



MEMORANDUM

TO: Peter Ramanauskas REF. NO.: 013968

FROM: Glenn Turchan, William K. Steinman, Jacky So/ja/369 DATE: July 21, 2006

c.c.: Brad Stimple, Stacey DeLaReintrie, John Bassett, Dan Sparks, Gerald O'Callaghan, Cheryl Hiatt, Ed Peterson, James McGuigan, Katie Kamm, Rick Bodishbaugh, Pieter Booth, C.Y. Jeng, Stephen Song, Noel Krothe, Bernie Keuper

RE: **RFI Work Plan Addendum No. 12 Technical Memorandum
GM Powertrain Bedford Plant
Bedford, Indiana**

1.0 INTRODUCTION

1.1 GENERAL

The General Motors Corporation (GM) Powertrain Bedford Facility (Bedford Facility) is located at 105 GM Drive, Bedford (Lawrence County), Indiana, 47421 (Figure 1). The Bedford Facility produces aluminum casting products, such as transmission cases, pistons, and engine blocks. Major aluminum production processes include die casting & permanent molding. The Bedford Facility has been operating as an aluminum foundry since 1942, with major facility modifications completed in 1950, 1953, 1966, 1971, 1974, 1977, 1979, and 1980.

The Bedford Facility, located on 152.5 acres, contains approximately 915,000 square feet of floor space and employs approximately 1,000 people (Figure 2).

1.2 RFI APPROACH

General Motors signed a Performance Based Corrective Action Agreement (Agreement) with the United States Environmental Protection Agency (U.S. EPA) for the Bedford Facility on March 20, 2001, and modified on October 1, 2002. The signed Agreement states that GM will work voluntarily (with the U.S. EPA) to identify and define the nature and extent of releases of hazardous waste and/or hazardous constituents at or from the Bedford Facility.

To meet these requirements, GM is investigating those Areas of Interest (AOIs) that may be associated with a release of hazardous waste and/or hazardous constituents. These AOIs were identified in the Current Conditions Report (CCR) (CRA, May 25, 2001).

1.3 GOALS AND OBJECTIVES

The overall goal of the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI) is to characterize the nature and extent of any releases of hazardous waste and/or hazardous constituents at or from the Facility which may pose an unacceptable risk to human health and the environment.

To meet these goals, the objective of the RFI is to collect data of sufficient quality and quantity to support an assessment of potential risks to human health and the environment associated with releases of hazardous waste and/or hazardous constituents under current and reasonably expected future land use. Specifically, the RFI will:

- determine whether a release of hazardous waste/constituents to soil, groundwater, surface water, or sediment has occurred at AOIs identified in the CCR as requiring investigation;
- characterize the source(s) of a release and determine the nature and extent of constituents in environmental media to the extent necessary to support an assessment of risks to human health and the environment;
- characterize current and potential migration pathways, and potential human and environmental receptors under current and reasonably expected future land use;
- assess potential risk to human health and the environment associated with releases of hazardous waste/constituents to the environment;
- determine whether interim corrective measures are necessary to control unacceptable current human exposures, if any, or to control migration of any contaminated groundwater;
- provide sufficient data to support a demonstration that current human exposures to contamination above risk based levels are under control, and that the migration of groundwater contaminated above acceptable levels is stabilized; and
- determine if final corrective measures are necessary to mitigate unacceptable risks, if any, to human health and the environment under current and reasonably expected future land use.

1.4 RFI WORK PLAN

This Technical Memorandum (TM) describes the RFI Work Plan: Addendum No. 12 (Addendum No. 12) (CRA, December 2005) activities and results from December 2005 to February 2006 at the Facility. Specifically, this TM includes investigative coreholes collected from the East Plant Area of the Bedford Facility and supplements work completed under the RFI Work Plan Addendum No. 9.

This work plan was prepared to supplement the existing RFI investigations and to further define the topographic surface of the bedrock in the East Plant Area to support the design of a downgradient perimeter groundwater collection trench system.

2.0 SCOPE OF WORK - METHODOLOGY

All corehole installation was completed in accordance with the Scope of Work presented in the RFI Work Plan Addendum No. 12 (CRA, 2005). This Section briefly describes the methodology employed during corehole installation during implementation of the fieldwork completed under this Addendum No. 12.

2.1 SUBSURFACE SAMPLE COLLECTION

The field geologist recorded the subsurface conditions at each corehole location in the field at the time of installation. Boring logs are provided in Attachment A. All corehole locations are presented on Figure 3.

2.1.1 BEDROCK

2.1.1.1 BEDROCK CORING

The overburden soil was drilled using a 4 1/4 inch HSAs in order to set a 4 inch steel outer casing into place at approximately 2 feet (ft) into the top of the bedrock surface. This outer casing was cement grouted into place and allowed to cure prior to further advancing the boring into bedrock. Once the outer casing was set and cured, further advancement into the bedrock was accomplished using an HQ size (approximately 3.8 inch outer diameter) core barrel. At each bedrock boring location, core runs of five to ten ft were initially used to check the competency of the upper bedrock. Each core was visually inspected and described (recorded) by the field geologist in the field at the time of collection (boring logs are presented in Attachment A).

Bedrock cores were retrieved from the core barrel and immediately placed into wooden core boxes. Core boxes were 4 ft in length and consisted of three rows for core placement, thus allowing for each 12 ft core run in each box. The top of the retrieved core was always placed in the upper left hand corner (i.e., laid out from left to right, and from top to bottom). Where necessary, cores were manually broken only to allow for placement into the core boxes or for inspection (these breaks were noted directly on the cores). Each core box was labeled as to contents on the top and front and placed into a storage container located on site.

Each completed corehole was left as an open hole and was completed at the ground surface with a hinged, lid. Table 1 presents the completion details for each of the boreholes and coreholes advanced (labeled as CH ## or BH ##) under RFI Work Plan Addendum No. 9 and 12.

2.2 LOCATION AND ELEVATION SURVEY

Upon completion of soil borings and bedrock coreholes, each location was surveyed to determine its map coordinates and ground and reference elevations. The map coordinates were based on the 1983 North American Datum (NAD '83) coordinate system and were surveyed to the nearest 1.0 foot. Ground and reference (e.g., top of casing) elevations were surveyed to the nearest 0.1 and 0.01 foot, respectively. All elevations were surveyed to the United States Geologic Survey datum (1988 North American Vertical Datum (NAVD)).

3.0 INVESTIGATION RESULTS

Ten coreholes were installed as part of RFI Addendum No. 12 to further define the topographic surface of the bedrock along the proposed perimeter groundwater collection trench system. Based on the new corehole results and existing RFI investigation results, the bedrock elevation contours have been revised and are presented on Figure 4.

