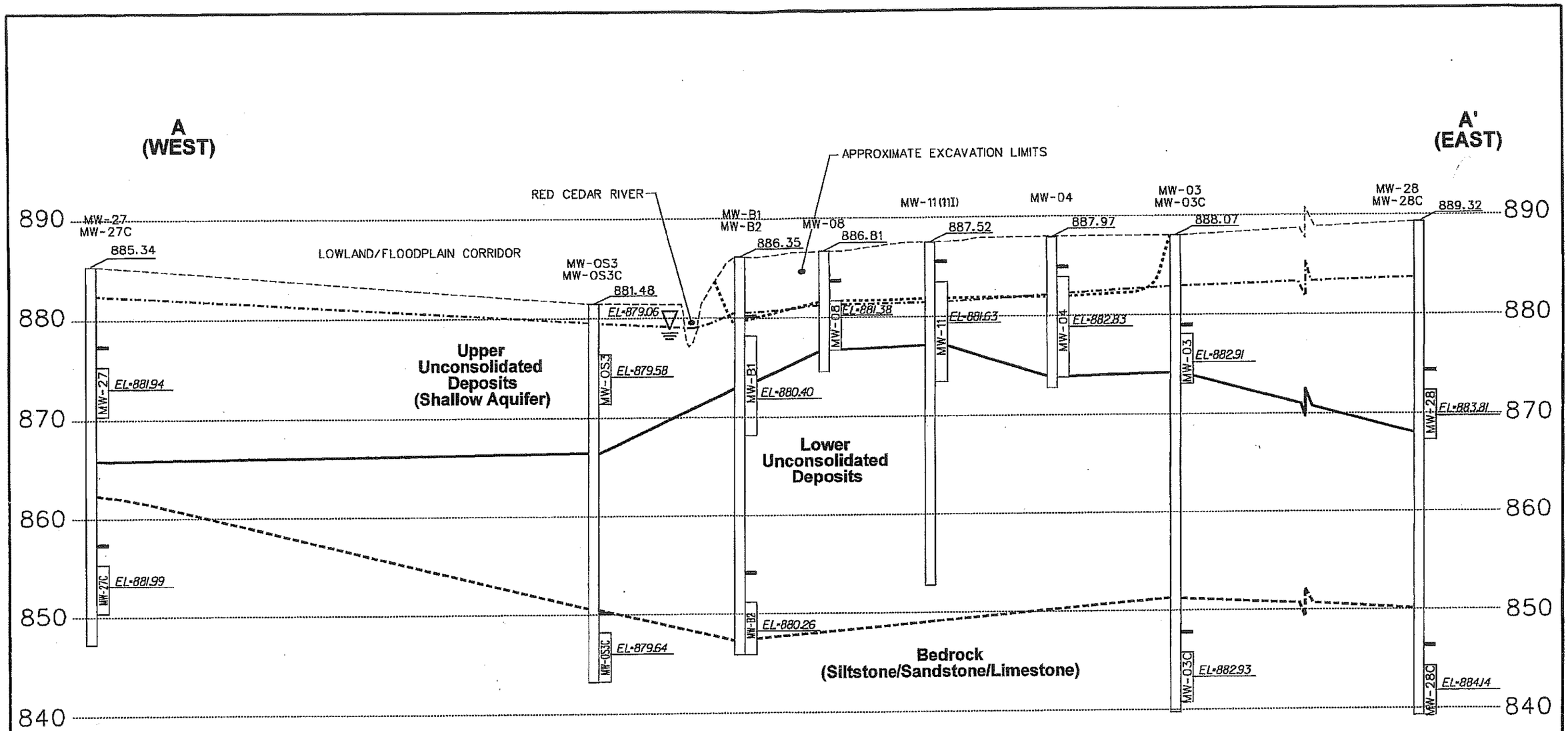
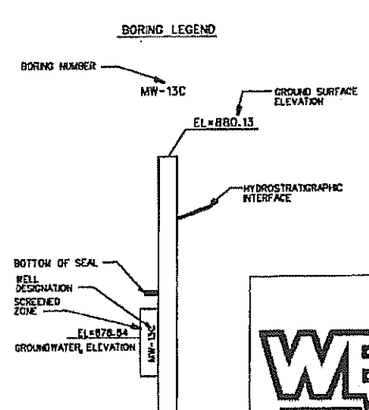


NOTES:

1. THE DIFFERENTIATION BETWEEN UPPER AND LOWER UNCONSOLIDATED DEPOSITS WAS BASED ON FIELD DESCRIPTIONS OF BORING SAMPLES THAT WERE REPORTED ON BORING LOGS.
2. UPPER UNCONSOLIDATED DEPOSITS ARE PREDOMINANTLY SW, SP, SM SOILS THAT INCLUDE CL, ML, CL/ML, SC, GM, GP, AND PT. SOILS BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). LOWER UNCONSOLIDATED DEPOSITS ARE PREDOMINANTLY CL, ML, AND CL/ML SOILS THAT INCLUDE ML/CL, GP, SW, SP, AND SM SOILS BASED ON THE USCS.
3. GROUNDWATER ELEVATIONS SHOWN ON THE CROSS SECTION WERE MEASURED DECEMBER 18, 2003.
4. ESTIMATED GRADE REPRESENTS GROUND SURFACE ELEVATIONS AT THE TIME OF DRILLING AND ARE REPRESENTATIVE OF PRE-CONSTRUCTION ELEVATIONS. FINAL GRADE REPRESENTS POST-CONSTRUCTION ELEVATIONS.



LEGEND

- CONTACT BETWEEN MAJOR HYDROSTRATIGRAPHIC UNITS
- INFERRED CONTACT
- ESTIMATED GRADE
- REMEDIAL ACTION EXCAVATION LIMITS
- WATER TABLE LEVEL

HORIZONTAL SCALE 0' 100'
VERTICAL SCALE 0' 10'

WESTON SOLUTIONS

EARTH TECH

FIGURE 6
HYDROSTRATIGRAPHIC CROSS SECTION A-A'
JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

FEBRUARY 2004

65468

PRF = \\usshbs01\data\work\65468\cadd\xsac.prf
DATE =Mon Feb 9 11:18:14 2004
DGN =\\usshbs01\data\work\65468\cadd\xsac.dgn

FIGURE 14
TOP OF BEDROCK MAP

JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

NOVEMBER 2003 65468

EARTH TECH

WESTON SOLUTIONS

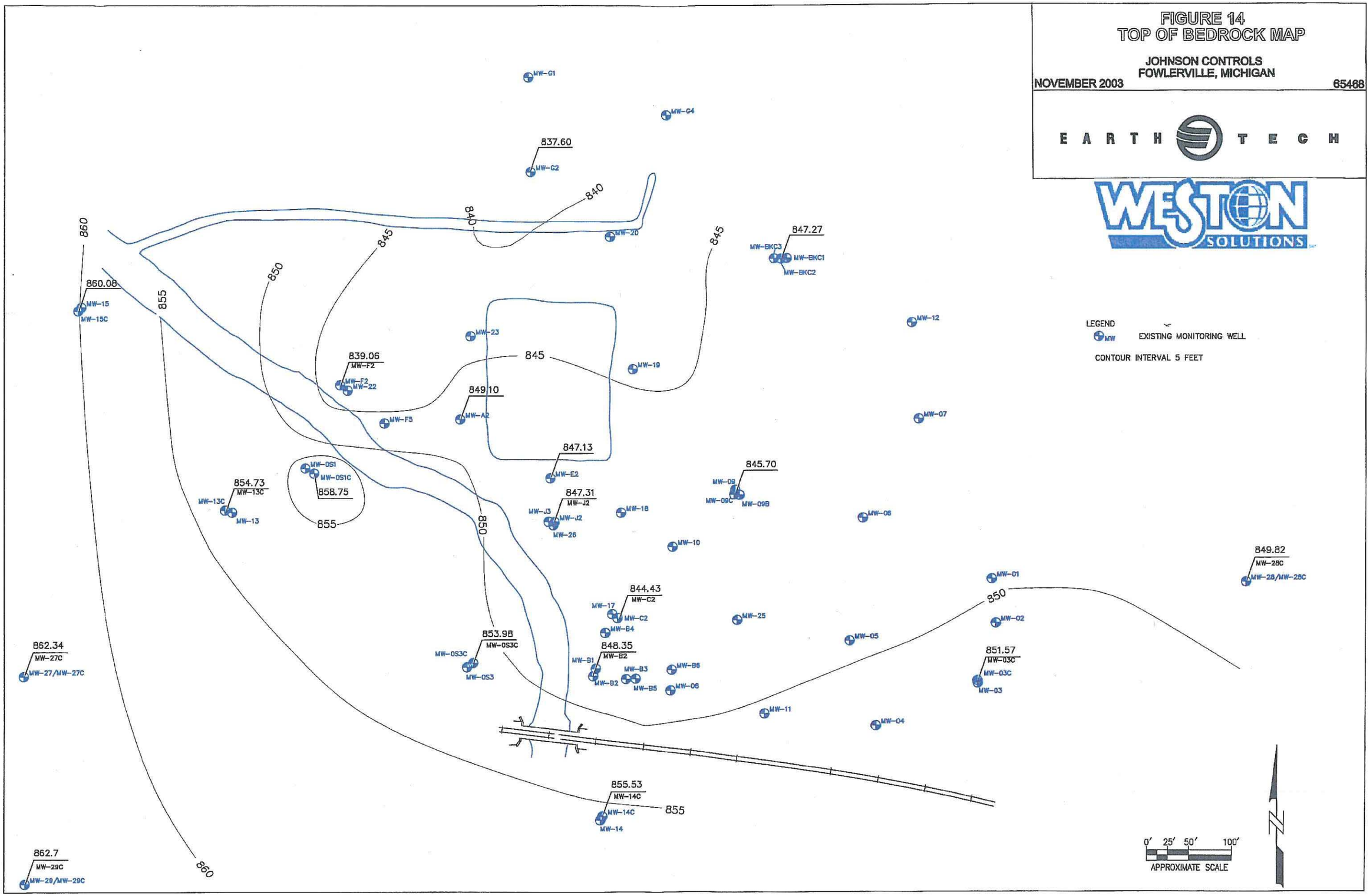


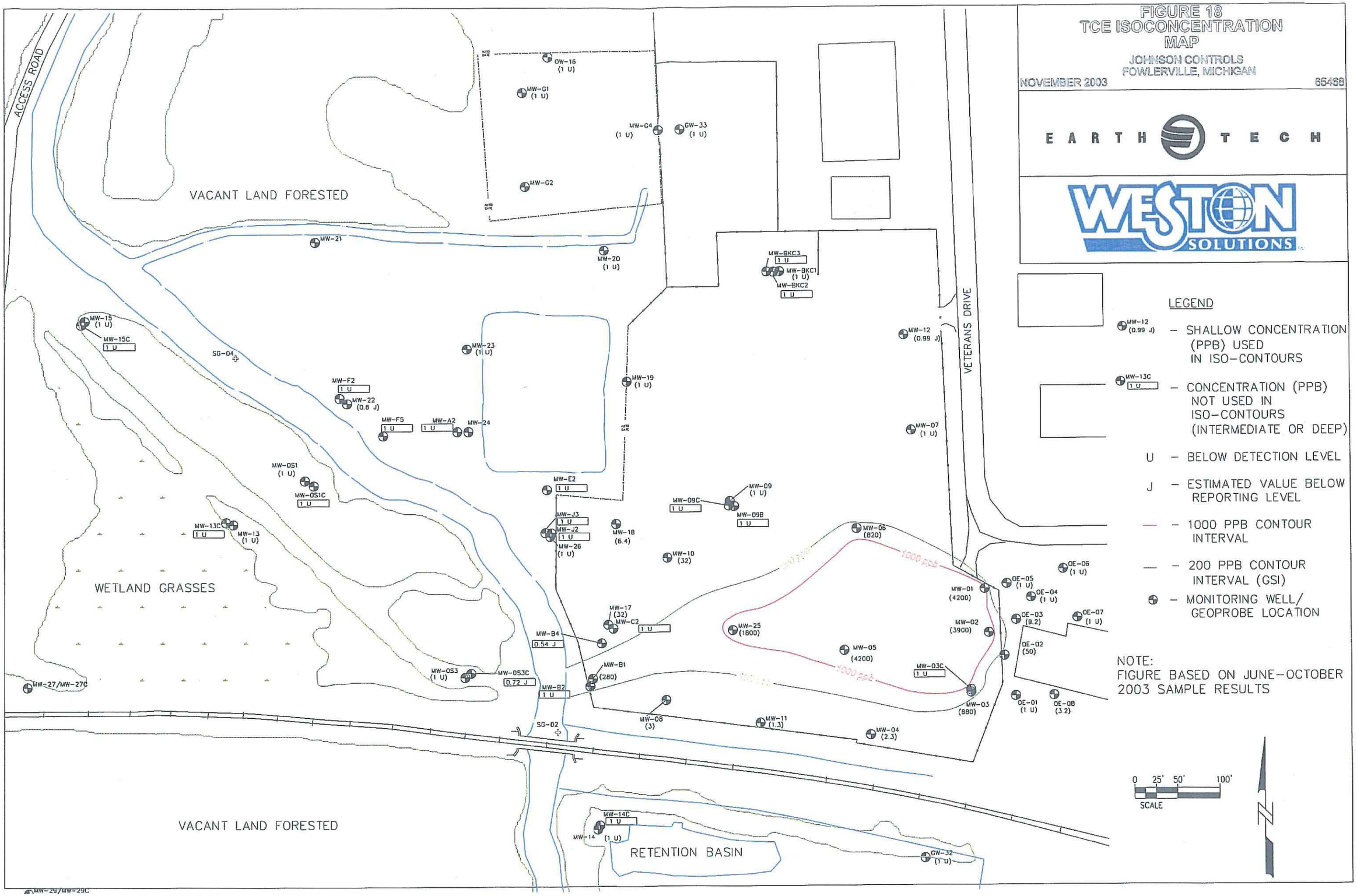
FIGURE 18
TCE ISOCONCENTRATION MAP

JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

NOVEMBER 2003 — 65468

EARTH TECH

WESTON SOLUTIONS



LEGEND

- MW-12 (0.99 J) – SHALLOW CONCENTRATION (PPB) USED IN ISO-CONTOURS
- MW-13C 1 U – CONCENTRATION (PPB) NOT USED IN ISO-CONTOURS (INTERMEDIATE OR DEEP)
- U – BELOW DETECTION LEVEL
- J – ESTIMATED VALUE BELOW REPORTING LEVEL
- 1000 PPB CONTOUR INTERVAL
- 200 PPB CONTOUR INTERVAL (GSI)
- MONITORING WELL/ GEOPROBE LOCATION

NOTE:
FIGURE BASED ON JUNE-OCTOBER 2003 SAMPLE RESULTS

TABLES

TABLE 1
GROUNDWATER EXCEEDANCES
JCI - FOWLERVILLE

Location	FieldID	Date Sampled	On-Site/ Off-Site	1,1-Dichloro ethene	cis-1,2-Dichloro ethene	Methylene chloride	trans-1,2-Dichloro ethylene	Trichloro ethene	Vinyl chloride	Di-N-Butyl phthalate	Arsenic, Total	Cadmium, Total	Copper, Total	Lead, Total	Nickel, Total	Cadmium, Dissolved	Chromium, Hexavalent-Dissolved	Cyanide, Free
				ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
			Contact Criteria:	11,000.	200,000.	220,000.	220,000.	22,000.	1,000.	11,000.	4.3	190.	7,400.	NL	74,000.	190.	460.	57.
			GSI:	65.	620.	940.	1,500.	200.	15.	9.7	0.15	0.0062	0.029	0.045	0.17	0.0062	0.011	0.0052
			GSI Human Health Based:	33,000.	36,000.	2,600.	25,000.	370.	13.	690.	0.28	0.13	64.	0.19	210.	0.13	9.4	48.
			Residential Drinking Water:	7.	70.	5.	100.	5.	2.	880.	0.05	0.005	1.	0.004	0.1	0.005	0.1	0.2
			Volatilization to Indoor Air:	1,300.	210,000.	1,400,000.	200,000.	97,000.	13,000.	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-01	MW01- 090903-01	9/9/03	On-Site	14 J	900	46 J	---	4200	42 J	---	---	---	---	---	---	---	---	---
MW-01	MW01- 090903-02	9/9/03	On-Site	---	910	40 J	---	4200	51	---	---	---	---	---	---	---	---	---
MW-01	MW01- 110503-01	11/5/03	On-Site	---	600	75 J	---	2900	21 J	---	---	---	---	---	---	---	---	---
MW-02	EW-14- 110603-01	11/6/03	On-Site	---	250	11 J	---	3400	28	---	---	---	---	---	---	---	---	---
MW-02	MW02- 090903-01	9/9/03	On-Site	8.1 J	250	35 J	---	3900	46	---	---	---	---	---	---	---	---	---
MW-03	MW03- 090903-01	9/9/03	On-Site	---	---	11 J	---	880	12	---	---	---	---	---	---	---	---	---
MW-03	MW03- 110603-01	11/6/03	On-Site	---	140	10 J	---	1300	12	---	---	---	---	---	---	---	---	---
MW-05	MW05- 090903-01	9/9/03	On-Site	---	260	48 J	---	4200	---	---	---	---	---	---	---	---	---	---
MW-05	MW05- 110503-01	11/5/03	On-Site	---	310	66 J	---	2100	---	---	---	---	---	---	---	---	---	---
MW-06	MW06- 091003-01	9/10/03	On-Site	---	100	10 J	---	820	7.5 J	---	---	---	---	---	---	---	---	---
MW-06	MW06- 110503-01	11/5/03	On-Site	---	91	6.9 J	---	590	4.8 J	---	---	---	---	---	---	---	---	---
MW-06	MW06- 110503-02	11/5/03	On-Site	---	71	5.6 J	---	340	3.1 J	---	---	---	---	---	---	---	---	---
MW-08	MW08- 100203-01	10/2/03	On-Site	---	280	---	---	---	140	---	---	---	0.181	---	0.14	---	---	0.03
MW-08	MW08- 110403-01	11/4/03	On-Site	---	320	---	---	---	130	---	---	---	0.148	---	0.184	---	0.02	0.04
MW-09	MW09- 100103-01	10/1/03	On-Site	---	---	---	---	---	9.5	---	---	---	---	---	---	---	---	0.01
MW-09	MW09- 110503-01	11/5/03	On-Site	---	---	---	---	---	2.9	---	---	---	---	---	---	---	---	0.01
MW-0S1	MW-0S1- 110403-01	11/4/03	Off-Site	---	---	---	---	---	---	12	---	---	---	---	---	---	---	0.007
MW-0S1	MW0S1- 100303-01	10/3/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.007
MW-0S3	MW-0S3- 110603-01	11/6/03	Off-Site	---	---	---	---	---	27	---	---	---	---	---	---	---	---	---
MW-0S3	MW-0S3- 110603-02	11/6/03	Off-Site	---	---	---	---	---	29	---	---	---	---	---	---	---	---	---
MW-0S3	MW0S3- 100303-01	10/3/03	Off-Site	---	---	---	---	---	24	---	---	---	---	---	---	---	---	0.006
MW-0S3	MW-0S3- 071703-01	7/17/03	Off-Site	---	---	---	---	---	34	---	---	---	---	---	---	---	---	---
MW-0S3C	MW-0S3C- 110503-01	11/5/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.007
MW-10	MW10- 100103-01	10/1/03	On-Site	---	---	---	---	32	15	---	---	---	---	---	---	---	---	---
MW-10	MW10- 110503-01	11/5/03	On-Site	---	---	---	---	28	23	---	---	---	---	---	---	---	---	---
MW-11	MW11- 091003-01	9/10/03	On-Site	---	---	---	---	---	2.1	---	---	---	---	---	---	---	---	---
MW-11	MW11- 110503-01	11/5/03	On-Site	---	---	---	---	---	2.5	---	---	---	---	---	---	---	---	0.008
MW-13	MW-13- 110403-01	11/4/03	Off-Site	---	---	---	---	---	---	12	---	---	---	---	---	---	---	0.01
MW-13C	MW-13C 110403-02	11/4/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.006
MW-13C	MW-13C- 110403-01	11/4/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.008
MW-14	MW14- 093003-01	9/30/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.01
MW-14	MW14- 110503-01	11/5/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.01
MW-14C	MW14C- 110503-01	11/5/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.006
MW-15	MW-15- 110303-01	11/3/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.03
MW-15C	MW-15C- 110303-01	11/3/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.01
MW-17	MW17- 100203-01	10/2/03	On-Site	---	160	---	---	26	84	---	---	---	---	---	---	---	---	0.02
MW-17	MW17- 110403-01	11/4/03	On-Site	---	410	5.1 J	140	300	330	15	---	---	---	---	---	---	---	0.01
MW-18	MW-18- 110403-01	11/4/03	On-Site	---	---	---	---	5.6	14	---	---	---	0.078	---	---	---	---	0.04
MW-18	MW18- 100103-01	10/1/03	On-Site	---	---	---	---	6.4	16	---	---	---	0.103	---	---	---	0.02	0.07
MW-19	MW19- 100303-01	10/3/03	On-Site	---	---	---	---	---	9	---	---	---	---	---	---	---	---	---
MW-19	MW19- 100303-02	10/3/03	On-Site	---	---	---	---	---	9.2	---	---	---	---	---	---	---	---	---
MW-19	MW19- 110403-01	11/4/03	On-Site	---	---	---	---	---	7.5	---	---	---	---	---	---	---	---	0.008
MW-20	MW-20- 110403-01	11/4/03	Off-Site	---	---	---	---	---	---	---	---	---	0.032	---	---	---	---	---
MW-20	MW20- 100303-01	10/3/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.01
MW-22	MW-22- 110303-01	11/3/03	On-Site	---	---	---	---	---	---	---	0.131	---	---	---	---	---	0.02	0.009
MW-22	MW22- 100201-01	10/2/03	On-Site	---	---	---	---	---	---	---	0.161	---	---	---	---	---	0.02	---
MW-23	MW-23- 110303-01	11/3/03	On-Site	---	---	---	---	---	3.1	---	---	---	---	---	---	---	---	0.006
MW-23	MW23- 100303-01	10/3/03	On-Site	---	---	---	---	---	3.8	---	---	---	---	---	---	---	---	---
MW-23	MW23- 100303-02	10/3/03	On-Site	---	---	---	---	---	3.7	---	---	---	---	---	---	---	---	---
MW-25	MW25- 100203-01	10/2/03	On-Site	---	440	---	220	1800	8.1 J	---	---	---	---	---	1.18	---	---	---
MW-25	MW25- 110503-01	11/5/03	On-Site	---	310	11 J	150	1200	6.4 J	---	---	---	---	---	1.07	---	---	---

TABLE 1
GROUNDWATER EXCEEDANCES
JCI - FOWLERVILLE

Location	FieldID	Date Sampled	On-Site/ Off-Site	1,1-Dichloro ethene	cis-1,2-Dichloro ethene	Methylene chloride	trans-1,2-Dichloro ethylene	Trichloro ethene	Vinyl chloride	Di-N-Butyl phthalate	Arsenic, Total	Cadmium, Total	Copper, Total	Lead, Total	Nickel, Total	Cadmium, Dissolved	Chromium, Hexavalent-Dissolved	Cyanide, Free
				ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l
			Contact Criteria:	11,000.	200,000.	220,000.	220,000.	22,000.	1,000.	11,000.	4.3	190.	7,400.	NL	74,000.	190.	460.	57.
			GSI:	65.	620.	940.	1,500.	200.	15.	9.7	0.15	0.0062	0.029	0.045	0.17	0.0062	0.011	0.0052
			GSI Human Health Based:	33,000.	36,000.	2,600.	25,000.	370.	13.	690.	0.28	0.13	64.	0.19	210.	0.13	9.4	48.
			Residential Drinking Water:	7.	70.	5.	100.	5.	2.	880.	0.05	0.005	1.	0.004	0.1	0.005	0.1	0.2
			Volatilization to Indoor Air:	1,300.	210,000.	1,400,000.	200,000.	97,000.	13,000.	NL	NL	NL	NL	NL	NL	NL	NL	NL
MW-26	MW26- 100203-01	10/2/03	On-Site	---	---	---	---	---	21	---	---	---	---	---	---	---	---	---
MW-26	MW26- 110403-01	11/4/03	On-Site	---	---	---	---	---	34	12	---	---	---	---	---	---	---	0.02
MW-27	MW27- 122903-01	12/29/03	Off-Site	---	---	---	---	---	---	16	---	---	---	---	---	---	---	0.006
MW-27C	MW-27C- 122903-01	12/29/03	Off-Site	---	---	---	---	---	---	14	---	---	---	---	---	---	---	0.006
MW-28	MW28- 122903-01	12/29/03	Off-Site	---	---	---	---	---	---	12	---	---	---	0.0044	---	---	---	0.007
MW-28C	MW28C- 122903-01	12/29/03	Off-Site	---	---	---	---	---	---	12	---	---	---	---	---	---	---	---
MW-29C	MW29C- 123003-01	12/30/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.008
MW-29C	MW29C- 123003-02	12/30/03	Off-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.006
MW-A2	MWA2- 100303-01	10/3/03	On-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.007
MW-B1	MWB1- 100203-01	10/2/03	On-Site	---	450	---	120	280	250	---	---	---	---	---	0.152	---	---	---
MW-B2	MWB2- 100203-01	10/2/03	On-Site	---	---	---	---	---	38	---	---	---	---	---	---	---	---	---
MW-E2	MWE2- 100303-01	10/3/03	On-Site	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.006
MW-G4	MWG4- 100303-01	10/3/03	On-Site	---	---	---	---	---	2.8	---	---	---	---	---	---	---	---	---
MW-J2	MWJ2- 100203-01	10/2/03	On-Site	---	---	---	---	---	---	---	---	0.0086	---	0.0087	---	0.013	---	---
OE02	OE02-08-10 062703-01	6/27/03	Off-Site	---	---	---	---	50	---	---	---	---	---	---	---	---	---	---
OE03	OE03-0611- 070703-01	7/7/03	Off-Site	---	---	---	---	9.2	---	---	---	---	---	---	---	---	---	---

NOTES:

J - Estimated value.
--- Standards not exceeded.
NL - A standard values was not listed for this compound.

