.841	10 yr	5775.00	714.30	725.15		725.22	0.000304	2.13	3030.74	633.28	0.13
Algonquin	417.841	50 yr	8345.00	714.30	726.37		726.47	0.000379	2.60	3903.71	806.83	0.15
Algonquin	417.841	100 yr	10095.00	714.30	727.09		727.21	0.000416	2.86	4539.05	999.57	0.16
Algonquin	417.841	500 yr	12525.00	714.30	727.97		728.11	0.000455	3.16	5495.27	1143.89	0.17
Algonquin	414.015	10 yr	5775.00	711.80	723.86	717.77	723.91	0.000325	1.73	3366.13	649.91	0.13
Algonquin	414.015	50 yr	8345.00	711.80	724.72	718.64	724.79	0.000430	2.17	3949.06	711.01	0.15
Algonquin	414.015	100 yr	10095.00	711.80	725.25	719.13	725.34	0.000488	2.43	4329.53	728.54	0.16
Algonquin	414.015	500 yr	12525.00	711.80	725.92	719.73	726.03	0.000555	2.74	4834.96	813.36	0.17

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 424.528

INPUT
Description: 2002 FIS DE, 1979 XS 80.352, shifted 4850' rt.
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6850	734	6868	733.1	6891	732.1	6906	731.4	6927	730.4
6949	730.1	6972	728.5	6998	727.3	7032	727	7059	726.8
7077	726.8	7093	726.2	7097	726	7102	726	7119	731.2
7123	731.2	7128	731.2	7142	725.7	7154	725.5	7171	726.5
7191	727.1	7203	727.6	7213	731.2	7220	727.9	7248	727.7
7267	727.6	7285	727.4	7305	726.8	7322	726.5	7336	726.5
7346	726.6	7355	726.5	7363	724.7	7375	726.3	7397	726.3
7418	726.6	7440	727.3	7441	727.3	7462	724.7	7504	724.6
7514	721.5	7519	720.5	7524	719.3	7534	718.8	7554	717.8
7574	716.7	7594	716.6	7614	717.5	7634	718.1	7654	718
7674	717.9	7694	718	7714	718.1	7734	718.4	7754	718.9
7774	720.2	7779	720.8	7784	721.5	7789	722.7	7794	724.9
7814	725.7	7825	726.3	7845	727.1	7862	728.1	7880	729.2
7896	730.3	7905	731.4	7916	734				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6850	.102	7504	.0507	7794	.102

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7504	7794	355	345	338	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 423.9

INPUT
Description: 1885 EEI SURVEYED SECTION 18+85.95
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	731.8	7017	725.8	7085	725.8	7110	727.8	7160	727.8
7213	725.8	7257	725.8	7275	728.8	7297	725.8	7338	726
7366	725.8	7395	725.8	7407	725.9	7416	725.8	7425	723.8
7446	720.5	7462	718.1	7515	715.4	7550	715.5	7584	717.1
7614	718.2	7639	720.5	7661	722	7671	724.6	7686	725.5
7773	732.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.101	7416	.0525	7686	.101

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7416	7686	100	100	100	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 423.8

INPUT
Description: 2000 EEI PROPOSED BOLZ ROAD CENTERLINE SURVEYED SECTION 20+00
Station Elevation Data num= 30

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6997	731.8	7000	730.8	7014	729.8	7055	729.5	7109	729.8
7133	729.8	7145	725.8	7200	725.8	7219	727.8	7299	727.8
7364	725.8	7401	725.4	7437	725.8	7452	725.8	7498	726.6
7501	726.2	7521	726.7	7527	726.2	7567	725.7	7582	725.8
7616	719	7655	717.1	7682	715.5	7706	715	7764	717.9
7800	719.7	7824	724.4	7837	725.2	7899	726.3	7923	731.8

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 426.207

INPUT
Description: 1979 XS 80.721
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	734	2021	733.6	2056	733.6	2099	733.4	2151	733.1
2190	733.1	2230	732.6	2253	732	2274	731.8	2298	731.2
2328	730.1	2349	729.5	2371	728.4	2410	727.3	2441	727.1
2479	727.1	2505	727.1	2527	726	2554	725.2	2587	725.5
2620	724.7	2623	723.8	2637	721.6	2642	721	2647	720.5
2657	719.8	2677	718.2	2697	717	2717	716.8	2757	717.2
2757	718.6	2777	719.2	2797	719.8	2817	720.6	2824	721.6
2827	722	2829	723	2837	724.4	2846	724.9	2867	724.6
2879	723.5	2894	723.8	2907	728.4	2925	729.2	2953	728.7
2985	728.8	3018	729.2	3043	729	3077	729.5	3094	730.3
3109	731.2	3120	732.6	3130	734				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2620	.05	2829	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2620	2829	1430	1404	1416	.1	.3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 424.8

INPUT
Description: 912 EEI SURVEYED SECTION 9+12.64
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	731.8	7010	729.8	7018	727.8	7048	725.8	7192	725.2
7292	724.7	7392	724.3	7492	723.8	7624	723.8	7632	720.7
7665	718.6	7743	715.9	7772	716.2	7799	717.3	7806	718.3
7811	720.5	7848	728.9	7863	733.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.102	7624	.0525	7848	.102

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7624	7848	470	470	470	.1	.3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 424.6

INPUT
Description: 1402 EEI SURVEYED SECTION 14+02.01
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	731.8	7012	727.8	7067	725.8	7099	725.8	7139	726
7169	725.8	7204	725.8	7304	726.2	7375	725.8	7384	723.8
7404	720.4	7457	714	7556	714.4	7635	714.7	7652	715.2
7693	721.6	7702	724.8	7767	728.9	7793	732		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.102	7375	.0525	7702	.102

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7375	7702	60	60	60	.1	.3

SUMMARY OF MANNING'S N VALUES

River:Fox River

Reach	River Sta.	n1	n2	n3
Algonquin	428.504	.1	.05	.1
Algonquin	426.207	.1	.05	.1
Algonquin	424.8	.102	.0525	.102
Algonquin	424.6	.102	.0525	.102
Algonquin	424.528	.102	.0507	.102
Algonquin	423.9	.101	.0525	.101
Algonquin	423.8	.101	.0525	.101
Algonquin	423.7	.101	.0525	.101
Algonquin	423.3	.101	.052	.101
Algonquin	422.6	.1	.051	.1
Algonquin	422.521	.1	.05	.1
Algonquin	420.346	.1	.0506	.1
Algonquin	417.841	.1	.05	.1
Algonquin	414.015	.1	.0501	.1

SUMMARY OF REACH LENGTHS

River: Fox River

Reach	River Sta.	Left	Channel	Right
Algonquin	428.504	2094	2294	2134
Algonquin	426.207	1430	1404	1416
Algonquin	424.8	470	470	470
Algonquin	424.6	60	60	60
Algonquin	424.528	355	345	338
Algonquin	423.9	100	100	100
Algonquin	423.8	100	100	100
Algonquin	423.7	426	414	410
Algonquin	423.3	690	665	650
Algonquin	422.6	75	70	68
Algonquin	422.521	2280	1106	1654
Algonquin	420.346	2454	2440	2400
Algonquin	417.841	3520	4160	3746
Algonquin	414.015	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Fox River

Reach	River Sta.	Contr.	Expan.
Algonquin	428.504	.1	.3
Algonquin	426.207	.1	.3
Algonquin	424.8	.1	.3
Algonquin	424.6	.1	.3
Algonquin	424.528	.1	.3
Algonquin	423.9	.1	.3
Algonquin	423.8	.1	.3
Algonquin	423.7	.1	.3
Algonquin	423.3	.1	.3
Algonquin	422.6	.1	.3
Algonquin	422.521	.1	.3
Algonquin	420.346	.1	.3
Algonquin	417.841	.1	.3
Algonquin	414.015	.1	.3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 417.841

INPUT
Description: 2002 FIS DB, 1979 XS 79.137
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	733	2014	731.7	2041	729.5	2079	728.7	2109	727.9
2153	727.5	2189	726.2	2216	726.5	2240	724.9	2265	726.7
2282	730.1	2286	730.3	2293	730	2302	728.9	2311	725.1
2342	727.5	2367	726.7	2397	727	2423	727	2434	726.8
2445	727.1	2467	727.3	2492	727	2525	726	2556	724.9
2593	724.6	2635	723.3	2684	722.4	2685	721.4	2685	721.1
2690	720.8	2695	720.4	2705	719.7	2725	718.4	2745	716.4
2765	715.2	2785	714.4	2805	714.3	2825	714.6	2845	715.4
2865	715.8	2885	716.2	2905	716.4	2925	716.2	2945	716.1
2965	718.4	2985	720.4	2992	720.7	2999	721.4	3000	722.7
3030	723.4	3047	723.3	3072	723.7	3102	724.4	3129	724.4
3160	725	3188	725.3	3238	726.4	3274	727.5	3293	728.5
3325	729.6	3360	731.8	3375	733				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2684	.05	3000	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2684	3000	3520	4160	3746	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 414.015

INPUT
Description: 2002 FIS DA, 1979 XS 78.412
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	736.8	2022	737.3	2048	730.7	2091	722.7	2092	721.4
2097	720.8	2102	720.3	2112	718.4	2132	715	2152	715
2172	714.8	2192	715.1	2212	715.7	2232	716.8	2252	717.8
2272	718.4	2292	719.3	2312	720.1	2332	720.4	2352	720.3
2372	720.3	2392	720.3	2412	720.3	2432	720.4	2452	720.2
2472	717.7	2492	714.3	2512	711.8	2532	712.7	2552	715
2572	718.4	2592	719.6	2612	720.1	2622	720.6	2627	720.8
2632	721.4	2652	723.3	2682	723.2	2708	723.4	2727	723.7
2751	724.2	2780	724.7	2784	724.2	2795	725	2821	725.6
2848	725.8	2886	725.9	2923	726.6	2952	726.9	2990	727.8
3017	728.3	3048	728.6	3060	729.9	3064	729.9	3069	726.9
3086	726.9	3095	729.1	3107	729.4	3130	729.2	3151	730.7
3178	731.1	3204	731	3229	731.6	3255	732.2	3266	732.4
3283	733								

Manning's n Values num= 3

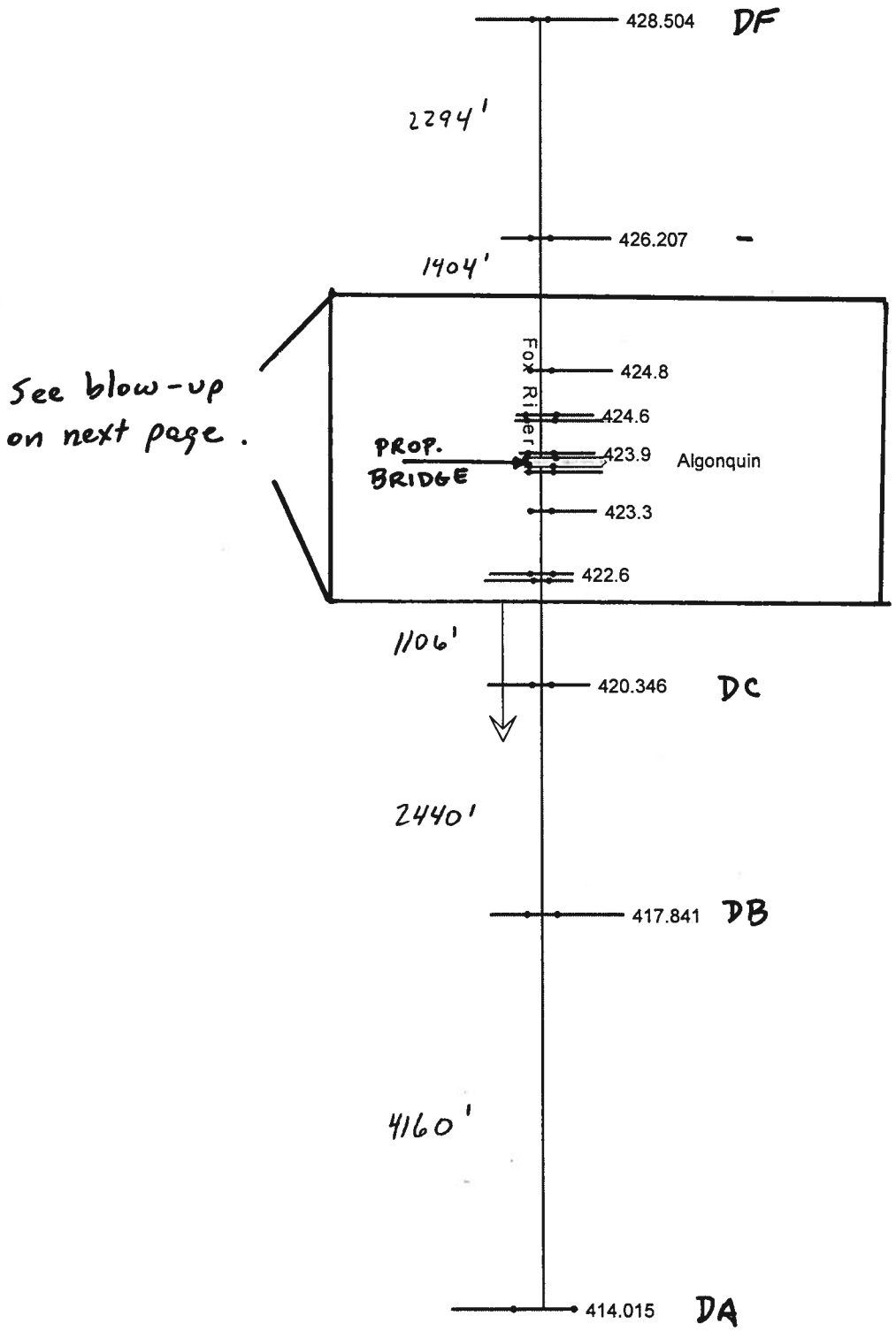
Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2022	.0501	2652	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2022	2652	0	0	0	.1 .3

PROPOSED CONDITIONS MODEL

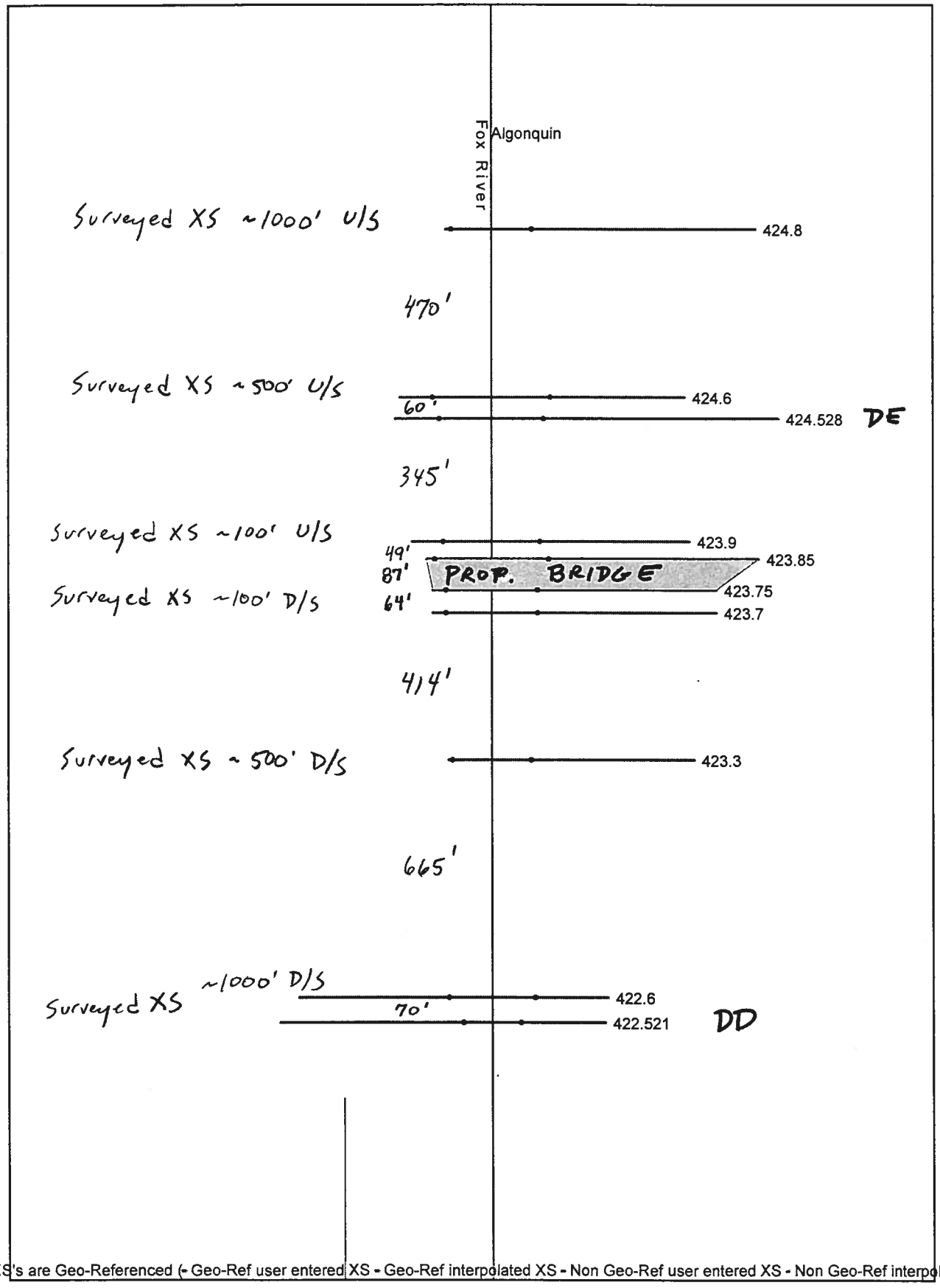
Prop. Model

(NGVD 29)