4.0 REFERENCES

Publications Cited:

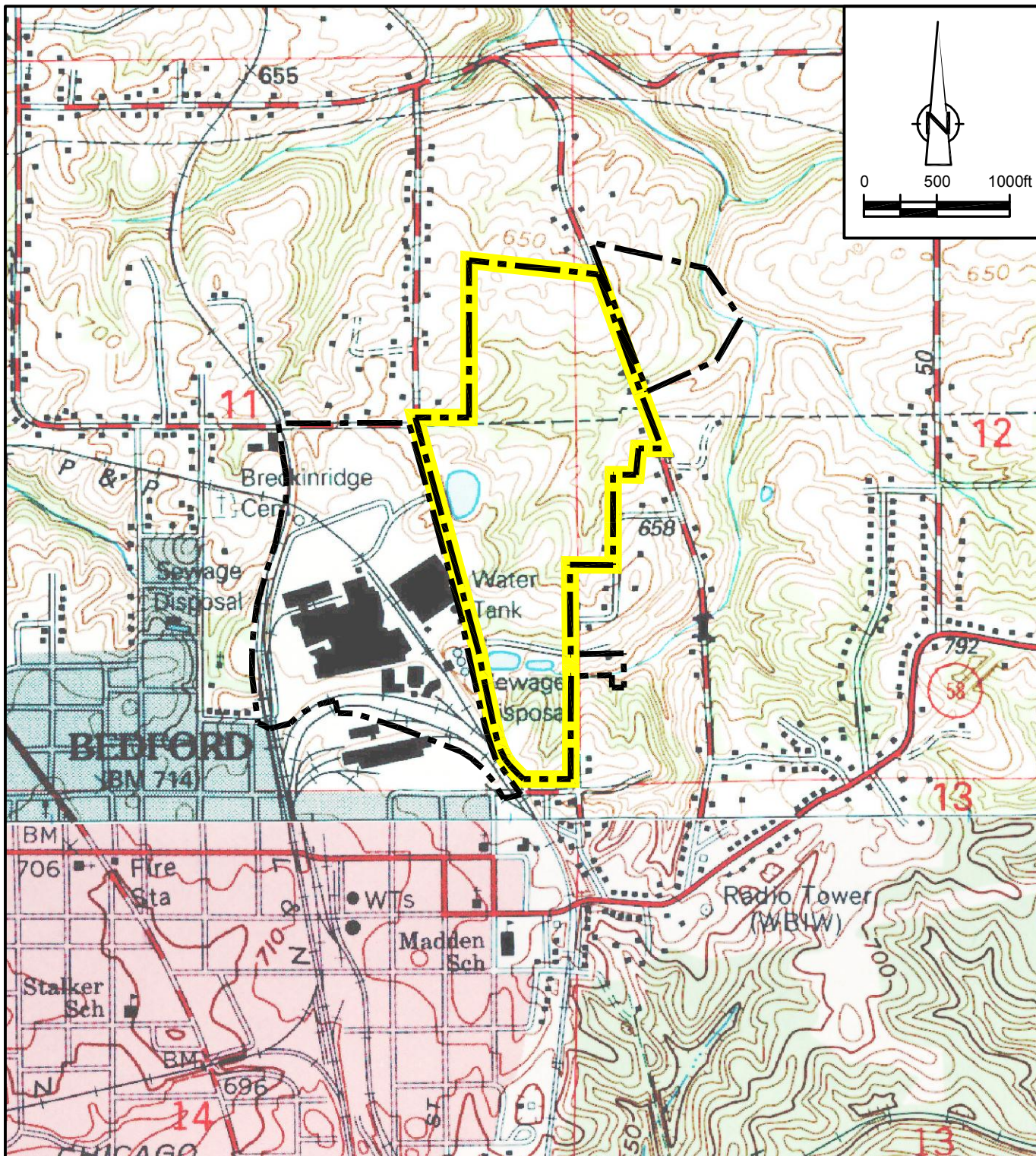
Conestoga Rovers & Associates (CRA), 2001a, Current Conditions Report, GM Powertrain, Bedford Plant, Bedford, Indiana.

- 2001b, RCRA Facility Investigation (RFI) Work Plan, GM Powertrain, Bedford Plant, Bedford, Indiana.
- 2005, RCRA Facility Investigation Work Plan Addendum No. 12, GM Powertrain, Bedford Plant, Bedford Indiana.

Gray, H.H., 1974, Glacial Lake Sediments in Salt Creek Valley near Bedford, Indiana, Department of Natural Resources, Geological Survey Occasional Paper 1.

- 1982, Map of Indiana Showing Topography of the Bedrock Surface, Indiana Geological Survey and Indiana Department of Natural Resources, Miscellaneous Map 36.
- 1983, Map of Indiana Showing Thickness of Unconsolidated Deposits, Indiana Geological Survey and Indiana Department of Natural Resources, Miscellaneous Map 37.

Melhorn, W.N., and N.M. Smith, 1959, The Mt. Carmel Fault and Related Structural Features in South Central Indiana, Indiana Department of Conservation, Geological Survey, Report of Progress No. 16.



BASE SOURCE: USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLES;
 BARTLETTSVILLE, INDIANA 1994
 BEDFORD EAST, INDIANA 1978
 BEDFORD WEST, INDIANA 1993
 OOLITIC, INDIANA 1987