Table 1
Historical Summary of Detected Compounds and Analytes in Groundwater Samples
Former JCI Stanley Tools Site
Fowlerville, Michigan

Well ID: / Sample Date: / Compound	MW-02 7/31/2007	MW-02 3/5/2008	MW-11 [1] GSI Comp 7/31/2007	MW-11 [1] GSI Comp 3/5/2008	MW-14 [1] GSI Comp 8/1/2007	MW-14 [1] GSI Comp 3/6/2008	MW-17 [1] GSI Comp 8/1/2007	MW-17 [1] GSI Comp 3/5/2008	MW-21 [1] GSI Comp 8/1/2007	MW-21 [1] GSI Comp na	MW-22 [1] GSI Comp 8/1/2007	MW-22 [1] GSI Comp 3/5/2008	MW-24 [1] GSI Comp 8/1/2007	MW-24 [1] GSI Comp 3/6/2008	MW-26 [1] GSI Comp 8/1/2007	MW-26 [1] GSI Comp 3/5/2008	MDEQ GENERIC GSI Criteria (ug/L) [2]	Final Acute Value (ug/L) [3]	Reported Worst-case Maximum Concentration (ug/L) [3]
Volatile Organic Compounds (VOCs) (ug/L)																			
Acetone	<60	<250	<1.2	<5.0	<1.2	<5.0	1.8 J	1.3 JB	1.4 J	na	2.4 J	4.6 JB	1.4 J	<5.0	<1.2	<5.0	1,700	-	-
Benzene	<5.9	<50	<0.12	<1.0	<0.12	<1.0	0.35 J	0.18 J	<0.12	na	0.45 J	0.38 J	<0.12	<1.0	<0.12	<1.0	200 (X)	-	-
Chlorobenzene	<6.0	<50	<0.12	<1.0	<0.12	<1.0	2.4	1.2	<0.12	na	3.1	3.5	8	4.6	<0.12	<1.0	47	-	-
1,1-DCA	<3.8	<50	0.89 J	0.26 J	2.7	2.4	2.9	1.4	<0.076	na	<0.076	<1.0	<0.076	<1.0	0.57 J	0.45 J	740	-	-
1,1-DCE	<7.0	<50	<0.14	<1.0	0.35 J	<1.0	<0.14	<1.0	<0.14	na	<0.14	<1.0	<0.14	<1.0	<0.14	<1.0	65 (X)	-	
cis-1,2-DCE	**800**	600	1	0.77 J	23	23	49	30	<0.17	na	<0.17	<1.0	<0.17	<1.0	26	15	620	-	910
trans-1,2-DCE	32 J	23 J	<0.16	<1.0	2.6	2.5	17	13	<0.16	na	<0.16	<1.0	<0.16	<1.0	0.46 J	<1.0	1,500	-	-
Toluene	4.0 J	<50	<0.072	0.11 J	0.29 J	<1.0	0.22 J	0.080 J	0.29 J	na	0.22 J	<1.0	0.090 J	<1.0	0.36 J	<1.0	140	-	-
TCE	**3,400**	**3,600**	0.69 J	3.0	<0.17	<1.0	7.1	3.6	<0.17	na	<0.17	<1.0	<0.17	0.60 J	0.64 J	<1.0	200 (X)	3,500	4,200
Vinyl Chloride	<8.7	<50	<0.17	<1.0	12	4.4	**48**	**26**	<0.17	na	<0.17	<1.0	<0.17	<1.0	13	7.4	15	ND	300 [4]
Xylenes (total)	<12	<100	<0.23	<2.0	<0.23	<2.0	<0.23	<2.0	<0.23	na	<0.23	<2.0	<0.23	<2.0	<0.23	<2.0	-	-	-
1,2-Dichlorobenzene	<3.3	<50	<0.065	<1.0	<0.065	<1.0	0.74 J	0.36 J	<0.065	na	<0.065	<1.0	<0.065	<1.0	<0.065	<1.0	16	-	-
1,4-Dichlorobenzene	<6.6	<50	<0.13	<1.0	<0.13	<1.0	0.42 J	0.26 J	<0.13	na	<0.13	<1.0	0.26 J	<1.0	<0.13	<1.0	13	-	-
1,2,4-Trimethylbenzene	<6.6	<50	<0.13	<1.0	<0.13	<1.0	<0.13	<1.0	<0.13	na	<0.13	<1.0	<0.13	<1.0	<0.13	<1.0	17	-	-
Methylene chloride	<2.5	8.5 J	<0.051	<1.0	<0.051	<1.0	<0.051	<1.0	<0.051	na	<0.051	<1.0	<0.051	<1.0	<0.051	<1.0	940 (X)	-	-
10 MI Metals (ug/L)																			
Arsenic (dissolved)	na	na	<0.74	<5.0	na	na	4.1 J	<5.0	4.2 J	na	66	64	68	30	6.6	2.7 J	NA	680	161
Arsenic (total)	na	na	<0.74	<5.0	na	na	3.4 J	1.1 J	11	na	88	86	81	36	10	4.6 J	150 (X)	680	161
Barium (dissolved)	na	na	110	57 J	na	na	130	81 J	410	na	320	360	190	180	170	110	1,900 (G,X)	-	-
Barium (total)	na	na	110	65 J	na	na	130	84 J	470	na	370	410	200	200	190	120	1,900 (G,X)	-	-
Cadmium (dissolved)	na	na	<0.062	<0.20	na	na	<0.062	<0.20	<0.062	na	<0.062	<0.20	<0.062	<0.20	<0.062	<0.20	6.2 (G,X)	77	13
Cadmium (total)	na	na	0.069 J	0.066 J	na	na	<0.062	<0.20	0.10 J	na	<0.062	<0.20	<0.062	<0.20	<0.062	<0.20	6.2 (G,X)	77	13
Chromium (dissolved)	na	na	0.96 J	5	<0.31	na	<0.31	<1.0	<0.31	na	<0.31	<1.0	<0.31	<1.0	<0.31	<1.0	230 (G,X)	-	-
Chromium (total)	na	na	1.4	4.8	na	na	<0.31	<1.0	<0.31	na	<0.31	0.32 J	<0.31	<1.0	<0.31	<1.0	230 (G,X)	-	-
Chromium hexavalent (dissolved)	na	na	na	na	na	na	<0.5	na	0.6 J	na	0.9 J	0.7 J	<0.5	<5.0	<0.5	<5.0	11	32	20
Chromium hexavalent (total)	na	na	na	na	na	na	0.8 J	na	1.3 J	na	0.9 J	1.2 J	<0.5	<5.0	0.8 J	1.7 J	11	32	20
Copper (dissolved)	na	na	3.9	4.3	na	na	0.45 J	0.67 J	0.67 J	na	0.76 J	0.62 J	<0.33	0.65 J	0.42 J	1.0	29 (G)	144	103
Copper (total)	na	na	**44**	4.8	na	na	0.52 J	1.0 J	1.4	na	2	1.2	0.33 J	<1.0	29	0.49 J	29 (G)	144	103
Cyanide (total)	na	na	<1.20	<5.0	<1.20	<5.0	23.2	14	<1.20	na	2.01 J	2.1 J	63.9	48	9.7	11	NA	NA	
Cyanide (available)	na	na	na	na	na	na	na	na	na	na	na	na	na	<2.0	na	na	5.2	44	10
Lead (total)	na	na	1.3	<1.0	na	na	<0.33	<1.0	<0.33	na	<0.33	<1.0	<0.33	<1.0	0.83 J	<1.0	45 (G,X)	-	-
Mercury (dissolved)	na	na	<0.039	<0.20	<0.039	na	<0.039	<0.20	<0.039	na	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	0.0013	-	-
Mercury (total)	na	na	<0.039	<0.20	<0.039	na	<0.039	<0.20	<0.039	na	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	0.0013	-	-
Nickel (dissolved)	na	na	7.9 J	na	na	na	17	30	3.5 J	na	12	14	2.5 J	2.2 J	13	12	170 (G)	5,800	1,180
Nickel (total)	na	na	12	na	na	na	19	33	3.8 J	na	13	12	2.8 J	3.9 J	15	10	170 (G)	5,800	1,180
Selenium (dissolved)	na	na	0.94 J	<1.0	na	na	<0.92	<1.0	<0.92	na	0.93 J	<1.0	<0.92	<1.0	<0.92	<1.0	5	-	-
Selenium (total)	na	na	<0.92	<1.0	na	na	<0.92	<1.0	<0.92	na	<0.92	<1.0	0.98 J	<1.0	<0.92	<1.0	5	-	-
Silver (dissolved)	na	na	<0.12	<0.20	na	na	<0.12	<0.20	<0.12	na	<0.12	<0.20	<0.12	<0.20	<0.12	<0.20	0.2 (M)	-	-
Silver (total)	na	na	<0.12	<0.20	na	na	<0.12	<0.20	<0.12	na	<0.12	<0.20	<0.12	<0.20	<0.12	<0.20	0.2 (M)	-	-
Zinc (dissolved)	na	na	170	180	na	na	3.6 J	5.5 J	1.6 J	na	7.7 J	4.9 J	6.9 J	5.7 J	1.7 J	5.0 J	380 (G)	-	-
Zinc (total)	na	na	280	220 B	na	na	35	18	26	na	50	23	34	6.5 J	35	12	380 (G)	-	-

Notes:

[1]: Compliance monitoring well

[2]: MDEQ Part 201 RRD Op Memo No. 1, January 23, 2006 and Earth Tech/Weston Solutions 2004 Human Health Environmental Indicator

[3]: WHMD Final Determination of a Mixing Zone Request Letter, February 23, 2006 and an MDEQ Interoffice Communication, December 13, 2005

[4]: In Final Migration of Contaminated Groundwater Under Control Environmental Indicator (EI) Report, the maximum concentration of vinyl chloride detected at Site was 300 ug/L.

na indicates "not analyzed"

B: Background as defined by R 299.5701(b) may be substituted if higher than the calculated cleanup criterion.

G: GSI criterion depends on the pH or water hardness, or both, of the receiving surface water.

J: Analyte was detected, but the concentration is greater than the MDL and less than the RL.

M: Calculated criterion is below the analytical target detection limit; therefore, the criterion defaults to the target detection limit.

X: The GSI criterion shown in the generic cleanup criterion tables is not protective for surface water that is used as a drinking water source.

NA: Criterion or value is not available or, in the case of background and chemical abstract service numbers, not applicable.

ND: FAV not developed

*Black **BOLD** values indicate the value exceeds the GSI criterion*

*Red **BOLD** values indicate the value exceeds the FAV*

Table 1
Historical Summary of Detected Compounds and Analytes in Groundwater Samples
Former JCI Stanley Tools Site
Fowlerville, Michigan

Well ID:	MW-28	MW-28	MW-28C	MW-28C	MW-A2 [1] GSI Comp	MW-A2 [1] GSI Comp	MW-B1[1] GSI Comp	MW-B1[1] GSI Comp	MW-B2	MW-B2	MW-J2	MW-J2	MW-OS1C	MW-OS1C	MDEQ GENERIC GSI Criteria (ug/L) [2]	Final Acute Value (ug/L) [3]	Reported Worst-case Maximum Concentration (ug/L) [3]
Sample Date:	7/31/2007	na	7/31/2007	na	8/1/2007	3/5/2008	8/1/2007	3/5/2008	8/1/2007	3/4/2008	8/1/2007	3/4/2008	8/2/2007	na			
Compound																	
Volatile Organic Compounds (VOCs) (ug/L)																	
Acetone	<1.2	na	na	na	<1.2	<5.0	<6.0	<10	<1.2	<5.0	<1.2	<5.0	<1.2	na	1,700	-	-
Benzene	<0.12	na	na	na	<0.12	<1.0	<0.59	<2.0	<0.12	<1.0	<0.12	<1.0	<0.12	na	200 (X)	-	-
Chlorobenzene	<0.12	na	na	na	<0.12	<1.0	<0.60	<2.0	<0.12	<1.0	<0.12	<1.0	<0.12	na	47	-	-
1,1-DCA	<0.076	na	na	na	<0.076	<1.0	12	8.8	<0.076	<1.0	<0.076	<1.0	<0.076	na	740	-	-
1,1-DCE	<0.14	na	na	na	<0.14	<1.0	2.8 J	2.0	<0.14	<1.0	<0.14	<1.0	<0.14	na	65 (X)	-	
cis-1,2-DCE	<0.17	na	na	na	0.76 J	<1.0	470	300	<0.17	<1.0	<0.17	<1.0	<0.17	na	620	-	910
trans-1,2-DCE	<0.16	na	na	na	<0.16	<1.0	68	46	<0.16	<1.0	<0.16	<1.0	<0.16	na	1,500	-	-
Toluene	<0.0072	na	na	na	0.080 J	<1.0	<0.36	<2.0	0.37 J	0.11 J	0.35 J	0.080 J	0.64 J	na	140	-	-
TCE	<0.17	na	na	na	<0.17	<1.0	9	11	<0.17	<1.0	<0.17	<1.0	<0.17	na	200 (X)	3,500	4,200
Vinyl Chloride	<0.17	na	na	na	<0.17	<1.0	**58**	**56**	<0.17	<1.0	<0.17	<1.0	<0.17	na	15	ND	300 [4]
Xylenes (total)	<0.23	na	na	na	<0.23	<2.0	<0.64	<4.0	<0.23	<2.0	<0.23	<2.0	0.25 J	na	-	-	-
1,2-Dichlorobenzene	<0.065	na	na	na	<0.065	<1.0	<0.33	<2.0	<0.065	<1.0	<0.065	<1.0	<0.065	na	16	-	-
1,4-Dichlorobenzene	<0.13	na	na	na	<0.13	<1.0	<0.66	<2.0	<0.13	<1.0	<0.13	<1.0	<0.13	na	13	-	-
1,2,4-Trimethylbenzene	<0.13	na	na	na	<0.13	<1.0	<0.66	<2.0	<0.13	0.51 J	<0.13	<1.0	<0.13	na	17	-	-
Methylene chloride	<0.051	na	na	na	<0.051	<1.0	<0.25	0.28 J	<0.051		<0.051		<0.051	na	940 (X)	-	-
10 MI Metals (ug/L)																	
Arsenic (dissolved)	4.9 J	na	7.3	na	7.2	4.8 J	6.4	4.4 J	14	10	9.5	11	4.1 J	na	NA	680	161
Arsenic (total)	4.8 J	na	7.8	na	6.5	6.7	7.4	6.3	16	14	6.8	11	6.5	na	150 (X)	680	161
Barium (dissolved)	150	na	160	na	140	140	130	110	150	110	140	190	67 J	na	1,900 (G,X)	-	-
Barium (total)	170	na	170	na	140	150	140	120	160	140	54 J	180	68 J	na	1,900 (G,X)	-	-
Cadmium (dissolved)	<0.062	na	<0.062	na	<0.062	<0.20	<0.062	<0.20	<0.062	<0.20	1	0.53	<0.062	na	6.2 (G,X)	77	13
Cadmium (total)	<0.062	na	<0.062	na	<0.062	<0.20	<0.062	<0.20	<0.062	<0.20	**6.9**	1.2	<0.062	na	6.2 (G,X)	77	13
Chromium (dissolved)	<0.31	na	<0.31	na	<0.31	<1.0	<0.31	<1.0	<0.31	5.7	<0.31	<1.0	1.3	na	230 (G,X)	-	-
Chromium (total)	<0.31	na	<0.31	na	1.8	1.7	<0.31	<1.0	0.40 J	1.9	38	4.8	<0.31	na	230 (G,X)	-	-
Chromium hexavalent (dissolved)	na	na	na	na	<0.5	<5.0	<0.5	na	na	na	na	na	na	na	11	32	20
Chromium hexavalent (total)	na	na	na	na	<0.5	4.7 J	<0.5	na	na	na	na	na	na	na	11	32	20
Copper (dissolved)	<0.33	na	0.73 J	na	1.1	1.3	0.63 J	<1.0	0.39 J	0.63 J	1.1	0.81 J	7	na	29 (G)	144	103
Copper (total)	1.1	na	12	na	1.9	3.6	1.8	0.61 J	0.67 J	0.61 J	12	1.3	2.1	na	29 (G)	144	103
Cyanide (total)	<1.20	na	na	na	<1.20	<5.0	<1.20	<5.0	<1.20	<5.0	67.9	45	<1.20	na	NA	NA	
Cyanide (available)	na	na	na	na	na	na	na	na	na	na	na	<2.0	na	na	5.2	44	10
Lead (total)	0.95 J	na	0.57 J	na	<0.33	<1.0	<0.33	<1.0	<0.33	<1.0	9.3	0.67 J	2.1	na	45 (G,X)	-	-
Mercury (dissolved)	<0.039	na	<0.039	na	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	<0.039	na	0.0013	-	-
Mercury (total)	<0.039	na	<0.039	na	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	<0.039	na	0.0013	-	-
Nickel (dissolved)	2.6 J	na	2.1 J	na	3.3 J	4.0 J	130	140	na	na	11	na	1.6 J	na	170 (G)	5,800	1,180
Nickel (total)	2.8 J	na	2.0 J	na	5.5 J	7.9 J	150	160	na	na	43	na	1.9 J	na	170 (G)	5,800	1,180
Selenium (dissolved)	<0.92	na	<0.92	na	<0.92	<1.0	<0.92	<1.0	<0.92	<1.0	1.1	<1.0	1.3	na	5	-	-
Selenium (total)	<0.92	na	<0.92	na	<0.92	<1.0	<0.92	<1.0	<0.92	<1.0	<0.92	<1.0	1.2	na	5	-	-
Silver (dissolved)	<0.12	na	<0.12	na	0.14 J	<0.20	<0.12	<0.20	<0.12	<0.20	<0.12	<0.20	<0.12	na	0.2 (M)	-	-
Silver (total)	<0.12	na	<0.12	na	<0.12	<0.20	0.15 J	<0.20	<0.12	<0.20	<0.12	<0.20	<0.12	na	0.2 (M)	-	-
Zinc (dissolved)	1.6 J	na	13	na	2.7 J	9.7 J	44	38	2.1 J	7.3 J	3.7 J	5.7 J	6.4 J	na	380 (G)	-	-
Zinc (total)	170	na	20	na	6.6 J	17	85	62	5.2 J	9.6 J	63	20	7.6 J	na	380 (G)	-	-

Notes:

[1]: Compliance monitoring well

[2]: MDEQ Part 201 RRD Op Memo No. 1, January 23, 2006 and Earth Tech/Weston Solutions 2004 Human Health Environmental Indicator

[3]: WHMD Final Determination of a Mixing Zone Request Letter, February 23, 2006 and an MDEQ Interoffice Communication, December 13, 2005

[4]: In Final Migration of Contaminated Groundwater Under Control Environmental Indicator (EI) Report, the maximum concentration of vinyl chloride detected at Site was 300 ug/L.

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J: Analyte was detected, but the concentration is greater than the MDL and less than the RL.

M: Calculated criterion is below the analytical target detection limit; therefore, the criterion defaults to the target detection limit.

X: The GSI criterion shown in the generic cleanup criterion tables is not protective for surface water that is used as a drinking water source.

NA: Criterion or value is not available or, in the case of background and chemical abstract service numbers, not applicable.

ND: FAV not developed

*Black **BOLD** values indicate the value exceeds the GSI criterion*

*Red **BOLD** values indicate the value exceeds the FAV*

Table 1
Historical Summary of Detected Compounds and Analytes in Groundwater Samples
Former JCI Stanley Tools Site
Fowlerville, Michigan

Well ID:	MW-OS3	MW-OS3	MW-OS3C	MW-OS3C	MDEQ GENERIC	Final Acute	Reported Worst-case
Sample Date:	8/2/2007	na	8/2/2007	na	GSI Criteria (ug/L) [2]	Value (ug/L) [3]	Maximum Concentration (ug/L) [3]
Compound							
Volatile Organic Compounds (VOCs) (ug/L)							
Acetone	<1.2	na	<1.2	na	1,700	-	-
Benzene	0.16 J	na	0.13 J	na	200 (X)	-	-
Chlorobenzene	<0.12	na	<0.12	na	47	-	-
1,1-DCA	2.6	na	<0.076	na	740	-	-
1,1-DCE	<0.14	na	<0.14	na	65 (X)	-	
cis-1,2-DCE	30	na	<0.17	na	620	-	910
trans-1,2-DCE	1.4	na	<0.16	na	1,500	-	-
Toluene	0.47 J	na	0.48 J	na	140	-	-
TCE	<0.17	na	<0.17	na	200 (X)	3,500	4,200
Vinyl Chloride	14	na	<0.17	na	15	ND	300 [4]
Xylenes (total)	0.24 J	na	<0.23	na	-	-	-
1,2-Dichlorobenzene	<0.065	na	<0.065	na	16	-	-
1,4-Dichlorobenzene	<0.13	na	<0.13	na	13	-	-
1,2,4-Trimethylbenzene		na		na	17	-	-
Methylene chloride	<0.051	na	<0.051	na	940 (X)	-	-
10 MI Metals (ug/L)							
Arsenic (dissolved)	4.1 J	na	<0.74	na	NA	680	161
Arsenic (total)	4.4 J	na	0.84 J	na	150 (X)	680	161
Barium (dissolved)	200	na	42 J	na	1,900 (G,X)	-	-
Barium (total)	63 J	na	44 J	na	1,900 (G,X)	-	-
Cadmium (dissolved)	<0.062	na	<0.062	na	6.2 (G,X)	77	13
Cadmium (total)	0.13 J	na	<0.062	na	6.2 (G,X)	77	13
Chromium (dissolved)	1.8	na	2.2	na	230 (G,X)	-	-
Chromium (total)	0.33 J	na	0.31 J	na	230 (G,X)	-	-
Chromium hexavalent (dissolved)	na	na	na	na	11	32	20
Chromium hexavalent (total)	na	na	na	na	11	32	20
Copper (dissolved)	9.2	na	0.86 J	na	29 (G)	144	103
Copper (total)	0.64 J	na	0.76 J	na	29 (G)	144	103
Cyanide (total)	<1.20	na	<1.20	na	NA	NA	
Cyanide (available)		na		na	5.2	44	10
Lead (total)	<0.33	na	<0.33	na	45 (G,X)	-	-
Mercury (dissolved)	**0.048 J**	na	<0.039	na	0.0013	-	-
Mercury (total)	**0.044 J**	na	<0.039	na	0.0013	-	-
Nickel (dissolved)	2.9 J	na	1.4 J	na	170 (G)	5,800	1,180
Nickel (total)	3.2 J	na	1.8 J	na	170 (G)	5,800	1,180
Selenium (dissolved)	1.3	na	1.9	na	5	-	-
Selenium (total)	<0.92	na	<0.92	na	5	-	-
Silver (dissolved)	<0.12	na	<0.12	na	0.2 (M)	-	-
Silver (total)	<0.12	na	<0.12	na	0.2 (M)	-	-
Zinc (dissolved)	8.8 J	na	0.85 J	na	380 (G)	-	-
Zinc (total)	8.1 J	na	7.0 J	na	380 (G)	-	-

Notes:

[1]: Compliance monitoring well
[2]: MDEQ Part 201 RRD Op Memo No. 1, January 23, 2006 and Earth Tech/Weston Solutions 2004 Human Health Environmental Indicator
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NA: Criterion or value is not available or, in the case of background and chemical abstract service numbers, not applicable.
ND: FAV not developed
*Black **BOLD** values indicate the value exceeds the GSI criterion*
*Red **BOLD** values indicate the value exceeds the FAV*

Table 5
Quality Control Sample Comparison
JCI Former Stanley Tool Works
Fowlerville, Michigan

Well	Date	Units	1,1,1,2-Tetrachloroethane	1,1,1-Trichloroethane	1,1,2,2-Tetrachloroethane	1,1,2-Trichloroethane	1,1-Dichloroethane	1,1-Dichloroethene	1,1-Dichloropropene	1,2,3-Trichlorobenzene	1,2,3-Trichloropropane	1,2,4-Trichlorobenzene	1,2,4-Trimethylbenzene	1,2-Dibromo-3-chloropropane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,2-Dichloroethane	1,2-Dichloropropane	1,3,5-Trimethylbenzene	1,3-Dichlorobenzene	1,3-Dichloropropane	1,4-Dichlorobenzene	2,2-Dichloropropane	2-Butanone (MEK)	2-Chlorotoluene	2-Hexanone
MW-28	11/12/2008	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<5.0
DUP-01	11/12/2008	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<1.0	<5.0
Relative Percent Difference		%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

-- indicates, not sampled or not determined

Table 5
Quality Control Sample Comparison
JCI Former Stanley Tool Works
Fowlerville, Michigan

Well	Date	Units	4-Chlorotoluene	4-Isopropyltoluene	4-Methyl-2-pentanone (MIBK)	Acetone	Arsenic, Dissolved	Arsenic, Total	Barium, Dissolved	Barium, Total	Benzene	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Cadmium, Dissolved	Cadmium, Total	Carbon Disulfide	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Chromium, Dissolved	Chromium, Hexavalent-Dissolved
MW-28	11/12/2008	ug/L	<1.0	<1.0	<5.0	<5.0	5.6	5.0	150	160	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.6	--
DUP-01	11/12/2008	ug/L	<1.0	<1.0	<5.0	2.4J	5.6	5.2	150	150	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<5.0	<1.0	<1.0	<1.0	<1.0	0.65J	1.7	--
Relative Percent Difference		%	0%	0%	0%	70%	0%	4%	0%	6%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	42%	6%	--

-- indicates, not sampled or not determined

Table 5
Quality Control Sample Comparison
JCI Former Stanley Tool Works
Fowlerville, Michigan

Well	Date	Units	Chromium, Hexavalent-Total	Chromium, Total	cis-1,2-Dichloroethene	cis-1,3-Dichloropropene	Copper, Dissolved	Copper, Total	Cyanide, Total	Dibromochloromethane	Dibromomethane	Dichlorodifluoromethane	Ethylbenzene	Hexachlorobutadiene	Isopropylbenzene	Lead, Dissolved	Lead, Total	Mercury, Dissolved	Mercury, Total	Methyl tert-Butyl Ether	Methylene Chloride	Naphthalene	n-Butylbenzene	Nickel, Dissolved	Nickel, Total	Nitrogen, Nitrate+Nitrite
MW-28	11/12/2008	ug/L	--	<1.0	<1.0	<1.0	<1.0	0.81J	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<1.0	<5.0	< 1.0	3.3J	3.2J	--
DUP-01	11/12/2008	ug/L	--	0.62J	<1.0	<1.0	<1.0	0.39J	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<1.0	<1.0	<5.0	< 1.0	3.7J	3.1J	--
Relative Percent Difference		%	--	47%	0%	0%	0%	18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	3%	0%

-- indicates, not sampled or not determined

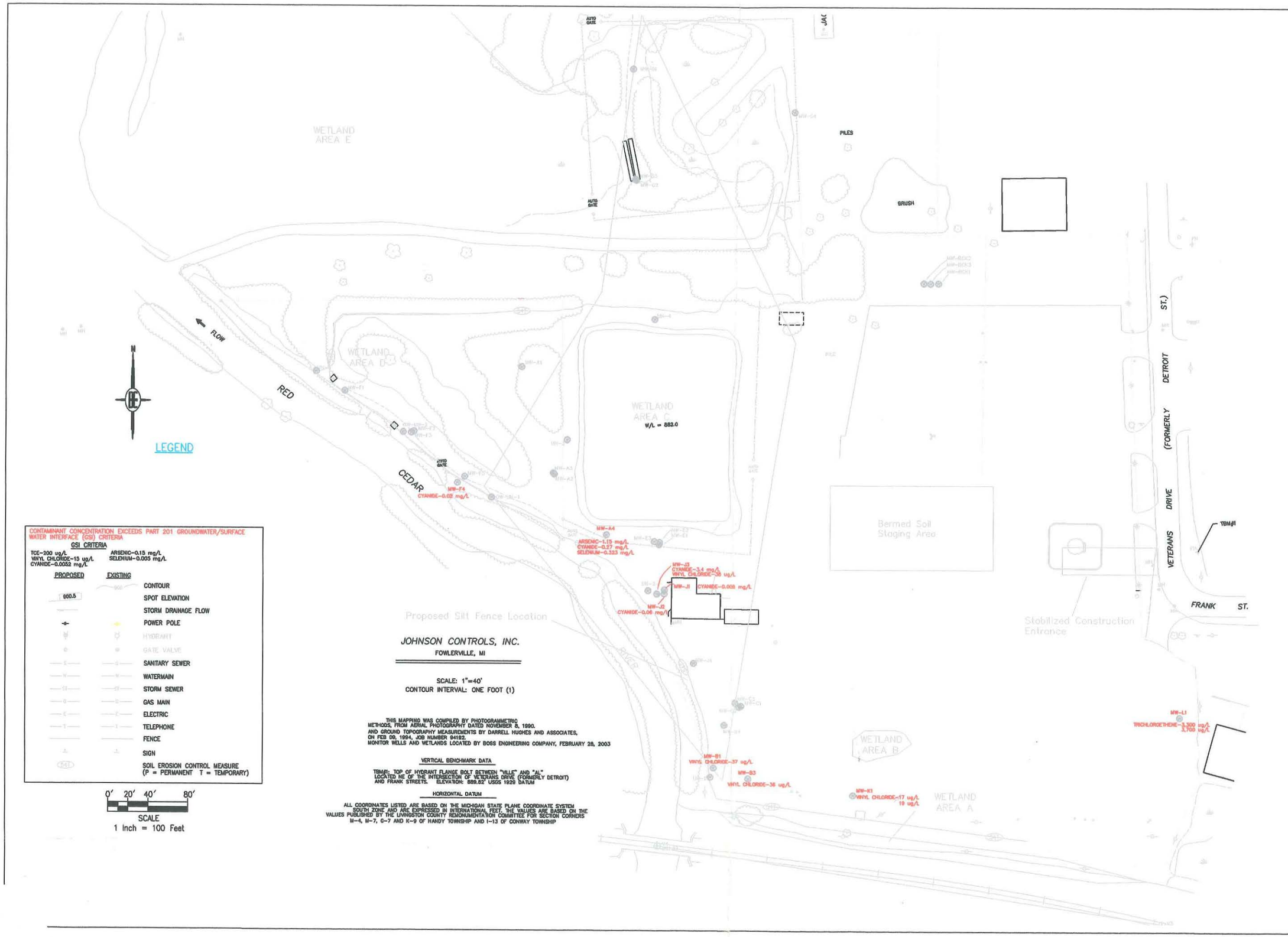
Table 5
Quality Control Sample Comparison
JCI Former Stanley Tool Works
Fowlerville, Michigan