One of the XS's are Geo-Referenced (- Geo-Ref user entered XS - Geo-Ref interpolated XS - Non Geo-Ref user entered XS - Non Geo-Ref interpolated XS)

PROP. MODEL



lone of the XS's are Geo-Referenced (- Geo-Ref user entered XS - Geo-Ref interpolated XS - Non Geo-Ref user entered XS - Non Geo-Ref interpolated XS)

Prop. Model
(NGVD 29)

HEC-RAS Version 4.1.0 Jan 2010
U.S. Army Corps of Engineers
Hydrologic Engineering Center
609 Second Street
Davis, California

```
X     X  XXXXXX    XXXX        XXXX       XX      XXXX
X     X  X        X    X      X   X     X  X    X
X     X  X        X           X   X    X    X   X
XXXXXXX  XXXX     X       XXX XXXX     XXXXXX    XXXX
X     X  X        X           X  X     X    X        X
X     X  X        X    X      X   X    X    X        X
X     X  XXXXXX    XXXX       X    X   X    X   XXXXX
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PROJECT DATA
Project Title: Longmeadow Parkway Fox River
Project File : LongmeadowParkway.prj
Run Date and Time: 1/26/2011 3:17:30 PM

Project in English units

Project Description:
Conversion of HEC-2 for analysis of proposed Longmeadow Parkway bridge over Fox River. CBBEL 2011 PROPOSED BOLZ ROAD HYDRAULIC MODEL
PROPOSED MODEL

WAT10(FRE1003)
FOX RIVER -
EAST DUNDEE
1 YR FLOOD

PLAN DATA

Plan Title: Proposed
Plan File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.p01

Geometry Title: Proposed Geometry
Geometry File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.g04

Flow Title : FIS Regulatory Flows and Starting WSELs
Flow File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.f02

Plan Description:
Proposed bridge from 2005 HR. On EEI surveyed XS inserted into HEC-2 model circa 1979, hardcopy received from ISWS Feb. 2004. Truncated to include all sections from DA (78.151) to DF (81.156).

Plan Summary Information:

Number of:	Cross Sections	= 15	Multiple Openings	=	0
	Culverts	= 0	Inline Structures	=	0
	Bridges	= 1	Lateral Structures	=	0

Computational Information
Water surface calculation tolerance = 0.01
Critical depth calculation tolerance = 0.01
Maximum number of iterations = 20
Maximum difference tolerance = 0.3
Flow tolerance factor = 0.001

Computation Options
Critical depth computed only where necessary
Conveyance Calculation Method: Between every coordinate point (HEC2 Style)
Friction Slope Method: Average Conveyance
Computational Flow Regime: Subcritical Flow

FLOW DATA

Flow Title: FIS Regulatory Flows and Starting WSELs
Flow File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.f02

Flow Data (cfs)

River	Reach	RS	10 yr	50 yr	100 yr	500 yr
Fox River	Algonquin	428.504	5775	8345	10095	12525

Boundary Conditions

River	Reach	Profile	Upstream	Downstream
Fox River	Algonquin	10 yr		Known WS = 723.86
Fox River	Algonquin	50 yr		Known WS = 724.72
Fox River	Algonquin	100 yr		Known WS = 725.25
Fox River	Algonquin	500 yr		Known WS = 725.92

GEOMETRY DATA

Geometry Title: Proposed Geometry
Geometry File : n:\kanecounty\99236\Drain\Model\HEC-RAS\LongmeadowParkway.g04

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 428.504

INPUT
Description: 2002 FIS DF, 1979 XS 81.156.
Station Elevation Data num= 67

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	734	2012	733.4	2037	732.9	2076	732.5	2110	732.1
2147	732.1	2183	731.5	2218	731.5	2244	731.2	2247	731.2
2259	732.1	2265	732.1	2280	731.4	2300	731.5	2331	731.2
2347	731.2	2371	731.2	2391	731	2405	731.7	2429	731.7
2450	731	2487	729.8	2508	729.5	2527	729.5	2548	729.6
2553	729.9	2563	729.9	2573	729.9	2582	729.6	2602	729.6
2626	729.2	2651	728.8	2680	729	2720	726.9	2743	724.1
2750	722	2755	721.3	2760	720.6	2770	719.5	2790	717.9
2810	717.2	2830	717.2	2850	718.8	2860	718.8	2865	720.5
2872	722	2883	726.2	2920	726.6	2942	726.6	2976	727
3003	727.4	3045	727.4	3083	727.6	3137	727.3	3176	727.3
3203	727.1	3239	727.1	3272	727.4	3307	727.3	3334	727.3
3365	727.7	3390	728.4	3402	728.7	3423	729.6	3443	731.2
3461	733.6	3466	734						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2720	.05	2883	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2720	2883	2094	2134	.1	.3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 426.207

INPUT
Description: 1979 XS 80.721
Station Elevation Data num= 53

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	734	2021	733.6	2056	733.6	2099	733.4	2151	733.1
2190	733.1	2230	732.6	2253	732	2274	731.8	2298	731.2
2328	730.1	2349	729.5	2371	728.4	2410	727.3	2441	727.1
2479	727.1	2505	727.1	2527	726	2554	725.2	2587	725.5
2620	724.7	2623	723.8	2637	721.6	2642	721	2647	720.5
2657	719.8	2677	718.2	2697	717	2717	716.8	2757	717.2
2757	718.6	2777	719.2	2797	719.8	2817	720.6	2824	721.6
2827	722	2829	723	2837	724.4	2846	724.9	2867	724.6
2879	723.5	2894	723.8	2907	728.4	2925	729.2	2953	728.7
2985	728.8	3018	729.2	3043	729	3077	729.5	3094	730.3
3109	731.2	3120	732.6	3130	734				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2620	.05	2829	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2620	2829	1430	1404	1416	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 424.8

INPUT
Description: 912 EEI SURVEYED SECTION 9+12.64
Station Elevation Data num= 18

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	731.8	7010	729.8	7018	727.8	7048	725.8	7192	725.2
7292	724.7	7392	724.3	7492	723.8	7624	723.8	7632	720.7
7665	718.6	7743	715.9	7772	716.2	7799	717.3	7806	718.3
7811	720.5	7848	728.9	7863	733.6				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.102	7624	.0525	7848	.102

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7624	7848	470	470	470	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 424.6

INPUT
Description: 1402 EEI SURVEYED SECTION 14+02.01
Station Elevation Data num= 19

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	731.8	7012	727.8	7067	725.8	7099	725.8	7139	726
7169	725.8	7204	725.8	7304	726.2	7375	725.8	7384	723.8
7404	720.4	7457	714	7556	714.4	7635	714.7	7652	715.2
7693	721.6	7702	724.8	7767	728.9	7793	732		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.102	7375	.0525	7702	.102

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7375	7702	60	60	60	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 424.528

INPUT
Description: 2002 FIS DE, 1979 XS 80.352, shifted 4850' rt.
Station Elevation Data num= 68

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6850	734	6868	733.1	6891	732.1	6906	731.4	6927	730.4
6949	730.1	6972	728.5	6998	727.3	7032	727	7059	726.8
7077	726.8	7093	726.2	7097	726	7102	726	7119	731.2
7123	731.2	7128	731.2	7142	725.7	7154	725.5	7171	726.5
7191	727.1	7203	727.6	7213	731.2	7220	727.9	7248	727.7
7267	727.6	7285	727.4	7305	726.8	7322	726.5	7336	726.5
7346	726.6	7355	726.5	7363	724.7	7375	726.3	7397	726.3
7418	726.6	7440	727.3	7441	727.3	7462	724.7	7504	724.6
7514	721.5	7519	720.5	7524	719.3	7534	718.8	7554	717.8
7574	716.7	7594	716.6	7614	717.5	7634	718.1	7654	718
7674	717.9	7694	718	7714	718.1	7734	718.4	7754	718.9
7774	720.2	7779	720.8	7784	721.5	7789	722.7	7794	724.9
7814	725.7	7825	726.3	7845	727.1	7862	728.1	7880	729.2
7896	730.3	7905	731.4	7916	734				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6850	.102	7504	.0507	7794	.102

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7504	7794	355	345	338 .1	.3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 423.9

INPUT
Description: 1885 EEI SURVEYED SECTION 18+85.95
Station Elevation Data num= 26

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	731.8	7017	725.8	7085	725.8	7110	727.8	7160	727.8
7213	725.8	7257	725.8	7275	728.8	7297	725.8	7338	726
7366	725.8	7395	725.8	7407	725.9	7416	725.8	7425	723.8
7446	720.5	7462	718.1	7515	715.4	7550	715.5	7584	717.1
7614	718.2	7639	720.5	7661	722	7671	724.6	7686	725.5
7773	732.1								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.101	7416	.0525	7686	.101

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7416	7686	79	49	34 .1	.3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 423.85

INPUT
Description: Approach section, 1' U/S of bridge face. Copy of surveyed section 2000. This is a REPEATED section.
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6997	731.8	7000	730.8	7014	729.8	7018	729.8	7020	729.8
7055	729.5	7109	729.8	7133	729.8	7140	727.5	7142	726.8
7145	725.8	7200	725.8	7219	727.8	7260	727.8	7262	727.8
7299	727.8	7364	725.8	7380	725.6	7382	725.6	7401	725.4
7437	725.8	7452	725.8	7498	726.6	7501	726.2	7521	726.7

7527	726.2	7567	725.7	7580	725.6	7582	725.8	7616	719
7655	717.1	7682	715.5	7706	715	7764	717.9	7800	719.7
7824	724.4	7837	725.2	7880	726	7882	726	7899	726.3
7923	731.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6997	.101	7582	.0525	7899	.101

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7582	7899	87	87	.3	.5

BRIDGE

RIVER: Fox River
REACH: Algonquin RS: 423.8

INPUT
Description: Proposed Longmeadow Parkway
Distance from Upstream XS = 1
Deck/Roadway Width = 85
Weir Coefficient = 2.6
Upstream Deck/Roadway Coordinates
num= 13

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
6901	764.53	720	6901	764.53	758.53	7021	765.41	759.41
7141	766.31	760.31	7261	767.21	761.21	7381	768.11	762.11
7381	768.11	756.11	7581	769.61	757.61	7881	771.86	759.86
8081	773.36	761.36	8081	773.76	767.36	8201	774.28	768.28
8201	774.28	720						

Upstream Bridge Cross Section Data
Station Elevation Data num= 41

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6997	731.8	7000	730.8	7014	729.8	7018	729.8	7020	729.8
7055	729.5	7109	729.8	7133	729.8	7140	727.5	7142	726.8
7145	725.8	7200	725.8	7219	727.8	7260	727.8	7262	727.8
7299	727.8	7364	725.8	7380	725.6	7382	725.6	7401	725.4
7437	725.8	7452	725.8	7498	726.6	7501	726.2	7521	726.7
7527	726.2	7567	725.7	7580	725.6	7582	725.8	7616	719
7655	717.1	7682	715.5	7706	715	7764	717.9	7800	719.7
7824	724.4	7837	725.2	7880	726	7882	726	7899	726.3
7923	731.8								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6997	.101	7582	.0525	7899	.101

Bank Sta: Left	Right	Coeff Contr.	Expan.
7582	7899	.3	.5

Downstream Deck/Roadway Coordinates
num= 13

Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord	Sta	Hi Cord	Lo Cord
6798	764.53	720	6798	764.53	758.53	6918	765.41	759.41
7038	766.31	760.31	7158	767.21	761.21	7278	768.11	762.11
7278	768.11	756.11	7478	769.61	757.61	7778	771.86	759.86
7978	773.36	761.36	7978	773.76	767.36	8098	774.28	768.28
8098	774.28	720						

Downstream Bridge Cross Section Data
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	731.8	7016	727.8	7032	724.8	7057	725.4	7059	725.4
7075	725.8	7087	727.8	7177	727.8	7179	727.8	7196	727.8
7269	725.8	7297	724.3	7298	724.2	7299	724.2	7341	725.4
7352	724.7	7382	724.2	7422	725.2	7471	724.9	7497	723.9
7499	723.8	7504	721.3	7535	718.9	7579	715.8	7608	714.9
7671	717.7	7689	718.3	7737	722.3	7754	725.3	7770	726.9
7791	731.5								

```
Manning's n Values        num=       3
     Sta   n Val     Sta   n Val     Sta   n Val
    7000    .101    7499   .0525    7754    .101

Bank Sta: Left   Right    Coeff Contr.   Expan.
          7499    7754             .3       .5

Upstream Embankment side slope              =       0 horiz. to 1.0 vertical
Downstream Embankment side slope            =       0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow =     .98
Elevation at which weir flow begins         =
Energy head used in spillway design         =
Spillway height used in design              =
Weir crest shape                            = Broad Crested

Number of Piers =  7

Pier Data
Pier Station     Upstream=    7021    Downstream=    8098
Upstream     num=       2
    Width   Elev    Width   Elev
       4     729       4  768.28
Downstream     num=       2
    Width   Elev    Width   Elev
       4     729       4  768.28

Pier Data
Pier Station     Upstream=    7141    Downstream=    7038
Upstream     num=       2
    Width   Elev    Width   Elev
       4     725       4  768.28
Downstream     num=       2
    Width   Elev    Width   Elev
       4     725       4  768.28

Pier Data
Pier Station     Upstream=    7261    Downstream=    7158
Upstream     num=       2
    Width   Elev    Width   Elev
       4     727       4  768.28
Downstream     num=       2
    Width   Elev    Width   Elev
       4     727       4  768.28

Pier Data
Pier Station     Upstream=    7381    Downstream=    7278
Upstream     num=       2
    Width   Elev    Width   Elev
       4     724       4  768.28
Downstream     num=       2
    Width   Elev    Width   Elev
       4     724       4  768.28

Pier Data
Pier Station     Upstream=    7581    Downstream=    7478
Upstream     num=       2
    Width   Elev    Width   Elev
       4     724       4  768.28
Downstream     num=       2
    Width   Elev    Width   Elev
       4     724       4  768.28

