



**Global Environmental
Compliance & Sustainability**

October 13, 2017

Reference No. 013968

Mr. Peter Ramanauskas
Project Manager for IND 0060306099
Waste, Pesticide and Toxins Division
U.S. EPA Region 5
77 West Jackson Blvd. (DW-8J)
Chicago, IL 60604-3590

Dear Mr. Ramanauskas:

Re: RCRA Corrective Action Administrative Order on Consent (AOC)
Progress Report 66, Third Quarter 2017
GM GPS – Bedford Facility, IND 006036099, Docket No. RCRA 05-2014-0011
Bedford, Indiana

Please find enclosed the Progress Report 66 (Third Quarter 2017) for the Resource Conservation and Recovery Act (RCRA) Corrective Action (CA) project at the GM Bedford Global Propulsion Systems (GPS) (formerly Castings, Engines, and Transmissions (CET) and formerly Powertrain) Facility (Facility) at 105 GM Drive in Bedford, Indiana, and select surrounding properties (Site). This report is being submitted in accordance with the Administrative Order on Consent, effective August 4, 2014 (United States Environmental Protection Agency (U.S. EPA) Docket No. RCRA-05-2014-011).

The next RCRA quarterly progress report covering the Fourth Quarter of 2017 will be submitted on or before January 15, 2018.

Should you have any questions regarding this document, please do not hesitate to contact me at (313) 510-4328.

Yours truly,p

General Motors LLC

A handwritten signature in black ink, appearing to read "Cheryl R. Hiatt".

Cheryl R. Hiatt
Project Manager

YD/aj/173
Encl.

c.c.: See Attached Distribution List

GM Bedford Distribution List

Peter Ramanauskas	U.S. EPA, Region 5
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Prepared at the Request of Counsel

October 13, 2017



Third Quarter 2017 Progress Report 66

GM GPS – Bedford Facility
105 GM Drive
Bedford, Indiana
EPA ID# IND006036099
AOC Docket No. RCRA 05 2014 0011

GHD | 651 Colby Drive Waterloo Ontario N2V 1C2 Canada
013968 | Report No 414 | October 13, 2017



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1. Introduction

This Progress Report is submitted by General Motors LLC (GM) in accordance with the GM Bedford Global Propulsion Systems (GPS) Facility Resource Conservation and Recovery Act (RCRA) Administrative Order on Consent (AOC – United States Environmental Protection Agency [U.S. EPA] Docket No. RCRA 05-2014-0011), executed on August 4, 2014. This report covers the period of the third calendar quarter of 2017 for the RCRA Corrective Action (CA) Project at the GM GPS – Bedford Facility (Facility) and select surrounding properties (Site), Bedford, Indiana.

The next RCRA progress report covering the fourth quarter of 2017 will be submitted on or before January 15, 2017.

2. List of Completed Activities

The following activities took place and the following documents were prepared and distributed during this quarter:

- Results for samples collected from Spring 018 during the quarter are presented in Table 2.1. Sample results for the monthly sampling were previously emailed to U.S. EPA and Indiana Department of Environmental Management (IDEM) as they became available. As of the end of September 2017 sampling, the 12-month rolling average concentration of polychlorinated biphenyls (PCBs) in the Spring 018 discharge is 0.10 micrograms per liter (µg/L). Routine monthly sampling was conducted on July 12, August 9, and September 13. An opportunistic sample was collected on July 10, 2017, following a rainfall event of greater than 1 inch in 24-hours. The routine samples collected on July 12, August 9, and September 13, in addition to the July opportunistic sample were non-detect for PCBs. Spring 018 samples collected since September 27, 2016 have been non-detect for PCBs, including regular and opportunistic samples.
- The groundwater water treatment plant (GWTP) collected and treated approximately 2,472,483 gallons of water this past quarter from the Pilot Trench, Vault sumps, and wet wells. An estimated 0.01 pounds of PCBs were removed during the third quarter of 2017 through collection and treatment of the groundwater and an estimated 0.65 pounds of PCBs have been removed over the last 12 months (October 2016 through September 2017). A summary of the volumes and sample results used for this calculation is provided in Table 2.2.
- The First Half 2017 EI CA750 static groundwater levels were completed on March 8 and May 1 through 4, 2017, with sampling completed during the May event. A summary memorandum of the findings groundwater levels and sampling results was submitted on June 30, 2017.
 - U.S. EPA responded with clarification questions on August 16; currently under GM review.
 - The third quarter 2017 EI CA750 Monitoring of static groundwater levels was completed during the week of August 8, 2017.
- A Request to Terminate Groundwater Collection and Monitoring of the GUS Sump was submitted by GM to U.S. EPA on January 18, 2017.



