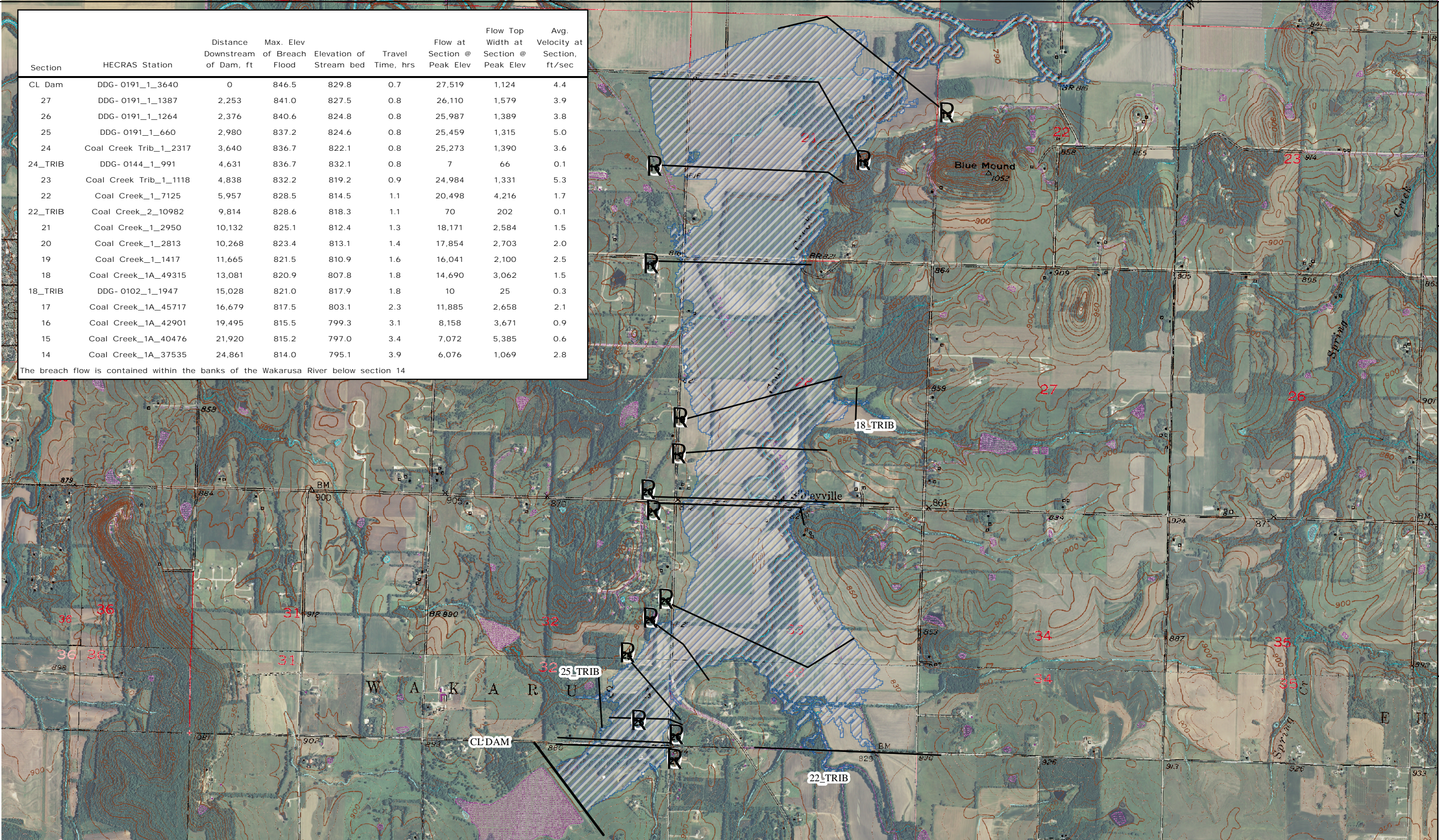


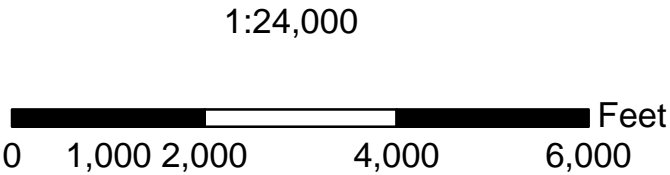
Section	HECRAS Station	Distance Downstream of Dam, ft	Max. Elev of Breach Flood	Elevation of Stream bed	Travel Time, hrs	Flow at Section @ Peak Elev	Flow Top Width at Section @ Peak Elev	Avg. Velocity at Section, ft/sec
CL Dam	DDG- 0191_1_3640	0	846.5	829.8	0.7	27,519	1,124	4.4
27	DDG- 0191_1_1387	2,253	841.0	827.5	0.8	26,110	1,579	3.9
26	DDG- 0191_1_1264	2,376	840.6	824.8	0.8	25,987	1,389	3.8
25	DDG- 0191_1_660	2,980	837.2	824.6	0.8	25,459	1,315	5.0
24	Coal Creek Trib_1_2317	3,640	836.7	822.1	0.8	25,273	1,390	3.6
24_TRIB	DDG- 0144_1_991	4,631	836.7	832.1	0.8	7	66	0.1
23	Coal Creek Trib_1_1118	4,838	832.2	819.2	0.9	24,984	1,331	5.3
22	Coal Creek_1_7125	5,957	828.5	814.5	1.1	20,498	4,216	1.7
22_TRIB	Coal Creek_2_10982	9,814	828.6	818.3	1.1	70	202	0.1
21	Coal Creek_1_2950	10,132	825.1	812.4	1.3	18,171	2,584	1.5
20	Coal Creek_1_2813	10,268	823.4	813.1	1.4	17,854	2,703	2.0
19	Coal Creek_1_1417	11,665	821.5	810.9	1.6	16,041	2,100	2.5
18	Coal Creek_1A_49315	13,081	820.9	807.8	1.8	14,690	3,062	1.5
18_TRIB	DDG- 0102_1_1947	15,028	821.0	817.9	1.8	10	25	0.3
17	Coal Creek_1A_45717	16,679	817.5	803.1	2.3	11,885	2,658	2.1
16	Coal Creek_1A_42901	19,495	815.5	799.3	3.1	8,158	3,671	0.9
15	Coal Creek_1A_40476	21,920	815.2	797.0	3.4	7,072	5,385	0.6
14	Coal Creek_1A_37535	24,861	814.0	795.1	3.9	6,076	1,069	2.8

The breach flow is contained within the banks of the Wakarusa River below section 14



* Travel time is measured from the initiation of breach formation to the time the breach wave arrives at the section.

The inundation area was developed based on a breach with the water surface at the higher of the auxiliary spillway elevation or 100-year, 6-hour storm event. Cross sections were developed using 2-meter LIDAR data.



Attachment 1:
Inundation Area
Boundary Map

REVISIONS		
DATE	APPROVED	TITLE

Date	Designed	Drawn	Checked	Approved
06/20/09	EWR	DMM	JW	AGB
07/06/2009				
08/20/09				
09/20/09				

DDG-0191 FRD28 NID-KS02259
DOUGLAS COUNTY, KANSAS



File Name
Drawing Name
07/06/2009
Sheet 1 of 1