Pier Data
Pier Station     Upstream=    7881    Downstream=    7778
Upstream     num=       2
    Width   Elev    Width   Elev
       4     725       4  768.28
Downstream     num=       2
    Width   Elev    Width   Elev
       4     725       4  768.28
```

Pier Data
Pier Station Upstream= 8081 Downstream= 7978
Upstream num= 2

Width	Elev	Width	Elev
4	750	4	768.28

Downstream num= 2

Width	Elev	Width	Elev
4	750	4	768.28

Number of Bridge Coefficient Sets = 1

Low Flow Methods and Data
Energy
Yarnell KVal = 1.25
Selected Low Flow Methods = Highest Energy Answer

High Flow Method
Energy Only

Additional Bridge Parameters
Add Friction component to Momentum
Do not add Weight component to Momentum
Class B flow critical depth computations use critical depth
inside the bridge at the upstream end
Criteria to check for pressure flow = Upstream energy grade line

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 423.75

INPUT
Description: Exit section, 1' D/S of bridge face. Copy of surveyed section
2098. This is a REPEATED section.
Station Elevation Data num= 31

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	731.8	7016	727.8	7032	724.8	7057	725.4	7059	725.4
7075	725.8	7087	727.8	7177	727.8	7179	727.8	7196	727.8
7269	725.8	7297	724.3	7298	724.2	7299	724.2	7341	725.4
7352	724.7	7382	724.2	7422	725.2	7471	724.9	7497	723.9
7499	723.8	7504	721.3	7535	718.9	7579	715.8	7608	714.9
7671	717.7	7689	718.3	7737	722.3	7754	725.3	7770	726.9
7791	731.5								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.101	7499	.0525	7754	.101

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7499	7754	34	64	79	.3	.5

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 423.7

INPUT
Description: 2098 EEI SURVEYED SECTION 20+98.75
Station Elevation Data num= 24

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	731.8	7016	727.8	7032	724.8	7075	725.8	7087	727.8
7196	727.8	7269	725.8	7298	724.2	7341	725.4	7352	724.7
7382	724.2	7422	725.2	7471	724.9	7499	723.8	7504	721.3
7535	718.9	7579	715.8	7608	714.9	7671	717.7	7689	718.3
7737	722.3	7754	725.3	7770	726.9	7791	731.5		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.101	7499	.0525	7754	.101

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
7499 7754 426 414 410 .1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 423.3

INPUT
Description: 2453 EEI SURVEYED SECTION 24+53.16
Station Elevation Data num= 17

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	730.8	7124	726.6	7191	724.7	7292	725.2	7324	724.5
7412	725.7	7453	724.7	7464	721.2	7475	718.9	7533	716.7
7547	715.1	7583	714.1	7634	717.3	7667	722.3	7673	726.6
7682	730.5	7684	731						

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.101	7453	.052	7673	.101

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
7453 7673 690 665 650 .1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 422.6

INPUT
Description: 3073 EEI SURVEYED SECTION 30+73.04
ISWS REGULATORY MODEL PRIOR TO
THIS POINT
Station Elevation Data num= 21

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
6990	731	7000	729.8	7031	728.2	7134	724.7	7178	723.9
7192	723.7	7213	717.1	7237	716.2	7276	717	7313	717.1
7343	717.6	7374	719.4	7420	720.5	7427	721.4	7432	724
7491	724.1	7542	723.1	7551	723.8	7684	725.8	7835	729.8
7847	731								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
6990	.1	7192	.051	7432	.1

Bank Sta: Left Right Lengths: Left Channel Right Coeff Contr. Expan.
7192 7432 75 70 68 .1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 422.521

INPUT
Description: 2002 FIS DD, 1979 XS 80.023 shifted 5000' rt.
Station Elevation Data num= 50

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
7000	734	7009	732.4	7025	727.5	7027	727.5	7040	727.9
7050	726.9	7068	726.9	7086	726.4	7112	726.6	7131	726.1
7150	725.8	7166	725.3	7182	725.7	7191	724.6	7216	725.5
7223	727	7234	725.1	7241	721.5	7246	720.1	7251	718.5
7261	715.8	7281	714.9	7301	714.6	7321	714.3	7341	716.7
7361	719.1	7376	720.4	7381	720.9	7388	721.5	7392	722.7
7394	724.9	7441	724.4	7459	724.6	7483	724.2	7509	724.4
7533	723.6	7556	723	7590	723.9	7616	724.4	7657	725
7693	725.8	7739	726.4	7761	727.2	7791	728	7822	729.1
7851	730.1	7867	731	7882	732.4	7898	733.7	7902	734

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
7000	.1	7234	.05	7394	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
7234	7394	2280	1106	1654	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 420.346

INPUT
Description: 2002 FIS DC, 1979 XS 79.611
Station Elevation Data num= 51

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	733	2007	729	2021	729.2	2043	732	2068	732.8
2085	733.1	2111	732.8	2129	731.2	2143	728.9	2161	725.9
2176	724.9	2192	725.2	2213	725.2	2236	724.6	2263	724.4
2295	724	2320	724.1	2352	723.8	2386	723.3	2392	721.4
2397	720.5	2402	720	2412	719.1	2432	717.4	2452	716.1
2472	715.6	2492	715.7	2512	716.6	2532	716.9	2552	718.4
2562	719.2	2572	720.5	2577	720.7	2582	721.4	2585	722.2
2587	724	2622	723.7	2633	723.7	2665	723.5	2683	723.2
2708	723.2	2736	723.5	2776	724.1	2808	724.8	2850	725.7
2892	726.5	2934	727.9	2965	729.5	3000	731.5	3030	732.8
3044	733								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2386	.0506	2587	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2386	2587	2454	2440	2400	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 417.841

INPUT
Description: 2002 FIS DB, 1979 XS 79.137
Station Elevation Data num= 63

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	733	2014	731.7	2041	729.5	2079	728.7	2109	727.9
2153	727.5	2189	726.2	2216	726.5	2240	724.9	2265	726.7
2282	730.1	2286	730.3	2293	730	2302	728.9	2311	725.1
2342	727.5	2367	726.7	2397	727	2423	727	2434	726.8
2445	727.1	2467	727.3	2492	727	2525	726	2556	724.9
2593	724.6	2635	723.3	2684	722.4	2685	721.4	2685	721.1
2690	720.8	2695	720.4	2705	719.7	2725	718.4	2745	716.4
2765	715.2	2785	714.4	2805	714.3	2825	714.6	2845	715.4
2865	715.8	2885	716.2	2905	716.4	2925	716.2	2945	716.1
2965	718.4	2985	720.4	2992	720.7	2999	721.4	3000	722.7
3030	723.4	3047	723.3	3072	723.7	3102	724.4	3129	724.4
3160	725	3188	725.3	3238	726.4	3274	727.5	3293	728.5
3325	729.6	3360	731.8	3375	733				

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2684	.05	3000	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2684	3000	3520	4160	3746	.1 .3

CROSS SECTION

RIVER: Fox River
REACH: Algonquin RS: 414.015

INPUT
Description: 2002 FIS DA, 1979 XS 78.412
Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
2000	736.8	2022	737.3	2048	730.7	2091	722.7	2092	721.4
2097	720.8	2102	720.3	2112	718.4	2132	715	2152	715
2172	714.8	2192	715.1	2212	715.7	2232	716.8	2252	717.8
2272	718.4	2292	719.3	2312	720.1	2332	720.4	2352	720.3
2372	720.3	2392	720.3	2412	720.3	2432	720.4	2452	720.2
2472	717.7	2492	714.3	2512	711.8	2532	712.7	2552	715
2572	718.4	2592	719.6	2612	720.1	2622	720.6	2627	720.8
2632	721.4	2652	723.3	2682	723.2	2708	723.4	2727	723.7
2751	724.2	2780	724.7	2784	724.2	2795	725	2821	725.6
2848	725.8	2886	725.9	2923	726.6	2952	726.9	2990	727.8
3017	728.3	3048	728.6	3060	729.9	3064	729.9	3069	726.9
3086	726.9	3095	729.1	3107	729.4	3130	729.2	3151	730.7
3178	731.1	3204	731	3229	731.6	3255	732.2	3266	732.4
3283	733								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
2000	.1	2022	.0501	2652	.1

Bank Sta: Left	Right	Lengths: Left Channel	Right	Coeff Contr.	Expan.
2022	2652	0	0	.1	.3

SUMMARY OF MANNING'S N VALUES

River:Fox River

Reach	River Sta.	n1	n2	n3
Algonquin	428.504	.1	.05	.1
Algonquin	426.207	.1	.05	.1
Algonquin	424.8	.102	.0525	.102
Algonquin	424.6	.102	.0525	.102
Algonquin	424.528	.102	.0507	.102
Algonquin	423.9	.101	.0525	.101
Algonquin	423.85	.101	.0525	.101
Algonquin	423.8	Bridge		
Algonquin	423.75	.101	.0525	.101
Algonquin	423.7	.101	.0525	.101
Algonquin	423.3	.101	.052	.101
Algonquin	422.6	.1	.051	.1
Algonquin	422.521	.1	.05	.1
Algonquin	420.346	.1	.0506	.1
Algonquin	417.841	.1	.05	.1
Algonquin	414.015	.1	.0501	.1

SUMMARY OF REACH LENGTHS

River: Fox River

Reach	River Sta.	Left	Channel	Right
Algonquin	428.504	2094	2294	2134
Algonquin	426.207	1430	1404	1416
Algonquin	424.8	470	470	470
Algonquin	424.6	60	60	60
Algonquin	424.528	355	345	338
Algonquin	423.9	79	49	34
Algonquin	423.85	87	87	87
Algonquin	423.8	Bridge		
Algonquin	423.75	34	64	79
Algonquin	423.7	426	414	410
Algonquin	423.3	690	665	650
Algonquin	422.6	75	70	68
Algonquin	422.521	2280	1106	1654
Algonquin	420.346	2454	2440	2400
Algonquin	417.841	3520	4160	3746
Algonquin	414.015	0	0	0

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS
River: Fox River

Reach	River Sta.	Contr.	Expan.
Algonquin	428.504	.1	.3
Algonquin	426.207	.1	.3
Algonquin	424.8	.1	.3
Algonquin	424.6	.1	.3
Algonquin	424.528	.1	.3
Algonquin	423.9	.1	.3
Algonquin	423.85	.3	.5
Algonquin	423.8	Bridge	
Algonquin	423.75	.3	.5
Algonquin	423.7	.1	.3
Algonquin	423.3	.1	.3
Algonquin	422.6	.1	.3
Algonquin	422.521	.1	.3
Algonquin	420.346	.1	.3
Algonquin	417.841	.1	.3
Algonquin	414.015	.1	.3

HEC-RAS Plan: Proposed River: Fox River Reach: Algonquin

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Algonquin	428.504	10 yr	5775.00	717.20	729.48		729.63	0.000639	3.29	2763.72	810.97	0.19
Algonquin	428.504	50 yr	8345.00	717.20	731.10		731.25	0.000590	3.52	4305.23	1007.52	0.19
Algonquin	428.504	100 yr	10095.00	717.20	732.02		732.17	0.000564	3.63	5384.11	1288.50	0.19
Algonquin	428.504	500 yr	12525.00	717.20	733.13		733.28	0.000528	3.73	6923.14	1432.15	0.18
Algonquin	426.207	10 yr	5775.00	716.80	728.30		728.41	0.000447	2.75	2669.20	532.20	0.16
Algonquin	426.207	50 yr	8345.00	716.80	729.91		730.04	0.000484	3.18	3712.26	750.92	0.17
Algonquin	426.207	100 yr	10095.00	716.80	730.82		730.97	0.000499	3.41	4418.06	794.29	0.18
Algonquin	426.207	500 yr	12525.00	716.80	731.93		732.10	0.000514	3.68	5332.28	854.87	0.18
Algonquin	424.8	10 yr	5775.00	715.90	727.77		727.83	0.000359	2.33	3855.92	824.50	0.14
Algonquin	424.8	50 yr	8345.00	715.90	729.35		729.43	0.000371	2.60	5176.08	837.66	0.14
Algonquin	424.8	100 yr	10095.00	715.90	730.26		730.34	0.000378	2.77	5934.87	844.61	0.14
Algonquin	424.8	500 yr	12525.00	715.90	731.36		731.45	0.000390	2.99	6867.99	853.61	0.15
Algonquin	424.6	10 yr	5775.00	714.00	727.70		727.74	0.000114	1.52	4370.42	733.32	0.08
Algonquin	424.6	50 yr	8345.00	714.00	729.27		729.32	0.000144	1.86	5547.27	762.53	0.09
Algonquin	424.6	100 yr	10095.00	714.00	730.16		730.22	0.000161	2.06	6232.18	772.69	0.10
Algonquin	424.6	500 yr	12525.00	714.00	731.25		731.32	0.000183	2.31	7078.46	785.06	0.11
Algonquin	424.528	10 yr	5775.00	716.60	727.66		727.72	0.000272	2.10	3248.52	781.70	0.12
Algonquin	424.528	50 yr	8345.00	716.60	729.22		729.31	0.000299	2.45	4580.20	888.46	0.13
Algonquin	424.528	100 yr	10095.00	716.60	730.11		730.21	0.000313	2.64	5387.38	924.46	0.14
Algonquin	424.528	500 yr	12525.00	716.60	731.20		731.31	0.000328	2.87	6430.39	984.08	0.14
Algonquin	423.9	10 yr	5775.00	715.40	727.53		727.61	0.000389	2.36	2863.15	622.98	0.14
Algonquin	423.9	50 yr	8345.00	715.40	729.07		729.18	0.000425	2.75	3939.75	725.37	0.15
Algonquin	423.9	100 yr	10095.00	715.40	729.95		730.08	0.000444	2.97	4585.09	739.49	0.16
Algonquin	423.9	500 yr	12525.00	715.40	731.03		731.17	0.000468	3.24	5388.10	756.68	0.16
Algonquin	423.85	10 yr	5775.00	715.00	727.51	720.22	727.59	0.000474	2.35	2876.53	671.96	0.15
Algonquin	423.85	50 yr	8345.00	715.00	729.06	721.10	729.16	0.000472	2.66	4044.34	775.76	0.16
Algonquin	423.85	100 yr	10095.00	715.00	729.94	721.62	730.05	0.000474	2.83	4762.04	902.82	0.16
Algonquin	423.85	500 yr	12525.00	715.00	731.02	722.33	731.14	0.000477	3.04	5744.41	920.22	0.16
Algonquin	423.8		Bridge									
Algonquin	423.75	10 yr	5775.00	714.90	727.47		727.55	0.000349	2.30	3146.64	631.97	0.13