- U.S. EPA responded with clarification questions on February 24, 2017.
- GM provided a response letter to U.S. EPA's questions on March 21, 2017; letter is under review by U.S. EPA.
- The Stormwater Pond construction was substantially complete in the third quarter of 2017.
 - SES finished demobilizing the temporary WTP. Operation of the 2,000 gpm system has been turned over to the Plant with startup support by the Corrective Action contractor GHD.
- GM and GHD are currently developing an interim groundwater monitoring program to monitor the impact of the Pilot Trench to groundwater flow. The interim groundwater monitoring plan is set to be submitted during the fourth quarter of 2017.
- The Area of Interest (AOI) 8 Groundwater Source Collection System Interim Measure was submitted to the U.S. EPA and IDEM on December 31, 2014.
 - GHD revised the AOI 8 IM Work Plan and submitted for U.S. EPA review on April 28, 2017.
 - AOI 8 NAPL Recovery system construction was initiated. Construction of the access road to CH-2A is complete. The building has been ordered.
- GHD received additional follow-up comments from U.S. EPA on March 3, 2017, regarding the 2015 Vault Annual Report and the request to suspend pumping of the groundwater undertrain system (GUS) sump.
 - GHD's response to comments Memo was submitted to U.S. EPA on May 30, 2017.
 - GHD revised the 2015 Vault Annual Report and submitted to the U.S. EPA on August 17, 2017.
- The East Plant Area Vault Annual Report covering the Calendar Year of 2016 was submitted to the U.S. EPA on July 14, 2017.
- GHD submitted the Clarifier Soil Sampling Work Plan - Phase 2 to the U.S. EPA on July 25, 2017.
- Formal monitoring of the East Plant, West Plant and Vault cover systems for the third quarter was completed on September 28, 2017. Photographic log and inspection sheets of the inspection are in Appendix A.
- The Parcels 400, 430, and 431 Excavation and Disposal Remedy was approved with modifications by the U.S. EPA.
- The CERCLA Order for future creek work (if needed) was completed on July 18, 2017.
- Conference calls were held with U.S. EPA and IDEM on July 13, 27, August 17, and September 7 and 22, 2017, to discuss items related to the project.
- On-Site construction meetings for the reporting period have been held informally daily and formally on Wednesdays. Formal construction meetings during this quarter were held on July 5, 12, 19, and 26, 2017.
- The RCRA/CERCLA Quarterly Progress Report #65, covering the second quarter of 2017, was submitted to the U.S. EPA and IDEM on July 12, 2017.



- A revision of the Second Quarter of 2017, Progress Report #65 was submitted to the U.S. EPA and IDEM on July 14, 2017, to acknowledge the changes to key management staff on GHD's team.

3. Summaries of Problems and Planned Resolutions

- Issue with the pumps in the Leachate Collection System (LCS) sump is being resolved. The pumps in the LCS had failed and the riser pipe had become sufficiently corroded to prevent direct replacement pumps from working. A temporary replacement pump has been installed to allow pumping as needed based on manual measurements. Manual monitoring and pumping of the LCS and GUS system continues and replacement pump installation and pipe replacement is scheduled to be completed the fourth quarter of 2017.