Well	Date	Units	n-Propylbenzene	sec-Butylbenzene	Selenium, Dissolved	Selenium, Total	Silver, Dissolved	Silver, Total	tert-Butylbenzene	Tetrachloroethene	Toluene	trans-1,2-Dichloroethene	trans-1,3-Dichloropropene	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride	Xylene, Meta + Para	Xylene, Ortho	Zinc, Dissolved	Zinc, Total
MW-28	11/12/2008	ug/L	< 1.0	< 1.0	0.58J	<1.0	<0.2	<0.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<2.0	< 1.0	<10	10
DUP-01	11/12/2008	ug/L	< 1.0	< 1.0	0.92J	<1.0	<0.2	<0.2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	<2.0	< 1.0	<10	9.3J
Relative Percent Difference		%	0%	0%	45%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	7%

-- indicates, not sampled or not determined

Appendix A

Monitoring Well Sampling Forms and Inspection Checklists



LEGEND

CONTAMINANT CONCENTRATION EXCEEDS PART 201 GROUNDWATER/SURFACE WATER INTERFACE (GSI) CRITERIA

GSI CRITERIA

TCE-200 ug/L
VINYL CHLORIDE-13 ug/L
CYANIDE-0.0052 mg/L
ARSENIC-0.15 mg/L
SELENIUM-0.005 mg/L

PROPOSED	EXISTING	
	900	CONTOUR
900.5		SPOT ELEVATION
		STORM DRAINAGE FLOW
		POWER POLE
		HYDRANT
		GATE VALVE
	S	SANITARY SEWER
	W	WATERMAIN
	ST	STORM SEWER
	G	GAS MAIN
	E	ELECTRIC
	T	TELEPHONE
		FENCE
		SIGN
		SOIL EROSION CONTROL MEASURE (P = PERMANENT T = TEMPORARY)

0' 20' 40' 80'

SCALE
1 Inch = 100 Feet

JOHNSON CONTROLS, INC.
FOWLERVILLE, MI

SCALE: 1"=40'
CONTOUR INTERVAL: ONE FOOT (1)

THIS MAPPING WAS COMPILED BY PHOTOGRAMMETRIC METHODS, FROM AERIAL PHOTOGRAPHY DATED NOVEMBER 8, 1990. AND GROUND TOPOGRAPHY MEASUREMENTS BY DARRELL HUGHES AND ASSOCIATES, ON FEB 09, 1994, JOB NUMBER 94192. MONITOR WELLS AND WETLANDS LOCATED BY BOSS ENGINEERING COMPANY, FEBRUARY 26, 2003

VERTICAL BENCHMARK DATA

TBM#1: TOP OF HYDRANT FLANGE BOLT BETWEEN "VILLE" AND "AL" LOCATED NE OF THE INTERSECTION OF VETERANS DRIVE (FORMERLY DETROIT) AND FRANK STREETS. ELEVATION: 889.82' USGS 1929 DATUM

HORIZONTAL DATUM

ALL COORDINATES LISTED ARE BASED ON THE MICHIGAN STATE PLANE COORDINATE SYSTEM SOUTH ZONE AND ARE EXPRESSED IN INTERNATIONAL FEET. THE VALUES ARE BASED ON THE VALUES PUBLISHED BY THE LIVINGSTON COUNTY REMONUMENTATION COMMITTEE FOR SECTION CORNERS M-4, M-7, G-7 AND K-9 OF HANDY TOWNSHIP AND I-13 OF CONWAY TOWNSHIP

NO	REVISIONS	DRN	CHK	DATE

Modified After ENTACT & Associates, LLC Base Map

DRN
DES
CHK
APP

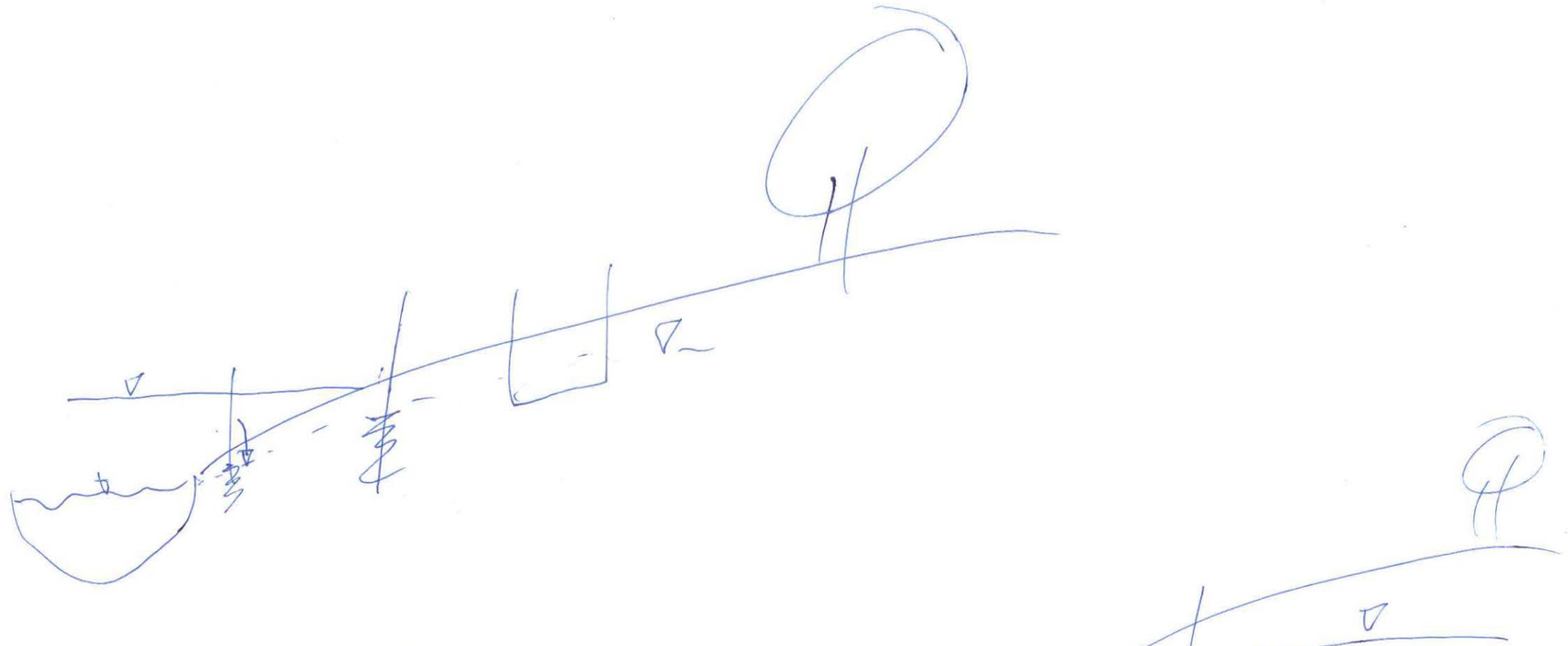
DRAFT

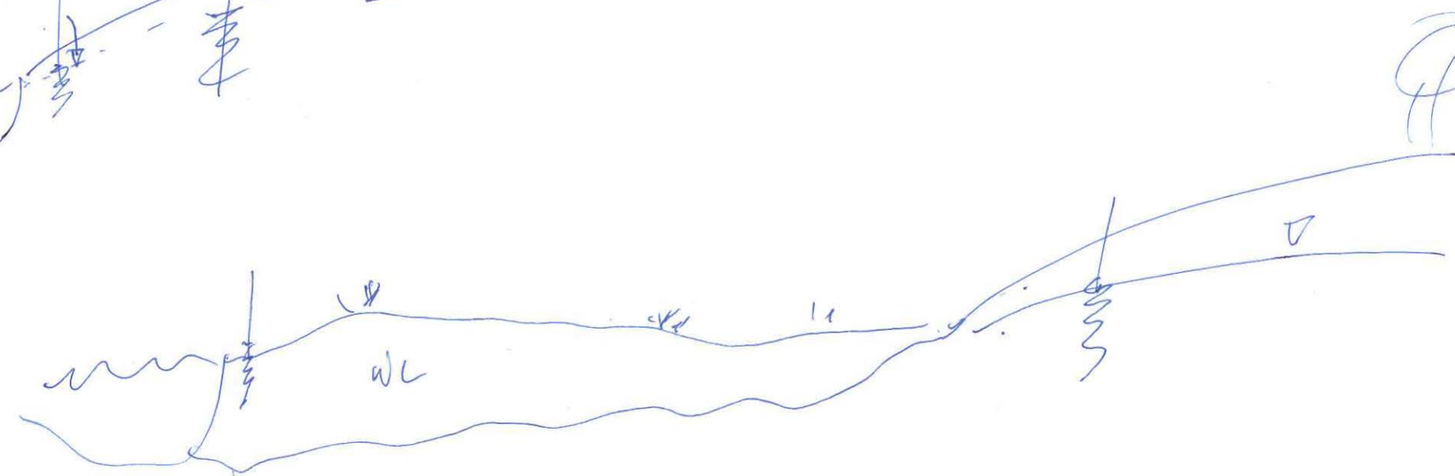
Johnson Controls, Inc.
Former Stanley Tool Site
Fowlerville, Michigan

~~METALS-UNSATURATED ZONE~~
~~PART 201 INDUSTRIAL~~
PSIC EXCEEDENCES

March 03 Baseline
Monitor well Sample
Full Scan - All GSI Exceedances

DATE: Mar. 21, 2003
PROJECT NUMBER: C
FILE NAME: Stanley
FIGURE NUMBER: 1

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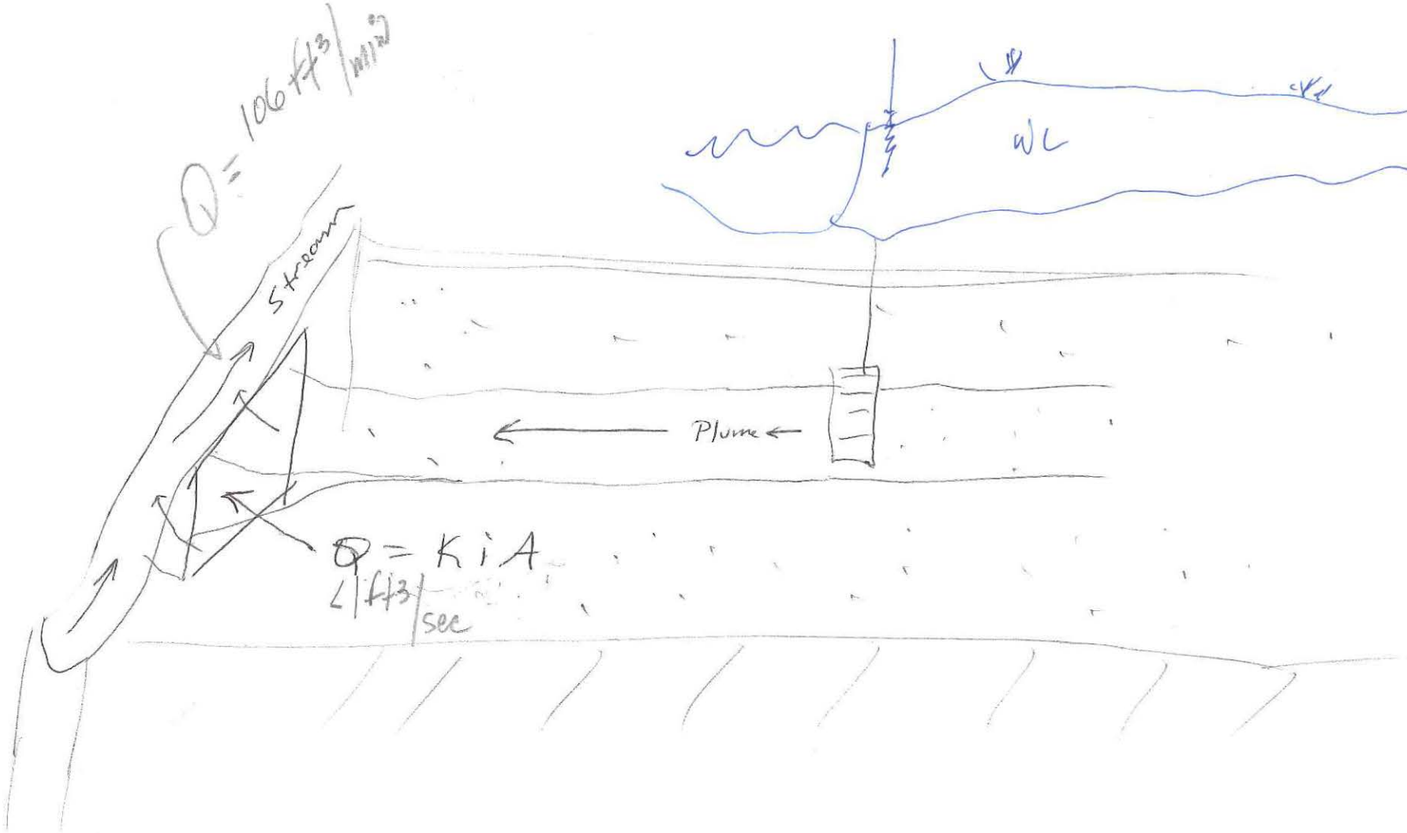
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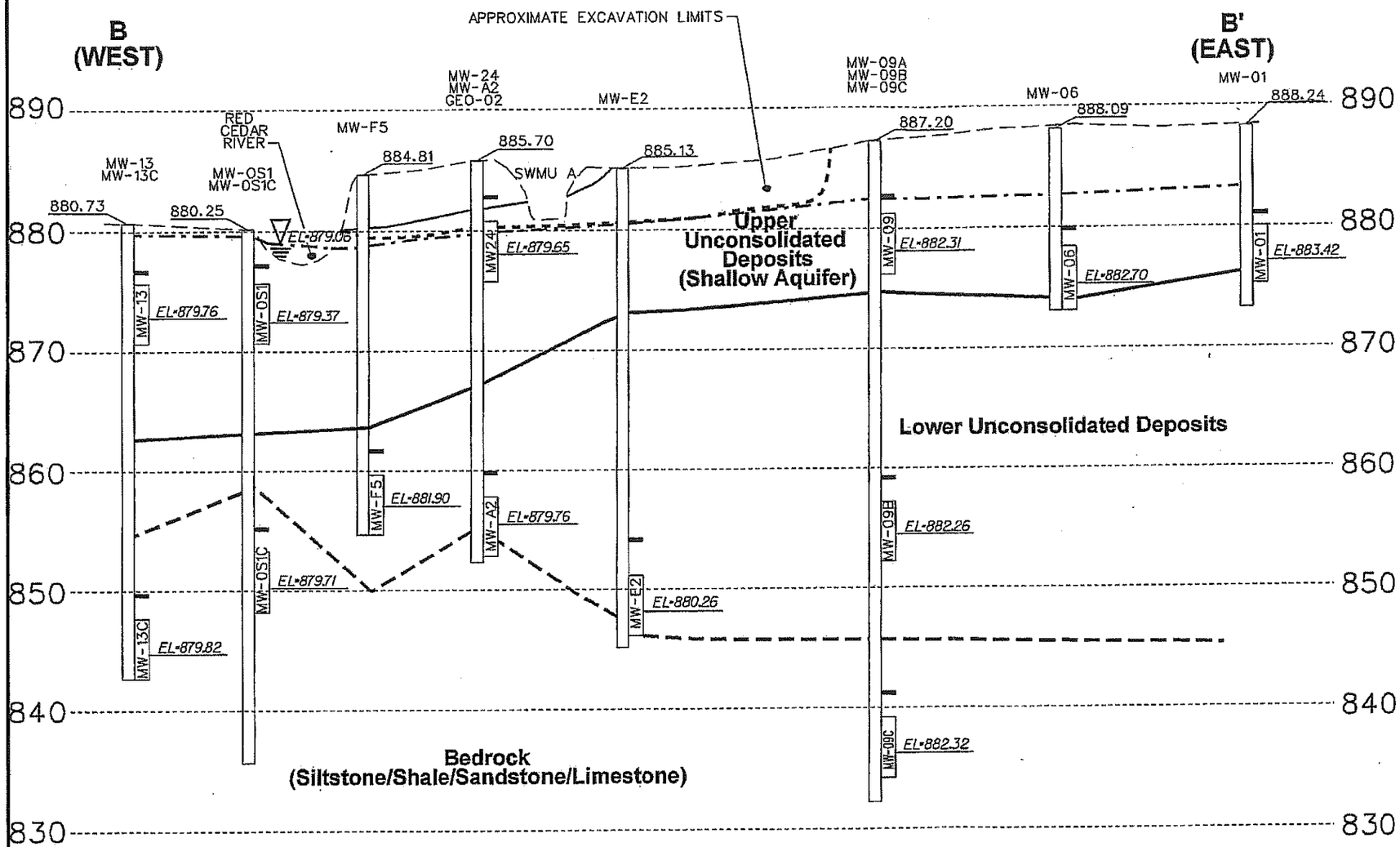
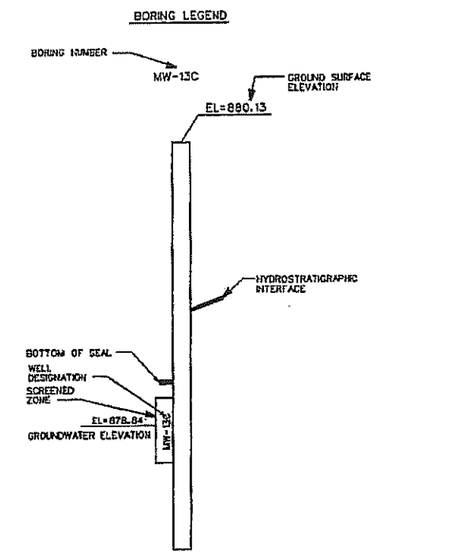
Stream
Plume
Q = KiA
ft³/sec





LEGEND

- CONTACT BETWEEN MAJOR HYDROSTRATIGRAPHIC UNITS
- INFERRED CONTACT
- ESTIMATED GRADE
- REMEDIAL ACTION EXCAVATION LIMITS
- WATER TABLE LEVEL
- FINAL GRADE

HORIZONTAL SCALE 0' 100'
VERTICAL SCALE 0' 10'

NOTES:

1. THE DIFFERENTIATION BETWEEN UPPER AND LOWER UNCONSOLIDATED DEPOSITS WAS BASED ON FIELD DESCRIPTIONS OF BORING SAMPLES THAT WERE REPORTED ON BORING LOGS.
2. UPPER UNCONSOLIDATED DEPOSITS ARE PREDOMINANTLY SW, SP, SM SOILS THAT INCLUDE CL, ML, CL/ML, SC, GM, GP, AND PT. SOILS BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). LOWER UNCONSOLIDATED DEPOSITS ARE PREDOMINANTLY CL, ML, AND CL/ML SOILS THAT INCLUDE ML/CL, GP, SW, SP, AND SM SOILS BASED ON THE USCS.
3. GROUNDWATER ELEVATIONS SHOWN ON THE CROSS SECTION WERE MEASURED DEC 18, 2003.
4. ESTIMATED GRADE REPRESENTS GROUND SURFACE ELEVATIONS AT THE TIME OF DRILLING AND ARE REPRESENTATIVE OF PRE-CONSTRUCTION ELEVATIONS. FINAL GRADE REPRESENTS POST-CONSTRUCTION ELEVATIONS.

WESTON SOLUTIONS

EARTH TECH

FIGURE 7
HYDROSTRATIGRAPHIC CROSS SECTION B-B'
JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

FEBRUARY 2004

65468

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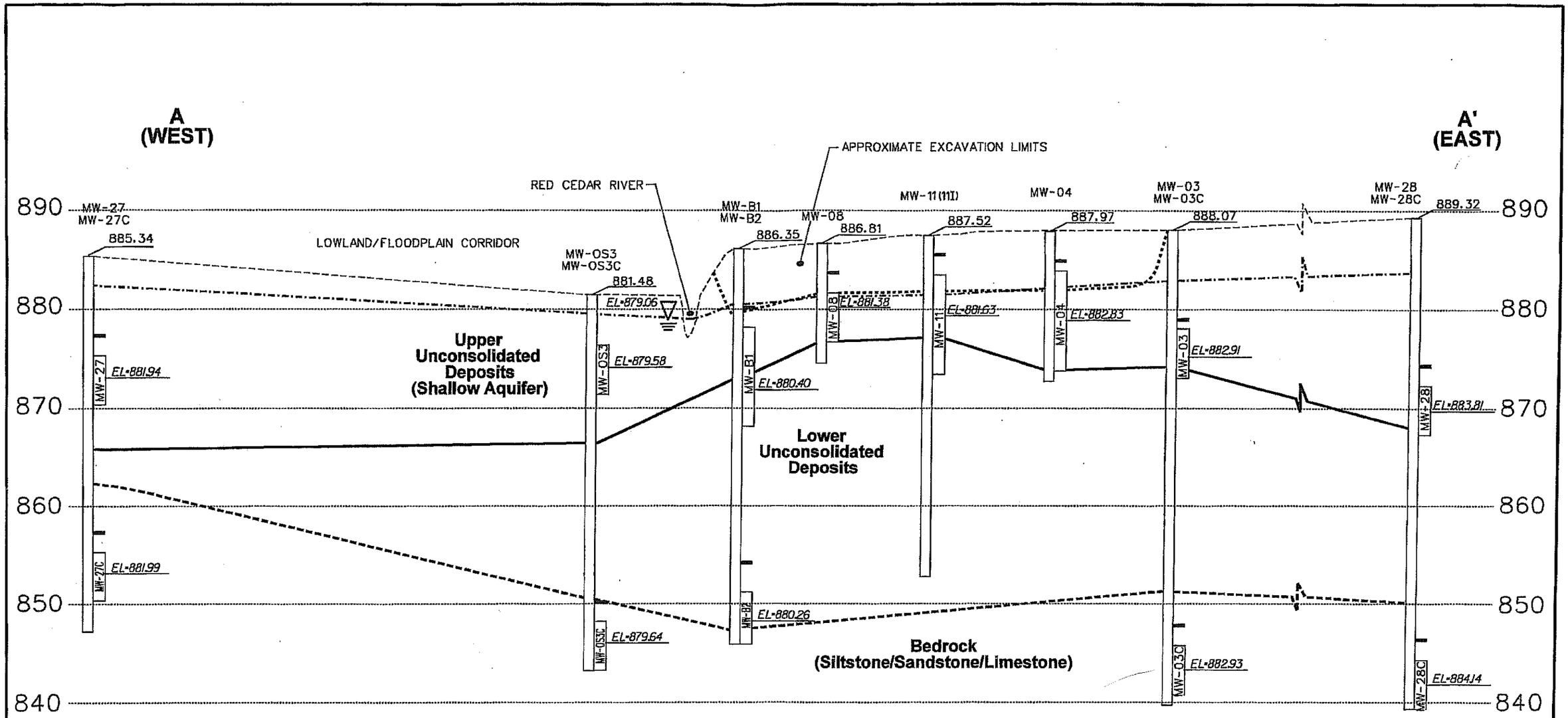
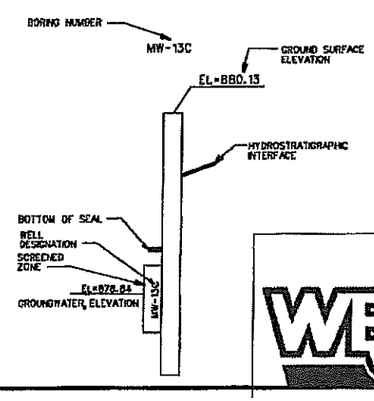


NOTES:

1. THE DIFFERENTIATION BETWEEN UPPER AND LOWER UNCONSOLIDATED DEPOSITS WAS BASED ON FIELD DESCRIPTIONS OF BORING SAMPLES THAT WERE REPORTED ON BORING LOGS.
2. UPPER UNCONSOLIDATED DEPOSITS ARE PREDOMINANTLY SW, SP, SM SOILS THAT INCLUDE CL, ML, CL/ML, SC, GM, GP, AND PT. SOILS BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). LOWER UNCONSOLIDATED DEPOSITS ARE PREDOMINANTLY CL, ML, AND CL/ML SOILS THAT INCLUDE ML/CL, GP, SW, SP, AND SM SOILS BASED ON THE USCS.
3. GROUNDWATER ELEVATIONS SHOWN ON THE CROSS SECTION WERE MEASURED DECEMBER 18, 2003.
4. ESTIMATED GRADE REPRESENTS GROUND SURFACE ELEVATIONS AT THE TIME OF DRILLING AND ARE REPRESENTATIVE OF PRE-CONSTRUCTION ELEVATIONS. FINAL GRADE REPRESENTS POST-CONSTRUCTION ELEVATIONS.