Algonquin	423.75	50 yr	8345.00	714.90	729.02		729.12	0.000384	2.68	4285.09	768.53	0.14

HEC-RAS Plan: Proposed River: Fox River Reach: Algonquin (Continued)

Reach	River Sta	Profile	Q Total	Min Ch El	W.S. Elev	Crit W.S.	E.G. Elev	E.G. Slope	Vel Chnl	Flow Area	Top Width	Froude # Chl
			(cfs)	(ft)	(ft)	(ft)	(ft)	(ft/ft)	(ft/s)	(sq ft)	(ft)	
Algonquin	423.75	100 yr	10095.00	714.90	729.90		730.01	0.000402	2.89	4963.63	776.06	0.15
Algonquin	423.75	500 yr	12525.00	714.90	730.96		731.09	0.000426	3.16	5797.19	785.20	0.16
Algonquin	423.7	10 yr	5775.00	714.90	727.45		727.53	0.000352	2.31	3132.77	630.79	0.13
Algonquin	423.7	50 yr	8345.00	714.90	728.99		729.09	0.000387	2.69	4266.73	768.32	0.15
Algonquin	423.7	100 yr	10095.00	714.90	729.87		729.98	0.000406	2.90	4944.42	775.84	0.15
Algonquin	423.7	500 yr	12525.00	714.90	730.94		731.07	0.000430	3.17	5776.79	784.98	0.16
Algonquin	423.3	10 yr	5775.00	714.10	727.28		727.37	0.000383	2.53	2853.89	570.64	0.14
Algonquin	423.3	50 yr	8345.00	714.10	728.79		728.92	0.000444	3.00	3752.99	618.77	0.16
Algonquin	423.3	100 yr	10095.00	714.10	729.65		729.80	0.000478	3.27	4296.38	646.11	0.17
Algonquin	423.3	500 yr	12525.00	714.10	730.69		730.87	0.000522	3.61	4987.51	679.64	0.18
Algonquin	422.6	10 yr	5775.00	716.20	727.02		727.11	0.000407	2.49	3056.90	664.44	0.15
Algonquin	422.6	50 yr	8345.00	716.20	728.51		728.62	0.000445	2.89	4116.26	761.05	0.16
Algonquin	422.6	100 yr	10095.00	716.20	729.35		729.48	0.000466	3.11	4779.42	809.30	0.16
Algonquin	422.6	500 yr	12525.00	716.20	730.38		730.52	0.000490	3.39	5633.65	845.57	0.17
Algonquin	422.521	10 yr	5775.00	714.30	726.91		727.07	0.000648	3.36	2498.92	702.21	0.19
Algonquin	422.521	50 yr	8345.00	714.30	728.39		728.57	0.000688	3.81	3595.58	779.82	0.20
Algonquin	422.521	100 yr	10095.00	714.30	729.23		729.43	0.000704	4.05	4264.41	806.45	0.21
Algonquin	422.521	500 yr	12525.00	714.30	730.26		730.47	0.000725	4.34	5107.75	837.77	0.21
Algonquin	420.346	10 yr	5775.00	715.60	726.16		726.29	0.000655	3.07	2657.55	714.55	0.19
Algonquin	420.346	50 yr	8345.00	715.60	727.55		727.71	0.000687	3.49	3698.36	772.46	0.20
Algonquin	420.346	100 yr	10095.00	715.60	728.35		728.52	0.000704	3.72	4326.32	796.45	0.20
Algonquin	420.346	500 yr	12525.00	715.60	729.32		729.51	0.000727	4.01	5114.60	836.64	0.21
Algonquin	417.841	10 yr	5775.00	714.30	725.15		725.22	0.000304	2.13	3030.74	633.28	0.13
Algonquin	417.841	50 yr	8345.00	714.30	726.37		726.47	0.000379	2.60	3903.71	806.83	0.15
Algonquin	417.841	100 yr	10095.00	714.30	727.09		727.21	0.000416	2.86	4539.05	999.57	0.16
Algonquin	417.841	500 yr	12525.00	714.30	727.97		728.11	0.000455	3.16	5495.27	1143.89	0.17
Algonquin	414.015	10 yr	5775.00	711.80	723.86	717.77	723.91	0.000325	1.73	3366.13	649.91	0.13
Algonquin	414.015	50 yr	8345.00	711.80	724.72	718.62	724.79	0.000430	2.17	3949.06	711.01	0.15
Algonquin	414.015	100 yr	10095.00	711.80	725.25	719.13	725.34	0.000488	2.43	4329.53	728.54	0.16
Algonquin	414.015	500 yr	12525.00	711.80	725.92	719.76	726.03	0.000555	2.74	4834.96	813.36	0.17

SECTION 9

IDNR-OWR PERMIT SUMMARY
FILL AND COMPENSATORY STORAGE CALCULATIONS

Revised April 2011

Illinois Department of Transportation
Permit Summary for Floodway Construction in Northeast Illinois

Applicant Agency: *Kane County Division of Transportation*
Route: *Longmeadow Parkway*
Section: *94-00215-01-ES* SN: *045-3024*
County: *Kane*
Stream: *Fox River*

General Description (bridge length, bridge width, number of spans, abutment type, proposed scope of work within floodway, etc.):

Existing Facility: *No Existing Bridge.*

Proposed Improvement: *The proposed Longmeadow Parkway Bridge crossing the Fox River will be constructed with 8 spans totaling 1300', the largest single span being 300' over the main river channel. The structure will have 7 piers, with none being located in the main channel. The bridge will be approximately 85' wide. The profile of the proposed bridge and the approach roadway will provide approximately 28' of clearance and 35' of freeboard, based on the 50-year storm event.*

1. Is the proposed work classified as repairs such as deck replacement, pavement resurfacing, or the armoring or filling of a scour hole? ☐ Yes ☒ No

2. Does the proposed work only consist of modifications to the existing structure which will occur above the regulatory 100-year flood profile? ☐ Yes ☒ No

   Note: If the answer to question 1 or 2 is yes, no permit is required and questions 3 through 12 may be omitted.

3. Does the proposed work below the regulatory 100-year flood profile consist of widening of the existing structure by 12 feet or less? ☐ Yes ☒ No

   Note: If yes, Regional Permit No. 2 applies and questions 4 through 9 may be omitted.

4. Is the proposed improvement, including the approach roadway, more restrictive to normal and flood flows than the existing structure? ☐ Yes ☒ No

5. Is a Channel Modification proposed? ☐ Yes ☒ No

6. Are there any buildings or structures located upstream in the 100-year floodplain within the influence of the structure backwater? ☒ Yes ☐ No

6a. If no, does the backwater of the proposed improvement exceed the backwater of the existing structure by more than 0.1 foot? ☐ Yes ☐ No

6b. If yes, does the proposed backwater exceed the natural high water elevation by more than 0.1 foot? ☐ Yes ☒ No

7. Are transitions required for this project? ☐ Yes ☒ No

8. Is the flood profile at the project site impacted by backwater from a downstream receiving stream? ☐ Yes ☒ No

9. Is backwater from a downstream structure affecting the flood profile at the project site? ☐ Yes ☒ No

9a. Was the existing downstream structure used in the analysis for determining flood profile at the project site? ☐ Yes ☒ No

9b. Is the downstream structure scheduled for improvement in the next 5 years? (Attach documentation) ☐ Yes ☒ No

9c. Was the proposed downstream improvement used in the analysis? ☐ Yes ☒ No

10. Is a floodway map change required due to the proposed project? ☐ Yes ☒ No

11. Will fill or material be placed in the floodway due to the proposed work? ☒ Yes ☐ No

11a. If yes, is compensatory storage provided at the project location? (Attach a copy of completed Attachment A) ☒ Yes ☐ No

11b. If the answer to 11a is no, is compensatory storage provided at another location? If yes, give location and attach a copy of completed Attachment A. ☐ Yes ☒ No

11c. Has compensatory storage relief been granted? (Attach Documentation) ☐ Yes ☒ No

12. Coordination based on Memorandum of Agreement has occurred with Agency(ies) (Attach documentation):

All engineering analysis have been performed by me or under my direct supervision.

Signature: Steve A Dailey IL/P.E. #: 062-047420

Date: 04/04/2011 P.E. Expiration Date: 11/30/2011

FOR DEPARTMENTAL USE ONLY
Is a permit required for this project? ☐ Yes ☐ No

If yes, specify type of permit: Floodway, Regional 1, Regional 2
(Circle One.)

Permit Summary
(Attachment A - Compensatory Storage)

Part of Permit Summary for Floodway Construction in Northeast Illinois:

☒ Phase I (Preliminary) ☐ Phase II (Final)

Applicant Agency: *Kane County Division of Transportation*
Route: *Longmeadow Parkway*
Section: *94-00215-01-ES* SN: *045-3024*
County: *Kane*
Stream: *Fox River*

Provide the following information for Item 11:

a. Flood Water Elevations (Natural): 100-year 730.09 10-year 727.67
Normal 721.77

b.** Determine the amount of fill or material being placed in the floodway:

1. Between the 100-year and 10-year flood elevation 144 cu. yds.

2. Between the 10-year and normal water elevation 88 cu. yds.

c.** Determine the volume being provided to compensate for above item b:
(i.e. from structures removal, excavation, etc.)

1. Between the 100-year and 10-year flood elevation 216 cu. yds.

2. Between the 10-year and normal water elevation 132 cu. yds.

d. Mark on the exhibits the location and amount of compensatory storage to be excavated. Also show the location of floodway and floodplain boundaries. (Include a set of plans and cross sections)

Attach copy of calculations and Exhibit(s) reflecting the above finding.

***Only proposed piers to generate fill in the floodway. Amount of fill determined from TS&L drawings. Detailed grading of compensatory storage area(s) to be determined in Phase II.*

All engineering analysis have been performed by me or under my direct supervision.

Signature: Mark A Daily IL/P.E. #: 062-047420

Date: 04/04/2011 P.E. Expiration Date: 11/30/2011

Project: KDOT 99-236 Longmeadow Parkway
Calc. By: IAD
Date: 4/4/2011

Pier Fill Calculations
Fox River, Kane County, IL

EI 100 (BFE) =	730.09	(EEI Datum - see Note 4)
EI 10 =	727.67	(EEI Datum - see Note 4)
Pier Width =	4	ft.
Pier Length =	85	ft.

Pier No.	Ground El. (EEI Datum)	Fill Volume (cft)		
		0-100-yr	0-10-yr	10-100-yr
1	> BFE	n/a	n/a	n/a
2	726.28	1295	473	823
3	725.40	1595	772	823
4	725.53	1550	728	823
5	728.36	588	0	588
6	726.47	1231	408	823
7	> BFE	n/a	n/a	n/a
TOTAL		6259	2380	3879

NOTES:

1. Both abutments are located outside the floodplain limits, above the BFE.

2. IDNR-OWR requires 1:1 compensatory volume for fill in the floodway. Kane County requires 1.5:1 compensatory volume for fill in the floodplain.

3. In the area of the proposed crossing, the Fox River floodway is generally concurrent with the floodplain. Therefore, to be conservative, calculate FW fill for all piers that are shown in the FP by survey elevation.

4. EEI Datum = NGVD29 (per FEMA RM 70-3) + 0.16'. See Datum Correlation in Section 6.

50 0 50 100 150 200 250
SCALE IN FEET

N

MATCH LINE STATION 2207+00

MATCH LINE STATION 2222+00

721.77

FOX RIVER WATERSHED POTENTIAL COMPENSATORY STORAGE SITE

FLOODWAY BOUNDARY

FOX RIVER
NWL = 721.77
100 YR ELEV = 729.93

FLOODPLAIN BOUNDARY

ANGELINA PL

FLOODPLAIN BOUNDARY

FLOODWAY BOUNDARY

ABANDON OUTLET #2

ABANDON OUTLET #1

SANDBLOOM RD.

909+00
908+00
907+00
906+00
905+00
904+00
903+00
902+00

12" RCP
18" RCP
15" RCP
15" RCP
12" RCP
12" RCP
36" RCP
36" RCP
30" RCP
30" RCP
30" RCP
30" RCP
12" RCP

2208+00 2209+00 2210+00 2211+00 2212+00 2213+00 2214+00 2215+00 2216+00 2217+00 2218+00 2219+00 2220+00 2221+00 2222+00

LONGMEADOW PARKWAY

OUTLET #30

RESTRICTOR

FOX RIVER

OLD BOLZ ROAD

NOTE: INLET SPACING AND LATERAL PIPES ARE FOR PICTORIAL ILLUSTRATION ONLY.

LEGEND:

BOUNDARY LINES/SYMBOLS	EXISTING		
REFERENCE LINE/CENTERLINE AND STATIONING	1430+00	SWALE	LOCAL STORM SEWER
RIGHT OF WAY LINE		PROP. DITCH	PROP. STORM SEWER
DRAINAGE DIVIDE (HYDROLOGIC ATLAS)		OUTLET	CATCH BASIN
INTERPRETED DRAINAGE AREA TO OUTLET/SUB-DIVIDE		SHEET FLOW	HEADWALL/ENDWALL
FLOODPLAIN BOUNDRY		CHANNEL	MANHOLE
FLOODWAY BOUNDRY		CULVERT SIZE - TYPE	2 X 2 BOX
		BRIDGE LOCATION - BRIDGE NO.	SEWER REMOVAL

KEYPLAN

RIVER RD. | RANDALL RD. | BARRETT RD. | SLEEPY HOLLOW RD. | IL RTE. 31 | FOX RIVER | SANDBLOOM RD. | IL RTE. 25 | IL RTE. 62

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(847) 823-0500

CLIENT:

KANE COUNTY
DIVISION OF TRANSPORTATION
41 W011 BURLINGTON ROAD
ST. CHARLES, ILLINOIS 60175

NO.	DATE	NATURE OF REVISION	CHKD.

FILE NAME: N:\kanecounty\99236\Drain\PLN_99236_Bolz_15.SHT

DSGN.	
DWN.	
CHKD.	CW
SCALE:	103'
PLOT DATE:	10/8/2012
CAD USER:	mgoldenberg
MODEL:	Default

TITLE:

LONGMEADOW PARKWAY
PROPOSED DRAINAGE PLAN
STA. 2207+00 TO STA. 2222+00

PROJ. NO.	99236
DATE:	
SHEET	OF 86
DRAWING NO.	DPLN15

SECTION 10

SCOUR ANALYSIS

Illinois Department of Transportation

Scour Critical Evaluation Coding Report

This "form" should be used by agencies for reporting coding recommendations for Scour Critical Evaluation (ISIS Item 113) and other associated ISIS Items.