4. Summaries of Changes Made in the Corrective Action (CA) During the Reporting Period

The following changes made to the CA during the reporting period.

- Substantial completion of the Stormwater Pond liner installation was completed.

5. Community Relations

The telephone number for public contact is 812-277-8954 (Katie Kamm, GHD). Individual meetings can be arranged to discuss project progress with residents as requested.

A public meeting was held on June 14, 2017 at the GHD trailers to the update the public on the status of the clean-up efforts. The next neighborhood/public meeting will be scheduled for December 2017. Presentations for the June 2017 meeting and past meetings are posted on the GM website at:

www.bedfordpowertraincorrectiveaction.com

The document repository continues to be located at the Bedford Public Library, with relevant project related documents available on compact disc (CD) in PDF format. Information will be updated periodically, as new documents become available. Data located in the Library repository can also be found on the aforementioned website.

6. Changes in Personnel During the Reporting Period

GHD oversight and SES personnel completing of the Stormwater Pond dredging have demobilized from the Site. Reduced staff for GHD and SES remain on-Site on-going maintenance operations (e.g., groundwater treatment, wet wells, Vault sumps etc.) and construction (e.g., Cover System repairs, AOI 8), respectively.



7. Projected Work for the Next Reporting Period

Work anticipated for the next reporting period includes:

- Completing additional pump installations and replacing galvanized pipe with stainless steel at the LCS sump and GUS sump.
- Installing AOI8 NAPL Recovery System.
- Submitting a request to revise Spring 018 monitoring.
- Continuing monitoring Spring 018
- Initiating design for the next phase of the Perimeter Groundwater Collection Trench.
- Completing Phase 1 of the perimeter fence installation
- Completing outstanding responses to comments on documentation and/or finalize reports for the following:
 - Response to Comments for the RFI Report
 - Construction Certification Report for the Pilot Trench
 - Pilot Trench Monitoring Plan
 - Construction Certification Report for Stormwater Pond Sediment Removal
- Submitting a memorandum describing the emergency response to the Plant's release to Bailey's Branch Creek
- Submitting the CFR 761.61(c) request for disposal for the off-Site fill properties west of the
- Facility (Parcels 400, 430, and 431) and completion of deed restriction language
- Submitting the review and update of Financial Assurance expected cost amounts for the FA documents as required by the RCRA CA Order.

8. Copies of Daily Reports, Inspection Reports, Laboratory/Monitoring Data

Table 2.1 presents the quarterly results from Spring 018 sampling. Table 2.2 presents the estimated PCB mass removal for the SSC systems for the past 12 months.

Appendix A includes the field monitoring forms for the cover system inspections and a photographic log:

1. Weeds or clover growth were noted at most Transects in the East Plant Area and the West Plant Area, which is also typically accompanied by some bare patches.
2. Heavy weed growth was identified at Transects EV1, EV2, EV3, EV6, EV7, EV8, ES1, ES2, ES3, ES7, ES8, ES9, ES10, ES11, ES12 and ES13.



3. Areas in EV1, EV2, EV3, EV4, EV5, EV6, EV7, EV8, EV9, ES1, ES2, ES3, ES7, ES8, ES9 and ES12 were filled in, re-seeded and had straw placed over the area.
 - Soil erosion repairs of the cover system were completed on September 22, 2017.
4. Saplings were cut on September 18, 2017 in Transects EV5, EV8, EV9 and ES12.

Additional packages of analytical data have been, and will continue to be submitted to U.S. EPA as the validated data becomes available.