BORING LEGEND



LEGEND

- CONTACT BETWEEN MAJOR HYDROSTRATIGRAPHIC UNITS
- INFERRED CONTACT
- ESTIMATED GRADE
- REMEDIAL ACTION EXCAVATION LIMITS
- WATER TABLE LEVEL

HORIZONTAL SCALE 0' 100'
VERTICAL SCALE 0' 10'

WESTON SOLUTIONS

EARTH TECH

FIGURE 6
HYDROSTRATIGRAPHIC CROSS SECTION A-A'
JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

FEBRUARY 2004

65468

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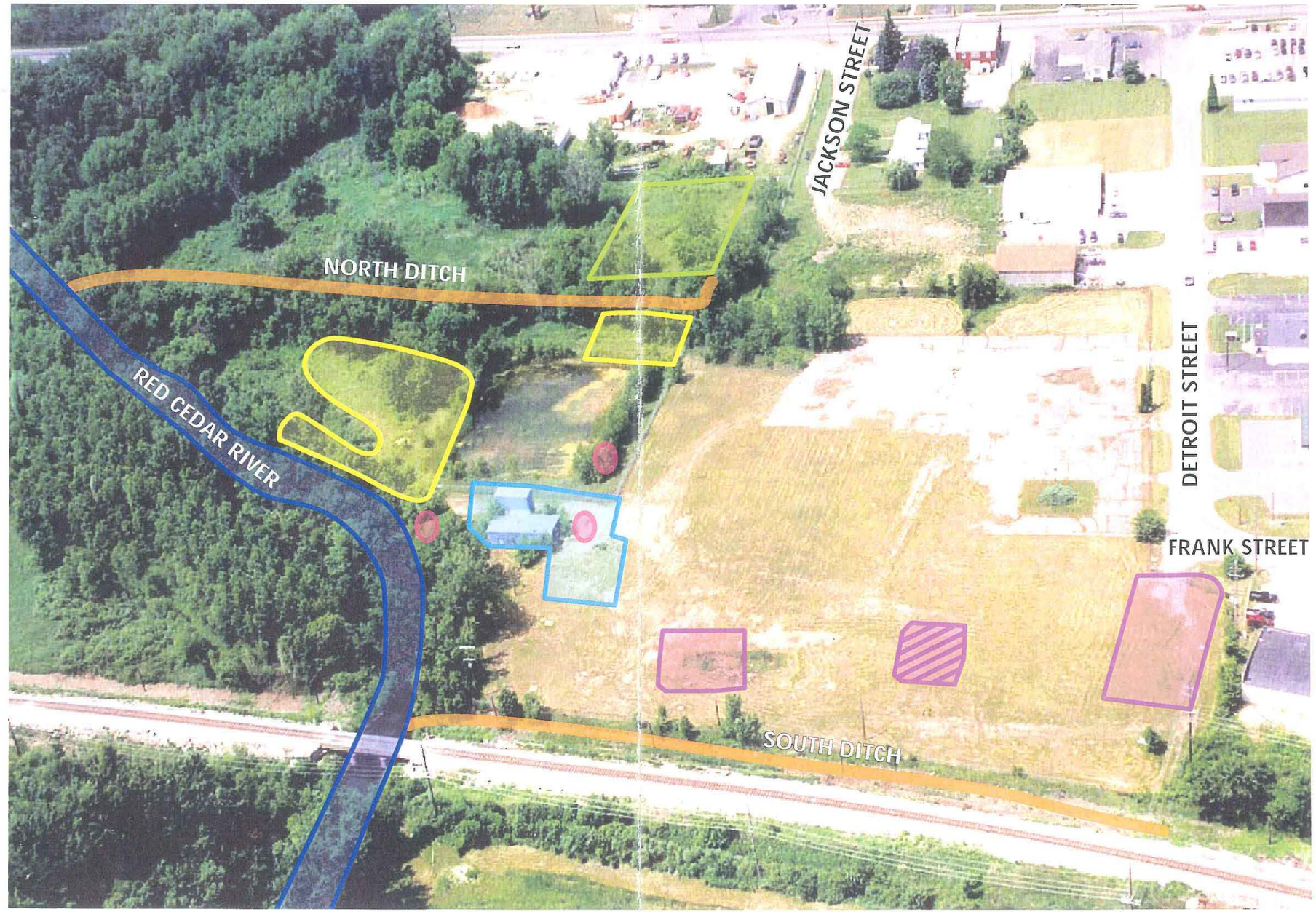


LEGEND

- Metal Impacted Soils
- Potential Onsite Consolidation Area
- Kerosene/Cyanide Impacted Soils
- TCE (Non-Listed) Soils
- TCE (Listed) Soils
- Ditch Sediments (PCBs, CN)
- PCBs >25ppm

N

LEGEND:

- TCE SAMPLING WELL LOCATION
- MONITORING WELL LOCATION
- SOLID WASTE MANAGEMENT UNIT BOUNDARY (SEE FIGURE 1-2 FOR LETTER DESIGNATIONS)
- BCR OR IRM LOCATION

HISTORIC SITE COMPONTENTS DURING HOOVER OPERATIONS DERIVED FROM PLANT LAYOUT DATED 1968

- OPERATIONAL AREAS CIRCA 1968
- APPROXIMATE FORMER PIPE LOCATION
- FORMER CYANIDE TREATMENT SYSTEM LOCATION
- FORMER BUILDING WALL
- DITCH CHANNEL

0 50 100

SCALE IN FEET

SOURCE: Digital Aerial Photograph, Advanced Mapping Technologies, November 1990.

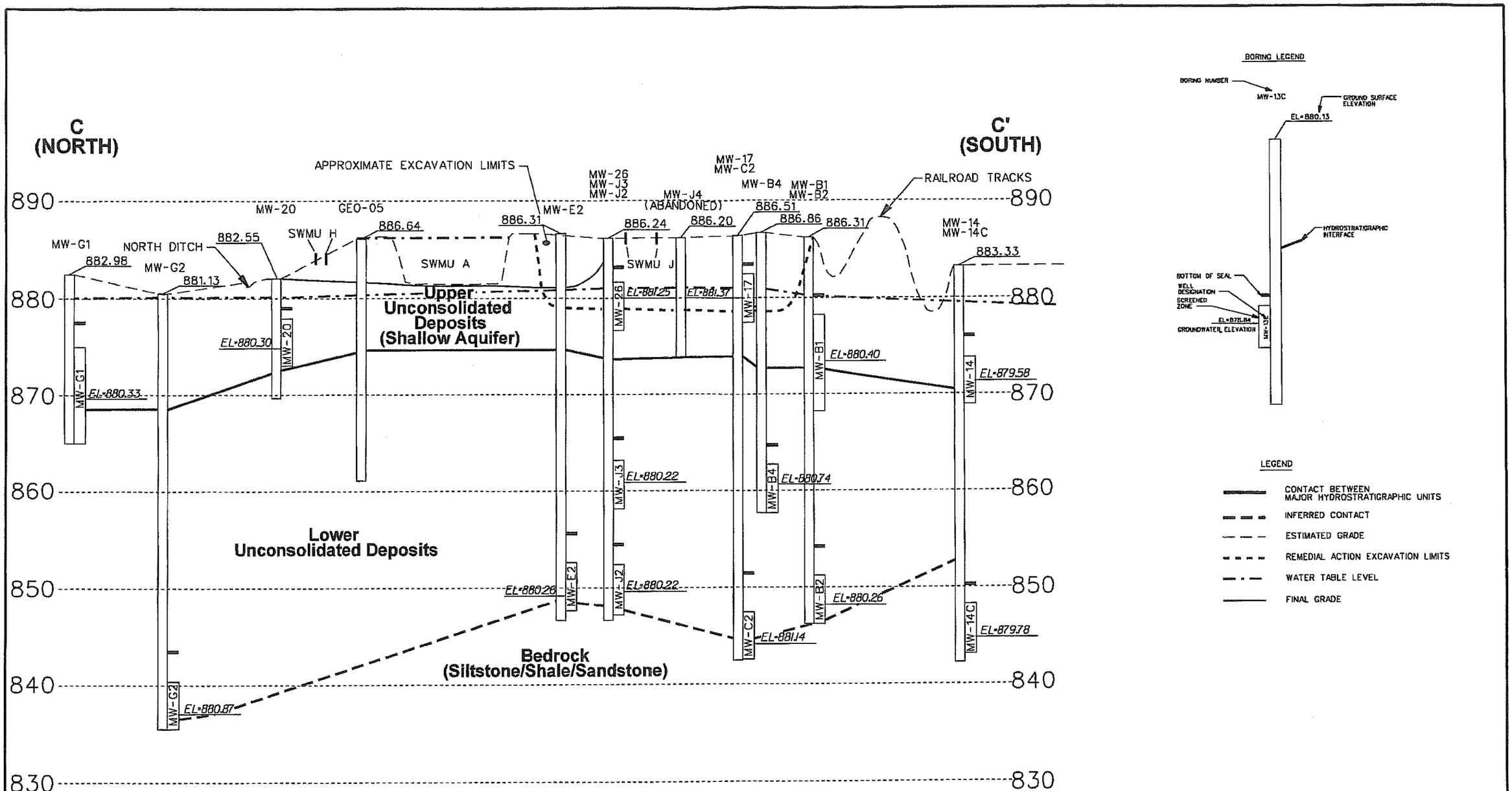
Johnson Controls, Inc.

FORMER STANLEY TOOLS FACILITY
FOWLERVILLE, MICHIGAN

FIGURE 1-4
HOOVER OPERATIONS LAYOUT WITH TCE AND MONITORING WELL LOCATIONS

JOB NO. 20209-020-121

URS



NOTES:

1. THE DIFFERENTIATION BETWEEN UPPER AND LOWER UNCONSOLIDATED DEPOSITS WAS BASED ON FIELD DESCRIPTIONS OF BORING SAMPLES THAT WERE REPORTED ON BORING LOGS.
2. UPPER UNCONSOLIDATED DEPOSITS ARE PREDOMINANTLY SW, SP, SM SOILS THAT INCLUDE CL, ML, CL/ML, SC, GM, GP, AND PT. SOILS BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). LOWER UNCONSOLIDATED DEPOSITS ARE PREDOMINANTLY CL, ML, AND CL/ML SOILS THAT INCLUDE ML/CL, GP, SW, SP, AND SM SOILS BASED ON THE USCS.
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4. ESTIMATED GRADE REPRESENTS GROUND SURFACE ELEVATIONS AT THE TIME OF DRILLING AND ARE REPRESENTATIVE OF PRE-CONSTRUCTION ELEVATIONS. FINAL GRADE REPRESENTS POST-CONSTRUCTION ELEVATIONS.

WESTON SOLUTIONS

EARTH TECH

FIGURE 8
HYDROSTRATIGRAPHIC CROSS SECTION C-C'
JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

FEBRUARY 2004

65468

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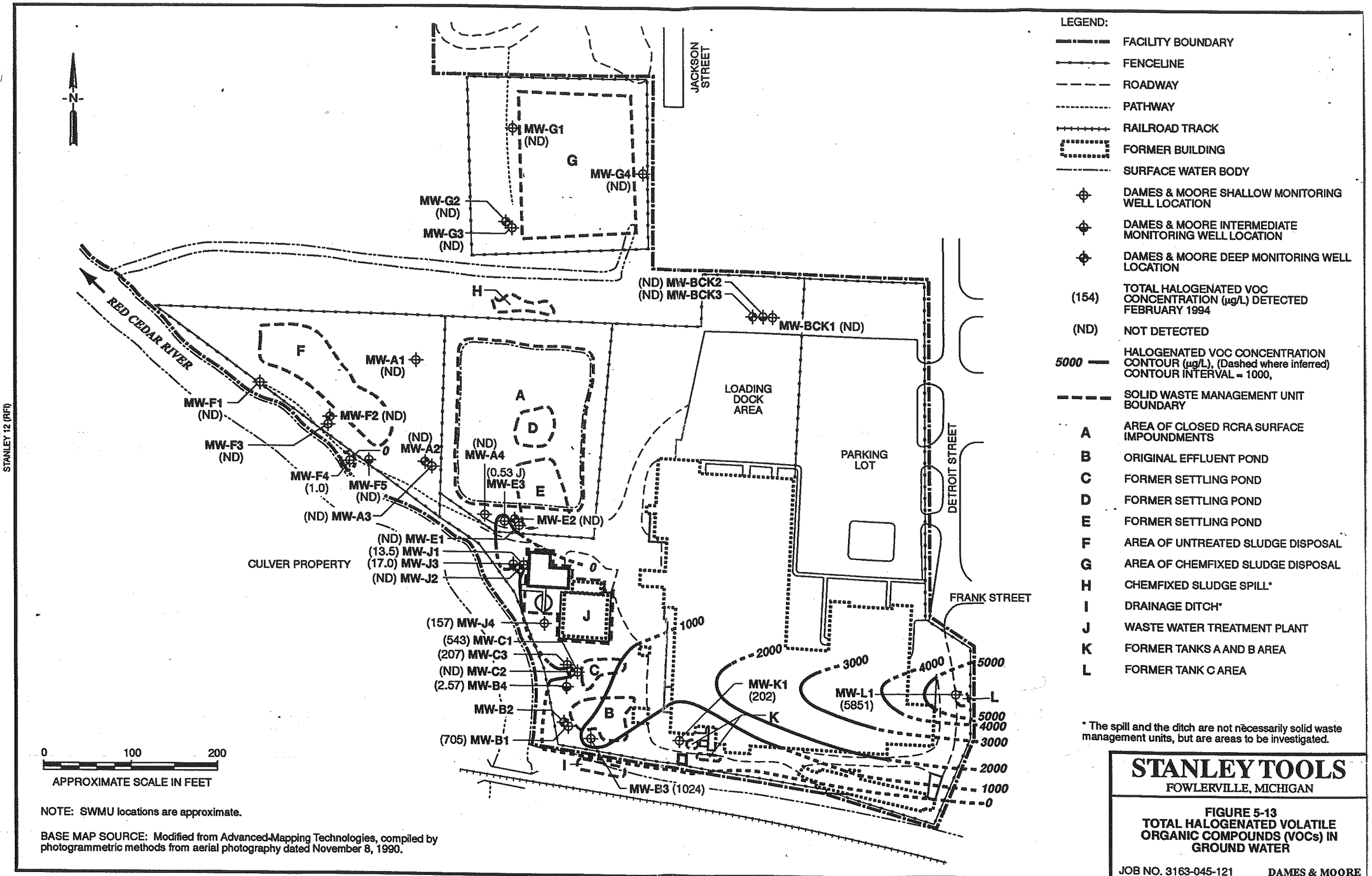
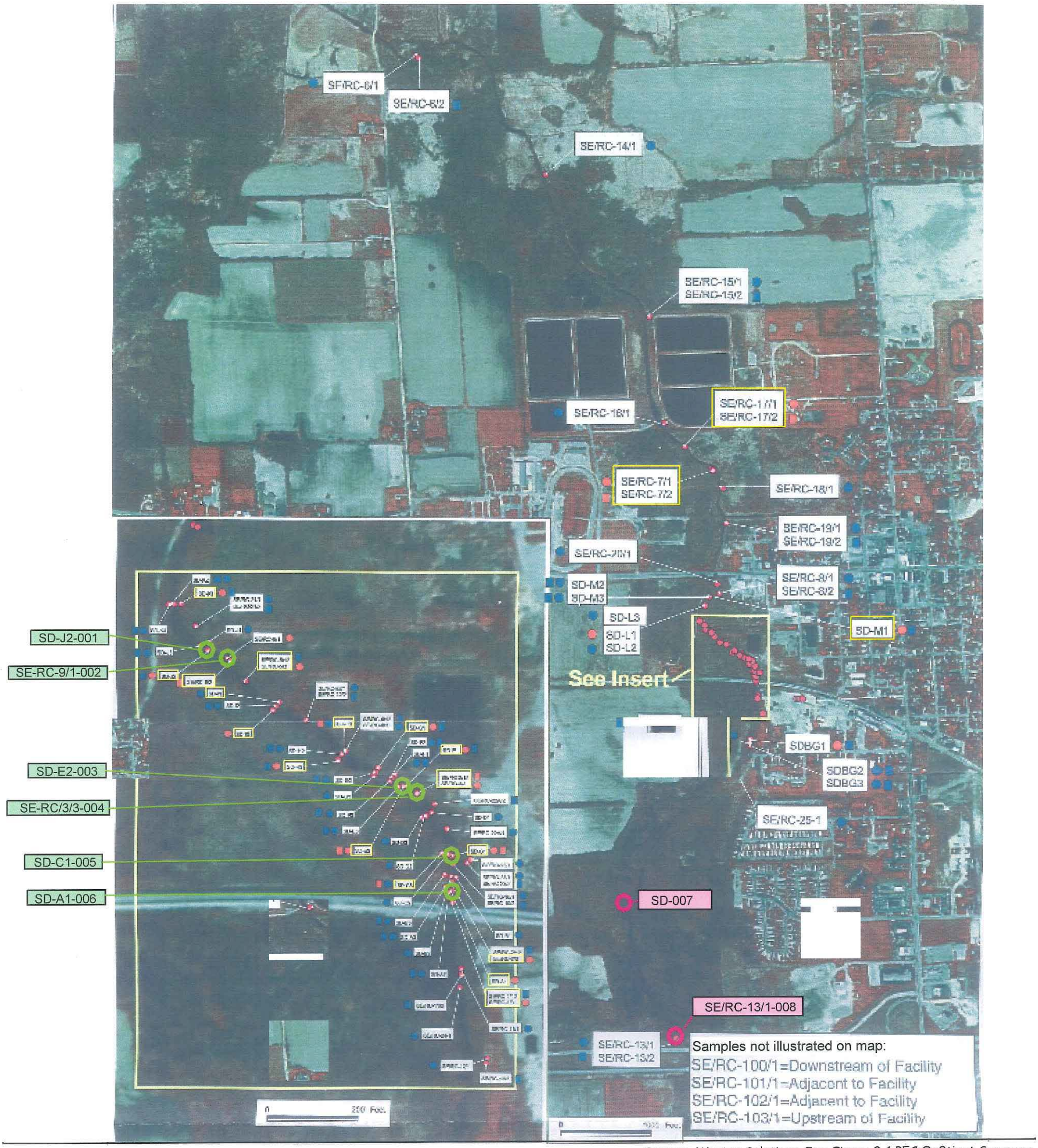
APPENDIX A
SEDIMENT DATA
JCI FOWLERVILLE

			Field Sample ID	SE/RC-100/1	SE/RC-101/1	SE/RC-102/1	SE/RC-103/1	SRC-14/136787	SRC-15/136787	SRC-15/236787	SRC-16/136787	SRC-17/136787	SRC-17/236767	SRC-18/136787	SRC-19/136787	SRC-19/236787	SRC-20/136787	SRC-21/136787
			Sample Date	9/1/2000	9/1/2000	9/1/2000	9/1/2000	9/18/2000	9/18/2000	9/18/2000	9/18/2000	9/18/2000	9/18/2000	9/18/2000	9/18/2000	9/18/2000	9/18/2000	9/18/2000
			Location ID	SE/RC-100/1	SE/RC-101/1	SE/RC-102/1	SE/RC-103/1	SE/RC-14/1	SE/RC-15/1	SE/RC-15/2	SE/RC-16/1	SE/RC-17/1	SE/RC-17/2	SE/RC-18/1	SE/RC-19/1	SE/RC-19/2	SE/RC-20/1	SE/RC-21/1
			Depth	0 - 3	0 - 3	0 - 3	0 - 3	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0
Method	CAS #	Parameter	Result Units															
7421	7439-92-1	Lead, Total	mg/kg	3.1	6.2	3.3	10.8	--	--	--	--	--	--	--	--	--	--	--
7740	7782-49-2	Selenium, Total	mg/kg	1.7 U	1.8 U	1.5 U	1.8 U	--	--	--	--	--	--	--	--	--	--	--
E160.3	MOIST	Percent moisture	%	--	--	--	--	22.8	31.6	26.2	28.3	40.8	40.1	22.8	23.2	33.8	16.2	24.1
SM4500-CN-I	57-12-5	Cyanide, Total	mg/kg	0.64 U	0.14 J	0.56 U	0.68 U	U	4.8	U	1.3	U	U	U	U	U	U	U
SW6010B	7440-38-2	Arsenic, Total	mg/kg	3	10.3	4.4	3.8	6.9	3.4	4.1	4.3	8.3	10.3	5.2	3.6	13.2	5.3	3.6
SW6010B	7440-39-3	Barium, Total	mg/kg	20.1	72.9	15.1	32.5	25.8	32.7	60	21.6	63.6	46.9	28.6	24.1	43.9	47.5	21.6
SW6010B	7440-43-9	Cadmium, Total	mg/kg	0.64 U	0.68 U	0.56 U	0.2 J	0.18 B	0.15 U	0.16 B	0.14 U	0.23 B	0.2 B	0.13 U	0.13 U	0.15 U	0.12 U	0.13 U
SW6010B	7440-47-3	Chromium, Total	mg/kg	12.5	18	6	6.3	10.8	8.2	26	16.1	404	78.5	15.3	11.3	45.8	13.3	12
SW6010B	7439-92-1	Lead, Total	mg/kg	--	--	--	--	3.4	3.8	10.3	6	23.3	7.4	6.9	5.2	11.1	7.8	3.1
SW6010B	7782-49-2	Selenium, Total	mg/kg	--	--	--	--	0.58 U	0.66 U	0.96 B	0.63 U	0.94 B	0.75 U	0.58 U	0.59 U	0.68 U	0.54 U	0.59 U
SW6010B	7440-22-4	Silver, Total	mg/kg	--	--	--	--	0.6 U	0.67 U	0.62 U	0.64 U	0.78 U	0.77 U	0.6 U	0.6 U	0.7 U	0.55 U	0.61 U
SW7471	7439-97-6	Mercury, Total	mg/kg	0.011 J	0.0053 J	0.0074 J	0.021 J	0.02 B	0.019 B	0.033 B	0.026 B	0.06	0.033 B	0.021 B	0.014 B	0.034 B	0.0085 B	0.011 B
SW8082	TPCB	PCB, Total	ug/kg	14 J	97	--	--	--	21 J	44	33 J	310	105 J		25 J	67	--	9.6 J
SW8082	12674-11-2	PCB-1016	ug/kg	--	--	--	--	14 U	16 U	15 U	15 U	18 U	18 U	14 U	14 U	17 U	13 U	14 U
SW8082	11104-28-2	PCB-1221	ug/kg	--	--	--	--	11 U	12 U	11 U	12 U	14 U	14 U	11 U	11 U	13 U	9.9 U	11 U
SW8082	11141-16-5	PCB-1232	ug/kg	--	--	--	--	4.4 U	5 U	4.6 U	4.7 U	5.7 U	5.7 U	4.4 U	4.4 U	5.1 U	4.1 U	4.5 U
SW8082	53469-21-9	PCB-1242	ug/kg	--	--	--	--	4.3 U	4.8 U	4.5 U	4.6 U	5.6 U	5.5 U	4.3 U	4.3 U	5 U	3.9 U	4.3 U
SW8082	12672-29-6	PCB-1248	ug/kg	14 J	97	37 U	45 U	5.4 U	21 J	44	33 J	110	66	5.4 U	25 J	67	5 U	9.6 J
SW8082	11097-69-1	PCB-1254	ug/kg	42 U	45 U	37 U	45 U	6 U	6.7 U	6.2 U	6.4 U	7.8 U	7.7 U	6 U	6 U	7 U	5.5 U	6.1 U
SW8082	11096-82-5	PCB-1260	ug/kg	42 U	45 U	37 U	45 U	23 U	26 U	24 U	25 U	200	39 J	23 U	23 U	27 U	21 U	24 U
SW8270C	218-01-9	1,2-Benzphenanthracene	ug/kg	--	--	--	--	69 U	170 J	150 J	220 J	280 J	89 U	190 J	410 J	310 J	63 U	110 J
SW8270C	91-57-6	2-Methylnaphthalene	ug/kg	420 U	450 U	370 U	--	--	--	--	--	--	--	--	--	--	--	--
SW8270C	106-39-4	3,4-Methylphenol	ug/kg	420 U	450 U	370 U	--	--	--	--	--	--	--	--	--	--	--	--
SW8270C	83-32-9	Acenaphthene	ug/kg	--	--	--	--	45 U	51 U	47 U	48 U	59 U	58 U	45 U	45 U	52 U	41 U	46 U
SW8270C	208-96-8	Acenaphthylene	ug/kg	--	--	--	--	47 U	53 U	49 U	51 U	62 U	61 U	47 U	48 U	55 U	44 U	48 U
SW8270C	120-12-7	Anthracene	ug/kg	420 U	450 U	370 U	450 U	69 U	77 U	72 U	74 U	89 U	88 U	69 U	130 J	84 J	63 U	70 U
SW8270C	56-55-3	Benz(a)anthracene	ug/kg	80 J	450 U	370 U	120 J	55 U	140 J	120 J	190 J	190 J	71 U	150 J	370 J	260 J	51 U	110 J
SW8270C	50-32-8	Benzo(a)pyrene	ug/kg	65 J	450 U	370 U	130 J	61 U	150 J	120 J	200 J	210 J	79 U	150 J	340 J	260 J	56 U	89 J
SW8270C	205-99-2	Benzo(b)fluoranthene	ug/kg	66 J	450 U	370 U	170 J	49 U	150 J	120 J	180 J	190 J	63 U	120 J	340 J	210 J	45 U	86 J
SW8270C	191-24-2	Benzo(g,h,i)perylene	ug/kg	420 U	450 U	370 U	110 J	56 U	96 J	70 J	140 J	130 J	72 U	110 J	170 J	170 J	51 U	56 U
SW8270C	207-08-9	Benzo(k)fluoranthene	ug/kg	420 U	450 U	370 U	450 U	100 U	140 J	110 U	170 J	180 J	130 U	170 J	270 J	270 J	95 U	110 U
SW8270C	117-81-7	bis(2-Ethylhexyl)phthalate	ug/kg	--	450 U	370 U	--	--	--	--	--	--	--	--	--	--	--	--
SW8270C	218-01-9	Chrysene	ug/kg	85 J	450 U	370 U	160 J	--	--	--	--	--	--	--	--	--	--	--
SW8270C	53-70-3	Dibenz(a,h)anthracene	ug/kg	--	--	--	--	67 U	76 U	70 U	72 U	87 U	86 U	67 U	67 U	78 U	62 U	68 U
SW8270C	84-74-2	Di-N-Butyl phthalate	ug/kg	--	450 U	370 U	--	--	--	--	--	--	--	--	--	--	--	--
SW8270C	206-44-0	Fluoranthene	ug/kg	130 J	450 U	370 U	270 J	74 U	370 J	300 J	430 J	570	100 J	430	880	620	68 U	190 J
SW8270C	86-73-7	Fluorene	ug/kg	420 U	450 U	370 U	450 U	53 U	60 U	56 U	57 U	69 U	69 U	53 U	85 J	62 U	49 U	54 U
SW8270C	193-39-5	Indeno(1,2,3-cd)pyrene	ug/kg	420 U	450 U	370 U	83 J	69 U	91 J	72 U	120 J	110 J	88 U	89 J	180 J	150 J	63 U	70 U
SW8270C	91-20-3	Naphthalene	ug/kg	420 U	450 U	370 U	450 U	66 U	74 U	69 U	71 U	86 U	85 U	66 U	66 U	77 U	61 U	67 U
SW8270C	85-01-8	Phenanthrene	ug/kg	420 U	450 U	370 U	130 J	54 U	210 J	140 J	260 J	430 J	70 U	330 J	660	310 J	50 U	55 U
SW8270C	129-00-0	Pyrene	ug/kg	120 J	450 U	370 U	290 J	67 J	260 J	210 J	470	440 J	85 J	410 J	850	590	45 U	200 J
SW9012	57-12-5	Cyanide, Total	mg/kg	2	2	0.56 U	0.13 J	0.19 B	11.4	0.14 B	4.5	0.74 B	0.0047 U	0.17 B	0.17 B	0.7 B	0.0033 U	0.0037 U



NOTE: SWMU locations are approximate.

BASE MAP SOURCE: Modified from Advanced-Mapping Technologies, compiled by photogrammetric methods from aerial photography dated November 8, 1990.