Structure Number: 045 - 3024

Report Action:

X New Evaluation

_____ Re-Evaluation

_____ Error Revision

Refer to the IDOT Structure Information and Procedure Manual for information related to the coding of ISIS Item 113, 113A, 113B, 113C and 113D.

Item 113 Scour Critical Evaluation: 5 (valid codes: 0, 1, 2, 3, 4, 5, 6, 7, 8, or 9)

Item 113A Scour Critical Evaluation Date: 08 / 29 / 12 (mm / dd / yr)

Item 113B Scour Critical Evaluation Method: A (valid codes: A, B, C, D)

Item 113C Scour Critical Evaluation By: Ilene Dailey, P.E. (20 characters max.)

Item 113D Scour Critical Remarks: (3 lines, 79 characters max. each line)

_____

_____

_____

If Item 113 is coded "4" or "5", and the structure was evaluated using BSAP without the completion of a Scour Evaluation Study, indicate below whether or not periodic "inspection for scour" is required:

___ Yes ___ No

If Yes, a Special Feature Inspection should be established. In the space provide below, provide information establishing the interval for inspections and describing the feature(s) requiring inspection (ISIS Items 92C and 92C1 respectively) and submit form BBS-SFI-1.

_____

_____

_____

Design Scour Elevation Tables, EEI Datum *

500-yr. Design Scour Elevation (ft.) →	W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	E. Abut.
	762.12	**751.63**	**719.87**	**718.99**	**718.91**	**721.74**	**719.85**	**724.47**	**741.25**
Ground Elev. per MAI TS&L 08/13/2012	762.12	751.63	726.28	725.40	725.53	728.36	726.47	731.09	741.25
500-yr. Scour Depth ** per HEC-RAS	n/a	n/a	6.41	6.41	6.62	6.62	6.62	6.62	n/a
500-yr BFE	731.17								
Thalweg	715.2								

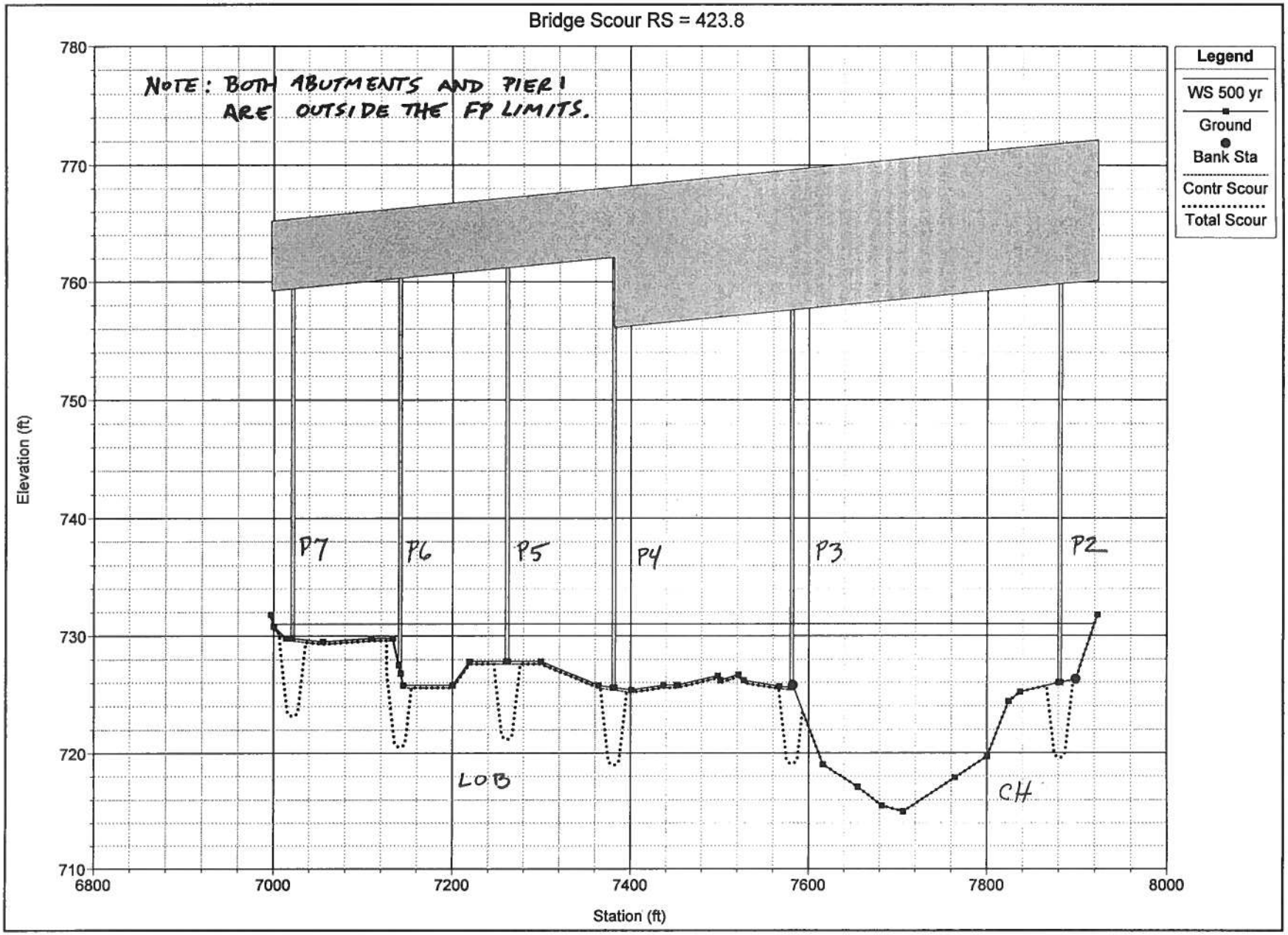
100-yr. Design Scour Elevation (ft.) →	W. Abut.	Pier 1	Pier 2	Pier 3	Pier 4	Pier 5	Pier 6	Pier 7	E. Abut.
	762.12	**751.63**	**720.02**	**719.14**	**719.07**	**721.90**	**720.01**	**724.63**	**741.25**
Ground Elev. per MAI TS&L 08/13/2012	762.12	751.63	726.28	725.40	725.53	728.36	726.47	731.09	741.25
500-yr. Scour Depth ** per HEC-RAS	n/a	n/a	6.26	6.26	6.46	6.46	6.46	6.46	n/a
100-yr BFE	730.09								
Thalweg	715.2								

NOTES:
1. * EEI Datum = FEMA Datum (NGVD29) + 0.16'
2. Both Abutments and Pier 1 are outside of the Fox River Floodplain.

**Per IDOT Drainage Manual, Chapter 10, Section 10-501-02, Entering Pier Scour Data into HEC-RAS, Page 51 of 53:

"The CSU equation is the default. … The user has the option to use the maximum velocity and depth in the main channel, or the local velocity and depth at each pier for the calculation of the pier scour. However, **using the maximum velocity and depth is recommended** in order to account for the potential of the main channel thalweg to migrate back and forth within the bridge opening. The migration of the main channel thalweg could cause the maximum potential scour to occur at any one of the bridge piers."

= revised per Ground Elev. on MAI TSL received 08/13/2012.


Bridge Scour RS = 423.8
NOTE: BOTH ABUTMENTS AND PIER 1 ARE OUTSIDE THE FP LIMITS.
Legend
WS 500 yr
Ground
Bank Sta
Contr Scour
Total Scour
Elevation (ft)
780
770
760
750
740
730
720
710
6800
7000
7200
7400
7600
7800
8000
Station (ft)
P7
P6
P5
P4
P3
P2
LOB
CH

500-YR SCOUR

500-yr Scour
CSU Eqn.

Contraction Scour

		Left	Channel	Right
Input Data				
	Average Depth (ft):	4.54	12.25	2.76
	Approach Velocity (ft/s):	0.89	3.24	0.63
	Br Average Depth (ft):	3.80	11.07	2.36
	BR Opening Flow (cfs):	1851.35	10645.51	28.14
	BR Top WD (ft):	563.63	312.00	20.55
	Grain Size D50 (mm):	.02	.02	.02
	Approach Flow (cfs):	1667.24	10731.76	126.00
	Approach Top WD (ft):	413.81	270.00	72.86
	K1 Coefficient:	0.690	0.690	0.690
Results				
	Scour Depth Ys (ft):	0.21	0.00	0.00
	Critical Velocity (ft/s):	0.58	0.69	0.54
	Equation:	Live	Live	Live

Pier Scour

All piers have the same scour depth

Input Data

Pier Shape:	Round nose
Pier Width (ft):	4.00
Grain Size D50 (mm):	0.02000
Depth Upstream (ft):	15.29
Velocity Upstream (ft/s):	3.57
K1 Nose Shape:	1.00
Pier Angle:	0.00
Pier Length (ft):	85.00
K2 Angle Coef:	1.00
K3 Bed Cond Coef:	1.10
Grain Size D90 (mm):	0.30000
K4 Armouring Coef:	1.00

clay loam

Results

Scour Depth Ys (ft):	6.41
Froude #:	0.16
Equation:	CSU equation

Combined Scour Depths

Pier Scour + Contraction Scour (ft):

Left Bank:	6.62
Channel:	6.41
Right Bank:	6.41

500-YR SCOUR
CSU Eqn.

Contraction Scour

		Left	Channel	Right
Input Data				
	Average Depth (ft):	4.54	12.25	2.76
	Approach Velocity (ft/s):	0.89	3.24	0.63
	Br Average Depth (ft):	3.80	11.07	2.36
	BR Opening Flow (cfs):	1851.35	10645.51	28.14
	BR Top WD (ft):	563.63	312.00	20.55
	Grain Size D50 (mm):	.5	.5	.5
	Approach Flow (cfs):	1667.24	10731.76	126.00
	Approach Top WD (ft):	413.81	270.00	72.86
	K1 Coefficient:	0.690	0.690	0.690
Results				
	Scour Depth Ys (ft):	0.00	0.00	0.00
	Critical Velocity (ft/s):	1.70	2.01	1.56
	Equation:	Clear	Live	Clear

Pier Scour

All piers have the same scour depth

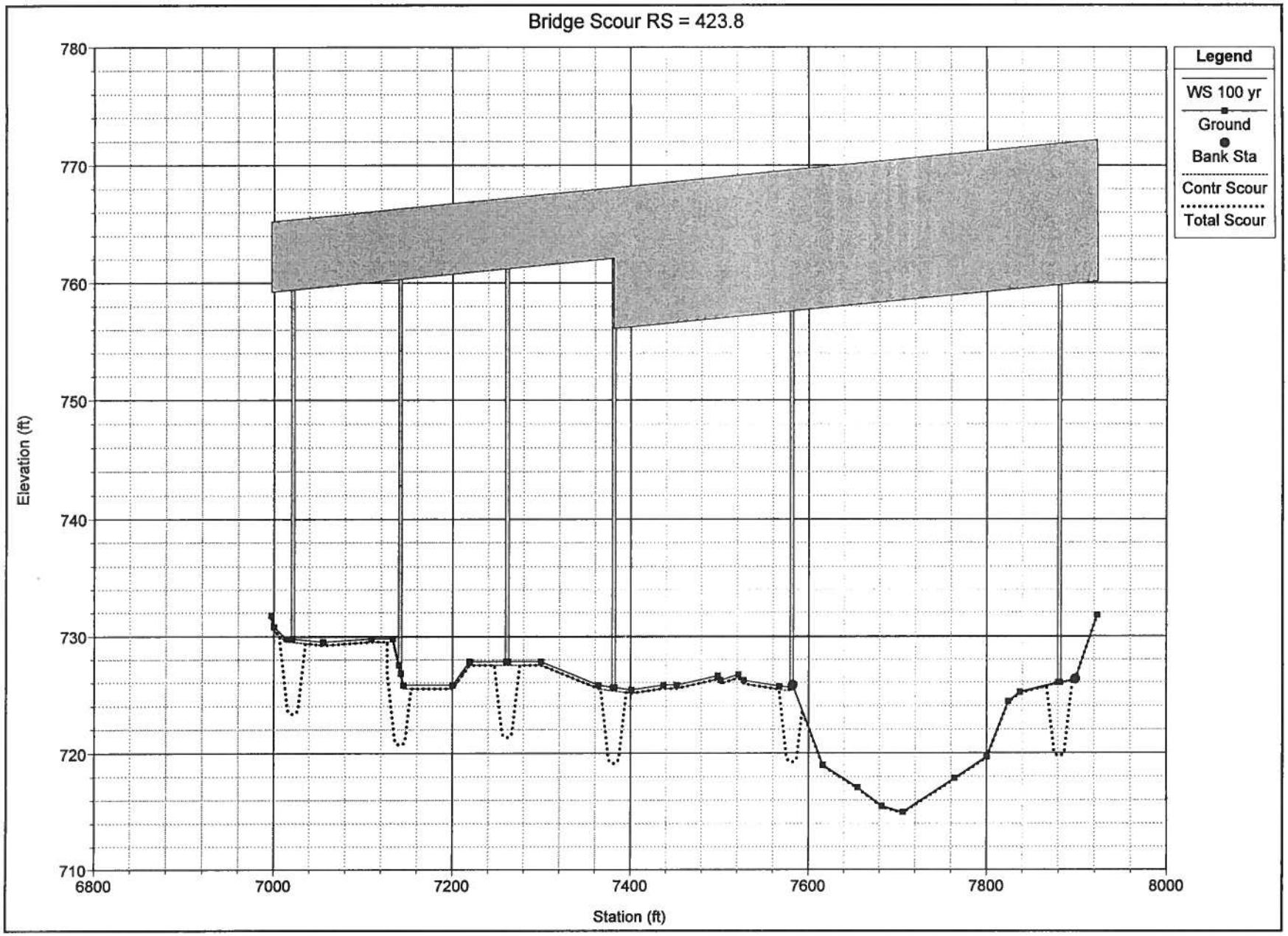
Input Data

	Pier Shape:	Round nose
	Pier Width (ft):	4.00
	Grain Size D50 (mm):	0.50000
	Depth Upstream (ft):	15.29
	Velocity Upstream (ft/s):	3.57
	K1 Nose Shape:	1.00
	Pier Angle:	0.00
	Pier Length (ft):	85.00
	K2 Angle Coef:	1.00
	K3 Bed Cond Coef:	1.10
	Grain Size D90 (mm):	10.00000
	K4 Armouring Coef:	1.00

gravelly sand
(for sensitivity analysis)

Results

	Scour Depth Ys (ft):	6.41
	Froude #:	0.16
	Equation:	CSU equation



21025 2% - 100 Scour

100-YR SCOUR
CSU Eqn.

Contraction Scour

		Left	Channel	Right
Input Data				
	Average Depth (ft):	3.50	11.18	2.23
	Approach Velocity (ft/s):	0.73	2.97	0.53
	Br Average Depth (ft):	2.80	9.99	1.82
	BR Opening Flow (cfs):	1153.24	8927.84	13.93
	BR Top WD (ft):	550.88	312.00	15.86
	Grain Size D50 (mm):	.02	.02	.02
	Approach Flow (cfs):	1052.59	8973.39	69.02
	Approach Top WD (ft):	410.77	270.00	58.71
	K1 Coefficient:	0.690	0.690	0.690
Results				
	Scour Depth Ys (ft):	0.29	0.08	0.00
	Critical Velocity (ft/s):	0.56	0.68	0.52
	Equation:	Live	Live	Live

Pier Scour

All piers have the same scour depth

Input Data		
	Pier Shape:	Round nose
	Pier Width (ft):	4.00
	Grain Size D50 (mm):	0.02000
	Depth Upstream (ft):	14.21
	Velocity Upstream (ft/s):	3.34
	K1 Nose Shape:	1.00
	Pier Angle:	0.00
	Pier Length (ft):	85.00
	K2 Angle Coef:	1.00
	K3 Bed Cond Coef:	1.10
	Grain Size D90 (mm):	0.30000
	K4 Armouring Coef:	1.00
Results		
	Scour Depth Ys (ft):	6.17
	Froude #:	0.16
	Equation:	CSU equation

clay loam

Combined Scour Depths

Pier Scour + Contraction Scour (ft):

Left Bank:	6.46
Channel:	6.26
Right Bank:	6.17

Table 4.2. Soil Properties and Summary Statistics for Samples used in Scour Prediction

Sample	Soil Classification AASHTO	IDOT	Wet Density lbs/ft³	Percent Moisture Content	Unconfined Compressive Strength (tons/ft²)	Liquid Limit	Plastic Limit	Plasticity Index	Mean Particle Size (D_{50}) mm	Percent Gravel	Percent Sand	Percent Silt	Percent Clay
1-1 Soil 1	A-7-5(29)	Silty Clay	104.2	45.0	0.27	59	34	25	0.0041	0.5	18.2	54.5	20.9
1-4 Soil 1	A-6 (02)	Sand Loam	133.3	19.8	2.39	28	17	11	0.0148	30.4	16.3	46.8	32.1
1-4 Soil 2	A-4 (2)	Silt Loam	142.0	17.3	0.19	21	16	5	0.0100	0.8	32.4	29.7	16.4
1-4 Soil 3	A-4 (3)	Clay Loam	135.3	15.1	3.52	23	15	8	0.0217	13.9	32.9	36.2	15.9
1-4 Soil 4	A-4 (3)	Silty Clay-Loam	139.4	16.7	1.78	22	15	7	0.0149	6.4	37.7	41.2	16.5
1-6 Soil 1	A-7-6(20)	Clay	112.7	35.7	0.18	51	27	24	0.0084	4.8	15.0	61.5	23.5
1-7 Soil 1	A-6 (02)	Sand Loam	130.9	21.1	0.72	33	21	12	0.1296	21.5	14.7	65.0	20.3
1-7 Soil 2	A-4 (2)	Loam	119.8	23.4	0.60	27	18	9	0.0679	15.0	31.0	38.8	22.4
3-25 Soil 1	A-4 (0)	Loam	140.3	10.4	1.20	17	13	4	0.0591	4.6	30.7	42.1	20.9
4-5 Soil 1	A-6 (09)	Silty-Clay Loam	118.8	29.2	0.21	32	20	12	0.0148	0.0	12.0	65.6	21.5
4-5 Soil 2	A-4 (8)	Silty-Clay Loam	123.2	27.0	0.66	30	20	10	0.0204	0.0	31.3	46.1	18.1
5-17 Soil 1	A-4 (1)	Clay-Loam	143.0	11.7	5.47	21	14	7	0.0213	7.8	31.4	48.7	18.7
5-20 Soil 1	A-4 (3)	Clay-Loam	140.1	13.4	3.53	24	15	9	0.0274	6.3	32.0	42.7	18.7
6-22 Soil 1	A-4 (8)	Silty-Clay Loam	119.5	20.2	0.97	33	22	11	0.0167	0.9	4.0	66.9	29.0
7-1 Soil 1	A-4 (4)	Loam	118.6	23.6	0.21	27	17	10	0.0331	4.5	6.3	68.2	25.4
7-1 Soil 2	A-4 (3)	Loam	119.0	23.1	0.25	25	17	8	0.0304	1.2	29.1	49.8	21.1
7-18 Soil 1	A-4 (1)	Loam (Till)	143.1	9.8	7.53	19	13	6	0.0345	6.6	6.2	68.8	25.0
8-3 Soil 1	A-6 (17)	Silty-Clay Loam	119.7	23.5	0.81	38	21	17	0.0095	0.1	4.8	70.2	25.0
8-50 Soil 1	A-6 (10)	Silty Clay-Loam	121.1	24.1	0.51	30	18	12	0.0105	0.1	18.2	54.5	20.9
9-1 Soil 1	A-6 (06)	Clay Loam	125.5	24.9	0.18	28	16	12	0.0314	0.0	16.3	46.8	32.1
9-2 Soil 1	A-6 (12)	Silty Clay-Loam	118.0	23.7	0.47	33	19	14	0.0173	0.0	32.4	29.7	16.4
9-2 Soil 2	A-6 (14)	Silty Clay-Loam	118.5	21.3	0.49	34	19	15	0.0171	0.0	32.9	36.2	15.9
Maximum			143.1	45.0	7.5	59	34	25	0.1296	30.4	37.7	75.2	39.6
Minimum			104.2	9.8	0.2	17	13	4	0.0041	0.0	4.0	29.7	15.8
Median			122.2	22.2	0.6	28	17	11	0.0189	2.9	18.1	49.3	21.0
Average			126.6	21.8	1.5	29	18	11	0.0280	5.7	19.9	52.3	22.2
Standard Deviation			11.2	8.1	1.9	9.9	4.8	5.3	0.0275	8.0	11.5	13.5	5.7

Similar to 5-095 clay loam

Various Soil D_{50}

Various Soil d_{50} & d_{95}

Table 2. Particle Size Characteristics of Bank Material Samples

Sample number	d_{50} (mm)	d_{95} (mm)	σ	U	Remarks
Reach 1, river mile 24 4					
116	0.013	0.13			Clayey silt
115	0.014	0.065			Clayey silt
Reach 2, river mile 38.4					
111	0.021	0.19			Silt
Reach 3, river mile 60.2					
107	0.04	0.175	5.88		Sandy silt
105	0.063	0.19	4.74	30.40	Sandy silt
Reach 4, river mile 82.1					
100	0.012	0.20			Clayey silt
99	0.15	0.24	1.59	2.83	Fine sand
98	0.17	0.32	4.60	23-75	Fine-to-medium sand
Reach 5, river miles 101.0 to 102.0					
124	0.018	0.51			≈ clay loam Sandy clayey silt
123	0.017	0.26			Sandy clayey silt
122	0.014	0.27			Sandy clayey silt
Reach 6, river mile 104.0					
92	0.01	0.30			Clayey silt
91	0.0084	0.065			Clayey silt
90	0.0034	0.042			Silty clay
Reach 7, river mile 113.0					
89	0.016	0.17			Silt
88	0.027	0.20			Silt ≈ gravelly sand
Reach 8, river mile 116.5					
85	0.52	10.0	6.23	5.0	Fine-to-coarse sand
84	0.27	0.44	1.75	3.29	Fine sand
83	0.008	0.19			Silty clay
Reach 9, river mile 121.4					
80	0.75	13.0	5.14	4.31	Fine-to-coarse sand
79	2.40	36.0	7.07	16.07	Fine-to-coarse sand and gravel
Reach 10, river mile 126.0					
77	0.019	1.0			Silt
76	0.0115	0.24			Silt
75	0.034	0.25			Silt
Reach 11, river mile 134.0					
73	0.24	0.55	1.50	1.80	Medium-to-fine sand
72	0.23	0.70	1.87	3.43	Medium-to-fine sand
71	0.0074	0.075			Clayey silt
Reach 12, river mile 142.5					
68	0.035	0.12	2.63		Mottled gray silt
67	0.0073	0.14			Clayey silt
66	0.013	0.49			Clayey silt
Reach 13, river mile 150.0					
64	0.0073	0.26			Clayey silt
63	0.17	0.42	15.14	115.0	Silty fine-to-coarse sand
62	0.032	0.40	17.83		Sandy silt
Reach 14, river mile 154.0					
60	0.14	0.24	2.98	15.0	Fine-to-medium sand
59	0.04	0.20	8.04		Sandy silt
58	0.05	0.15	6.10		Sandy silt
Reach 15i, river mile 180.0					
53	0.26	5.0	4.48	40.0	Fine-to-coarse sand
52	0.19	0.38	10.26	80.0	Silty fine-to-medium sand
51	0.017	0.24			Clayey silt
Reach 16i, river miles 204.0-204.5					
47	0.005	0.27			Clayey silt
46	0.0033	0.20			Clayey silt
Reach 17, river mile 213.0					
44	0.17	0.26	1.11	2.25	Fine sand
43	0.042	0.23	12.40		Sandy silt
Reach 18, river mile 227.5					
39	0.29	0.94	2.56	34.0	Fine-to-coarse sand
38	0.08	0.27	11.65	105.0	Silty fine sand
37	0.12	0.27	10.19	80.0	Silty fine sand
36	0.011	0.13			Clayey silt
Reach 18, river mile 228.5					
28	0.024	0.24	12.77		Sandy silt
27	0.23	0.40	1.57	3.0	Fine-to-medium sand
26	0.12	0.35	11.08	62.96	Silty fine-to-medium sand
Reach 19, river mile 229.0					