LEGEND

- FACILITY BOUNDARY
- EAST PLANT AREA

figure 1

FACILITY LOCATION

RFI WORK PLAN ADDENDUM No.12 TECHNICAL MEMORANDUM

GM POWERTRAIN BEDFORD FACILITY

Bedford, Indiana

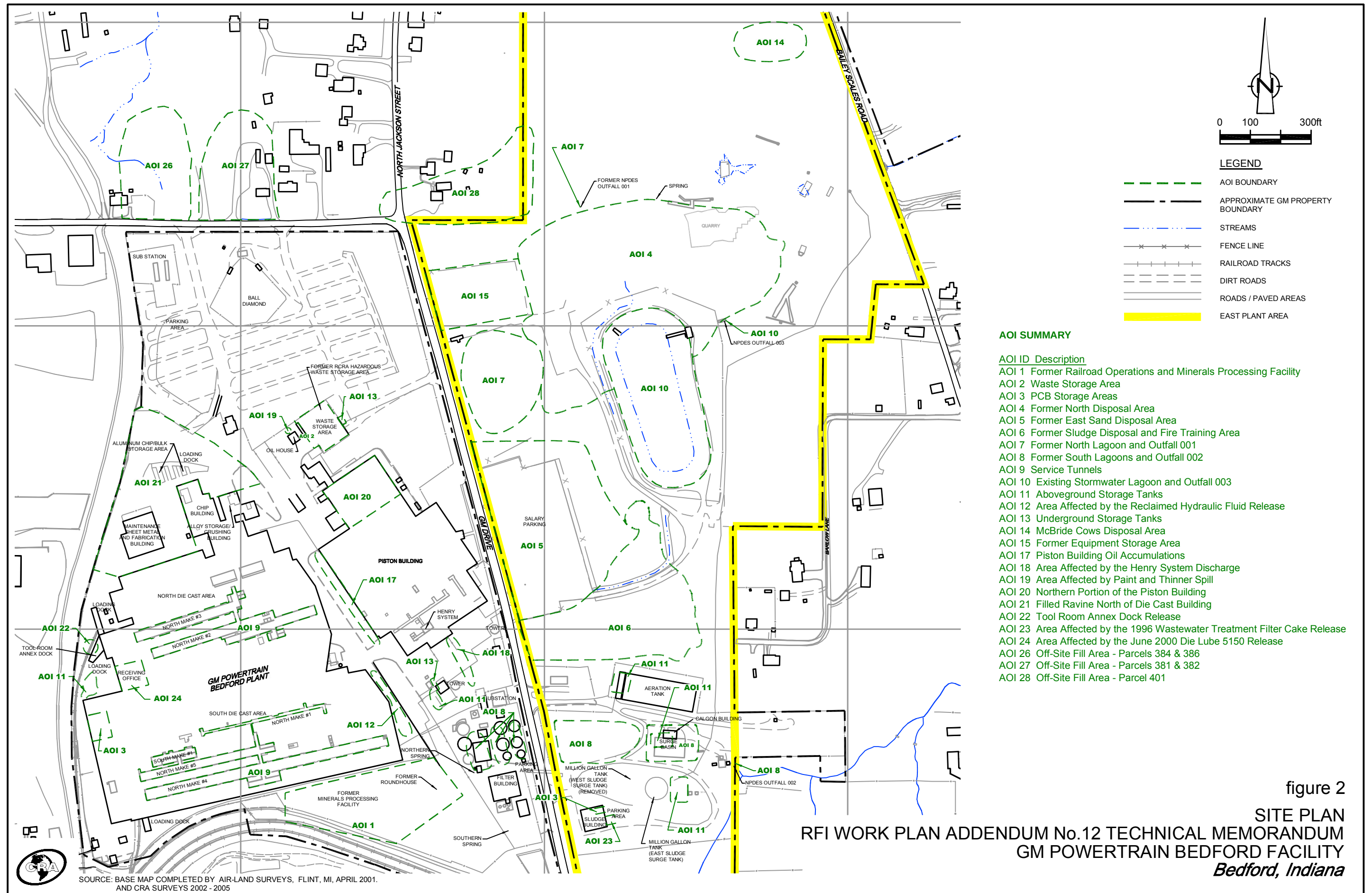
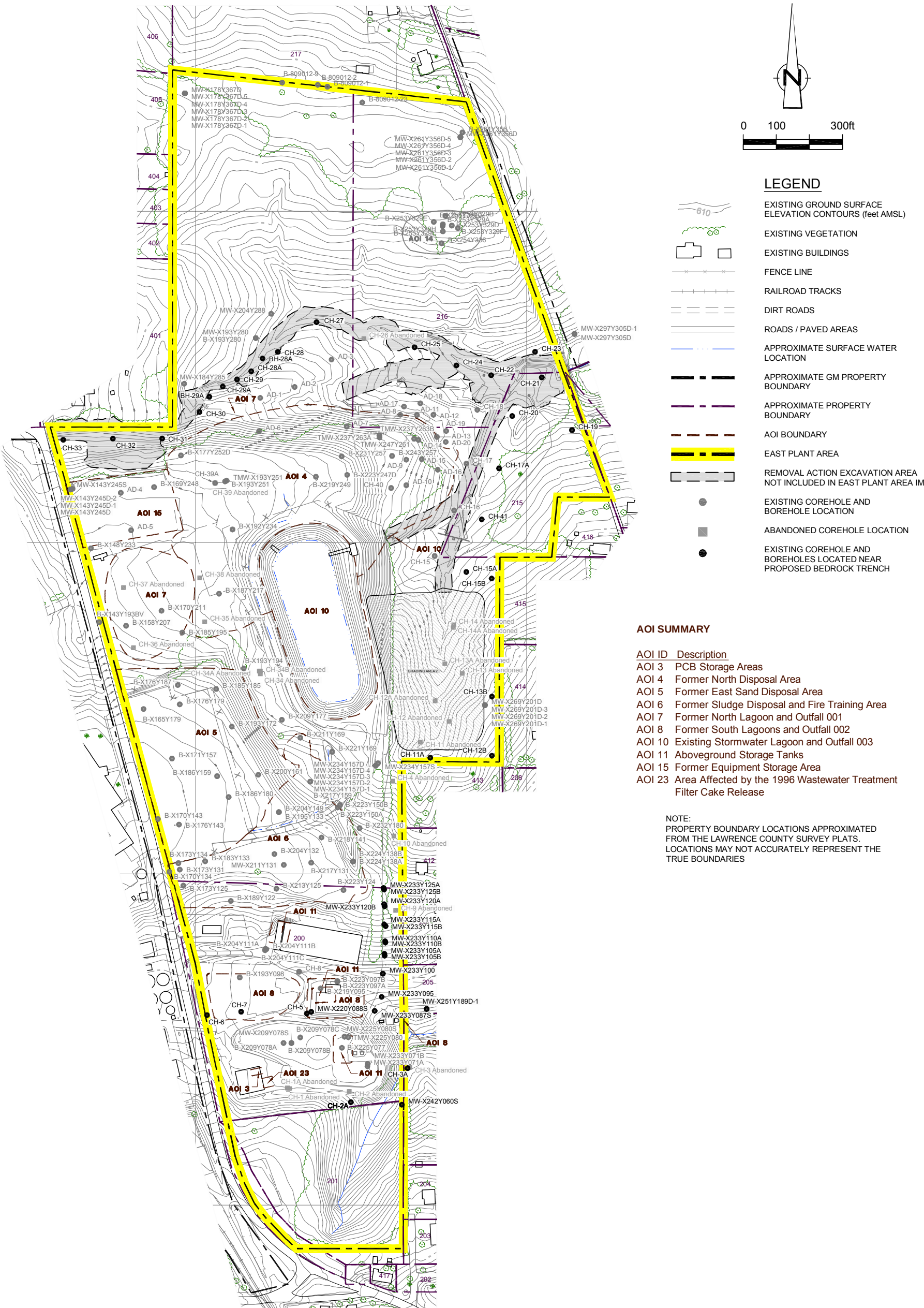
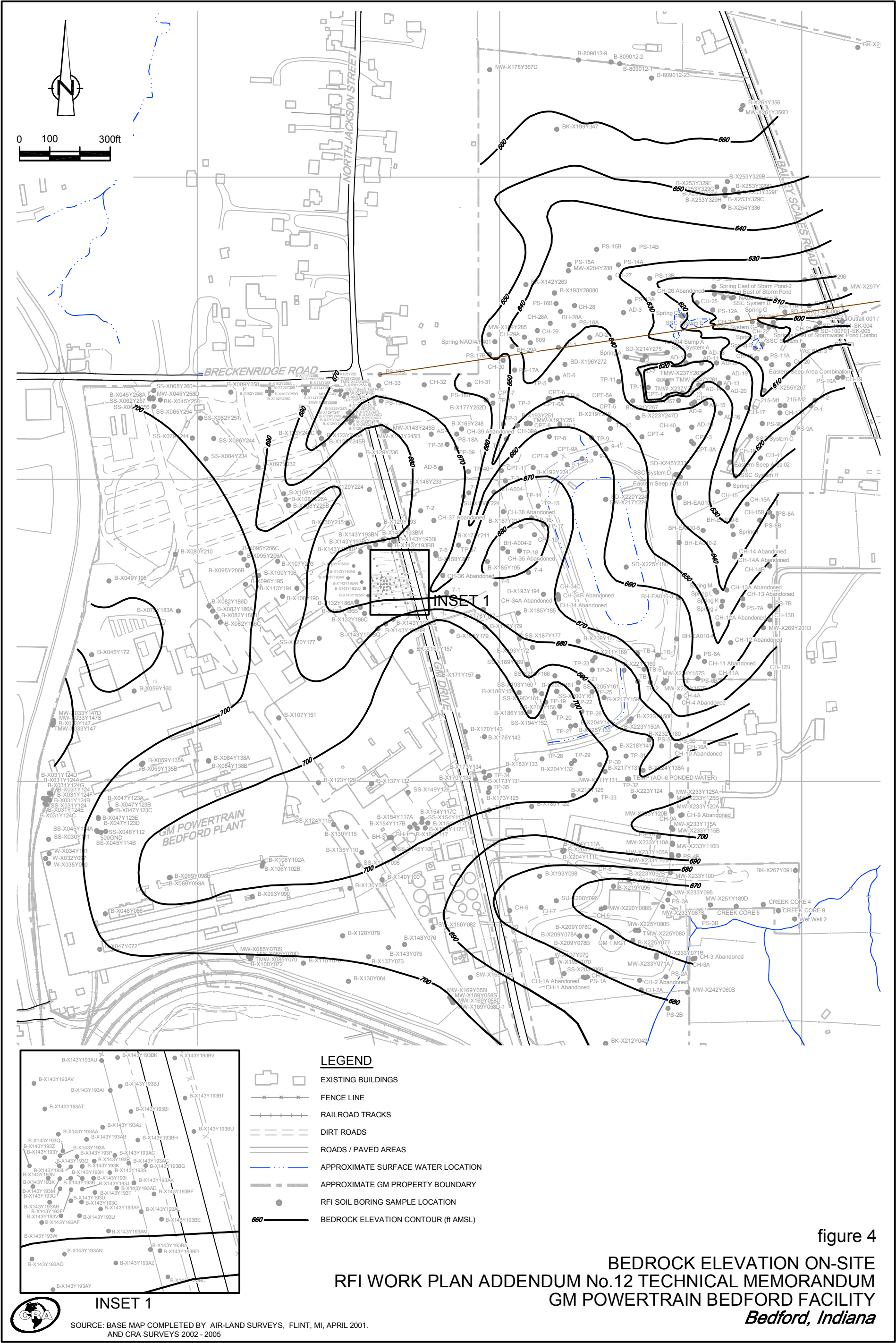




figure 3
COREHOLE AND BOREHOLE LOCATIONS
RFI WORK PLAN ADDENDUM No.12 TECHNICAL MEMORANDUM
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana





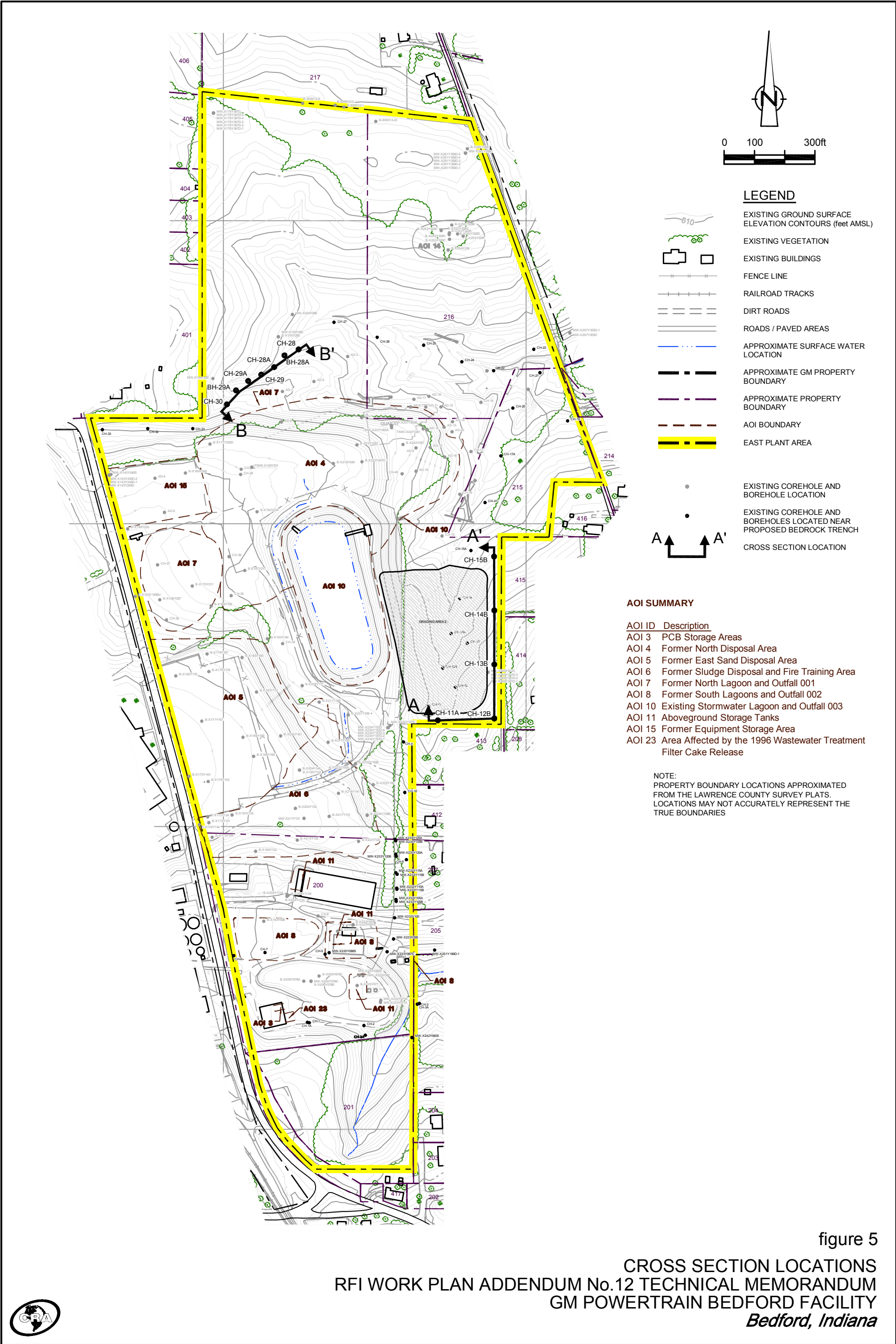
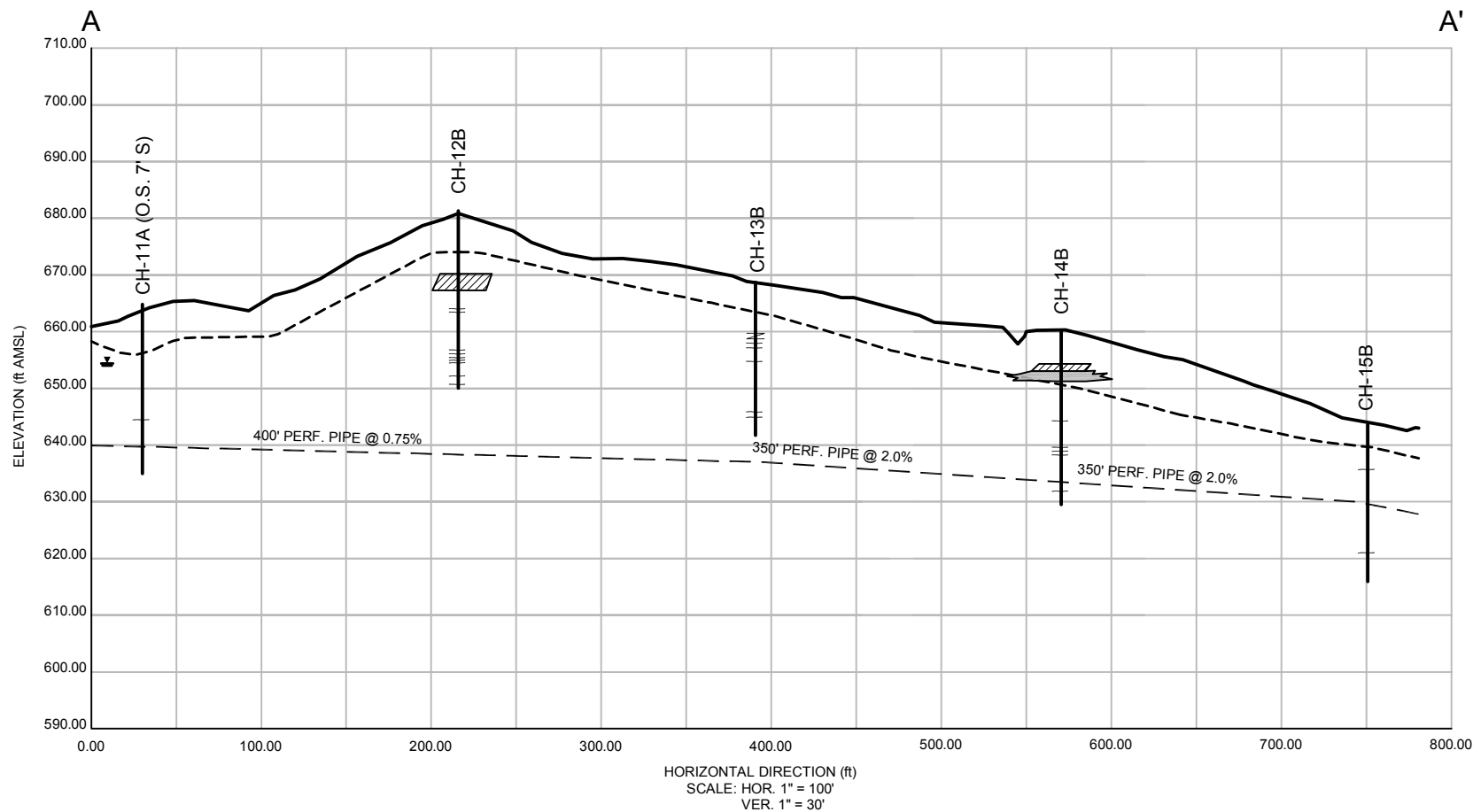


figure 5

CROSS SECTION LOCATIONS
RFI WORK PLAN ADDENDUM No.12 TECHNICAL MEMORANDUM
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana





BEDROCK KEY

- ZONE OF HIGHLY FRACTURED ROCK
- HORIZONTAL FRACTURE
- VERTICAL FRACTURE
- ZONE OF INTERBEDDED ROCK AND CLAY
-VOID = VOID IN ROCK
- GROUNDWATER ELEVATION 10/4/05 TO 10/5/05

NOTES:

1. DEPICTION OF FRACTURES WITHIN THE BEDROCK ARE APPROXIMATE AND ARE PROVIDED FOR GRAPHICAL REPRESENTATION ONLY. REFER TO THE BORING LOGS FOR ADDITIONAL DETAIL.
2. GEOLOGIC CONTACTS BETWEEN FORMATIONS ARE APPROXIMATE. THE ACTUAL CONTACTS ARE GRADATIONAL (DASHED WHERE INFERRED).

figure 6

GEOLOGICAL CROSS SECTION A - A'
RFI WORK PLAN ADDENDUM No.12 TECHNICAL MEMORANDUM
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana



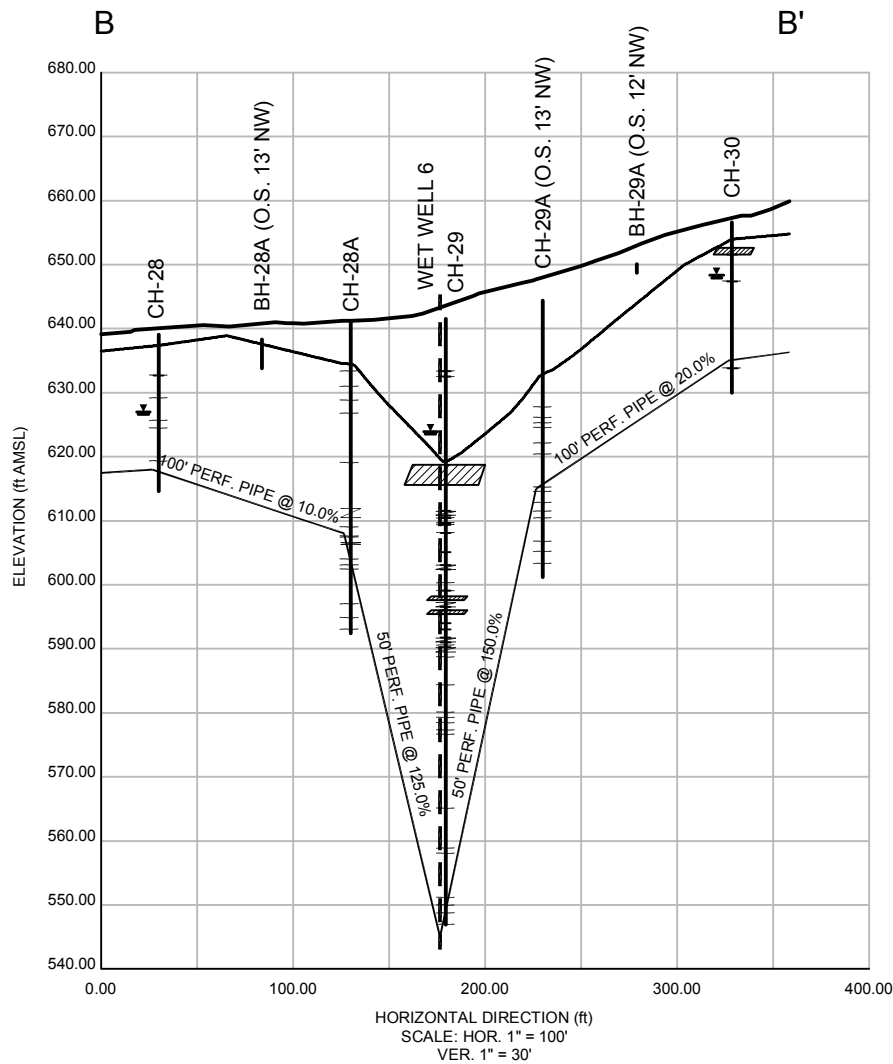


figure 7

GEOLOGICAL CROSS SECTION B - B'
RFI WORK PLAN ADDENDUM No.12 TECHNICAL MEMORANDUM
GM POWERTRAIN BEDFORD FACILITY
Bedford, Indiana