Source: Weston Solutions, Inc, Figure 2-1 PEC QuOtient Summary

Legend

- Historic Surface Sediment Sample <Probable Effects Concentrations (PEC)
- Historic Subsurface Sediment Sample <PEC
- Historic Surface Sediment Sample > PECs
- Historic Subsurface Sediment Sample > PECs
- July 2007 Sediment Sample Location
- July 2007 Reference Upstream Sediment Sample Location

Figure 3
Sediment Sample Locations
Baseline Ecological Risk Assessment
Former Stanley Tools, Fowlersvill,e MI

Table 1
Historical Summary of Detected Compounds and Analytes in Groundwater Samples
Former JCI Stanley Tools Site
Fowlerville, Michigan

Well ID: / Sample Date: / Compound	MW-02 7/31/2007	MW-02 3/5/2008	MW-11 [1] GSI Comp 7/31/2007	MW-11 [1] GSI Comp 3/5/2008	MW-14 [1] GSI Comp 8/1/2007	MW-14 [1] GSI Comp 3/6/2008	MW-17 [1] GSI Comp 8/1/2007	MW-17 [1] GSI Comp 3/5/2008	MW-21 [1] GSI Comp 8/1/2007	MW-21 [1] GSI Comp na	MW-22 [1] GSI Comp 8/1/2007	MW-22 [1] GSI Comp 3/5/2008	MW-24 [1] GSI Comp 8/1/2007	MW-24 [1] GSI Comp 3/6/2008	MW-26 [1] GSI Comp 8/1/2007	MW-26 [1] GSI Comp 3/5/2008	MDEQ GENERIC GSI Criteria (ug/L) [2]	Final Acute Value (ug/L) [3]	Reported Worst-case Maximum Concentration (ug/L) [3]
Volatile Organic Compounds (VOCs) (ug/L)																			
Acetone	<60	<250	<1.2	<5.0	<1.2	<5.0	1.8 J	1.3 JB	1.4 J	na	2.4 J	4.6 JB	1.4 J	<5.0	<1.2	<5.0	1,700	-	-
Benzene	<5.9	<50	<0.12	<1.0	<0.12	<1.0	0.35 J	0.18 J	<0.12	na	0.45 J	0.38 J	<0.12	<1.0	<0.12	<1.0	200 (X)	-	-
Chlorobenzene	<6.0	<50	<0.12	<1.0	<0.12	<1.0	2.4	1.2	<0.12	na	3.1	3.5	8	4.6	<0.12	<1.0	47	-	-
1,1-DCA	<3.8	<50	0.89 J	0.26 J	2.7	2.4	2.9	1.4	<0.076	na	<0.076	<1.0	<0.076	<1.0	0.57 J	0.45 J	740	-	-
1,1-DCE	<7.0	<50	<0.14	<1.0	0.35 J	<1.0	<0.14	<1.0	<0.14	na	<0.14	<1.0	<0.14	<1.0	<0.14	<1.0	65 (X)	-	
cis-1,2-DCE	**800**	600	1	0.77 J	23	23	49	30	<0.17	na	<0.17	<1.0	<0.17	<1.0	26	15	620	-	910
trans-1,2-DCE	32 J	23 J	<0.16	<1.0	2.6	2.5	17	13	<0.16	na	<0.16	<1.0	<0.16	<1.0	0.46 J	<1.0	1,500	-	-
Toluene	4.0 J	<50	<0.072	0.11 J	0.29 J	<1.0	0.22 J	0.080 J	0.29 J	na	0.22 J	<1.0	0.090 J	<1.0	0.36 J	<1.0	140	-	-
TCE	**3,400**	**3,600**	0.69 J	3.0	<0.17	<1.0	7.1	3.6	<0.17	na	<0.17	<1.0	<0.17	0.60 J	0.64 J	<1.0	200 (X)	3,500	4,200
Vinyl Chloride	<8.7	<50	<0.17	<1.0	12	4.4	**48**	**26**	<0.17	na	<0.17	<1.0	<0.17	<1.0	13	7.4	15	ND	300 [4]
Xylenes (total)	<12	<100	<0.23	<2.0	<0.23	<2.0	<0.23	<2.0	<0.23	na	<0.23	<2.0	<0.23	<2.0	<0.23	<2.0	-	-	-
1,2-Dichlorobenzene	<3.3	<50	<0.065	<1.0	<0.065	<1.0	0.74 J	0.36 J	<0.065	na	<0.065	<1.0	<0.065	<1.0	<0.065	<1.0	16	-	-
1,4-Dichlorobenzene	<6.6	<50	<0.13	<1.0	<0.13	<1.0	0.42 J	0.26 J	<0.13	na	<0.13	<1.0	0.26 J	<1.0	<0.13	<1.0	13	-	-
1,2,4-Trimethylbenzene	<6.6	<50	<0.13	<1.0	<0.13	<1.0	<0.13	<1.0	<0.13	na	<0.13	<1.0	<0.13	<1.0	<0.13	<1.0	17	-	-
Methylene chloride	<2.5	8.5 J	<0.051	<1.0	<0.051	<1.0	<0.051	<1.0	<0.051	na	<0.051	<1.0	<0.051	<1.0	<0.051	<1.0	940 (X)	-	-
10 MI Metals (ug/L)																			
Arsenic (dissolved)	na	na	<0.74	<5.0	na	na	4.1 J	<5.0	4.2 J	na	66	64	68	30	6.6	2.7 J	NA	680	161
Arsenic (total)	na	na	<0.74	<5.0	na	na	3.4 J	1.1 J	11	na	88	86	81	36	10	4.6 J	150 (X)	680	161
Barium (dissolved)	na	na	110	57 J	na	na	130	81 J	410	na	320	360	190	180	170	110	1,900 (G,X)	-	-
Barium (total)	na	na	110	65 J	na	na	130	84 J	470	na	370	410	200	200	190	120	1,900 (G,X)	-	-
Cadmium (dissolved)	na	na	<0.062	<0.20	na	na	<0.062	<0.20	<0.062	na	<0.062	<0.20	<0.062	<0.20	<0.062	<0.20	6.2 (G,X)	77	13
Cadmium (total)	na	na	0.069 J	0.066 J	na	na	<0.062	<0.20	0.10 J	na	<0.062	<0.20	<0.062	<0.20	<0.062	<0.20	6.2 (G,X)	77	13
Chromium (dissolved)	na	na	0.96 J	5	<0.31	na	<0.31	<1.0	<0.31	na	<0.31	<1.0	<0.31	<1.0	<0.31	<1.0	230 (G,X)	-	-
Chromium (total)	na	na	1.4	4.8	na	na	<0.31	<1.0	<0.31	na	<0.31	0.32 J	<0.31	<1.0	<0.31	<1.0	230 (G,X)	-	-
Chromium hexavalent (dissolved)	na	na	na	na	na	na	<0.5	na	0.6 J	na	0.9 J	0.7 J	<0.5	<5.0	<0.5	<5.0	11	32	20
Chromium hexavalent (total)	na	na	na	na	na	na	0.8 J	na	1.3 J	na	0.9 J	1.2 J	<0.5	<5.0	0.8 J	1.7 J	11	32	20
Copper (dissolved)	na	na	3.9	4.3	na	na	0.45 J	0.67 J	0.67 J	na	0.76 J	0.62 J	<0.33	0.65 J	0.42 J	1.0	29 (G)	144	103
Copper (total)	na	na	**44**	4.8	na	na	0.52 J	1.0 J	1.4	na	2	1.2	0.33 J	<1.0	29	0.49 J	29 (G)	144	103
Cyanide (total)	na	na	<1.20	<5.0	<1.20	<5.0	23.2	14	<1.20	na	2.01 J	2.1 J	63.9	48	9.7	11	NA	NA	
Cyanide (available)	na	na	na	na	na	na	na	na	na	na	na	na	na	<2.0	na	na	5.2	44	10
Lead (total)	na	na	1.3	<1.0	na	na	<0.33	<1.0	<0.33	na	<0.33	<1.0	<0.33	<1.0	0.83 J	<1.0	45 (G,X)	-	-
Mercury (dissolved)	na	na	<0.039	<0.20	<0.039	na	<0.039	<0.20	<0.039	na	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	0.0013	-	-
Mercury (total)	na	na	<0.039	<0.20	<0.039	na	<0.039	<0.20	<0.039	na	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	0.0013	-	-
Nickel (dissolved)	na	na	7.9 J	na	na	na	17	30	3.5 J	na	12	14	2.5 J	2.2 J	13	12	170 (G)	5,800	1,180
Nickel (total)	na	na	12	na	na	na	19	33	3.8 J	na	13	12	2.8 J	3.9 J	15	10	170 (G)	5,800	1,180
Selenium (dissolved)	na	na	0.94 J	<1.0	na	na	<0.92	<1.0	<0.92	na	0.93 J	<1.0	<0.92	<1.0	<0.92	<1.0	5	-	-
Selenium (total)	na	na	<0.92	<1.0	na	na	<0.92	<1.0	<0.92	na	<0.92	<1.0	0.98 J	<1.0	<0.92	<1.0	5	-	-
Silver (dissolved)	na	na	<0.12	<0.20	na	na	<0.12	<0.20	<0.12	na	<0.12	<0.20	<0.12	<0.20	<0.12	<0.20	0.2 (M)	-	-
Silver (total)	na	na	<0.12	<0.20	na	na	<0.12	<0.20	<0.12	na	<0.12	<0.20	<0.12	<0.20	<0.12	<0.20	0.2 (M)	-	-
Zinc (dissolved)	na	na	170	180	na	na	3.6 J	5.5 J	1.6 J	na	7.7 J	4.9 J	6.9 J	5.7 J	1.7 J	5.0 J	380 (G)	-	-
Zinc (total)	na	na	280	220 B	na	na	35	18	26	na	50	23	34	6.5 J	35	12	380 (G)	-	-

Notes:

[1]: Compliance monitoring well

[2]: MDEQ Part 201 RRD Op Memo No. 1, January 23, 2006 and Earth Tech/Weston Solutions 2004 Human Health Environmental Indicator

[3]: WHMD Final Determination of a Mixing Zone Request Letter, February 23, 2006 and an MDEQ Interoffice Communication, December 13, 2005

[4]: In Final Migration of Contaminated Groundwater Under Control Environmental Indicator (EI) Report, the maximum concentration of vinyl chloride detected at Site was 300 ug/L.

na indicates "not analyzed"

B: Background as defined by R 299.5701(b) may be substituted if higher than the calculated cleanup criterion.

G: GSI criterion depends on the pH or water hardness, or both, of the receiving surface water.

J: Analyte was detected, but the concentration is greater than the MDL and less than the RL.

M: Calculated criterion is below the analytical target detection limit; therefore, the criterion defaults to the target detection limit.

X: The GSI criterion shown in the generic cleanup criterion tables is not protective for surface water that is used as a drinking water source.

NA: Criterion or value is not available or, in the case of background and chemical abstract service numbers, not applicable.

ND: FAV not developed

*Black **BOLD** values indicate the value exceeds the GSI criterion*

*Red **BOLD** values indicate the value exceeds the FAV*

Table 1
Historical Summary of Detected Compounds and Analytes in Groundwater Samples
Former JCI Stanley Tools Site
Fowlerville, Michigan

Well ID:	MW-OS3	MW-OS3	MW-OS3C	MW-OS3C	MDEQ GENERIC	Final Acute	Reported Worst-case
Sample Date:	8/2/2007	na	8/2/2007	na	GSI Criteria	Value	Maximum Concentration
Compound					(ug/L) [2]	(ug/L) [3]	(ug/L) [3]
Volatile Organic Compounds (VOCs) (ug/L)							
Acetone	<1.2	na	<1.2	na	1,700	-	-
Benzene	0.16 J	na	0.13 J	na	200 (X)	-	-
Chlorobenzene	<0.12	na	<0.12	na	47	-	-
1,1-DCA	2.6	na	<0.076	na	740	-	-
1,1-DCE	<0.14	na	<0.14	na	65 (X)	-	
cis-1,2-DCE	30	na	<0.17	na	620	-	910
trans-1,2-DCE	1.4	na	<0.16	na	1,500	-	-
Toluene	0.47 J	na	0.48 J	na	140	-	-
TCE	<0.17	na	<0.17	na	200 (X)	3,500	4,200
Vinyl Chloride	14	na	<0.17	na	15	ND	300 [4]
Xylenes (total)	0.24 J	na	<0.23	na	-	-	-
1,2-Dichlorobenzene	<0.065	na	<0.065	na	16	-	-
1,4-Dichlorobenzene	<0.13	na	<0.13	na	13	-	-
1,2,4-Trimethylbenzene		na		na	17	-	-
Methylene chloride	<0.051	na	<0.051	na	940 (X)	-	-
10 MI Metals (ug/L)							
Arsenic (dissolved)	4.1 J	na	<0.74	na	NA	680	161
Arsenic (total)	4.4 J	na	0.84 J	na	150 (X)	680	161
Barium (dissolved)	200	na	42 J	na	1,900 (G,X)	-	-
Barium (total)	63 J	na	44 J	na	1,900 (G,X)	-	-
Cadmium (dissolved)	<0.062	na	<0.062	na	6.2 (G,X)	77	13
Cadmium (total)	0.13 J	na	<0.062	na	6.2 (G,X)	77	13
Chromium (dissolved)	1.8	na	2.2	na	230 (G,X)	-	-
Chromium (total)	0.33 J	na	0.31 J	na	230 (G,X)	-	-
Chromium hexavalent (dissolved)	na	na	na	na	11	32	20
Chromium hexavalent (total)	na	na	na	na	11	32	20
Copper (dissolved)	9.2	na	0.86 J	na	29 (G)	144	103
Copper (total)	0.64 J	na	0.76 J	na	29 (G)	144	103
Cyanide (total)	<1.20	na	<1.20	na	NA	NA	
Cyanide (available)		na		na	5.2	44	10
Lead (total)	<0.33	na	<0.33	na	45 (G,X)	-	-
Mercury (dissolved)	**0.048 J**	na	<0.039	na	0.0013	-	-
Mercury (total)	**0.044 J**	na	<0.039	na	0.0013	-	-
Nickel (dissolved)	2.9 J	na	1.4 J	na	170 (G)	5,800	1,180
Nickel (total)	3.2 J	na	1.8 J	na	170 (G)	5,800	1,180
Selenium (dissolved)	1.3	na	1.9	na	5	-	-
Selenium (total)	<0.92	na	<0.92	na	5	-	-
Silver (dissolved)	<0.12	na	<0.12	na	0.2 (M)	-	-
Silver (total)	<0.12	na	<0.12	na	0.2 (M)	-	-
Zinc (dissolved)	8.8 J	na	0.85 J	na	380 (G)	-	-
Zinc (total)	8.1 J	na	7.0 J	na	380 (G)	-	-

Notes:

[1]: Compliance monitoring well
[2]: MDEQ Part 201 RRD Op Memo No. 1, January 23, 2006 and Earth Tech/Weston Solutions 2004 Human Health Environmental Indicator
[3]: WHMD Final Determination of a Mixing Zone Request Letter, February 23, 2006 and an MDEQ Interoffice Communication, December 13, 2005
[4]: In Final Migration of Contaminated Groundwater Under Control Environmental Indicator (EI) Report, the maximum concentration of vinyl chloride detected at Site was 300 ug/L.
na indicates "not analyzed"
B: Background as defined by R 299.5701(b) may be substituted if higher than the calculated cleanup criterion.
G: GSI criterion depends on the pH or water hardness, or both, of the receiving surface water.
J: Analyte was detected, but the concentration is greater than the MDL and less than the RL.
M: Calculated criterion is below the analytical target detection limit; therefore, the criterion defaults to the target detection limit.
X: The GSI criterion shown in the generic cleanup criterion tables is not protective for surface water that is used as a drinking water source.
NA: Criterion or value is not available or, in the case of background and chemical abstract service numbers, not applicable.
ND: FAV not developed
*Black **BOLD** values indicate the value exceeds the GSI criterion*
*Red **BOLD** values indicate the value exceeds the FAV*

Table 1
Historical Summary of Detected Compounds and Analytes in Groundwater Samples
Former JCI Stanley Tools Site
Fowlerville, Michigan

Well ID:	MW-28	MW-28	MW-28C	MW-28C	MW-A2 [1] GSI Comp	MW-A2 [1] GSI Comp	MW-B1[1] GSI Comp	MW-B1[1] GSI Comp	MW-B2	MW-B2	MW-J2	MW-J2	MW-OS1C	MW-OS1C	MDEQ GENERIC GSI Criteria (ug/L) [2]	Final Acute Value (ug/L) [3]	Reported Worst-case Maximum Concentration (ug/L) [3]
Sample Date:	7/31/2007	na	7/31/2007	na	8/1/2007	3/5/2008	8/1/2007	3/5/2008	8/1/2007	3/4/2008	8/1/2007	3/4/2008	8/2/2007	na			
Compound																	
Volatile Organic Compounds (VOCs) (ug/L)																	
Acetone	<1.2	na	na	na	<1.2	<5.0	<6.0	<10	<1.2	<5.0	<1.2	<5.0	<1.2	na	1,700	-	-
Benzene	<0.12	na	na	na	<0.12	<1.0	<0.59	<2.0	<0.12	<1.0	<0.12	<1.0	<0.12	na	200 (X)	-	-
Chlorobenzene	<0.12	na	na	na	<0.12	<1.0	<0.60	<2.0	<0.12	<1.0	<0.12	<1.0	<0.12	na	47	-	-
1,1-DCA	<0.076	na	na	na	<0.076	<1.0	12	8.8	<0.076	<1.0	<0.076	<1.0	<0.076	na	740	-	-
1,1-DCE	<0.14	na	na	na	<0.14	<1.0	2.8 J	2.0	<0.14	<1.0	<0.14	<1.0	<0.14	na	65 (X)	-	
cis-1,2-DCE	<0.17	na	na	na	0.76 J	<1.0	470	300	<0.17	<1.0	<0.17	<1.0	<0.17	na	620	-	910
trans-1,2-DCE	<0.16	na	na	na	<0.16	<1.0	68	46	<0.16	<1.0	<0.16	<1.0	<0.16	na	1,500	-	-
Toluene	<0.0072	na	na	na	0.080 J	<1.0	<0.36	<2.0	0.37 J	0.11 J	0.35 J	0.080 J	0.64 J	na	140	-	-
TCE	<0.17	na	na	na	<0.17	<1.0	9	11	<0.17	<1.0	<0.17	<1.0	<0.17	na	200 (X)	3,500	4,200
Vinyl Chloride	<0.17	na	na	na	<0.17	<1.0	**58**	**56**	<0.17	<1.0	<0.17	<1.0	<0.17	na	15	ND	300 [4]
Xylenes (total)	<0.23	na	na	na	<0.23	<2.0	<0.64	<4.0	<0.23	<2.0	<0.23	<2.0	0.25 J	na	-	-	-
1,2-Dichlorobenzene	<0.065	na	na	na	<0.065	<1.0	<0.33	<2.0	<0.065	<1.0	<0.065	<1.0	<0.065	na	16	-	-
1,4-Dichlorobenzene	<0.13	na	na	na	<0.13	<1.0	<0.66	<2.0	<0.13	<1.0	<0.13	<1.0	<0.13	na	13	-	-
1,2,4-Trimethylbenzene	<0.13	na	na	na	<0.13	<1.0	<0.66	<2.0	<0.13	0.51 J	<0.13	<1.0	<0.13	na	17	-	-
Methylene chloride	<0.051	na	na	na	<0.051	<1.0	<0.25	0.28 J	<0.051		<0.051		<0.051	na	940 (X)	-	-
10 MI Metals (ug/L)																	
Arsenic (dissolved)	4.9 J	na	7.3	na	7.2	4.8 J	6.4	4.4 J	14	10	9.5	11	4.1 J	na	NA	680	161
Arsenic (total)	4.8 J	na	7.8	na	6.5	6.7	7.4	6.3	16	14	6.8	11	6.5	na	150 (X)	680	161
Barium (dissolved)	150	na	160	na	140	140	130	110	150	110	140	190	67 J	na	1,900 (G,X)	-	-
Barium (total)	170	na	170	na	140	150	140	120	160	140	54 J	180	68 J	na	1,900 (G,X)	-	-
Cadmium (dissolved)	<0.062	na	<0.062	na	<0.062	<0.20	<0.062	<0.20	<0.062	<0.20	1	0.53	<0.062	na	6.2 (G,X)	77	13
Cadmium (total)	<0.062	na	<0.062	na	<0.062	<0.20	<0.062	<0.20	<0.062	<0.20	**6.9**	1.2	<0.062	na	6.2 (G,X)	77	13
Chromium (dissolved)	<0.31	na	<0.31	na	<0.31	<1.0	<0.31	<1.0	<0.31	5.7	<0.31	<1.0	1.3	na	230 (G,X)	-	-
Chromium (total)	<0.31	na	<0.31	na	1.8	1.7	<0.31	<1.0	0.40 J	1.9	38	4.8	<0.31	na	230 (G,X)	-	-
Chromium hexavalent (dissolved)	na	na	na	na	<0.5	<5.0	<0.5	na	na	na	na	na	na	na	11	32	20
Chromium hexavalent (total)	na	na	na	na	<0.5	4.7 J	<0.5	na	na	na	na	na	na	na	11	32	20
Copper (dissolved)	<0.33	na	0.73 J	na	1.1	1.3	0.63 J	<1.0	0.39 J	0.63 J	1.1	0.81 J	7	na	29 (G)	144	103
Copper (total)	1.1	na	12	na	1.9	3.6	1.8	0.61 J	0.67 J	0.61 J	12	1.3	2.1	na	29 (G)	144	103
Cyanide (total)	<1.20	na	na	na	<1.20	<5.0	<1.20	<5.0	<1.20	<5.0	67.9	45	<1.20	na	NA	NA	
Cyanide (available)	na	na	na	na	na	na	na	na	na	na	na	<2.0	na	na	5.2	44	10
Lead (total)	0.95 J	na	0.57 J	na	<0.33	<1.0	<0.33	<1.0	<0.33	<1.0	9.3	0.67 J	2.1	na	45 (G,X)	-	-
Mercury (dissolved)	<0.039	na	<0.039	na	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	<0.039	na	0.0013	-	-
Mercury (total)	<0.039	na	<0.039	na	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	<0.039	<0.20	<0.039	na	0.0013	-	-
Nickel (dissolved)	2.6 J	na	2.1 J	na	3.3 J	4.0 J	130	140	na	na	11	na	1.6 J	na	170 (G)	5,800	1,180
Nickel (total)	2.8 J	na	2.0 J	na	5.5 J	7.9 J	150	160	na	na	43	na	1.9 J	na	170 (G)	5,800	1,180
Selenium (dissolved)	<0.92	na	<0.92	na	<0.92	<1.0	<0.92	<1.0	<0.92	<1.0	1.1	<1.0	1.3	na	5	-	-
Selenium (total)	<0.92	na	<0.92	na	<0.92	<1.0	<0.92	<1.0	<0.92	<1.0	<0.92	<1.0	1.2	na	5	-	-
Silver (dissolved)	<0.12	na	<0.12	na	0.14 J	<0.20	<0.12	<0.20	<0.12	<0.20	<0.12	<0.20	<0.12	na	0.2 (M)	-	-
Silver (total)	<0.12	na	<0.12	na	<0.12	<0.20	0.15 J	<0.20	<0.12	<0.20	<0.12	<0.20	<0.12	na	0.2 (M)	-	-
Zinc (dissolved)	1.6 J	na	13	na	2.7 J	9.7 J	44	38	2.1 J	7.3 J	3.7 J	5.7 J	6.4 J	na	380 (G)	-	-
Zinc (total)	170	na	20	na	6.6 J	17	85	62	5.2 J	9.6 J	63	20	7.6 J	na	380 (G)	-	-

Notes:

[1]: Compliance monitoring well

[2]: MDEQ Part 201 RRD Op Memo No. 1, January 23, 2006 and Earth Tech/Weston Solutions 2004 Human Health Environmental Indicator

[3]: WHMD Final Determination of a Mixing Zone Request Letter, February 23, 2006 and an MDEQ Interoffice Communication, December 13, 2005

[4]: In Final Migration of Contaminated Groundwater Under Control Environmental Indicator (EI) Report, the maximum concentration of vinyl chloride detected at Site was 300 ug/L.

na indicates "not analyzed"

B: Background as defined by R 299.5701(b) may be substituted if higher than the calculated cleanup criterion.

G: GSI criterion depends on the pH or water hardness, or both, of the receiving surface water.

J: Analyte was detected, but the concentration is greater than the MDL and less than the RL.

M: Calculated criterion is below the analytical target detection limit; therefore, the criterion defaults to the target detection limit.

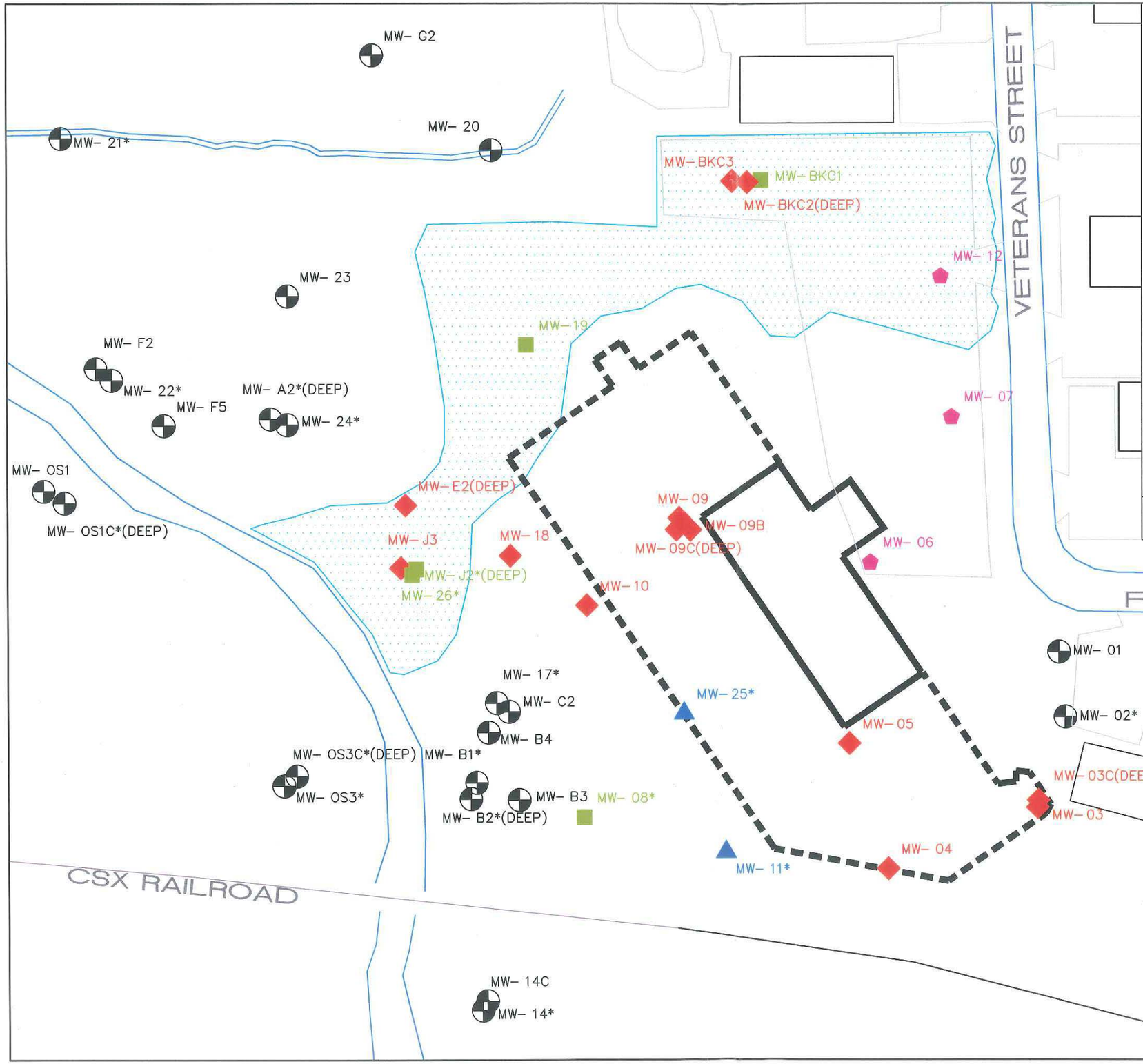
X: The GSI criterion shown in the generic cleanup criterion tables is not protective for surface water that is used as a drinking water source.

NA: Criterion or value is not available or, in the case of background and chemical abstract service numbers, not applicable.