32	0.27	0.45	4.56	25.45	Fine-to-medium sand
31	0.06	0.24	11.58		Sandy silt
30	0.07	0.28	10.46		Fine-to-medium sand
29	0.20	0.39	1.29	1.4	Fine sand
Reach 20, river mile 228.9					
35	0.08	8.0	25.0		Sandy silt
34	0.29	0.57	1.67	3.16	Medium-to-fine sand
33	0.39	0.53	1.44	2.15	Medium-to-fine sand
Reach 21, river mile 235.6					
24B	0.23	1.10	29.82		Silty fine-to-coarse sand
24A	0.18	0.5	20.94		Silty fine-to-coarse sand
23	0.40	15.0	1.80	1.96	Fine-to-coarse sand
Reach 22, river mile 262.0					
18	0.02	0.18			Little clay and fine sand
17	0.24	0.47	1.42	1.63	Fine-to-medium sand
Reach 23, river mile 267.9					
15	0.35	7.0	4.83	4.50	Fine-to-coarse sand
14	2.0		30.13	427.27	Fine-to-coarse sand
13	0.075	0.38			Silty fine-to-medium sand
Reach 24, river mile 276.8					
9	20.0	67.0	1667.92		Fine-to-coarse gravel
7,8	14.0	103.0	6.52	28.57	Sandy fine-to-coarse gravel

SECTION 11

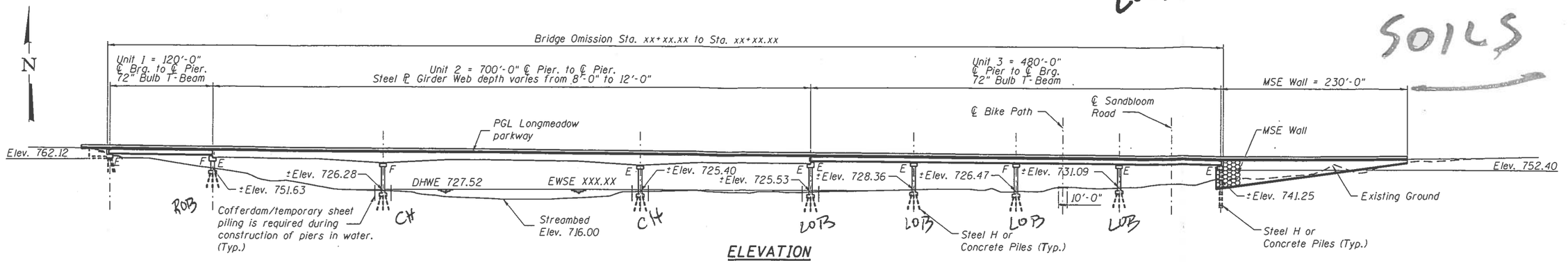
BORING DATA

Bench Mark: Chis. " ▭ " S.E. COR. CONC. SLAB.
The INT. of ILL. 31 and Miller Rd. go N. 0.9 MI ± to Mark.
Elev. 806.34

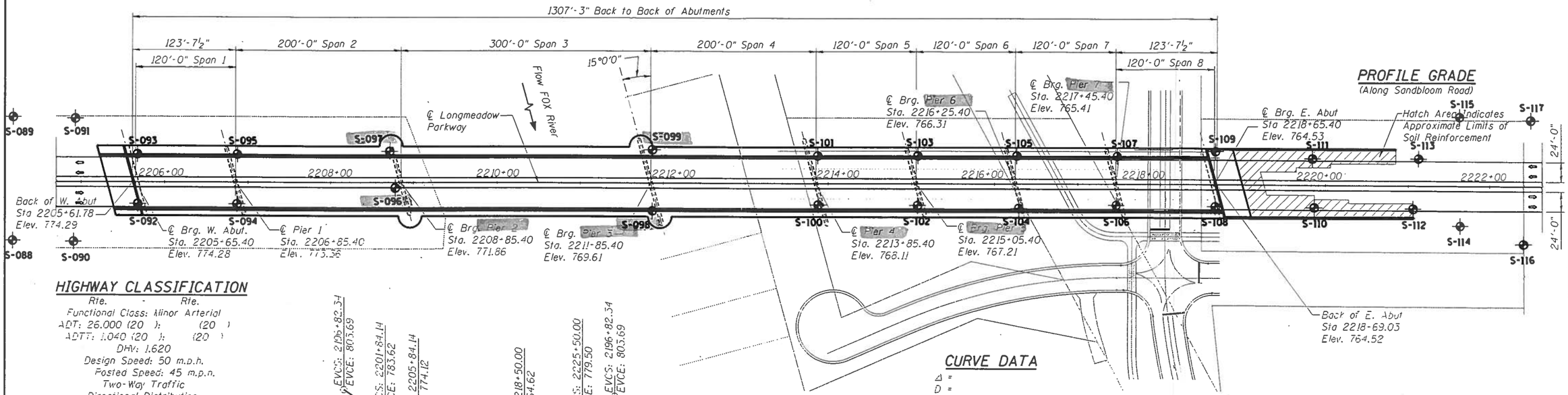
BORING LOCATIONS

SOILS

LEGEND



ELEVATION



PROFILE GRADE
(Along Sandbloom Road)

PLAN

HIGHWAY CLASSIFICATION

Rte. - Rte.
Functional Class: Minor Arterial
ADT: 26,000 (20): (20)
ADTT: 1,040 (20): (20)
DHV: 1,620
Design Speed: 50 m.p.h.
Posted Speed: 45 m.p.h.
Two-Way Traffic
Directional Distribution:

LOADING HL-93

Allow 50#/sq. ft. for future wearing surface.

DESIGN SPECIFICATIONS

2010 AASHTO LRFD Bridge Design Specifications

DESIGN STRESSES

FIELD UNITS

f'c = 3,500 psi
fy = 60,000 psi (Reinforcement)
fy = 50,000 psi (M270 Grade 50)

SEISMIC DATA

Seismic Performance Zone (SPZ) =
Design Spectral Acceleration at 1.0 sec. (S_{D1}) =
Design Spectral Acceleration at 0.2 sec. (S_{DS}) =
Soil Site Class =

PVI STA=2203+84.14
PVI ELEV=775.62
A.D.=-3.25
K=123.08

PVI STA=2222-00
PVI ELEV=762.00
LOW PT STA 2219-41
LOW PT ELEV. 764.35
A.D.=-5.75
K=121.74

PROFILE GRADE
(Along Longmeadow Parkway)

INSTREAM WORK

CURVE DATA

Δ =
D =
T =
L =
E =
R =
S.E. =
P.C. = Sta.
P.T. = Sta.
P.I. = Sta.

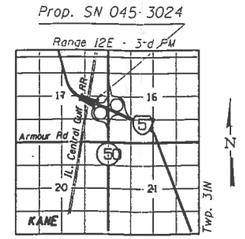
DESIGN SCOUR ELEVATION TABLE

Design Scour Elevation (ft.)	-. Abut.	Pier -	-. Abut.

WATERWAY INFORMATION

Drainage Area = 1364 sq. mi. Low Grade Elev. 764.35 @ Sta. 2219+41

Flood	Freq. Yr.	Q C.F.S.	Opening Sq. Ft. Exist.	Opening Sq. Ft. Prop.	Nat. H.W.E.	Head. - Ft. Exist.	Head. - Ft. Prop.	Headwater El. Exist.	Headwater El. Prop.
	10	5775	2057.30	2057.30	726.20	0.00	0.01	726.20	726.21
Design	50	8343	2883.50	2883.50	727.52	0.00	0.02	727.52	727.54
Base	100	10095	3435.10	3435.10	728.28	0.00	0.02	728.28	728.30
Overtopping	-	-	-	-	-	-	-	-	-
Max. Calc.	500	12525	4141.10	4141.10	729.20	0.00	0.03	729.20	729.23



LOCATION SKETCH

OFFSET SKETCH

GENERAL PLAN & ELEVATION
LONGMEADOW PARKWAY OVER FOX RIVER
F.A.I. RTE. XXX - SEC 94-00215-01-ES
KANE COUNTY
STATION 2210+35.40
SN. 045-3024

McDonough Associates Inc.
Engineers / Architects
150 East Randolph Street Chicago, Illinois 60601

FILE NAME =	USER NAME = MANTAS	DESIGNED -	REVISED -
C:\Documents and Settings\MANTAS\Local Settings\Temporary Internet Files\Content.Outlook\CHECKED\K16\TSL-001.dgn		CHECKED -	REVISED -
	PLOT SCALE = 124'	DRAWN -	REVISED -
	PLOT DATE = 1/21/2011	CHECKED -	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

SHEET NO. OF SHEETS

F.AS. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
#RTE#	#SECT#	#CNTY#	#TOT#	#SHT#
		CONTRACT NO. #CON#		
FED. ROAD DIST. #DIST#	ILLINOIS	FED. AID PROJECT		

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Fax: 630-953-9938

BORING LOG S-094

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 752.64 ft
North: 1993516.01 ft
East: 998358.59 ft
Station: 2206+85.26
Offset: 29.96R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		14-inch thick, black SILTY CLAY LOAM						
	751.4	–TOPSOIL–						
		Medium dense, brown GRAVELLY SANDY LOAM			1	9 13 19	NP	8
	748.9	Medium stiff to very stiff, brown to gray CLAY LOAM with interbedded sand lenses						
			5		2	13 11 10	2.00 P	12
					3	5 5 12	2.00 P	12
			10		4	5 6 11	—	
					5	2 5 7	2.21 B	14
			15		6	2 3 4	0.98 B	14
					7	2 3 4	0.57 B	14
			20		8	2 3 3	0.57 B	14
					9	1 3 4	0.82 B	14
			25		10	4 4 5	1.56 B	13
			30		11	4 4 7	1.39 B	13
					12	3 5 8	1.07 B	14
			35		13	5 7 9	2.54 B	14
			40		14	2 5 8	0.74 B	15
			45		15	4 7 9	1.48 B	14
			50		16	3 6 10	2.30 B	14

GENERAL NOTES

Begin Drilling: 05-13-2005 Complete Drilling: 05-16-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: W. Wang Checked by: J. Kasnick
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 67.00 ft
At Completion of Drilling: ▼ 11.60 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG S-094

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 752.64 ft
North: 1993516.01 ft
East: 998358.59 ft
Station: 2206+85.26
Offset: 29.96R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			55		17	4 7 10	1.64 B	14
			60		18	8 9 13	2.05 B	13
			65		19	7 9 15	1.97 B	13
			70		20	6 10 14	1.56 B	11
			75		21	11 16 20	2.62 B	13
	675.6	Very dense, brown GRAVELLY SAND	80		22	22 40 60	NP	11
	669.1	Boring terminated at 83.50 ft	85					
			90					
			95					
			100					

GENERAL NOTES

Begin Drilling: 05-13-2005 Complete Drilling: 05-16-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: W. Wang Checked by: J. Kasnick
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 67.00 ft
At Completion of Drilling: ▽ 11.60 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-095

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 749.36 ft
North: 1993576.04 ft
East: 998358.63 ft
Station: 2206+85.66
Offset: 30.06L

Depth (ft)	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		18-inch thick, medium stiff, black SILTY CLAY LOAM					
	747.9	–TOPSOIL–					
		Medium stiff to hard, brown to gray CLAY LOAM					
				1	4 5 7	2.25 P	13
5				2	5 8 12	2.46 B	12
				3	4 7 13	1.97 B	13
10				4	5 10 11	4.20 B	11
				5	4 6 10	1.97 B	13
15				6	4 4 8	1.07 B	13
				7	2 3 6	1.31 B	14
20				8	3 3 5	1.00 P	15
				9	3 4 3	0.66 B	14
25				10	2 4 8	1.39 B	13
				11	3 6 7	1.48 B	13
		–A-4 (4)–					
		–LL=21%, PL=11%–		12	4 5 7	0.82 B	12
30		GRAVEL=6.6%					
		SAND=24.1%					
		SILT=42.0%					
		CLAY=27.2%					
35				13	4 6 5	1.15 B	13
				14	3 6 9	2.05 B	13
40							
45				15	3 6 7	1.39 B	15
50				16	5 8 12	1.00 P	14

GENERAL NOTES

Begin Drilling: 05-12-2005 Complete Drilling: 05-13-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: W. Wang Checked by: J. Kasnick
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ DRY
At Completion of Drilling: ▼ DRY
Time After Drilling: NA
Depth to Water: ▼ NA

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BORING LOG S-095

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.

Project: Longmeadow Parkway over Fox River, Section

Location: Co.

Datum: NGVD
Elevation: 749.36 ft
North: 1993576.04 ft
East: 998358.63 ft
Station: 2206+85.66
Offset: 30.06L

Depth (ft)	Elevation (ft)	Profile	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
55					17	5 7 10	2.21 B	14
60					18	6 7 12	1.97 B	14
65					19	8 9 13	2.05 B	14
70					20	8 13 16	1.97 B	13
75					21	9 39 49	NP	12
	677.9		Very dense, gray SANDY LOAM to LOAM					
80	670.1		Very stiff to hard, gray CLAY LOAM, with interbedded sand lenses		22	11 22 21	5.08 B	11
85					23	6 15 23	3.20 B	12
90	659.4		Boring terminated at 90.00 ft		24	12 16 23	2.50 P	13
95								
100								

GENERAL NOTES

Begin Drilling: 05-12-2005 Complete Drilling: 05-13-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: W. Wang Checked by: J. Kasnick
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ DRY
At Completion of Drilling: ▼ DRY
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-096

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 726.29 ft
North: 1993536.94 ft
East: 998549.60 ft
Station: 2208+76.4
Offset: 10.17R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		Soft to stiff, black and brown SILTY CLAY LOAM –TOPSOIL–			1	2 4 5	0.50 P	34
	722.3	Stiff, brown and gray CLAY	5		2	2 5 6	1.23 B	28
	720.8	Medium dense, brown GRAVELLY SAND			3	8 6 8	NP	
	718.3	Stiff to very stiff, brown to gray CLAY LOAM	10		4	4 4 7	1.07 B	13
					5	5 7 10	2.50 P	12
			15		6	9 11 10	—	12
	710.8	Very dense, gray GRAVELLY SAND			7	21 30 36	NP	12
	708.3	Stiff to hard, gray CLAY LOAM to CLAY	20		8	7 11 14	3.85 B	11
					9	8 10 18	4.59 B	12
			25		10	6 11 13	4.18 B	13
			30		11	6 8 12	3.77 B	14
					12	7 12 13	1.75 P	23
			35		13	7 12 15	1.56 B	14
			40		14	6 9 13	2.62 B	14
			45		15	17 12 18	1.97 B	14
			50		16	8 9 15	2.05 B	15

GENERAL NOTES

Begin Drilling: 05-16-2005 Complete Drilling: 05-17-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: T. Rickey Checked by: J. Kasnick
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 13.00 ft
At Completion of Drilling: ▼ 41.00 ft
Time After Drilling: 24 hrs hours
Depth to Water: ▼ 12.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG S-096

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 726.29 ft
North: 1993536.94 ft
East: 998549.60 ft
Station: 2208+76.4
Offset: 10.17R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			55		17	8 13 19	2.38 B	13
		–A-6 (5)– –LL=23%, PL=11%– GRAVEL=5.3% SAND=23.4% SILT=41.1% CLAY=30.2%	60		18	7 15 18	2.62 B	13
			65		19	7 17 50	2.21 B	14
	659.8	Medium dense GRAVEL, with sand						
	657.3	Weathered LIMESTONE	70		20	11 19 53	NP	19
					21	42 28 37	NP	14
	654.8	–AUGUR REFUSAL– Boring terminated at 71.50 ft	75					

GENERAL NOTES

Begin Drilling: 05-16-2005 Complete Drilling: 05-17-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: T. Rickey Checked by: J. Kasnick
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 13.00 ft
At Completion of Drilling: ▼ 41.00 ft
Time After Drilling: 24 hrs hours
Depth to Water: ▼ 12.00 ft

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG S-097

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 725.83 ft
North: 1993581.20 ft
East: 998542.73 ft
Station: 2208+69.79
Offset: 34.12L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		24-inch thick, medium stiff, black and brown SILTY CLAY LOAM –TOPSOIL–						
	723.8	Stiff, black and brown SILTY CLAY LOAM			1	4 7 11	0.75 P	48
			5		2	4 6 7	1.00 P	30
	719.3	Dense, red, brown and black SAND, with gravel			3	4 6 13	1.50 P	37
			10		4	11 17 19	NP	9
	715.3	COBBLES and BOULDERS			5		—	
	712.8	Very dense, brown GRAVELLY SAND, with cobbles			6	25 50/2"	NP	11
	710.8	COBBLES and BOULDERS	15		7	21 17 11	—	
	706.8	Stiff to very stiff, dark brown to gray CLAY LOAM, with interbedded sand lenses	20		8	7 11 19	2.21 B	13
					9	5 11 13	2.95 B	13
			25		10	5 10 13	3.20 B	13
			30		11	4 8 11	2.30 B	14
					12	4 7 10	1.39 B	15
			35		13	5 6 7	1.48 B	14
			40		14	4 7 11	2.05 B	14
			45		15	4 8 10	1.89 B	14
			50		16	4 10 12	1.80 B	13

GENERAL NOTES

Begin Drilling: 05-17-2005 Complete Drilling: 05-18-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: T. Rickey Checked by: J. Kasnick
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 6.50 ft
At Completion of Drilling: ▽ 4.00 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-097

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.

Project: Longmeadow Parkway over Fox River, Section

Location: Co.

Datum: NGVD
Elevation: 725.83 ft
North: 1993581.20 ft
East: 998542.73 ft
Station: 2208+69.79
Offset: 34.12L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			55		17	4 10 13	2.54 B	13
			60		18	7 10 16	1.72 B	14
			65		19	5 26 15	1.15 B	14
	658.3	–AUGER REFUSAL–						