TABLE 1
COREHOLE CONSTRUCTION DETAILS
RFI WORK PLAN: ADDENDUM NO. 12
GM POWERTRAIN BEDFORD FACILITY
BEDFORD, INDIANA

Corehole ID	Revised Corehole ID	Top Casing Elevation	Ground Surface Elevation	Stick up	Casing Depth	Open Hole Interval		Open Hole Elevation		Sump Depth Interval		Total Hole Depth	Date Completed	Well Abandonment
CH-1	CH-1 Abandoned	---	692.2	---	10.0	---	---	---	---	---	---	10.0	3/29/2005	X
CH-1A	CH-1A Abandoned	---	692.0	---	15.0	15.0	18.0	677.0	674.0	---	---	18.0	6/7/2005	X
CH-1B		693.75	691.7	2.0	26.0	26.0	45.6	665.7	646.1	---	---	45.6	6/13/2005	
CH-2	CH-2 Abandoned	---	688.7	---	---	---	---	---	---	---	---	22.1	5/26/2005	X
CH-2A		690.57	688.0	2.6	22.0	22.0	42.9	666.0	645.1	---	---	42.9	8/15/2005	
CH-3	CH-3 Abandoned	---	673.3	---	9.0	9.0	20.2	664.3	653.1	---	---	20.2	6/9/2005	X
CH-3A		675.40	673.1	2.3	23.0	23.0	43.8	650.1	629.3	---	---	43.8	8/17/2005	
CH-4	CH-4 Abandoned	---	677.2	---	10.5	10.5	15.7	666.7	661.5	---	---	15.7	8/5/2005	X
CH-4A		679.60	676.8	2.8	14.5	14.5	34.8	662.3	642.0	---	---	34.8	8/22/2005	
CH-5		685.68	683.5	2.1	21.0	21.0	46.1	662.5	637.4	44.1	46.1	46.1	6/6/2005	
CH-6		692.08	690.5	1.6	19.0	19.0	40.3	671.5	650.2	---	---	40.3	6/1/2005	
CH-7		690.28	688.7	1.6	19.2	19.2	39.3	669.5	649.4	---	---	39.3	6/1/2005	
CH-8		688.11	684.7	3.4	11.5	11.5	35.2	673.2	649.5	---	---	35.2	6/2/2005	
CH-9	CH-9 Abandoned	---	710.2	---	15.0	15.0	30.5	695.2	679.7	---	---	30.5	8/18/2005	X
CH-9A		712.14	709.9	2.2	38.0	38.0	48.4	671.9	661.5	---	---	48.4	8/29/2005	
CH-10	CH-10 Abandoned	---	693.9	---	---	---	---	---	---	---	---	14.0	---	X
CH-10A		696.48	693.3	3.1	16.0	16.0	26.5	677.3	666.8	---	---	26.5	8/29/2005	
CH-11	CH-11 Abandoned	---	661.45	2.5	6.0	6.0	27.1	653.0	631.9	---	---	27.1	6/17/2005	X
CH-11A		666.81	664.8	2.0	9.0	9.0	29.6	655.8	635.2	---	---	29.6	1/31/2006	
CH-12	CH-12 Abandoned	---	660.4	---	6.0	---	---	---	---	---	---	6.0	4/8/2005	X
CH-12A	CH-12A Abandoned	---	650.4	---	6.0	6.0	27.1	644.4	623.3	---	---	27.1	6/20/2005	X
CH-12B		683.19	681.3	1.9	8.9	8.9	29.6	672.4	651.7	---	---	29.6	1/31/2006	
CH-13	CH-13 Abandoned	---	653.6	---	6.5	---	---	---	---	---	---	6.5	3/29/2005	X
CH-13A	CH-13A Abandoned	---	643.1	---	8.0	8.0	58.7	637.1	586.4	---	---	58.7	8/3/2005	X
CH-13B		670.89	668.7	2.2	6.5	6.5	27.5	662.2	641.2	---	---	27.5	2/1/2006	
CH-14	CH-14 Abandoned	---	641.5	---	6.0	6.0	12.1	635.5	629.4	---	---	12.1	6/16/2005	X
CH-14A	CH-14A Abandoned	---	642.0	---	7.4	7.4	28.1	634.6	613.9	---	---	28.1	8/4/2005	X
CH-14B		662.04	660.0	2.0	10.0	10.0	30.6	650.0	629.4	---	---	30.6	2/2/2006	
CH-15		636.16	633.6	2.5	8.0	8.0	28.5	625.6	605.1	---	---	28.5	6/10/2005	X
CH-15A		639.89	637.3	2.6	5.0	5.0	25.9	632.3	611.4	---	---	25.9	8/5/2005	X
CH-15B		646.13	643.7	2.4	6.0	6.0	26.3	637.7	617.4	---	---	26.3	1/17/2006	
CH-16		635.37	632.9	2.5	15.5	15.5	36.4	617.4	596.5	---	---	36.4	6/13/2005	
CH-17		631.59	628.8	2.8	10.0	10.0	20.8	618.8	608.0	---	---	20.8	6/9/2005	
CH-17A		624.41	621.0	3.4	7.4	7.4	28.4	613.6	592.6	---	---	28.4	8/8/2005	
CH-18		627.40	625.5	1.9	19.0	19.0	39.7	606.5	585.8	---	---	39.7	6/8/2005	
CH-19		627.79	625.0	2.8	11.0	11.0	31.7	614.0	593.3	---	---	31.7	6/15/2005	
CH-20		621.77	619.2	2.6	17.0	17.0	38.0	602.2	581.2	---	---	38.0	6/7/2005	
CH-21		614.47	612.1	2.3	14.0	14.0	45.5	598.1	566.6	---	---	45.5	6/6/2005	
CH-22		615.90	613.4	2.5	12.0	12.0	32.6	601.4	580.8	---	---	32.6	6/1/2005	
CH-23		616.33	613.5	2.8	6.0	6.0	26.9	607.5	586.6	---	---	26.9	6/1/2005	
CH-24		619.74	617.4	2.3	12.0	12.0	32.7	605.4	584.7	---	---	32.7	5/27/2005	
CH-25		625.77	622.8	3.0	20.0	20.0	40.9	602.8	581.9	---	---	40.9	5/26/2005	
CH-26	CH-26 Abandoned	---	627.9	---	7.0	---	---	---	---	---	---	27.6	5/24/2005	X
CH-27		635.83	633.2	2.7	5.5	5.5	26.0	627.7	607.2	---	---	26.0	5/24/2005	
CH-28		641.59	638.9	2.7	4.0	4.0	24.7	634.9	614.2	---	---	24.7	5/23/2005	
CH-28A		642.99	641.0	2.0	7.5	7.5	48.6	633.5	592.4	---	---	48.6	1/6/2006	
CH-29		645.00	641.6	3.4	28.5	28.5	71.2	613.1	570.4	---	---	71.2	5/18/2005	
CH-29A		646.13	644.4	1.8	12.5	12.5	43.2	631.9	601.2	---	---	43.2	1/4/2006	
CH-30		659.16	656.8	2.4	6.5	6.5	26.6	650.3	630.2	---	---	26.6	5/23/2005	
CH-31		671.15	668.4	2.7	12.5	12.5	33.3	655.9	635.1	---	---	33.3	8/11/2005	
CH-32		672.46	669.4	3.0	8.0	8.0	28.5	661.4	640.9	---	---	28.5	8/10/2005	
CH-33		672.30	669.7	2.6	8.5	8.5	25.2	661.2	644.5	---	---	25.2	8/9/2005	
CH-34	CH-34 Abandoned	---	682.0	---	19.0	---	---	---	---	---	---	19.0	4/5/2005	X
CH-34A	CH-34A Abandoned	---	681.6	---	---	---	---	---	---	---	---	20.0	6/28/2005	X
CH-34B	CH-34B Abandoned	---	681.4	---	14.4	14.4	15.0	667.0	666.4	---	---	15.0	7/29/2005	X
CH-34C		684.45	681.9	2.5	22.0	22.0	42.0	659.9	639.9	---	---	42.0	8/8/2005	
CH-35	CH-35 Abandoned	---	690.7	---	11.0	---	---	---	---	---	---	30.3	5/24/2005	X
CH-36	CH-36 Abandoned	---	699.6	---	39.0	---	---	---	---	---	---	49.8	5/19/2005	X
CH-37	CH-37 Abandoned	---	695.2	---	23.0	---	---	---	---	---	---	43.2	5/19/2005	X
CH-38	CH-38 Abandoned	---	690.5	---	17.0	---	---	---	---	---	---	37.5	5/25/2005	X
CH-39	CH-39 Abandoned	---	688.3	---	37.0	---	---	---	---	---	---	37.0	5/11/2005	X
CH-39A		689.53	686.9	2.6	39.0	39.0	55.6	647.9	631.3	---	---	55.6	5/25/2005	
CH-40		654.56	651.9	2.7	11.0	11.0	30.3	640.9	621.6	---	---	30.3	6/10/2005	
CH-41		633.78	631.1	2.6	5.5	5.5	26.2	625.6	604.9	---	---	26.2	6/14/2005	
9-1		680.98	678.4	2.6	14.0	14.0	51.8	664.4	626.6	---	---	51.8	7/26/2005	
9-2		681.57	678.6	3.0	18.0	18.0	52.8	660.6	625.8	---	---	52.8	7/25/2005	
9-3		682.82	680.3	2.5	22.2	22.2	52.3	658.1	628.0	---	---	52.3	7/21/2005	
9-4		681.79	679.2	2.6	24.0	24.0	54.1	655.2	625.1	---	---	54.1	7/19/2005	

Note:

RFI 12 Coreholes

ATTACHMENT A

OVERBURDEN AND BEDROCK BORING LOGS



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-11A

DATE COMPLETED: January 31, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	
	TOP OF CASING GROUND SURFACE	666.8 664.8						
	TOPSOIL CL-CLAY, little silt, firm, medium plasticity, strong brown, moist	664.5						
2								
4								
6								
8	END OF OVERBURDEN HOLE @ 6.9ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ CRA_CORP.GDT 3/14/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-11A

DATE COMPLETED: January 31, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
6						
8	LIMESTONE (SALEM FORMATION), medium to coarse grained, trace calcite content, gray	657.9	4" DIA. STEEL CASING			
10	- Set 4" steel casing at 9.0ft BGS					
12	- stylolite at 11.5ft BGS					
14	- stylolite at 13.6ft BGS			1	100	100
16						
18						
20	- 1-inch shale lens at 19.2ft BGS - horizontal fracture at 19.3ft BGS		4" DIA. COREHOLE			
22	- stylolite at 22.0ft BGS - coarse grained at 22.1ft BGS - stylolite at 23.0ft BGS					
24				2	100	100
26	- stylolite at 26.7ft BGS					
28	- stylolite at 28.1ft BGS					
30	- stylolite at 29.3ft BGS END OF BOREHOLE @ 29.6ft BGS	635.2				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ GRA_CORP.GDT 3/14/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-12B