ND: FAV not developed

*Black **BOLD** values indicate the value exceeds the GSI criterion*

*Red **BOLD** values indicate the value exceeds the FAV*



LEGEND

- MONITORING WELL, NOT CHANGED.
- MONITORING WELL, LOST DURING PREVIOUS CONSTRUCTION ACTIVITIES.
- MONITORING WELL, ABANDONED BUT NOT REPLACED.
- MONITORING WELL, ABANDONED AND REPLACED IN THE SAME LOCATION.
- MONITORING WELL, ABANDONED AND REPLACED AS CLOSE AS POSSIBLE.
- EXISTING BUILDINGS OFF-SITE
- EXISTING BUILDINGS ON-SITE
- PROPOSED BUILDING ADDITION ON-SITE
- APPROXIMATE AREA FOR FLOODPLAIN FILL & MITIGATION

Note: * Indicates Groundwater Monitoring Program Well.

NOTES:
BASED ON ORTHOPHOTO PROVIDED BY LIVINGSTON COUNTY INFORMATION TECHNOLOGY DEPARTMENT, G.I.S. DIVISION AERIAL FLOWN SPRING 2005

DESIGNED BY:	RWC
DRAWN BY:	CK
CHECKED BY:	RWC
APPROVED BY:	AJL

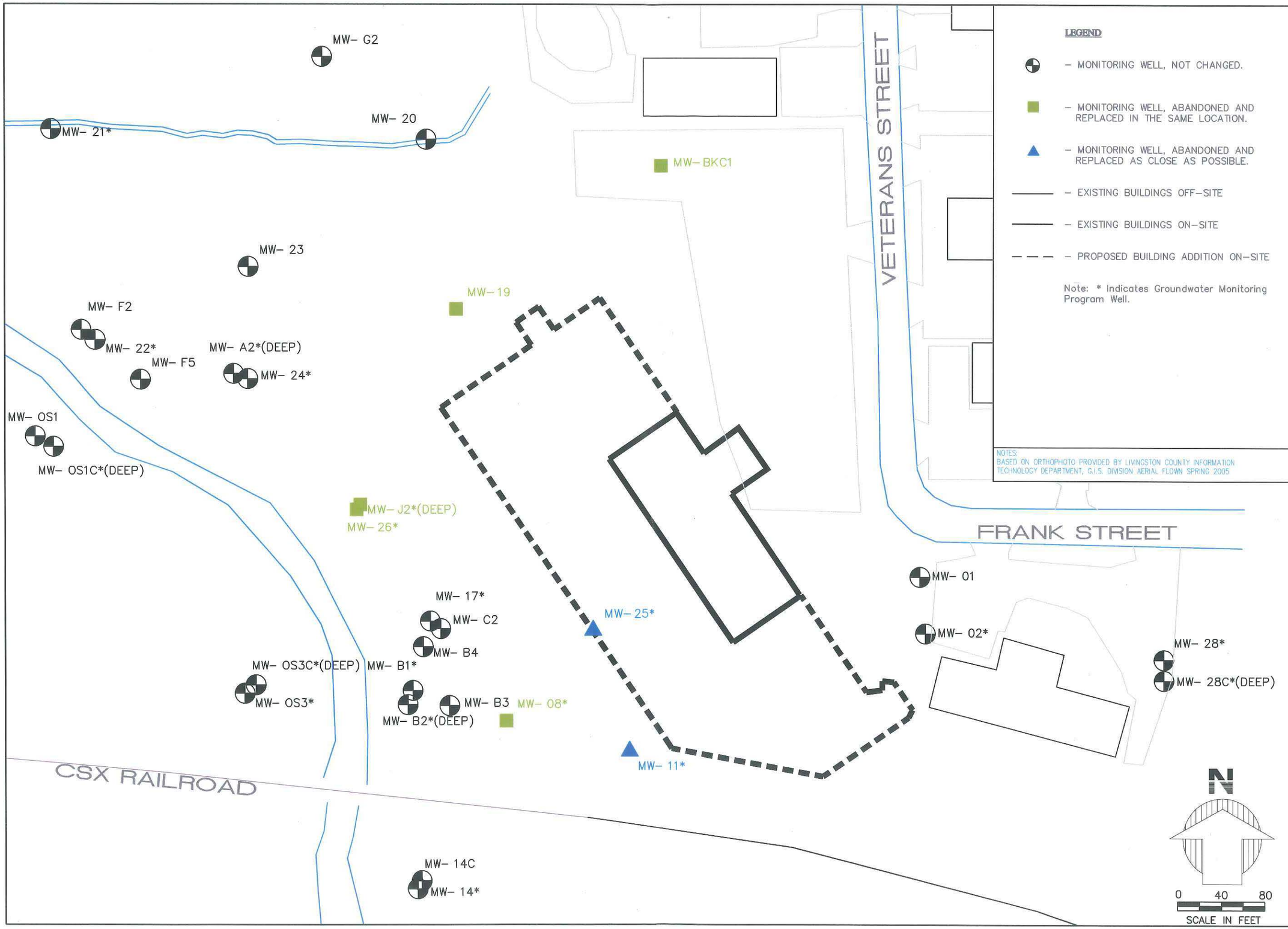
PROPOSED WELL ABANDONMENT, REPLACEMENT AND RELOCATION PROGRAM

JCI – FORMER STANLEY TOOLS FACILITY
425 FRANK STREET
FOWLERVILLE, MICHIGAN

SCALE:	1" = 80'
PROJECT NO.:	085010046
FILE NAME:	JCI_F_jrd.DWG
DATE:	March, 2009

PLATE

CTi and Associates, Inc.



LEGEND

- MONITORING WELL, NOT CHANGED.
- MONITORING WELL, ABANDONED AND REPLACED IN THE SAME LOCATION.
- MONITORING WELL, ABANDONED AND REPLACED AS CLOSE AS POSSIBLE.
- EXISTING BUILDINGS OFF-SITE
- EXISTING BUILDINGS ON-SITE
- PROPOSED BUILDING ADDITION ON-SITE

Note: * Indicates Groundwater Monitoring Program Well.

NOTES:
BASED ON ORTHOPHOTO PROVIDED BY LIVINGSTON COUNTY INFORMATION TECHNOLOGY DEPARTMENT, G.I.S. DIVISION AERIAL FLOWN SPRING 2005

DESIGNED BY:	RWC
DRAWN BY:	CK
CHECKED BY:	RWC
APPROVED BY:	AJL

REMAINING MONITORING WELL NETWORK WITH PROGRAM IMPLEMENTED

JCI – FORMER STANLEY TOOLS FACILITY
425 FRANK STREET
FOWLERVILLE, MICHIGAN

SCALE:	1" = 80'
PROJECT NO.:	085010046
FILE NAME:	JCI_F_jrd.DWG
DATE:	March, 2009

PLATE
IV

CTI and Associates, Inc.

LEGEND

- MW-12 MONITORING WELL ID
- MONITORING WELLS 06, 07 & 12 ARE NO LONGER PRESENT
  MONITORING WELLS 08 & 25 ARE DAMAGED
- NM NOT MEASURED
- EXISTING BUILDING
- PROPOSED BUILDING ADDITION
- MW-12 WELLS FOR ABANDONMENT
- MW-12 WELLS FOR REPLACEMENT
- APPROXIMATE AREA FOR FLOODPLAIN FILL & MITIGATION

NOTES:
ORTHOPHOTO PROVIDED BY LIVINGSTON COUNTY INFORMATION TECHNOLOGY DEPARTMENT, G.I.S. DIVISION AERIAL FLOWN SPRING 2005

N

1"=150'

PROPOSED WELL ABANDONMENT & REPLACEMENT LOCATIONS

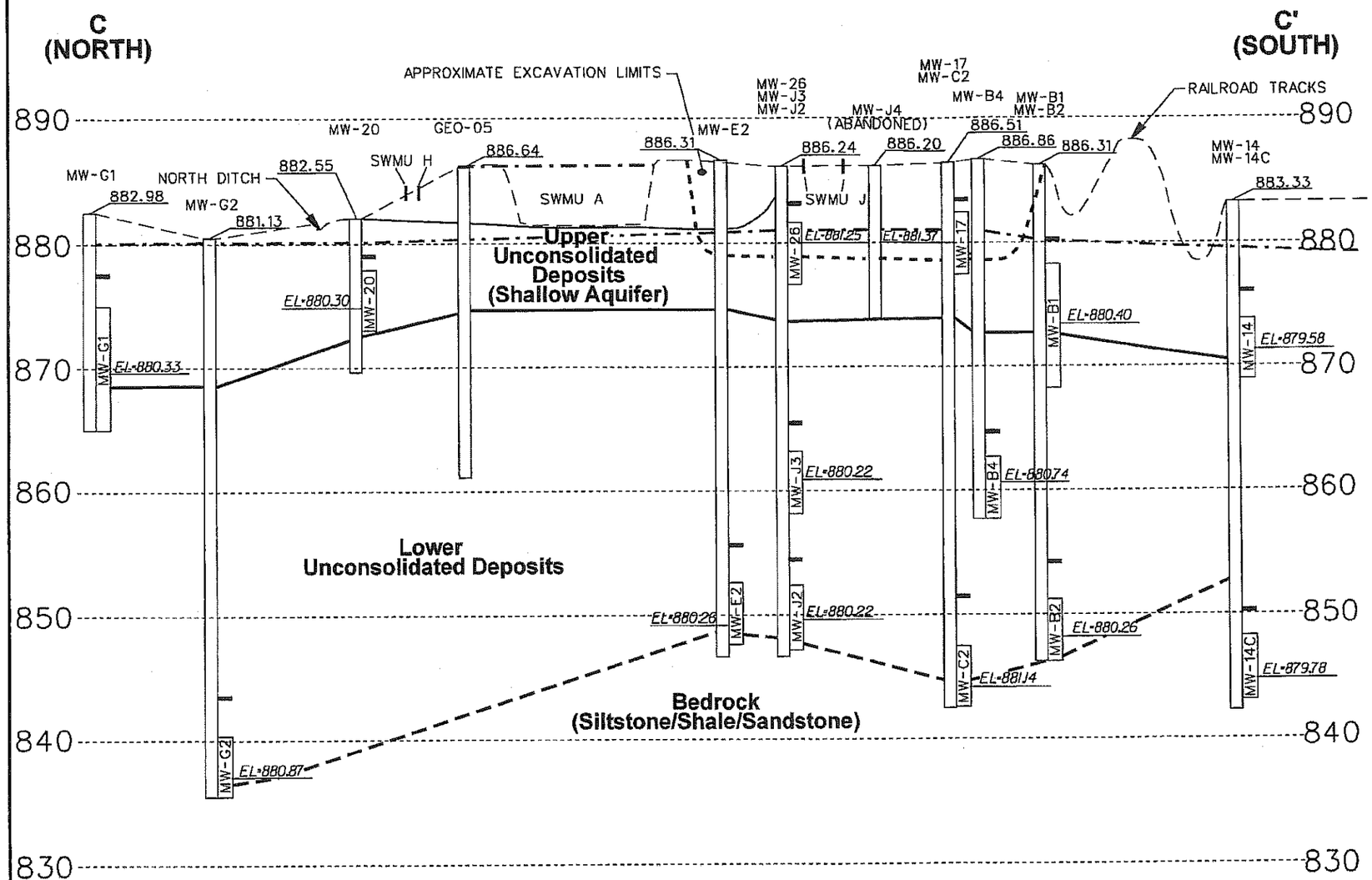
JCI – FORMER STANLEY TOOLS FACILITY
425 FRANK STREET
FOWLERVILLE, MICHIGAN

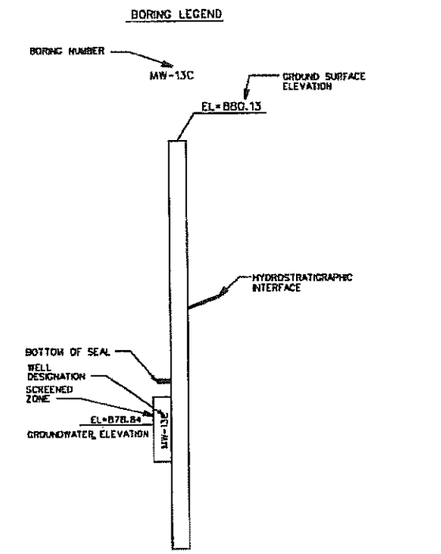
DESIGNED BY:	RWC
DRAWN BY:	CK
CHECKED BY:	RWC
APPROVED BY:	AJL
SCALE:	1" = 150'
PROJECT NO.:	085010046
FILE NAME:	
DATE:	January, 2009

PLATE

III

CTI and Associates, Inc.





LEGEND

- CONTACT BETWEEN MAJOR HYDROSTRATIGRAPHIC UNITS
- INFERRED CONTACT
- ESTIMATED GRADE
- REMEDIAL ACTION EXCAVATION LIMITS
- WATER TABLE LEVEL
- FINAL GRADE

NOTES:

1. THE DIFFERENTIATION BETWEEN UPPER AND LOWER UNCONSOLIDATED DEPOSITS WAS BASED ON FIELD DESCRIPTIONS OF BORING SAMPLES THAT WERE REPORTED ON BORING LOGS.
2. UPPER UNCONSOLIDATED DEPOSITS ARE PREDOMINANTLY SW, SP, SM SOILS THAT INCLUDE CL, ML, CL/ML, SC, GM, GP, AND PT. SOILS BASED ON THE UNIFIED SOIL CLASSIFICATION SYSTEM (USCS). LOWER UNCONSOLIDATED DEPOSITS ARE PREDOMINANTLY CL, ML, AND CL/ML SOILS THAT INCLUDE ML/CL, GP, SW, SP, AND SM SOILS BASED ON THE USCS.
3. GROUNDWATER ELEVATIONS SHOWN ON THE CROSS SECTION WERE MEASURED DECEMBER 18, 2003.
4. ESTIMATED GRADE REPRESENTS GROUND SURFACE ELEVATIONS AT THE TIME OF DRILLING AND ARE REPRESENTATIVE OF PRE-CONSTRUCTION ELEVATIONS. FINAL GRADE REPRESENTS POST-CONSTRUCTION ELEVATIONS.

HORIZONTAL SCALE 0' 100'
VERTICAL SCALE 0' 10'

WESTON SOLUTIONS

EARTH TECH

FIGURE 8
HYDROSTRATIGRAPHIC CROSS SECTION C-C'
JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

FEBRUARY 2004

65468

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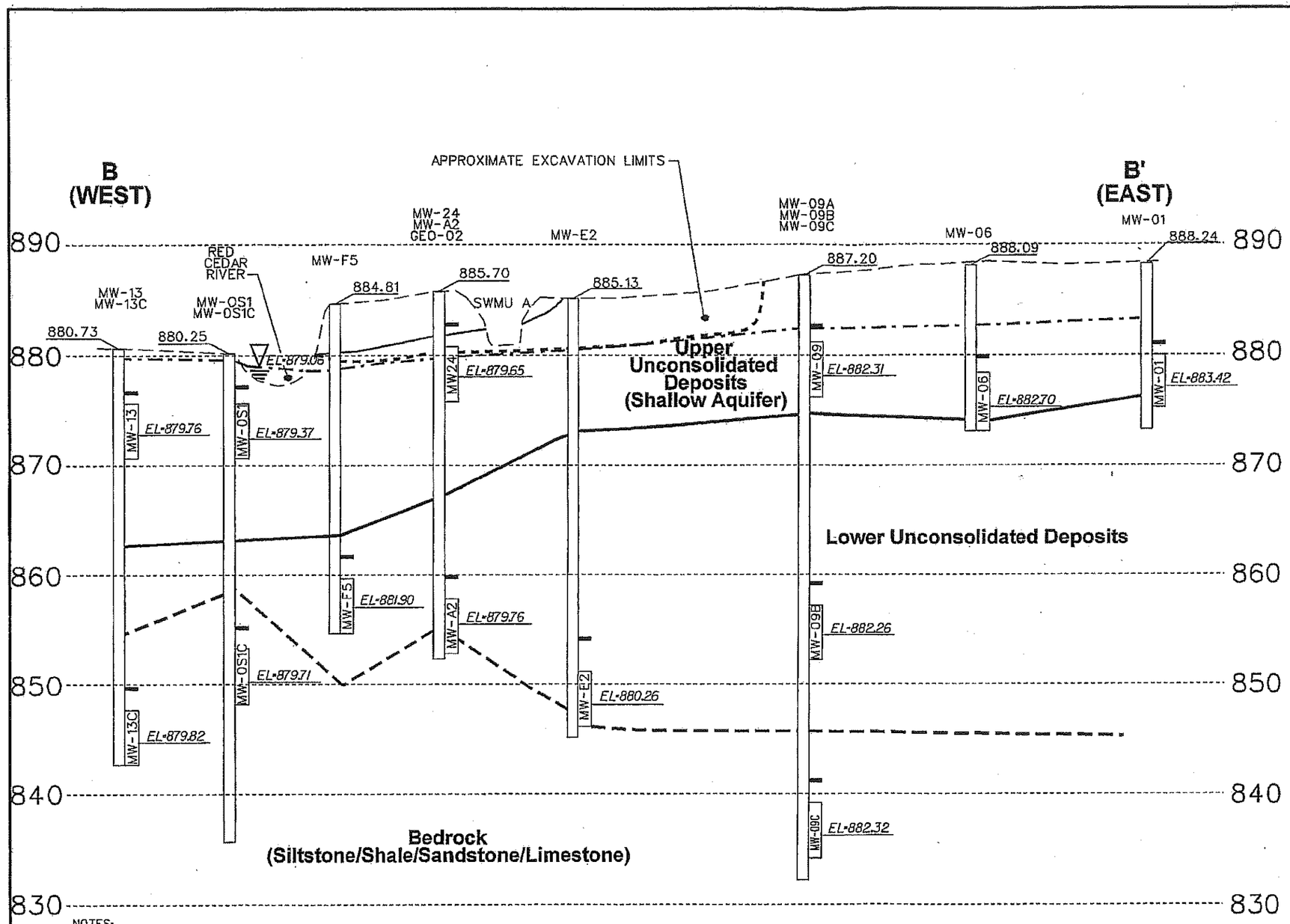

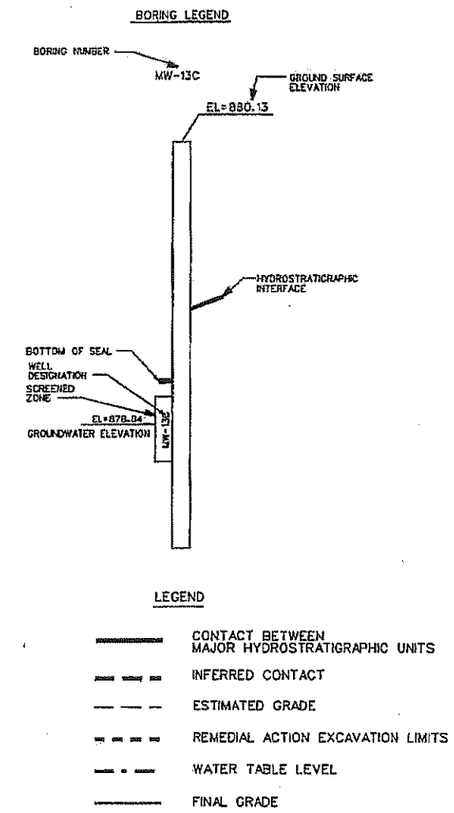

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HORIZONTAL SCALE 0' 100'
VERTICAL SCALE 0' 10'

WESTON SOLUTIONS

EARTH TECH

FIGURE 7
HYDROSTRATIGRAPHIC CROSS SECTION B-B'
JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

FEBRUARY 2004

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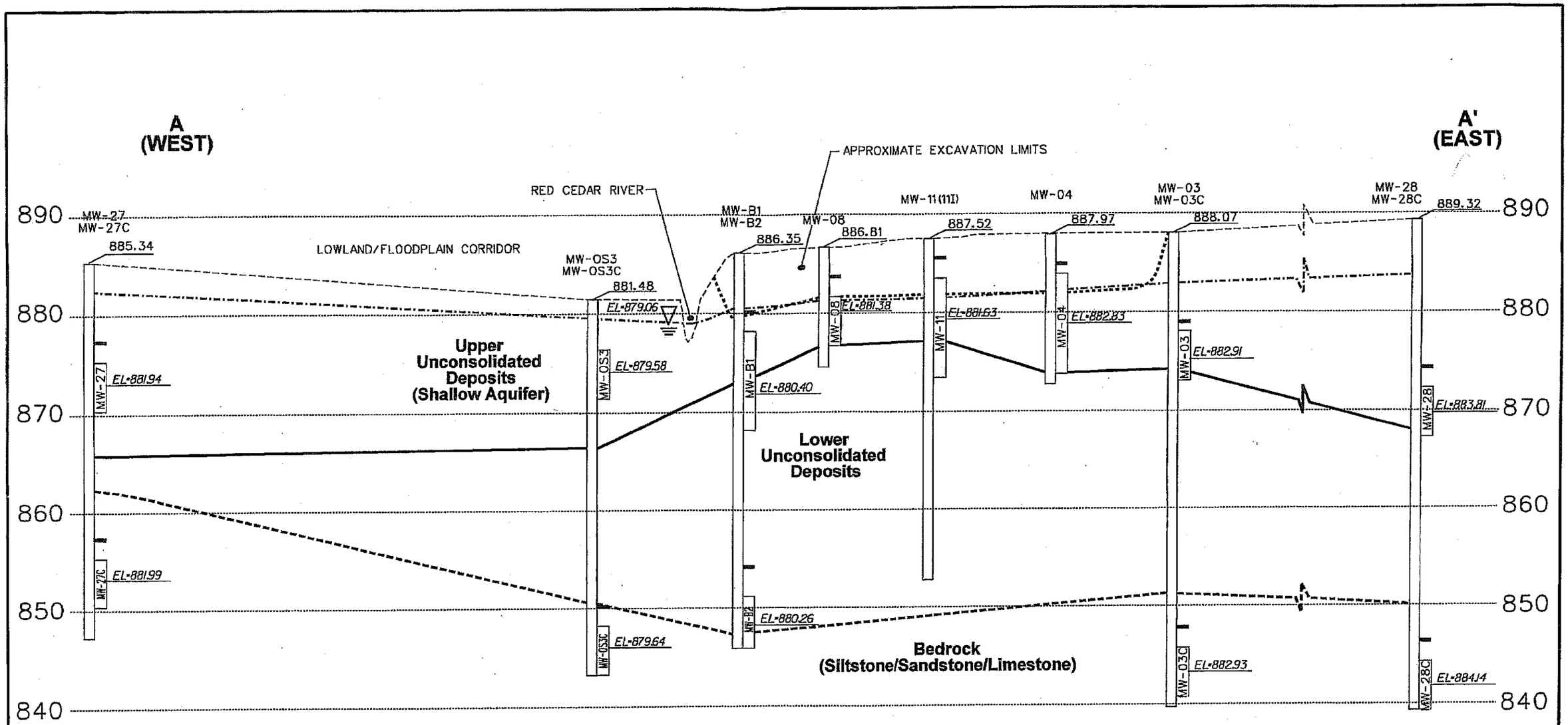

NOTES:

1. THE DIFFERENTIATION BETWEEN UPPER AND LOWER UNCONSOLIDATED DEPOSITS WAS BASED ON FIELD DESCRIPTIONS OF BORING SAMPLES THAT WERE REPORTED ON BORING LOGS.
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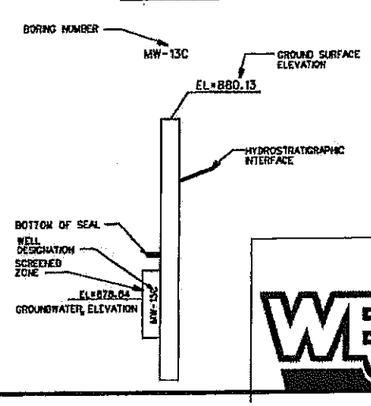
BORING LEGEND



LEGEND

- CONTACT BETWEEN MAJOR HYDROSTRATIGRAPHIC UNITS
- INFERRED CONTACT
- ESTIMATED GRADE
- REMEDIAL ACTION EXCAVATION LIMITS
- WATER TABLE LEVEL

HORIZONTAL SCALE 0' 100'
VERTICAL SCALE 0' 10'

WESTON SOLUTIONS

EARTH TECH

FIGURE 6
HYDROSTRATIGRAPHIC CROSS SECTION A-A'
JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

FEBRUARY 2004

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LEGEND

- MW-12 MONITORING WELL ID
- MONITORING WELLS 06, 07 & 12 ARE NO LONGER PRESENT
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- NM NOT MEASURED
- EXISTING BUILDING
- PROPOSED BUILDING ADDITION
- MW-12 WELLS FOR ABANDONMENT
- MW-12 WELLS FOR RELOCATION
- APPROXIMATE AREA FOR FLOODPLAIN FILL & MITIGATION

NOTES:
ORTHOPHOTO PROVIDED BY LIVINGSTON COUNTY INFORMATION TECHNOLOGY DEPARTMENT, G.I.S. DIVISION AERIAL FLOWN SPRING 2005

N

1"=150'

PROPOSED WELL ABANDONMENT & REPLACEMENT LOCATIONS

JCI – FORMER STANLEY TOOLS FACILITY
425 FRANK STREET
FOWLERVILLE, MICHIGAN

DESIGNED BY:	RWC
DRAWN BY:	CK
CHECKED BY:	RWC
APPROVED BY:	AJL

SCALE:	1" = 150'
PROJECT NO.:	085010046
FILE NAME:	
DATE:	October 31, 2008

PLATE

CTI and Associates, Inc.

LEGEND

- MW-12 MONITORING WELL ID
- MONITORING WELLS 06, 07 & 12 ARE NO LONGER PRESENT
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NOTES:
ORTHOPHOTO PROVIDED BY LIVINGSTON COUNTY INFORMATION TECHNOLOGY DEPARTMENT, G.I.S. DIVISION AERIAL FLOWN SPRING 2005

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PROPOSED WELL ABANDONMENT & REPLACEMENT LOCATIONS

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425 FRANK STREET
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SCALE:	1" = 150'
PROJECT NO.:	085010046
FILE NAME:	
DATE:	October 31, 2008

PLATE

III

CTI and Associates, Inc.

Table 2: Macroinvertebrate Community Analysis

Macroinvertebrate Community		Family MBI Tolerance Value[1]	Sample Number								
			SD-J2-001	SE/RC-9/1-002	SD-E2-003	SE/RE-3-3-004	SD-C1-005	SD-A1-006	SD-007	SD-008	Between SE/RE-3-3-004 and SD-C1-005
			Sample Data								
Taxon	Common Name										
Tubificidae	Tubifex	9	5								
Cambaridae	Freshwater Crawfishes	6	2								
Ceratopogonidae	Biting Midges	6						2			
Chironomidae	Non-Biting Midges	8	33	42	47	67	37	14	23	34	8
Clam	Clams	8		1		1			3		
Corixidae	Water Boatmen	5					10	1			
Culicidae	Mosquitos	8								1	
Dytiscidae	Water Beetles	5	3	2			1			2	
Elmidae	Riffle Beetles	4						14	1		
Ephemerellidae	Spiny Crawler Mayflies	1	1								
Baetidae	Small Minnow Myflies	3	1								
Gyrinidae	Whirligig Beetles	4	1							1	
Heptageniidae	Flat-Headed Mayflies	3	3						2	1	11
Hyalella	Scuds	8					1				
Hydropsychidae	Net-Spinning Caddisflies	4							3		
Leptoceridae	Long-Horned Caddisflies	4							1	4	1
Libellulidae	Skimmer Dragonflies	2	1								
Limnephilidae	Northern Caddisflies	3								4	3
Palaemonetes	Freshwater Shrimp	6	1								
Perlidae	Common Stoneflies	2			1						
Psephenidae	Water Pennies	4	4								
No. MBI Organisms Counted[2]			**55**	**45**	**48**	**68**	**49**	**31**	**33**	**47**	**23**
MBI[3]/[5]			**6.85**	**7.87**	**7.88**	**8**	**7.33**	**5.97**	**7.09**	**6.91**	**4.78**
TBI□[4]/[5]			**4.64**	**7**	**5**	**8**	**6.5**	**5.75**	**5.17**	**5**	**4.5**
Total Number of Taxa			**11**	**3**	**2**	**2**	**4**	**4**	**6**	**7**	**4**

Notes:

1. Family MBI tolerance values (t□) are from http://www.epa.gov/owow/monitoring/rbp/index.html , 2006.
= taxon present, but has no MBI tolerance value.
2. A Maximum of 10 organisms was used for MBI calculations, according to Hilsenhoff, 1988.
3. Macroinvertebrate Biotic Index (MBI) =∑n□t□)/N where n□ = no. individuals in each listed taxon, t□ = tolerance rating for each listed taxon, and N = total no. of listed organisms counted (IPEA, 2002).
4. Mean tolerance value (TBI) = ∑t□/T where t□=tolerance value for each listed taxon and T = no, of listed taxon in the sample (from Lillie and Schlesser, 1994).
5. Biotic Index (MBI and TBI) Interpretation (from Hilsenhoff, 1987).