		Very strong, white to gray with green hue, moderately weathered, fossiliferous, finely crystalline LIMESTONE, laminated to thinly bedded with narrow to moderately wide joint spacing, with vugs and channelized pores. RUN 1: 67.5 to 72.5 feet Recovery = 97% RQD = 19%	70		1	CORE		
		RUN 2: 72.5 to 77.5 feet Recovery = 100%	75			CORE		
		RQD = 26%	80		2			
	648.3	Boring terminated at 77.50 ft	85					
			90					
			95					
			100					

GENERAL NOTES

Begin Drilling: 05-17-2005 Complete Drilling: 05-18-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: T. Rickey Checked by: J. Kasnick
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 6.50 ft
At Completion of Drilling: ▼ 4.00 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG S-098

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 725.34 ft
North: 1993511.85 ft
East: 998858.63 ft
Station: 2211+85.27
Offset: 37.12R

Elevation (ft)	Depth (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
724.8	0	6-inch thick, gray SANDY CLAY LOAM –TOPSOIL–					
		Very loose to loose, brown and gray SILTY LOAM		1	4 2 1	NP	9
	5			2	2 2 4	NP	11
719.8		Medium dense to very dense, brown GRAVELLY SAND		3	17 33 40	NP	7
				4	21 37 37	NP	8
	10			5	41 19 32	NP	9
				6	12 17 15	NP	13
	15			7	2 5 20	NP	13
				8	10 20 29	NP	15
	20			9	4 8 15	NP	15
702.3		Stiff, gray SILTY CLAY					
	25			10	6 11 10	1.80 B	22
697.8		Stiff to very stiff, brown CLAY LOAM		11	64 50/4"	1.25 P	24
	30			12	6 7 8	1.39 B	15
				13	4 6 7	1.39 B	15
	35						
				14	5 6 9	1.72 B	11
	40						
				15	5 6 8	1.31 B	14
	45						
				16	6 11 11	2.05 B	14
	50						

GENERAL NOTES

Begin Drilling: 06-30-2005 Complete Drilling: 06-30-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: K. Anderson Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 5.50 ft
At Completion of Drilling: ▼ 4.00 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG S-098

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 725.34 ft
North: 1993511.85 ft
East: 998858.63 ft
Station: 2211+85.27
Offset: 37.12R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			55		17	7 11 13	2.38 B	13
			60		18	6 12 13	2.46 B	13
			65		19	6 13 22	2.87 B	12
	656.3				20	9 50/1"	2.75 P	13
	655.8	--WEATHERED BEDROCK--						
		--AUGER REFUSAL--	70					
		Very strong, bluish green, finely crystalline, thinly bedded, moderatley weathered DOLOMITIC LIMESTONE, with vuggy porosity, channel porostiy and frequent fractures --RECOVERY =99%-- --RQD=33%--		CORE	1			
	650.8							
		Very strong, gray, finely	75					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		crystalline, thinly laminated to thinly bedded, slight to moderately weathered DOLOMITIC LIMESTONE, with vuggy porosity --RECOVERY=96%-- --RQD=31%--			2	CORE		
	645.8							
		Very strong, gray, finely crystalline, thinly bedded, slightly weathered DOLOMITIC LIMESTONE, with vuggy porosity --RECOVERY=95%-- --RQD=36%--	80		3	CORE		
	640.8							
		Very strong, gray, fine crystalline, thinly laminated, slightly weathered DOLOMITIC LIMESTONE, with vuggy porosity and channel porosity --RECOVERY=95%-- --RQD=53%--	85		4	CORE		
	635.8							
		Boring terminated at 89.50 ft	90					
			95					
			100					

GENERAL NOTES

Begin Drilling: 06-30-2005 Complete Drilling: 06-30-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: K. Anderson Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 5.50 ft
At Completion of Drilling: ▽ 4.00 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-099

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 726.44 ft
North: 1993585.81 ft
East: 998858.47 ft
Station: 2211+85.55
Offset: 36.83L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	725.8	8-inch thick, dark brown SILTY CLAY –TOPSOIL–						
		Medium dense, black and brown SILTY LOAM			1	16 6 4	NP	14
	723.4	Loose, brown and gray LOAM			2	6 2 2	NP	25
	720.9	Medium dense, brown, medium SAND	5		3	6 7 7	NP	20
	718.4	Loose to dense, brown GRAVELLY SAND			4	4 15 14	NP	18
			10		5	12 22 20	NP	13
					6	5 12 11	NP	10
			15		7	4 9 11	NP	18
					8	3 2 3	NP	15
			20		9	11 18 23	NP	12
	702.2	Stiff to very stiff, gray SILTY			10	3 5 7	2.25 B	22
			25					
		CLAY, with interbedded sand and silt lenses						
	699.6	Very stiff to hard, gray CLAY LOAM			11	2 16 18	1.64 B	25
			30		12	4 6 9	2.46 B	13
			35		13	3 6 7	2.38 B	14
			40		14	3 5 6	2.46 B	14
			45		15	5 8 10	2.79 B	14
			50		16	7 9 12	3.77 B	13

GENERAL NOTES

Begin Drilling: 07-01-2005 Complete Drilling: 07-01-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: S&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 5.50 ft
At Completion of Drilling: ▼ 4.75 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-099

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 726.44 ft
North: 1993585.81 ft
East: 998858.47 ft
Station: 2211+85.55
Offset: 36.83L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	671.7	Dense, gray, fine to medium SAND	55		17	6 11 24	5.00 B	13
	667.4	Stiff to very stiff, brown CLAY LOAM	60		18	6 10 16	2.71 B	12
			65		19	6 12 14	3.53 B	12
	657.2				20	5 50/2"	1.97 B	14
	656.4	–WEATHERED BEDROCK– –AUGER REFUSAL–	70					
		Boring terminated at 70.00 ft						
			75					

GENERAL NOTES

Begin Drilling: 07-01-2005 Complete Drilling: 07-01-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: S&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 5.50 ft
At Completion of Drilling: ▼ 4.75 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-100

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 725.32 ft
North: 1993520.74 ft
East: 999059.38 ft
Station: 2213+86.07
Offset: 29.44R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	724.7	7-inch thick, brown LOAM –TOPSOIL–						
		Hard, dark brown and black SILTY CLAY to CLAY LOAM with cinders –FILL–			1	6 7 7	> 4.50 P	15
			5		2	7 4 5	4.25 P	20
	719.8	Medium dense to dense, brown and gray GRAVELLY SAND			3	4 3 9	NP	9
			10		4	5 9 13	NP	12
					5	5 11 26	NP	14
			15		6	9 9 9	NP	10
					7	6 9 11	NP	16
			20		8	5 8 14	NP	18
	704.8	Medium dense, brown, medium SAND with interbedded clay loam lenses			9	4 4 9	NP	19
			25		10	6 9 15	NP	22
	695.8	Dense to very dense, gray GRAVELLY SAND, with boulders and cobbles	30		11	6 9 15	NP	15
					12	8 20 17	NP	15
	686.3	Stiff to very stiff, gray CLAY LOAM	35		13	50/2"	—	
			40		14	15 6 9	1.72 B	14
			45		15	4 7 13	1.80 B	14
			50		16	5 7 11	2.71 B	14

GENERAL NOTES

Begin Drilling: 07-05-2005 Complete Drilling: 07-05-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: S&R Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▽ 4.00 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG S-100

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 725.32 ft
North: 1993520.74 ft
East: 999059.38 ft
Station: 2213+86.07
Offset: 29.44R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			55		17	5 6 12	3.20 B	14
			60		18	10 12 15	3.69 B	12
	661.6	Dense, gray SANDY LOAM	65		19	8 17 18	NP	13
	660.3	Boring terminated at 65.00 ft	70					
			75					

GENERAL NOTES

Begin Drilling: 07-05-2005 Complete Drilling: 07-05-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: S&R Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ 4.00 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-101

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 726.07 ft
North: 1993579.98 ft
East: 999058.47 ft
Station: 2213+85.52
Offset: 29.80L

Depth (ft)	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	725.3	9-inch thick, brown LOAM –TOPSOIL–					
		Stiff to very stiff, dark brown and black SILTY CLAY –FILL–		1	11 10 10	1.50 P	25
5				2	6 7 9	3.25 P	24
	720.6	Medium dense to very dense, brown GRAVELLY SAND		3	2 11 9	NP	15
10				4	4 11 13	NP	10
				5	13 27 23	NP	10
15				6	10 14 20	NP	11
				7	6 7 9	NP	8
20				8	6 10 16	NP	16
	705.6	Loose to dense, brown, medium SAND		9	2 4 4	NP	24
25				10	6 13 19	NP	24
30				11	8 14 19	NP	20
				12	5 6 12	NP	27
35	692.1	Medium dense, gray GRAVELLY SAND		13	5 8 20	NP	7
	689.1	Very stiff, gray CLAY LOAM					
40				14	7 10 16	2.21 B	14
45				15	11 12 13	3.36 B	14
50				16	7 14 15	3.77 B	13

GENERAL NOTES

Begin Drilling: 07-05-2005 Complete Drilling: 07-05-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 5.50 ft
At Completion of Drilling: ▼ 7.50 ft
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-101

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 726.07 ft
North: 1993579.98 ft
East: 999058.47 ft
Station: 2213+85.52
Offset: 29.80L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			55		17	8 12 15	3.28 B	13
	666.1		60		18	9 15 17	3.03 B	13
		Boring terminated at 60.00 ft	65					
			70					
			75					

GENERAL NOTES

Begin Drilling: 07-05-2005 Complete Drilling: 07-05-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 5.50 ft
At Completion of Drilling: ▼ 7.50 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-102

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 728.90 ft
North: 1993520.93 ft
East: 999178.38 ft
Station: 2215+05.07
Offset: 29.97R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	728.3	7-inch thick TOPSOIL –TOPSOIL–						
	727.4	Dense, brown GRAVELLY SANDY LOAM –FILL–			1	9 17 15	NP	5
		Hard, brown CLAY LOAM –FILL–	5		2	8 14 15	> 4.50 P	9
	723.4	Stiff, black, brown, and gray SILTY CLAY –FILL–			3	5 4 11	1.39 B	18
	720.9	Medium dense to dense, brown and gray GRAVELLY SAND	10		4	4 6 13	NP	11
					5	8 20 20	NP	9
			15		6	7 15 21	NP	11
					7	6 16 19	NP	11
			20		8	11 10 17	NP	11
	708.4	Loose to dense, brown, fine to coarse SAND			9	12 21 18	NP	15
			25		10	3 4 9	NP	14
			30		11	2 3 3	NP	18
					12	3 4 9	NP	22
			35		13	4 8 12	NP	12
	689.9	Stiff to very stiff, gray CLAY LOAM	40		14	4 9 14	3.36 B	14
			45		15	7 8 9	1.07 B	15
	681.4	Medium dense, brown, medium SAND						
	679.9	Very stiff, gray CLAY LOAM	50		16	8 9 13	NP	16

GENERAL NOTES

Begin Drilling: 07-06-2005 Complete Drilling: 07-06-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: S&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ 7.80 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG S-102

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 728.90 ft
North: 1993520.93 ft
East: 999178.38 ft
Station: 2215+05.07
Offset: 29.97R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	673.9	Boring terminated at 55.00 ft	55		17	1 3 7	2.30 B	13
			60					
			65					
			70					
			75					

GENERAL NOTES

Begin Drilling: 07-06-2005 Complete Drilling: 07-06-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: S&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ 7.80 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-103

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 728.83 ft
North: 1993580.85 ft
East: 999178.46 ft
Station: 2215+05.51
Offset: 29.95L

Elevation (ft)	Depth (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
728.3		6-inch thick, brown SILTY LOAM –TOPSOIL–					
726.8		Dense, black anf brown LOAM with cinders –FILL–		1	11 15 15	NP	14
		Stiff, brown CLAY LOAM –FILL–		2	4 6 7	1.56 B	13
724.6	5	Stiff, black SILTY CLAY –FILL–					
723.3		Soft, black, brown, and gray gravelly SANDY CLAY		3	3 4 7	0.41 B	26
720.8	10	Medium dense to very dense, brown GRAVELLY SAND		4	7 10 13	NP	12
				5	13 20 27	NP	11
	15			6	9 13 13	NP	13
				7	10 18 21	NP	11
	20			8	11 16 17	NP	16
				9	20 24 37	NP	10
	25			10	8 13 18	NP	10
702.1	30	Medium dense, brown, medium SAND		11	16 11 16	NP	18
				12	7 12 15	NP	27
696.8	35	Stiff to very stiff, gray CLAY LOAM		13	7 11 14	2.62 B	13
	40			14	8 10 12	3.20 B	14
	45			15	5 8 10	1.64 B	14
	50			16	7 15 13	1.97 B	13

GENERAL NOTES

Begin Drilling: 07-05-2005 Complete Drilling: 07-06-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ 6.80 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-103

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 728.83 ft