DATE COMPLETED: January 31, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	
	TOP OF CASING GROUND SURFACE	683.2 681.3						
	TOPSOIL	680.5						
2	CL-CLAY, little silt, firm, medium plasticity, strong brown, moist							
4								
6								
8	END OF OVERBURDEN HOLE @ 6.2ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ CRA_CORP.GDT 3/14/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-12B

DATE COMPLETED: January 31, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
6	LIMESTONE (SALEM FORMATION), thin bedded, fine grained, light gray	675.1	4" DIA. STEEL CASING			
8	- Set 4-inch diameter steel casing at 8.9ft BGS					
10	- horizontal fracture at shale lens at 11.1ft BGS					
12	- horizontal fracture at 11.2ft BGS					
14	- horizontal fracture at 11.3ft BGS					
16	- horizontal fracture at 11.4ft BGS					
18	- horizontal fracture at 11.5ft BGS					
20	- horizontal fracture at 13.1ft BGS					
22	- horizontal fracture at 13.5ft BGS					
24	- horizontal fracture at 14.0ft BGS					
26	- 5-inch slightly porous section at 15.3ft BGS			1	100	87
28	- open stylolite at 16.4ft BGS					
30	- horizontal fracture at shale lens at 17.3ft BGS					
32	- 1-inch interbedded shale lens at 17.8ft BGS					
34	- horizontal fracture at 17.9ft BGS					
36	- horizontal fracture at 20.1ft BGS					
38	- horizontal fracture at 20.5ft BGS					
40	- horizontal fracture at 21.4ft BGS					
42	- horizontal fracture at 21.8ft BGS					
44	- horizontal fracture at shale lens at 22.2ft BGS					
46	- horizontal fracture at 25.5ft BGS					
48	- stylolite at 27.3ft BGS					
50	- open stylolite at 28.6ft BGS					
52	- horizontal fracture at 29.1ft BGS					
54	END OF BOREHOLE @ 29.6ft BGS	651.7	4" DIA. COREHOLE	2	100	87

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ GRA_CORP.GDT 3/14/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-13B

DATE COMPLETED: February 1, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	
	TOP OF CASING GROUND SURFACE	670.9 668.7						
	TOPSOIL CL-CLAY, little silt, firm, low to medium plasticity, strong brown, moist	668.4						
2								
4								
6	END OF OVERBURDEN HOLE @ 4.3ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ CRA_CORP.GDT 3/14/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-13B

DATE COMPLETED: February 1, 2006

DRILLING METHOD: 4 14" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
4	LIMESTONE (SALEM FORMATION), thin bedded, fine grained, gray	664.4	4" DIA. STEEL CASING			
6	- Set 4-inch diameter steel casing at 6.5ft BGS					
8	- 4-inch oxidized vertical fracture at 7.0ft BGS					
	- shale parting at 7.5ft BGS					
	- shale parting at 8.0ft BGS					
	- horizontal fracture with trace clay and oxidized at 8.6ft BGS					
	- horizontal fracture at 9.2ft BGS					
10	- shale parting at 9.4ft BGS					
	- horizontal fracture at 9.8ft BGS					
	- shale parting at 11.1ft BGS					
12				1	100	95
14	- horizontal fracture at 13.5ft BGS					
	- stylolite at 13.7ft BGS					
	- stylolite at 14.7ft BGS					
	- medium to coarse grained, granular, trace calcite content, gray at 14.8ft BGS					
16	- stylolite at 16.4ft BGS					
18	- stylolite at 17.8ft BGS					
	- coarse grained at 18.5ft BGS					
20			4" DIA. COREHOLE			
22				2	100	100
24	- horizontal fracture slightly oxidized at 23.1ft BGS					
	- horizontal fracture at 24.3ft BGS					
	- open stylolite at 25.0ft BGS					
26	- open stylolite at 26.6ft BGS					
28	END OF BOREHOLE @ 27.5ft BGS	641.2				

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9) GRA_CORP.GDT 3/14/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-14B

DATE COMPLETED: February 2, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	
	TOP OF CASING GROUND SURFACE	662.0 660.0						
	TOPSOIL	659.7						
2	CL-CLAY, little silt, firm, low plasticity, strong brown, moist							
4								
6	LIMESTONE, possibly fractured	655.0						
8	CL-CLAY, little silt, firm, low plasticity, strong brown, moist	653.5						
	END OF OVERBURDEN HOLE @ 8.0ft BGS							
10								
12								
14								
16								
18								
20								
22								
24								
26								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ CRA_CORP.GDT 3/14/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-14B

DATE COMPLETED: February 2, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
8	CL-CLAY, little silt, firm, low plasticity, strong brown, moist	653.5	4" DIA. STEEL CASING			
10	LIMESTONE (SALEM FORMATION), thin bedded, fine grained, gray	652.0				
10	- Set 4-inch diameter steel casing at 10.0ft BGS					
12						
14	- half-inch calcite in-filled vug at 14.3ft BGS					
16	- horizontal fracture at 15.8ft BGS			1	100	100
18						
20	- horizontal fracture at 20.4ft BGS		4" DIA. COREHOLE			
22	- horizontal fracture at 21.6ft BGS					
22	- horizontal fracture at 22.3ft BGS					
22	- medium to coarse grained, granular, calcite content, gray at 22.4ft BGS					
24						
24	- stylolite at 24.8ft BGS					
24	- coarse grained at 25.0ft BGS					
26				2	100	100
28	- stylolite at 27.8ft BGS					
28	- horizontal fracture at 28.2ft BGS					
30	- stylolite at 29.7ft BGS					
30	END OF BOREHOLE @ 30.6ft BGS	629.4				
32						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ GRA_CORP.GDT 3/14/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-15B

DATE COMPLETED: January 17, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	SAMPLE			
				NUMBER	INTERVAL	REC (ft)	'N' VALUE
	TOP OF CASING GROUND SURFACE	646.1 643.7					
2	CL-CLAY, with silt, soft-firm, tan-brown, moist		4-INCH DIA. STEEL CASING				
4	END OF OVERBURDEN HOLE @ 3.2ft BGS						
6							
8							
10							
12							
14							
16							
18							
20							
22							
24							
26							

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ CRA_CORP.GDT 3/14/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-15B

DATE COMPLETED: January 17, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
4	LIMESTONE (SALEM FORMATION), thin bedded, fine grained, light gray	640.5	CEMENT / BENTONITE SEAL	1	100	100
6						
8	- horizontal fracture, oxidized at 7.5ft BGS - calcite content, medium to coarse grained, gray at 8.4ft BGS - stylolite at 9.6ft BGS - stylolite at 10.4ft BGS					
10						
12	- stylolite at 11.8ft BGS - stylolite at 12.3ft BGS					
14						
16	- stylolite at 15.3ft BGS - stylolite at 15.4ft BGS - medium to fine grained at 16.0ft BGS		4-INCH DIA. COREHOLE			
18	- open stylolite at 17.6ft BGS - stylolite at 19.1ft BGS					
20						
22	- horizontal fracture at a thin shale lens at 21.7ft BGS - open stylolite at 22.0ft BGS			2	100	100
24	- open stylolite at 25.0ft BGS					
26	END OF BOREHOLE @ 26.3ft BGS	617.4				
28						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ GRA_CORP.GDT 3/14/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 3

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-28A

DATE COMPLETED: January 6, 2006

DRILLING METHOD: 6 1/4" HSA & HQ CORE

FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TOP OF CASING GROUND SURFACE	643.0 641.0						
2	CL-CLAY (FILL), trace silt, soft-firm, low plasticity, brown, moist			1	P/S	4.0		0.0
4				2	P/S	1.0		0.0
6	END OF OVERBURDEN HOLE @ 5.0ft BGS							
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ CRA_CORP.GDT 3/21/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 3