Value	Water Quality	Degree of Organic Pollution
0.00-3.50	Excellent	No apparent organic pollution
3.51-4.50	Very Good	Possible slight organic pollution
4.51-5.50	Good	Some organic pollution
5.51-6.50	Fair	Fairly significant organic pollution
6.51-7.50	Fairly Poor	Significant organic pollution
7.50-8.50	Poor	Very significant organic pollution
8.51-10.00	Very Poor	Severe organic pollution

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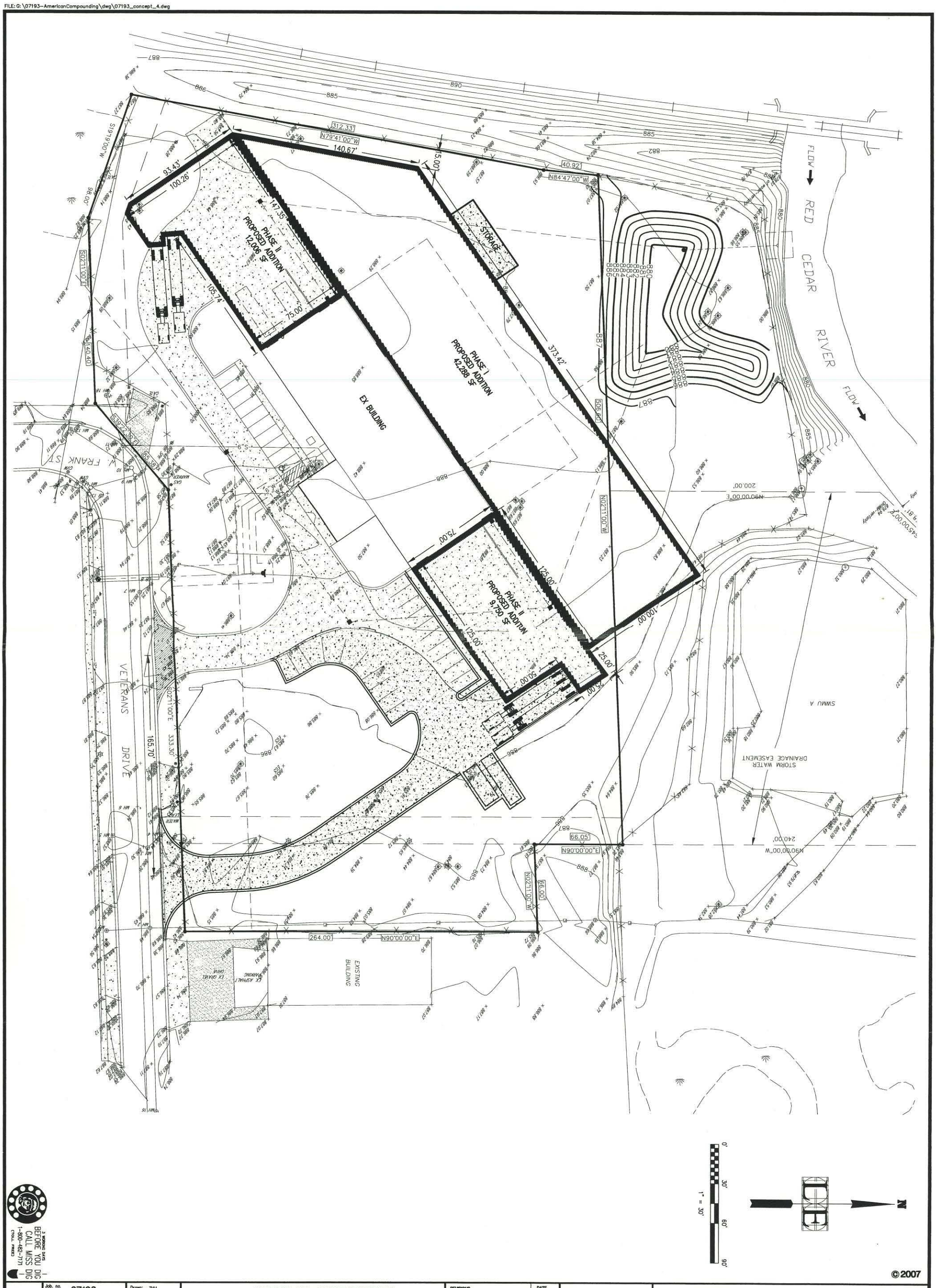


3 WORKING DAYS BEFORE YOU DIG CALL MISS DIG 1-800-482-7171 (TOLL FREE)

1	Job. no. 07193	Drawn: TMH	**AMERICAN COMPOUNDING**	REVISIONS	DATE	Client
	Scale:	Checked:	FOWLERVILLE, MICHIGAN			
	Vertical:	Approved:	CONCEPT #4			
	Horizontal: 1"=30'	Date: 9-13-07				

LIVINGSTON ENGINEERING
CIVIL ENGINEERING SURVEYING PLANNING
3300 S. OLD U.S. 23, BRIGHTON, MICHIGAN 48114
http://www.livingstoneng.com PHONE: (810) 225-7100 FAX: (810) 225-7699

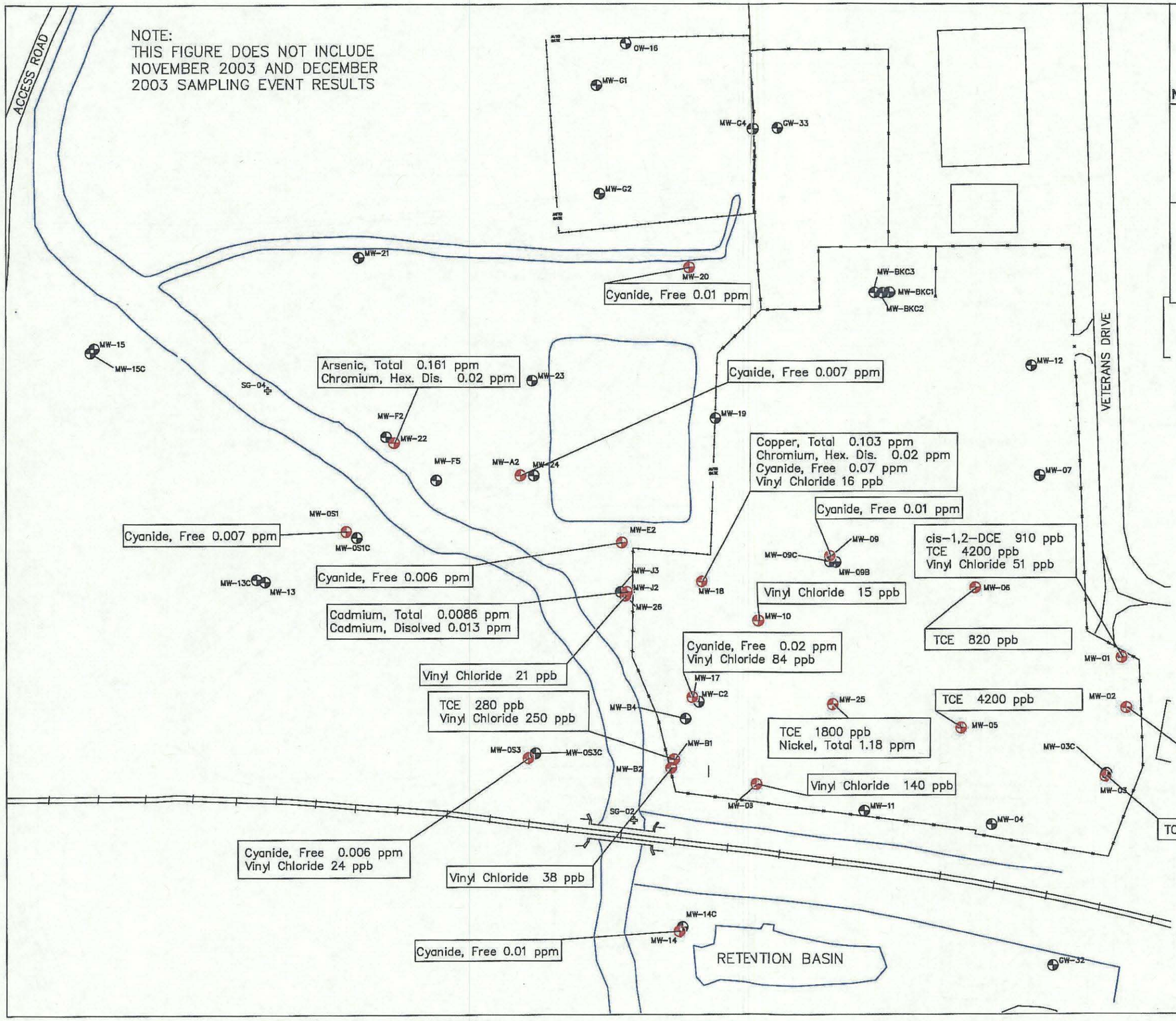
FIGURE 2
ON-SITE AND OFF-SITE GROUNDWATER MONITORING WELLS EXCEEDING THE GSI CRITERIA

JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

NOVEMBER 2003 — 65468

EARTH TECH

WESTON SOLUTIONS



LEGEND

● – MONITORING WELLS WITH RESULTS EXCEEDING GSI CRITERIA

RELEVANT GSI CRITERIA

VOCs
cis-1,2-DCE 620 ppb
TCE 200 ppb
Vinyl Chloride 15 ppb

Total Metals
Arsenic 0.15 ppm
Cadmium 0.0062 ppm
Copper 0.029 ppm
Nickel 0.17 ppm

Dissolved Metals
Cadmium 0.0062 ppm
Chromium, Hexavalent 0.011 ppm

Other
Cyanide, Free 0.0052 ppm

ppb – PARTS PER BILLION
ppm – PARTS PER MILLION

FIGURE 3

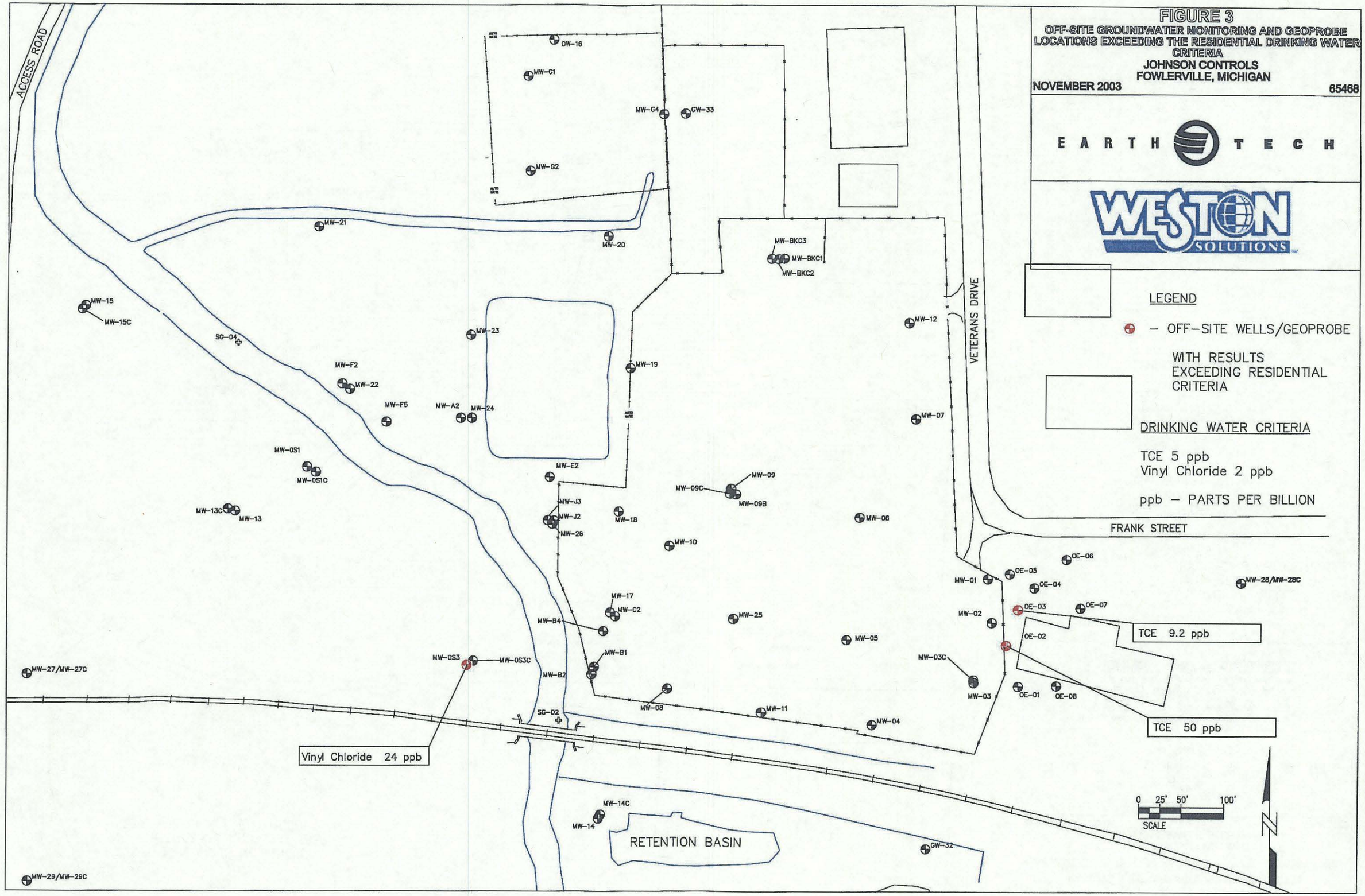
OFF-SITE GROUNDWATER MONITORING AND GEOPROBE LOCATIONS EXCEEDING THE RESIDENTIAL DRINKING WATER CRITERIA

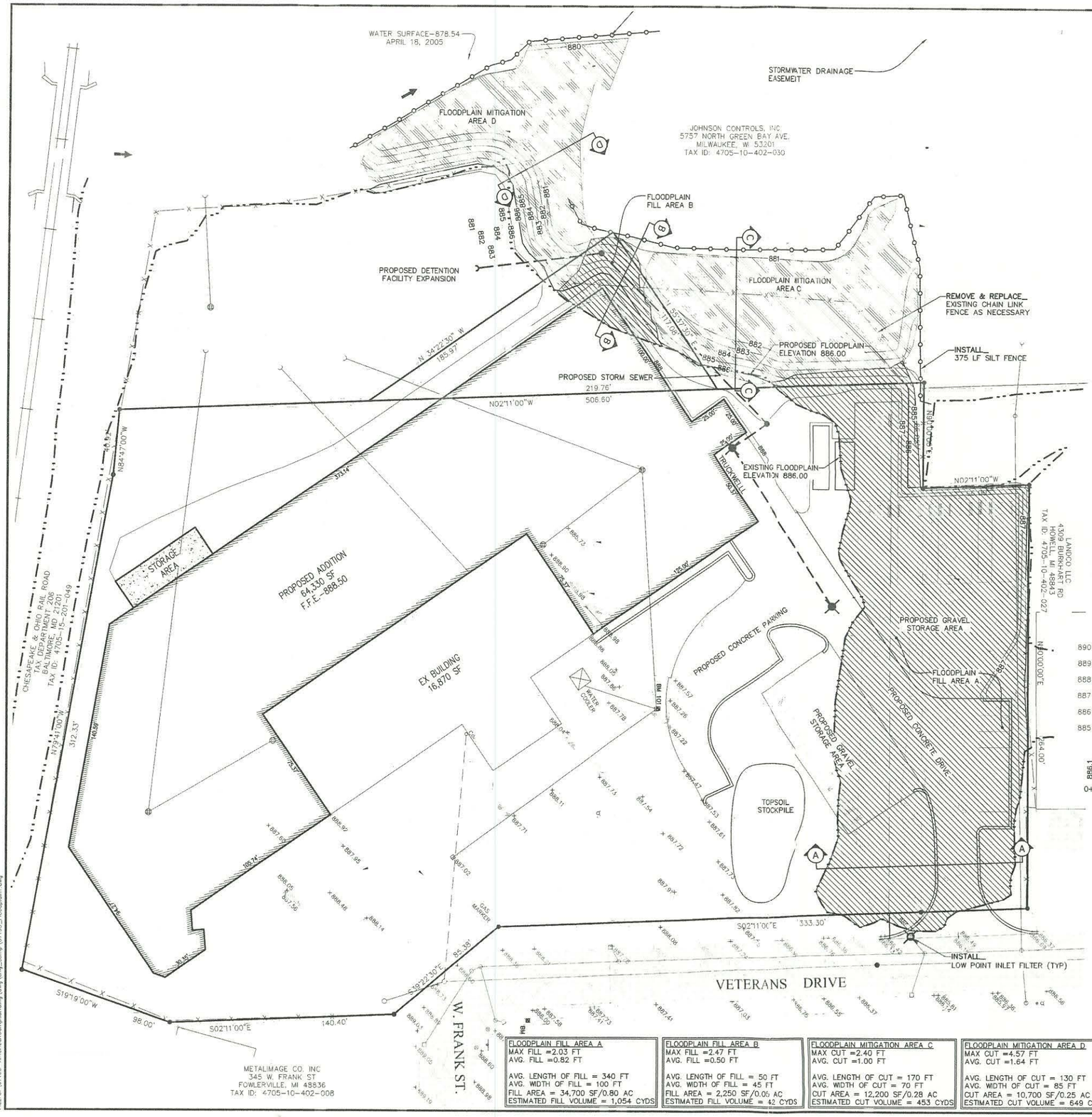
JOHNSON CONTROLS
FOWLERVILLE, MICHIGAN

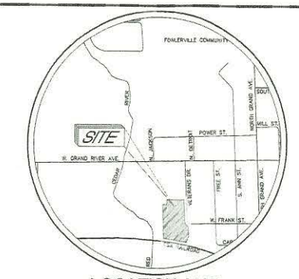
NOVEMBER 2003 **65468**

EARTH TECH

WESTON SOLUTIONS







LOCATION MAP

HANDY TOWNSHIP
SECTION 10 (T3N - R3E)
VILLAGE OF FOWLERVILLE
LIVINGSTON COUNTY, MICHIGAN
SCALE: 1"=1000'

0' 30' 60' 90'
1" = 30'

LEGEND

	EXISTING	PROPOSED
SPOT GRADE		
CONTOUR		
SANITARY SEWER		8"SS
STORM SEWER		12"RC
STORM SEWER LABEL		R-1
OVERHEAD		
FENCE		
GAS		
DRAINAGE DITCH		
UTILITY POLE		
FOUND IRON ROD		
DRAINAGE ARROW		
DOMESTIC WATER WELL		
ASPHALT		
GRAVEL STORAGE		
FLOODPLAIN FILL		
FLOODPLAIN MITIGATION		

BENCHMARKS

BM 100: ARROW ON HYDRANT
ELEVATION = 889.80 (NGVD 29)
BM 101: NORTH RIM CATCH BASIN
ELEVATION = 886.52 (NGVD 29)

LEGAL DESCRIPTION

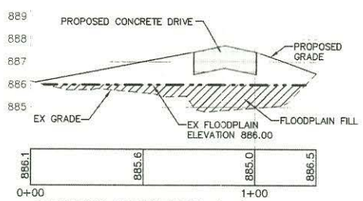
All of Lots 16, 17, 18, 19, 20, 21, 38, 39, 40, 41, 42, part of Lot 43, part of vacated Frank Street and part of vacated Jackson Street, according to the Village of Fowlerville's Council Resolution as recorded in Liber 849, Page 27, Livingston County Records. Said Lots and vacated streets being a part of "Assessor's Plat of Commercial Addition", a subdivision as recorded in Liber 5 of Plats, Pages 21-22, said plat being a re-plat of Lots 1, 2, 3 4 and 5 of "Assessor's Plat Number 4", a subdivision as recorded in Liber 4 of Plats, Page 36, Livingston County Records.

The perimeter of the above lots and vacated streets being more particularly described by Darrell Hughes, Michigan Registered Land Surveyor No. 19834, as beginning at the Northeast corner of Lot 21; proceeding thence, from said point of beginning, South 02 degrees 11 minutes 00 seconds East 333.30 feet, along the easterly line of Lots 17 thru 21, being also the westerly line of Veterans Drive, 66 feet wide (formerly Detroit Street); thence South 39 degrees 22 minutu es 30 seconds East 85.38 feet; thence South 02 degrees 11 minutes 00 seconds East 140.40 feet, along the easterly line of Lot 16; thence South 19 degrees 19 minutes 00 seconds West 98.00 feet, along the easterly line of Lot 16, being also the westerly line of the CSX Transportation Railroad Yard (so-called), 299 feet wide; thence North 79 degrees 41 minutes 00 seconds West 312.33 feet, along the southerly line of Lot 16 and part of the southerly line of Lot 43, being also the northerly line of the CSX Transportation Railroad, 99 feet wide; thence North 84 degrees 47 minutes 00 seconds West 40.92 feet, along part of the southerly line of Lot 43 and the northerly line of the said CSX Railroad; thence North 02 degrees 11 minutes 00 seconds West 506.60 feet, along, in part the easterly line of Lot 44, being also the westerly line of vacated Jackson Street, 66 feet wide; thence Due East 66.05 feet; thence North 02 degrees 11 minutes 00 seconds West 66.00 feet, along the westerly line of Lot 38; thence Due East 264.00 feet, along the northerly line of Lot 38 and Lot 21, to the point of beginning, containing 4.715 acres. Subject to all easements and restrictions of record.

Having the use of, in conjunction with others, an easement for the purpose of storm water drainage, storm water detention and/or retention, said easement being part of Lot 44 of "Assessor's Plat of Commercial Addition", a subdivision as recorded in Liber 5 of Plats, Pages 21-22, Livingston County Records, being more particularly described as beginning at the Southeast corner of Lot 44; proceeding thence, Due West 200.00 feet, along the southerly line of Lot 44; thence North 45 degrees 00 minutes 00 seconds West 58.81 feet; thence North 02 degrees 11 minutes 00 seconds West 225.68 feet; thence Due East 240.00 feet; thence South 02 degrees 11 minutes 00 seconds East 267.30 feet, along the easterly line of Lot 44, to the point of beginning.

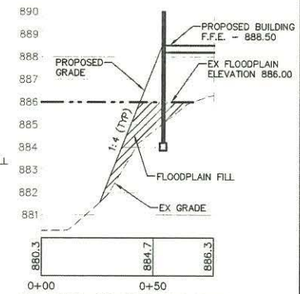
0.25 Acre Parcel Description

Part of Lots 43 & 44 of "Assessor's Plat of Commercial Addition", as recorded in Liber 5 of Plats, Pages 21-22, said plat being a re-plat of Lots 1, 2, 3 4 and 5 of "Assessor's Plat Number 4", as recorded in Liber 4 of Plats, Page 36, Livingston County Records, being more particularly described as follows: Commencing at the Northeast corner of Lot 21 of said "Assessor's Plat of Commercial Addition"; thence along the North line of said lot 21 and 38 of said plat, N90°00'00"W, 264.00 feet; thence along the West line of said Lot 38, S02°11'00"E, 66.00 feet; thence N90°00'00"W, 66.05 feet; thence along the East line of Lot 44, S02°11'00"E, 131.06 feet to the Point of Beginning of the Parcel to be described: thence continuing along said line thence S02°11'00"E, 219.76 feet; thence N34°22'30"W, 185.97 feet; thence N55°37'30"E, 117.08 feet to the Point of Beginning, Containing 0.25 acres more or less, and subject to any easements or restrictions of record.