North: 1993580.85 ft
East: 999178.46 ft
Station: 2215+05.51
Offset: 29.95L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			55		17	7 9 11	2.30 B	15
			60		18	6 9 11	2.05 B	13
			65		19	6 10 14	2.87 B	13
			70		20	12 18 19	3.94 B	12
	657.8	–WEATHERED BEDROCK–			21		—	
	656.8	–AUGER REFUSAL–				50/1		
		Very strong, gray, finely crystalline, thinly bedded, moderatley weathered DOLOMITIC LIMESTONE, with vuggy porosity and frequent	75		1	CORE		4
		fractures –RECOVERY =87.5%– –RQD=40%–						
	651.8	Boring terminated at 77.00 ft						
			80					
			85					
			90					
			95					
			100					

GENERAL NOTES

Begin Drilling: 07-05-2005 Complete Drilling: 07-06-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 8.00 ft
At Completion of Drilling: ▼ 6.80 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-104

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 726.33 ft
North: 1993518.51 ft
East: 999300.82 ft
Station: 2216+27.49
Offset: 33.12R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
		18-inch thick, black SILTY LOAM –TOPSOIL–						
	724.8							
	724.3	Stiff, brown and black CLAY LOAM			1	4 3 4	1.07 S	15
	723.3	Loose, gray SANDY LOAM						
		Very soft, gray SILTY CLAY LOAM with shells	5		2	1 2 1	< 0.25 P	35
	720.8							
		Medium dense to very dense, brown GRAVELLY SAND			3	12 16 17	NP	10
			10		4	12 20 32	NP	8
					5	13 20 31	NP	8
			15		6	4 14 18	NP	11
					7	5 10 15	NP	18
			20		8	13 20 38	NP	9
					9	11 15 17	NP	8
	703.3							
		Medium stiff to stiff, gray SILTY CLAY	25		10	5 7 9	0.66 B	22

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
					11	5 7 7	1.75 P	19
	698.3							
		Medium dense, gray, fine SAND						
	697.3							
		Medium stiff, gray SILTY CLAY with interbedded sand lenses	30		12	3 5 8	0.75 P	20
	694.3							
		Medium dense, brown, fine SANDY LOAM						
	692.3							
		Stiff to very stiff, gray CLAY LOAM	35		13	2 11 8	1.72 B	14
			40		14	7 8 11	1.25 P	15
			45		15	4 5 10	2.38 B	13
			50		16	6 9 13	2.38 B	13

GENERAL NOTES

Begin Drilling: 07-07-2005 Complete Drilling: 07-08-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: S&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 3.75 ft
At Completion of Drilling: ▼ DRY
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG S-104

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 726.33 ft
North: 1993518.51 ft
East: 999300.82 ft
Station: 2216+27.49
Offset: 33.12R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	671.3	Boring terminated at 55.00 ft	55		17	8 9 12	3.61 B	11
			60					
			65					
			70					
			75					

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)

GENERAL NOTES

Begin Drilling: 07-07-2005 Complete Drilling: 07-08-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: S&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 3.75 ft
At Completion of Drilling: ▼ DRY
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-105

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 725.81 ft
North: 1993581.79 ft
East: 999298.29 ft
Station: 2216+25.34
Offset: 30.17L

Depth (ft)	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	725.0	10-inch thick, black SILTY LOAM –TOPSOIL–					
		Very stiff, black and brown SILTY CLAY		1	3 5 5	2.50 P	27
	722.1	Loose, gray, medium SAND		2	2 2 2	2.25 P	17
5			▽				
	720.3	Dense, brown GRAVELLY SAND		3	7 15 16	NP	8
				4	9 20 24	NP	6
10				5	7 13 21	NP	8
				6	6 15 20	NP	8
15				7	5 15 19	NP	11
				8	5 19 21	NP	10
20				9	8 17 14	NP	8
	704.3	Very stiff, gray CLAY LOAM					
25				10	18 15 11	2.00 P	13
				11	8 8 12	3.61 B	13
30				12	4 5 10	3.77 B	13
				13	3 5 10	3.61 B	13
35							
				14	2 3 8	2.54 B	13
40							
				15	5 7 12	3.28 B	13
45							
				16	3 8 13	3.94 B	13
50	675.8	Boring terminated at 50.00 ft					

GENERAL NOTES

Begin Drilling: 07-06-2005 Complete Drilling: 07-07-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: S&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling ▽ 5.50 ft
At Completion of Drilling ▽ 4.25 ft
Time After Drilling: NA
Depth to Water ▽ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-106

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 731.32 ft
North: 1993523.14 ft
East: 999417.36 ft
Station: 2217+44.06
Offset: 29.19R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	731.0	4-inch thick, black SILTY LOAM –TOPSOIL–						
		Medium dense, brown and black SILTY LOAM –FILL–			1	6 5 5	NP	11
	728.3							
		Very stiff, dark brown SILTY CLAY LOAM with cinders and brick –FILL–	5		2	5 7 6	3.50 P	19
	725.8							
		Stiff, brown and gray SILTY CLAY with sand interbeds			3	6 8 9	1.64 B	16
	723.3							
		Dense to very dense, brown GRAVELLY SAND, with cobbles	10		4	8 23 29	NP	8
					5	27 27 31	NP	10
			15		6	28 26 34	NP	8
					7	14 16 20	NP	16
	713.3							
		Medium dense, brown SAND	20		8	6 9 12	NP	20
	710.8							
		Medium dense to very dense, brown and gray GRAVELLY SAND			9	26 49 25	NP	9
			25		10	32 17 15	NP	11
	703.3	Stiff to hard, gray CLAY LOAM			11	21 12 8	NP	11
			30		12	6 7 12	2.79 B	14
			35		13	6 8 12	4.67 B	13
			40		14	6 9 14	2.30 B	15
			45		15	5 6 12	1.97 B	13
			50		16	8 10 14	3.20 B	14
	681.3	Boring terminated at 50.00 ft						

GENERAL NOTES

Begin Drilling: 07-07-2005 Complete Drilling: 07-07-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: J. Kasnick Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 10.50 ft
At Completion of Drilling: ▼ 9.00 ft
Time After Drilling: NA
Depth to Water: ▼ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-107

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 729.66 ft
North: 1993582.29 ft
East: 999418.53 ft
Station: 2217+45.58
Offset: 29.94L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	729.2	6-inch gray SILTY CLAY LOAM –TOPSOIL–						
		Medium stiff to hard, black, brown and gray SILTY CLAY to SILTY CLAY LOAM –FILL–			1	7 6 5	4.50 P	13
			5		2	5 5 6	2.50 P	14
	724.2	Medium stiff, brown and gray SILTY CLAY LOAM with sand interbeds			3	4 5 6	0.66 B	21
	720.7	Dense, brown GRAVELLY SAND	10		4	17 22 14	NP	64
					5	11 25 24	NP	9
			15		6	7 15 19	NP	8
					7	13 24 25	NP	8
	710.7	Medium dense to very dense, gray, fine SAND	20		8	12 14 13	NP	9
					9	12 15 50/5"	NP	19
	706.7	Dense, gray SANDY GRAVEL						
			25		10	4 21 28	NP	10
	704.2	Stiff to hard, gray CLAY LOAM			11	5 8 12	2.30 B	14
			30		12	6 8 11	2.87 B	14
			35		13	5 10 15	1.39 B	14
			40		14	3 5 10	1.97 B	14
			45		15	5 9 15	4.26 B	14
	679.7	Boring terminated at 50.00 ft	50		16	2 7 14	2.71 B	14

GENERAL NOTES

Begin Drilling: 07-08-2005 Complete Drilling: 07-08-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: K. Anderson Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 11.25 ft
At Completion of Drilling: ▽ 9.00 ft
Time After Drilling: NA
Depth to Water: ▽ NA

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BORING LOG S-108

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 741.75 ft
North: 1993522.46 ft
East: 999538.07 ft
Station: 2218+64.88
Offset: 30.31R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	741.2	6-inch, black LOAM –TOPSOIL–						
		Looose to medium dense, brown GRAVELLY SAND –FILL–			1	13 5 4	NP	4
			5		2	12 5 5	NP	5
	736.2	Stiff, brown SILTY CLAY LOAM –FILL–			3	7 5 5	1.25 P	18
	733.7	Medium dense, brown and black LOAM –FILL–	10		4	9 6 22	NP	15
	731.2	Dense to very dense, brown GRAVELLY SAND			5	1 10 21	NP	5
			15		6	19 26 31	NP	5
					7	50 50 26	NP	5
					8	50/3"	NP	3
			20					
	720.2	Stiff to very stiff, brown and gray SILTY CLAY			9	64 10 10	1.75 P	13
			25		10	11 8 17	3.00 P	19
	712.5	Stiff to very stiff, gray CLAY LOAM	30		11	6 18 50/5"	1.25 P	20
					12	12 16 20	—	
			35		13	7 7 11	3.00 P	15
			40		14	9 11 14	2.50 P	13
			45		15	8 11 10	1.50 P	15
			50		16	11 10 14	2.25 P	10

GENERAL NOTES

Begin Drilling: 07-11-2005 Complete Drilling: 07-11-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: J&L Logger: K. Anderson Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 25.50 ft
At Completion of Drilling: ▼ DRY
Time After Drilling: NA
Depth to Water: ▼ NA

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BORING LOG S-108

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 741.75 ft
North: 1993522.46 ft
East: 999538.07 ft
Station: 2218+64.88
Offset: 30.31R

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			55		17	7 11 18	2.75 P	13
	684.7	Dense, gray SILTY LOAM						
			60		18	15 22 20	NP	19
	679.7	Very stiff, gray CLAY LOAM						
			65		19	10 11 17	3.53 B	13
	676.7	Boring terminated at 65.00 ft						
			70					
			75					

GENERAL NOTES

Begin Drilling: 07-11-2005 Complete Drilling: 07-11-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: J&L Logger: K. Anderson Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling: ▽ 25.50 ft
At Completion of Drilling: ▼ DRY
Time After Drilling: NA
Depth to Water: ▽ NA

The stratification lines represent the approximate boundary between soil types: the actual transition may be gradual.

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BORING LOG S-109

WEI Job No.: 201-23-01

Client: McDonough Associates Inc.
Project: Longmeadow Parkway over Fox River, Section
Location: Co.

Datum: NGVD
Elevation: 742.29 ft
North: 1993589.19 ft
East: 999538.22 ft
Station: 2218+65.17
Offset: 36.42L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	SPT Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
	741.8	6-inch thick brown SANDY LOAM –TOPSOIL–						
		Loose, brown and black LOAM –FILL–			1	6 3 2	NP	8
	739.3	Very stiff, brown SILTY CLAY –FILL–	5		2	3 3 4	3.75 P	17
	736.8	Medium dense, gray SANDY LOAM –FILL–			3	3 5 6	NP	17
	734.3	Stiff to very stiff, brown and black CLAY LOAM –FILL–	10		4	4 7 7	1.07 S	17
					5	3 5 8	2.62 B	22
			15		6	3 3 3	1.07 B	20
	726.8	Medium dense to dense, brown and gray GRAVELLY SAND			7	9 11 20	NP	10
			20	▽	8	8 13 25	NP	5
					9	16 19 25	NP	12
			25	▼	10	4 8 13	NP	11
			30		11	5 11 12	NP	13
					12	10 13 19	NP	9
	710.3	Stiff to hard, gray CLAY LOAM	35		13	15 11 14	1.80 B	14
			40		14	3 8 11	3.03 B	14
			45		15	6 10 14	4.76 B	14
			50		16	8 10 14	2.71 B	14

GENERAL NOTES

Begin Drilling: 07-08-2005 Complete Drilling: 07-11-2005
Drilling Contractor: PRECON DRILLING Drill Rig: CME-75 ATV
Driller: K&J Logger: K. Anderson Checked by: B. Fugiel
Drilling Method: 3.25-inch HSA

WATER LEVEL DATA

While Drilling ▽ 20.50 ft
At Completion of Drilling ▼ 24.00 ft
Time After Drilling: NA
Depth to Water ▼ NA

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

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BORING LOG S-109

WEI Job No.: 201-23-01

Client: **McDonough Associates**
Project: **Bolz Road**
Location: **Kane County, Illinois**

Datum: NGVD
Elevation: 742.29 ft
North: 1993589.19 ft
East: 999538.22 ft
Station: 2218+65.17
Offset: 36.42L

Profile	Elevation (ft)	SOIL AND ROCK DESCRIPTION	Depth (ft)	Sample Type / recovery	Sample No.	N Values (blw/6 in)	Qu (tsf)	Moisture Content (%)
			55		17	6 9 11	2.62	14
			60		18	6 7 13	2.71 B	13
			65		19	8 13 17	1.25 P	17
	672.3		70		20	12 22 18	1.75 P	16
		Boring terminated at 70.00 ft	75					

GENERAL NOTES

Begin Drilling **07-08-2005** Complete Drilling **07-11-2005**
Drilling Contractor **PRECON DRILLING** Drill Rig **CME-75 ATV**
Driller **K&J** Logger **K. Anderson** Checked by **B. Fugiel**
Drilling Method **3.25-inch HSA**

WATER LEVEL DATA

While Drilling ▽ **20.50 ft**
At Completion of Drilling ▼ **24.00 ft**
Time After Drilling **NA**
Depth to Water ▼ **NA**

The stratification lines represent the approximate boundary between soil types; the actual transition may be gradual.

WANGENGINC 2012301.GPJ WANGENG.GDT 8/29/05

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