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-28A

DATE COMPLETED: January 6, 2006

DRILLING METHOD: 6 1/4" HSA & HQ CORE

FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
6	LIMESTONE (SALEM FORMATION), thin bedded, fine grained, calcite content, gray	636.0	4" DIA. STEEL CASING			
8	- horizontal fracture at 6.7ft BGS					
	- se 4-inch steel casing at 7.5ft BGS					
10	- horizontal fracture at 8.5ft BGS					
	- stylolite at 9.8ft BGS					
12	- stylolite at 10.7ft BGS					
	- horizontal fracture at 11.4ft BGS					
14	- horizontal fracture at 13.2ft BGS			1	100	100
16						
18	- stylolite at 16.5ft BGS					
20	- stylolite at 20.0ft BGS		4" DIA. COREHOLE			
22	- horizontal fracture at 21.8ft BGS					
	- stylolite at 22.3ft BGS			2	100	100
24						
26	- stylolite at 25.7ft BGS					
	- open stylolite at 26.7ft BGS					
28	- 1.5-inch vertical fracture at 28.3ft BGS					
30						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ GRA_CORP.GDT 3/21/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 3 of 3

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-28A

DATE COMPLETED: January 6, 2006

DRILLING METHOD: 6 1/4" HSA & HQ CORE

FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
34	- horizontal fracture at 32.0ft BGS - open stylolite at 32.4ft BGS - horizontal fracture at 33.4ft BGS - open stylolite at 33.5ft BGS - horizontal fracture at 33.6ft BGS - stylolite at 33.7ft BGS - vug with calcite crystals and slightly oxidized at 34.3ft BGS - 3-inch vertical fracture at 34.4ft BGS - 3-inch vertical fracture at 34.7ft BGS - stylolite at 35.2ft BGS	605.7		3	100	97
38	LIMESTONE (UPPER HARRODSBURG FORMATION), thick bedded, coarse grained, fossil content (bryozoan and brachipods), calcite content, gray/brown					
40	- horizontal fracture at 36.2ft BGS - horizontal fracture at 38.1ft BGS - horizontal fracture at 40.3ft BGS		4" DIA. COREHOLE			
44	- horizontal fracture at 43.7ft BGS - fine to medium grained at 43.8ft BGS - stylolite at 43.9ft BGS - horizontal fracture at 45.3ft BGS			4	100	100
48	- stylolite at 47.3ft BGS - horizontal fracture at 48.0ft BGS	592.4				
50	END OF BOREHOLE @ 48.6ft BGS					
52						
54						
56						
58						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ GRA_CORP.GDT 3/21/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-29A

DATE COMPLETED: January 4, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	'N' VALUE	PID (ppm)
	TOP OF CASING GROUND SURFACE	646.1 644.4						
2	CL-CLAY (FILL), trace to some silt, cohesive, soft-firm, low plasticity, brown, moist			1	P/S	2.7		0.0
4								
6				2	P/S	3.1		0.0
8	CL-CLAY, some silt, soft-firm, low plasticity, strong brown, moist	637.4						
10				3	P/S	2.1		0.0
12	END OF OVERBURDEN HOLE @ 10.8ft BGS							
14								
16								
18								
20								
22								
24								
26								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ CRA_CORP.GDT 3/21/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 2 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-29A

DATE COMPLETED: January 4, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
10	LIMESTONE (SALEM FORMATION), strong, gray, fine to medium grained, medium bedded, slightly fractured, calcite content - set 4-inch steel casing at 12.5ft BGS	633.6	CEMENT / BENTONITE SEAL			
12	- open stylolite at 13.7ft BGS					
14	- stylolite at 15.5ft BGS					
16	- horizontal fracture at 16.3ft BGS					
18	- horizontal fracture at 18.1ft BGS - horizontal fracture at 18.7ft BGS - horizontal fracture at 19.4ft BGS			1	100	100
20	- open stylolite at 20.3ft BGS					
22	- horizontal fracture at 22.1ft BGS					
24	- horizontal fracture at 23.8ft BGS					
26			4-INCH DIA. COREHOLE			
28				2	100	100
30	- horizontal fracture at 29.3ft BGS - horizontal fracture at 29.8ft BGS - stylolite at 29.9ft BGS - 3-inch porous "honey-comb" like section at 30.5ft BGS					
32	- stylolite at 30.6ft BGS - horizontal fracture at 30.7ft BGS - 2-foot porous "honey-comb" like section at 31.1ft BGS					
34	- stylolite at 31.9ft BGS - horizontal fracture at 32.2ft BGS - 4.5-feet slightly porous section at 33.1ft BGS - horizontal fracture at 33.9ft BGS					

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9) GPJ GRA_CORP.GDT 3/21/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (BEDROCK)

Page 3 of 2

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: CH-29A

DATE COMPLETED: January 4, 2006

DRILLING METHOD: 4 1/4" HSA & HQ CORE

FIELD PERSONNEL: K. VANDER MEULEN

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	COREHOLE	RUN NUMBER	CORE RECOVERY %	RQD %
38	- horizontal fracture at 36.5ft BGS - horizontal fracture at 37.7ft BGS - stylolite at 38.4ft BGS - stylolite at 38.7ft BGS - open stylolite at 38.9ft BGS - horizontal fracture at 39.9ft BGS - stylolite at 40.3ft BGS - 1.9-feet brown color section at 41.0ft BGS			3	100	99
40						
42	- gray in color at 42.7ft BGS - horizontal fracture at 43.0ft BGS END OF BOREHOLE @ 43.2ft BGS	601.2	4-INCH DIA. COREHOLE			
44						
46						
48						
50						
52						
54						
56						
58						
60						
62						

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

BEDROCK LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ GRA_CORP.GDT 3/21/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: BH-28A

DATE COMPLETED: December 14, 2005

DRILLING METHOD: GEOPROBE

FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	N' VALUE	PID (ppm)
	GROUND SURFACE	638.3						
2	CL-CLAY (FILL), trace to some silt, soft-firm, low plasticity, brown, moist			1	P/S	2.0		0.0
4	- Refusal at 4.5ft BGS END OF BOREHOLE @ 4.5ft BGS	633.8	BENTONITE SEAL	2	P/S	0.3		0.0
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ CRA_CORP.GDT 3/21/06



STRATIGRAPHIC AND INSTRUMENTATION LOG (OVERBURDEN)

Page 1 of 1

PROJECT NAME: GM BEDFORD RFI

PROJECT NUMBER: 013968

CLIENT: GENERAL MOTORS CORPORATION

LOCATION: BEDFORD, INDIANA

HOLE DESIGNATION: BH-29A

DATE COMPLETED: December 14, 2005

DRILLING METHOD: GEOPROBE

FIELD PERSONNEL: J. CLOSE

DEPTH ft BGS	STRATIGRAPHIC DESCRIPTION & REMARKS	ELEV. ft AMSL	BOREHOLE	SAMPLE				
				NUMBER	INTERVAL	REC (ft)	N' VALUE	PID (ppm)
	GROUND SURFACE	650.1						
2	CL-CLAY (FILL), soft-firm, low plasticity, brown, moist - Refusal at 1.4ft BGS END OF BOREHOLE @ 1.4ft BGS	648.7	BENTONITE SEAL	1	P/S	1.4		0.0
4								
6								
8								
10								
12								
14								
16								
18								
20								
22								
24								
26								

NOTES: MEASURING POINT ELEVATIONS MAY CHANGE; REFER TO CURRENT ELEVATION TABLE

OVERBURDEN LOG 13968-EAST PLANT AREA INVESTIGATION (ADD.#9).GPJ CRA_CORP.GDT 3/21/06