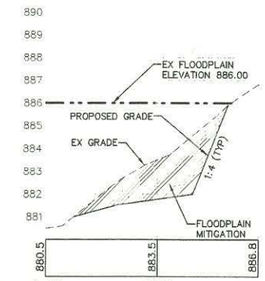
CROSS SECTION A-A

FLOODPLAIN FILL AREA A



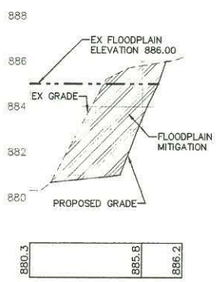
CROSS SECTION B-B

FLOODPLAIN FILL AREA B



CROSS SECTION C-C

FLOODPLAIN MITIGATION AREA C



CROSS SECTION D-D

FLOODPLAIN MITIGATION AREA D

FLOODPLAIN FILL AREA A	FLOODPLAIN FILL AREA B	FLOODPLAIN MITIGATION AREA C	FLOODPLAIN MITIGATION AREA D
MAX FILL =2.03 FT	MAX FILL =2.47 FT	MAX CUT =2.40 FT	MAX CUT =4.57 FT
AVG. FILL =0.82 FT	AVG. FILL =0.50 FT	AVG. CUT =1.00 FT	AVG. CUT =1.64 FT
AVG. LENGTH OF FILL = 340 FT	AVG. LENGTH OF FILL = 50 FT	AVG. LENGTH OF CUT = 170 FT	AVG. LENGTH OF CUT = 130 FT
AVG. WIDTH OF FILL = 100 FT	AVG. WIDTH OF FILL = 45 FT	AVG. WIDTH OF CUT = 70 FT	AVG. WIDTH OF CUT = 85 FT
FILL AREA = 34,700 SF/0.80 AC	FILL AREA = 2,250 SF/0.05 AC	CUT AREA = 12,200 SF/0.28 AC	CUT AREA = 10,700 SF/0.25 AC
ESTIMATED FILL VOLUME = 1,054 CYDS	ESTIMATED FILL VOLUME = 42 CYDS	ESTIMATED CUT VOLUME = 453 CYDS	ESTIMATED CUT VOLUME = 649 CYDS

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LIVINGSTON ENGINEERING
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2094 PLESS DRIVE, BRIGHTON, MI 48114
PHONE: (810) 225-7000 FAX: (810) 225-7699
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Client:
AMERICAN COMPOUNDING
200 VETERANS DRIVE
FOWLERVILLE, MI 48836
(517) 223-4300

AMERICAN COMPOUNDING

VILLAGE OF FOWLERVILLE, LIVINGSTON COUNTY, MICHIGAN
SITE PLAN
PROPOSED FLOODPLAIN FILL AND MITIGATION

REVISIONS	DATE
FOR CLIENT	01-22-08

Drawn: MH
Checked:
Approved:
Date: 1-2-08

Job. no. 07193
Scale: Vertical 1"=5' Horizontal 1"=30'

F1

FILE:G:\07193-AmericanCompounding\dwg\eng_comp\07193_Floodplain1.dwg

United States
Environmental Protection
Agency

Environmental Monitoring
Systems Laboratory
P.O. Box 93478
Las Vegas, NV 89193-3478

TS-AMD-86605-2
July 1987

Research and Development

EPA

AERIAL PHOTOGRAPHIC ANALYSIS OF STANLEY WORKS, STANLEY TOOL DIVISION

Fowlerville, Michigan

EPA Region 5

MID 099 124 299

F.1 Imagery/Special Studies (Aerial)
Johnson Controls (Stanley Tools)

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Photo Analysis	8

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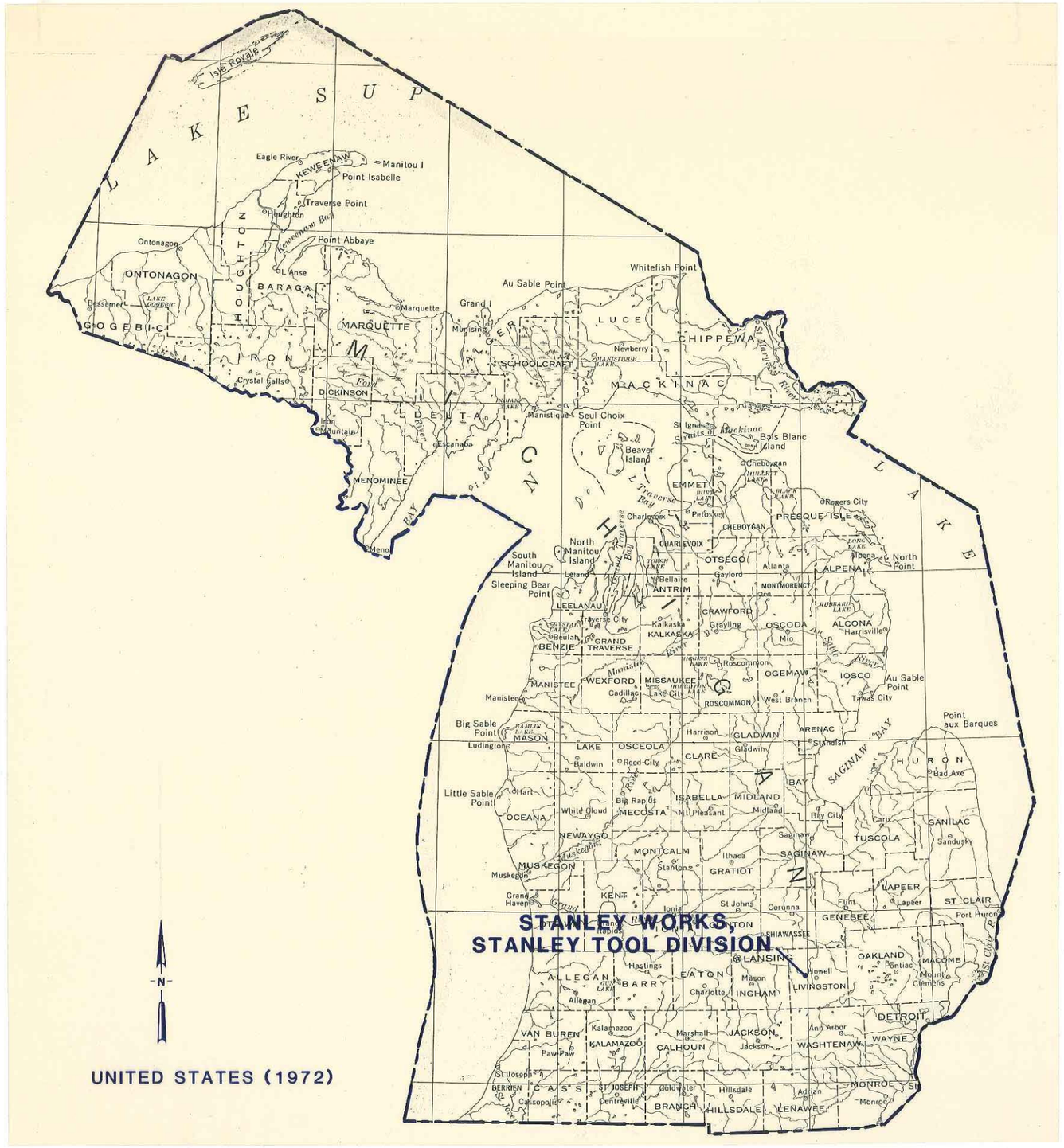

Figure 1. Site location map, Michigan. Scale 1:3,125,000.

TS-AMD-86605-2
July 1987

AERIAL PHOTOGRAPHIC ANALYSIS OF STANLEY WORKS, STANLEY TOOLS DIVISION

Fowlerville, Michigan

by

W. M. Mack
Environmental Programs
Lockheed Engineering and Management Services Company, Inc.
Las Vegas, Nevada 89193-3478

Contract No. 68-03-3245

Project Officer

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ENVIRONMENTAL MONITORING SYSTEMS LABORATORY
OFFICE OF RESEARCH AND DEVELOPMENT
U.S. ENVIRONMENTAL PROTECTION AGENCY
LAS VEGAS, NEVADA 89193-3478

ABSTRACT

This report presents the results of analysis of current and archival photographs of Stanley Works, Stanley Tool Division in Fowlerville, Michigan. The facility covers approximately 8 acres along the east bank of the Red Cedar River on the southwest side of Fowerville. The report documents physical conditions and visible potential environmental hazards through time. Four selected dates of photography acquired over a 25-year period (1963-1987) are the source data for the analysis.

The 1963 photograph showed an operating facility consisting of one large, irregular shaped manufacturing building, adjacent storage building, and two lagoons. The 1970 photograph revealed the addition of four lagoons in the northwest portion of the site, a large mound of probable spoil, and the construction of waste water treatment facilities. By 1978 the two lagoons reported on the 1963 photograph were absent and the new waste water treatment facilities had been completed. The 1987 photograph showed a single, large lagoon had replaced the four smaller lagoons.

The U.S. Environmental Protection Agency's Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, prepared this report for the Agency's Environmental Services Division in Region 5 at Chicago, Illinois, and Office of Solid Waste in Washington, D.C.

INTRODUCTION

This report presents a multidate analysis of the Stanley Works, Stanley Tools Division in Fowlerville, Michigan (Figures 1 and 2). The report documents physical conditions and potential environmental hazards at this facility through time. Four selected dates of black-and-white, color infrared, and color aerial photographs acquired over a period of 25 years (1963-1987) were the source data used in the analysis (Table 2). The report will assist in field investigations and potential enforcement actions.

Topics addressed in this report include surface water contamination, indications of leachate, drainage patterns, disposal and/or burial of solid, liquid, and/or sludge waste, and visible vegetation stress associated with facility operations.

This photo-analysis report is number two of three reports that examine seven sites in Michigan, under this project (Table 1).

The U.S. Environmental Protection Agency's Environmental Monitoring Systems Laboratory in Las Vegas, Nevada, prepared this report for the Agency's Environmental Services Division in Region 5 at Chicago, Illinois, and Office of Solid Waste in Washington, D.C.

TABLE 1. REGION 5 SITES COVERED UNDER TS-AMD-86605†

Report serial number†	Site name	Location	Analysis type
1	Fenske Enterprises	Grand Rapids, MI	Intensive
‡2	Stanley Works, Stanley Tools Division	Fowlerville, MI	Intensive
3	Ford Motor Co. Tractor Plant	Romeo, MI	Single-date
4	IRECO	Ishpeming, MI	Single-date
5	Greenville Products	Greenville, MI	Single-date
6	Ford Motor Company	Saline, MI	Single-date
7	Total Petroleum Inc.	Alma, MI	Single-date

†To identify individual reports, add the report serial number to the series number. For example: TS-AMD-86605-2.

‡Site covered in this report.

METHODOLOGY

Stereoscopic pairs of historical and curent aerial photographs are used to perform the analysis. Stereo viewing enhancs the interpretation because it allows the analyst to observe the vertical as well s horizontal spatial relationships of natural and cultural features. Stereoscopy s also an aid in distinguishing between various shapes, tones, textures, and colors hat can be found within the study area.

Evidence of waste burial is a prime conideration when conducting a hazardous waste analysis. Leachate or seepage resultig from burial and dumping of hazardous materials might threaten existing surface orground-water sources. Pools of unexplained liquid are routinely noted becaue they can indicate seepage from buried wastes that may enter drainage channels and llow contaminants to move off the site. An excellent indicator of how well haardous materials are being handled at a site is the presence or absence of spills, sill stains, and vegetation damage. Trees and other forms of vegetation that exhbit a marked color difference from surrounding members of the same species are abeled "dead," "stressed," or "damaged" based upon the degree of noticeable variatio.. Vegetation is so labeled only after consideration of the season in which the phoographs were acquired.

The U.S. Environmental Protection Agenc''s Statement of Procedures on Floodplain Management and Wetlands Protectio (Executive Orders 11988 and 11990, respectively) requires EPA to determine if removal or remedial actions at hazardous waste sites will affect wetlands or floodpla.ns and to avoid or minimize adverse impacts on those areas. To aid in compliance with these orders, significant wetland areas located within and adjacent to the sites have been identified and delineated. However, the sites have not been visited to verify the accuracy of wetland identification.

Drainage analysis determines the direction a spill or surface runoff would follow. Direction of drainage is determined from analysis of the photographs and

from U.S. Geological Survey topographic maps. Whenever they are available, 7.5-minute quadrangle maps (scale 1:24,000) are used to show site location and to provide geographic and topographic information.

Results of the analysis are shown on annotated overlays attached to the photos. The prints in this report have been enlarged when appropriate to show maximum detail. The following table provides documentation of the photographs used in this report.

TABLE 2. DOCUMENTATION OF AERIAL PHOTOGRAPHY

Site name, location, and geographic coordinates	Figures	Date of acquisition	Original scale	Film type†	Photo source‡
Stanley Tool Division	3	August 20, 1963	1:20,000	B&W	ASCS
Fowlerville, Michigan	4	April 15, 1970	1:40,000	B&W	ASCS
(42°39.5'N 84°04.7'W)	5	August 15, 1978	1:24,000	CIR	MIDNR
	6	April 10, 1987	1:6,000	CC	EMSL

†Film type identification:
B&W: Black-and-white
CIR: Color infrared
CC: Conventional color

‡Photo source identification:
ASCS: U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service, Salt Lake City, Utah.
MIDNR: Michigan Department of Natural Resources, Lansing, Michigan.
EMSL: U.S. Environmental Protection Agency, Environmental Monitoring Systems Laboratory, Las Vegas, Nevada.

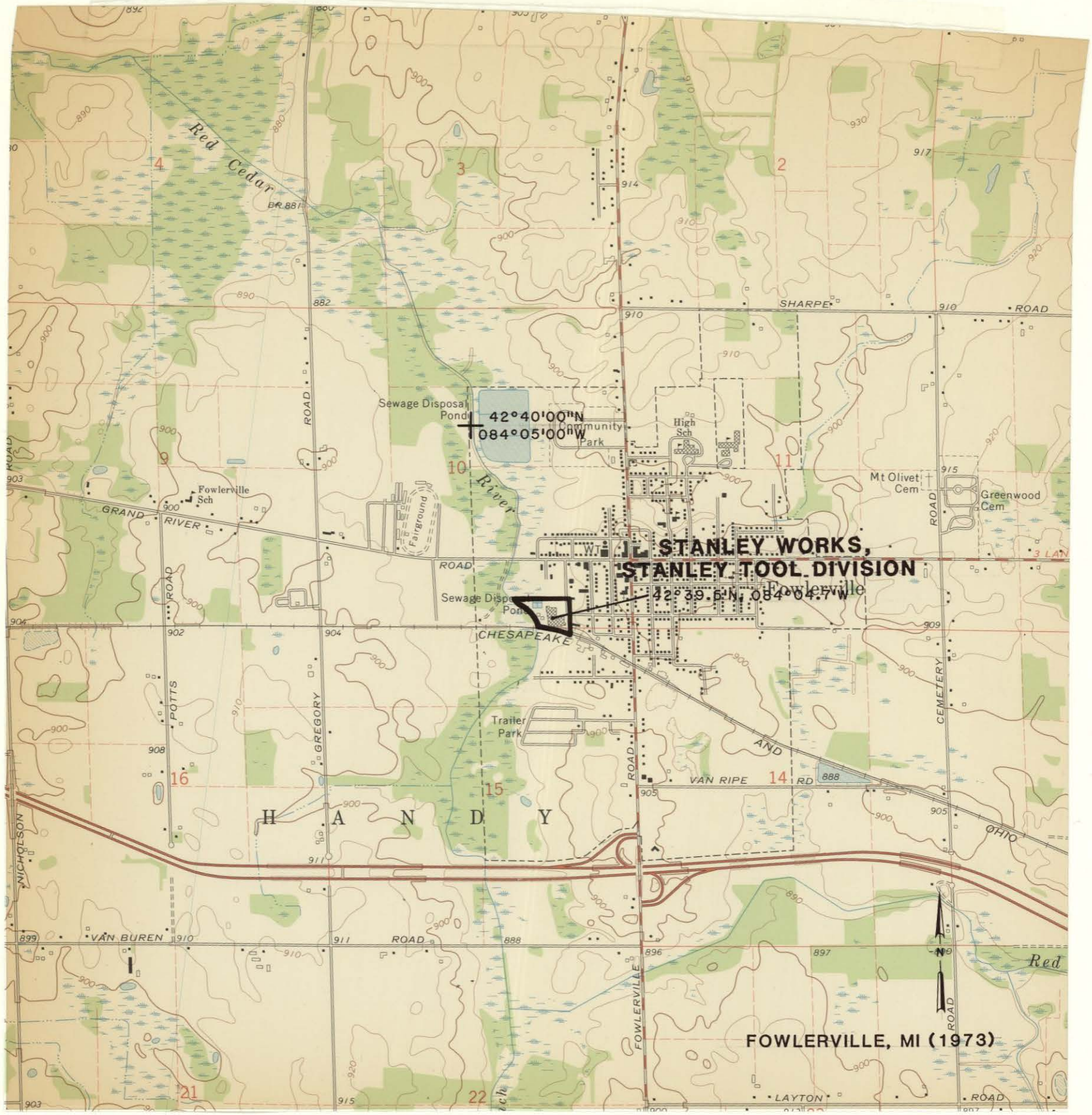

Figure 2. Local site location map, Fowlerville, Michigan. Scale 1:24,000.

ANALYSIS SUMMARY

The Stanley Works, Stanley Tool Division occupies approximately 8 acres along the east bank of the Red Cedar River on the southwest side of Fowlerville, Michigan (Figure 2). Black-and-white photographs from 1963, 1970, a 1978 color infrared photograph, and a 1987 color photograph were the source data used in this analysis.

The 1963 photograph showed an operating facility consisting of one large, irregular shaped manufacturing building, adjacent storage building, and two lagoons. The 1970 photograph revealed the addition of four lagoons in the northwest portion of the site, a large mound of probable spoil, and the construction of waste water treatment facilities. By 1978 the two lagoons reported on the 1963 photograph were absent and the new waste water treatment facilities had been completed. The 1986 photograph showed a single, large lagoon had replaced the four smaller lagoons.

The facility is situated adjacent to the Red Cedar River but there is no levee to serve as protection against flooding. The lagoon at this facility is vulnerable to a 100-year flood event; flood waters could erode the containment berms and cause liquid wastes to escape into the natural drainage system.

PHOTO ANALYSIS

AUGUST 20, 1963

The 1963 photograph (Figure 3) shows the Stanley Works, Stanley Tools Division. The study site is on the east bank of the Red Cedar River; runoff from the facility flows into this natural drainage system. The facility consists of a large irregular shaped manufacturing building, a parking lot, storage shed, and two small lagoons. The plant is apparently operational because of the large number of vehicles in its parking lot. The poor photo scale prevents determining whether the lagoons are lined (Annotation A). No perimeter security fence is discernable around the site. Piles of fill or debris are noted at the west end of the facility. The dumping in this area is apparently for site construction and not waste disposal activity.

No 55-gallon drums are visible at the site and no disposal of solid wastes are noted. There are no visible discharges from the study site into Red Cedar River and no discernable signs of vegetation stress.

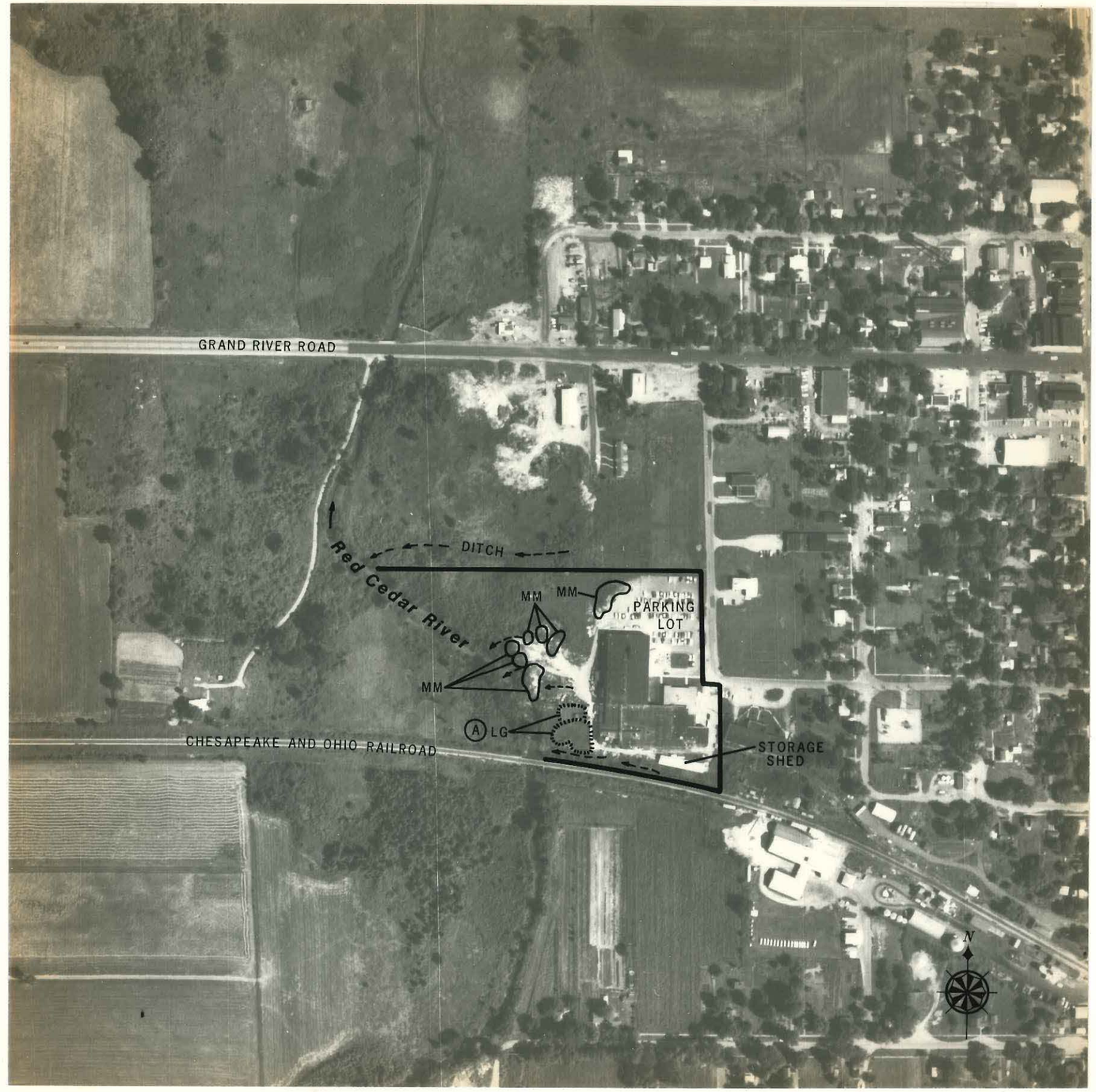

Figure 3. Stanley Tool Division, August 20, 1963. Approximate scale 1:4,000.

INTERPRETATION CODE

BOUNDARIES AND LIMITS

- x—x—x— FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- x x x x x x FENCE
- STUDY AREA

DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

TRANSPORTATION/UTILITY

- VEHICLE ACCESS
- RAILWAY

SITE FEATURES

- DIKE
- STANDING LIQUID
- SL STANDING LIQUID
- EXCAVATION, PIT (EXTENSIVE)
- MOUNDED MATERIAL (EXTENSIVE)
- MM MOUNDED MATERIAL (SMALL)
- CR CRATES/BOXES
- DR DRUMS
- HT HORIZONTAL TANK
- PT PRESSURE TANK
- VT VERTICAL TANK
- CA CLEARED AREA
- DG DISTURBED GROUND
- FL FILL
- IM IMPOUNDMENT
- LG LAGOON
- OF OUTFALL
- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

APRIL 15, 1970

The 1970 photograph (Figure 4) reveals construction of four lagoons near the northwest corner of facility (Annotation A). These lagoons presently contain liquid and the presence of bottom linings in these lagoons could not be determined. Additional construction of smaller, concrete lined lagoons (Annotation B), probable waste water treatment facilities, is observed on the north side of the two older lagoons (Annotation C). Piles of fill material are noted at the central portion of the facility indicating efforts to raise the surface ground level. A large mound of spoil stands at the site's northwest corner. There is no visible dumping and/or burial of solid waste at this site.

Surface drainage within the facility is able to flow into the adjacent Red Cedar River. There is no visible indication of leachates, leakage or seepage from the lagoons, and no signs of vegetation stress.

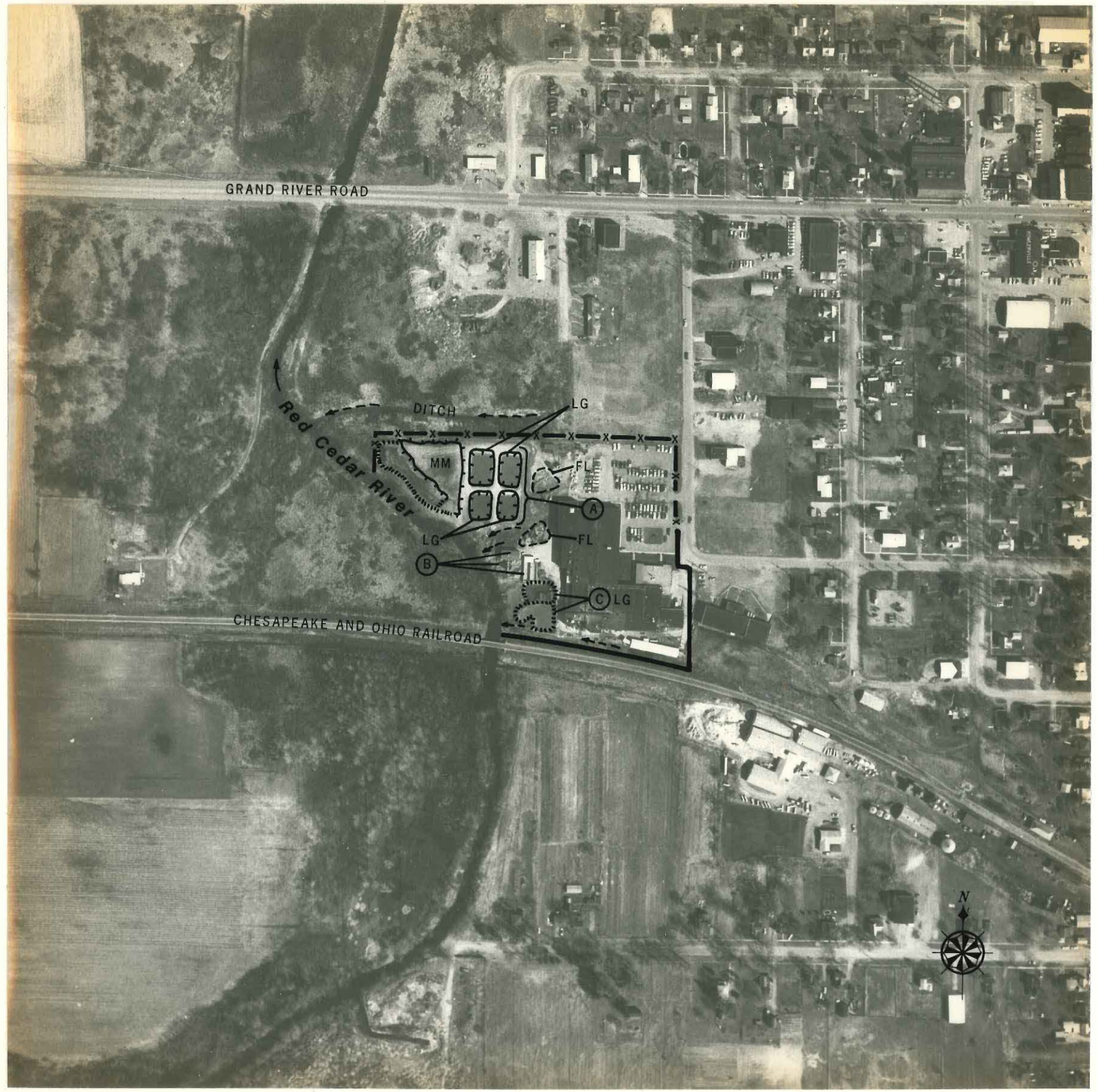

Figure 4. Stanley Tool Division, April 15, 1970. Approximate scale 1:3,700.

INTERPRETATION CODE

BOUNDARIES AND LIMITS

- x—x—x— FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- x x x x x x FENCE
- STUDY AREA

DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

TRANSPORTATION/UTILITY

- VEHICLE ACCESS
- RAILWAY

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- SD SLUDGE
- ST STAIN
- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

AUGUST 15, 1978

The 1978 photograph (Figure 5) shows the absence of the two lagoons previously described on the 1970 photograph (Figure 4, Annotation C). The concrete lined lagoons reported under construction in the 1970 photograph are operational. There are three of these rectangular lagoons (Annotation A), a circular settling tank (Annotation B), and a control building (Annotation C).

The mounded spoil deposited in the northwest corner of the study site described on the 1970 photograph is overgrown with vegetation. No piles of fill material are observed within the facility. There are no indications of construction or dismantling activity. No signs of leachates or leakages are noted and no signs of vegetation stress are identified.

Figure 5. Stanley Tool Division, August 15, 1978. Approximate scale 1:4,800.

INTERPRETATION CODE

BOUNDARIES AND LIMITS

- FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- FENCE
- STUDY AREA

DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

TRANSPORTATION/UTILITY

- VEHICLE ACCESS
- RAILWAY

SITE FEATURES

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- SW SOLID WASTE
- TR TRENCH
- VS VEGETATION STRESS
- WD WASTE DISPOSAL AREA
- WL WETLAND

APRIL 10, 1987

The 1987 photograph (Figure 6) does not reveal any solid waste disposal activity and no visible discharges into the adjacent Red Cedar River. A single, large, rectangular lagoon has replaced the four lagoons observed in 1978 (Figure 5). There are no visible breaches or signs of leakage or seepage from this large lagoon. No indication of construction or dismantling activity is noted at the facility.

There is no levee to protect the facility from potential flooding of the adjacent Red Cedar River. Flood waters are likely to erode the large lagoon's containment berm and cause liquid wastes to escape into the natural drainage system.

Figure 6. Stanley Tool Division, April 10, 1987. Approximate scale 1:6,000.

INTERPRETATION CODE

BOUNDARIES AND LIMITS

- FENCED SITE BOUNDARY
- UNFENCED SITE BOUNDARY
- FENCE
- STUDY AREA

DRAINAGE

- DRAINAGE
- FLOW DIRECTION
- INDETERMINATE DRAINAGE

TRANSPORTATION/UTILITY

- VEHICLE ACCESS
- RAILWAY

SITE FEATURES

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- EXCAVATION, PIT (EXTENSIVE)
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- WD WASTE DISPOSAL AREA
- WL WETLAND