Table 2.1

Spring 018 Sampling Results - July/August/September 2017
GM CET Bedford Facility
Bedford, Indiana

Area		P015	P015	P015	P015	P015
Sample Location:		Spring 018C	Spring 018C	Spring 018C	Spring 018C	Spring 018C
Sample Identification:		SW-015-071017-MC-40958	SW-015-071217-MC-40960	SW-015-071217-MC-40961	SW-015-080917-MC-40965	SW-015-091317-MC-40969
Sample Date:		7/10/2017	7/12/2017	7/12/2017	8/9/2017	09/13/2017
Parameters				Duplicate		
PCBs						
Aroclor-1016 (PCB-1016)	ug/L	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Aroclor-1221 (PCB-1221)	ug/L	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Aroclor-1232 (PCB-1232)	ug/L	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Aroclor-1242 (PCB-1242)	ug/L	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Aroclor-1248 (PCB-1248)	ug/L	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Aroclor-1254 (PCB-1254)	ug/L	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Aroclor-1260 (PCB-1260)	ug/L	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Total PCBs	ug/L	ND	ND	ND	ND	ND
Wet						
Total suspended solids (TSS)	ug/L	1600	11000	11000	6800	31000

Notes:

U - Not detected at the associated reporting limit.

J - Estimated concentration.

UJ - Not detected; associated reporting limit is estimated.

ND - Non-Detect for total PCBs

12 month rolling average (October 2016 – September 2017) is 0.10 ug/L PCBs.

Table 2.2

300 gpm Design Capacity Water Treatment System and GWTP PCB Mass Removal Estimate
GM Bedford CET Facility
Bedford, Indiana

	Groundwater Treatment Plant (GWTP) Treated Volume (gallon)	PCB Influent Concentration (µg/L)	Mass PCB Treated (pound)
October 2016	1,939,000	2.35	0.038
November 2016	1,775,000	3.5	0.052
December 2016	4,108,000	0.94	0.032
January 2017	7,303,000	2.1	0.128
February 2017	2,678,000	3.1	0.069
March 2017	5,726,000	0.79	0.038
April 2017	2,849,000	1.1	0.026
May 2017	4,648,000	1.3	0.050
June 2017	2,385,000	1.1	0.022
July 2017 ¹	1,618,000	0.055 ¹	0.001
August 2017	395,000	1.5	0.005
September 2017 ^{2,3}	459,483 ²	0.055 ¹	0.000

Total Estimated Volume of Water Treated, Third Quarter 2017 (gallons)	2,472,483
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Total Estimated Mass of PCB Treated, Third Quarter 2017 (pounds)	0.01
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Total Estimated Mass of PCB Treated, Since October 2016 (pounds)	0.46
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Notes:

- ¹ Sample results were non-detect. Half of the quantitation limit (max of 0.11 µg/L for both samples) is used to calculate the mass of PCB treated.
- ² Estimate based on average daily flow rate for first fourteen days (6 days operation) of September, projected for a total of 13 days of operation consistent with August treatment.
- ³ PCB concentration based on one value instead of average of two monthly samples.

Appendix A

Third Quarter 2017 Cover System Inspection: Field Logs, Transect Figures, and Photograph Log

TABLE D.1

COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

Date of Inspection: 09/28/2017 Weather: 73°F SUNNY, CLEAR
Inspector: Mike Curtis Temperature: 73°F

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
VEGETATED SOIL COVER SYSTEM						
Transect EV1	- QUALITY OF VEGETATIVE COVER	✓			heavy weed growth	
	- LENGTH OF GRASS					
	- DEAD/DYING GRASS					
	- GRASS COVERAGE					
	- NOXIOUS WEEDS					
	- EXPOSURE OF LINER	✓				
	- EROSION	✓			filled, seeded, straw	9/22/17
	- LOCALIZED SETTLEMENT/SUMPING	✓				
- PONDING OF WATER/DRAINAGE	✓					
- SIGNS OF BURROWING BY ANIMALS	✓					
- ROOTING OF TREES	✓					
Transect EV2	- QUALITY OF VEGETATIVE COVER	✓			heavy weed growth	
	- LENGTH OF GRASS					
	- DEAD/DYING GRASS					
	- GRASS COVERAGE					
	- NOXIOUS WEEDS					
	- EXPOSURE OF LINER	✓				
	- EROSION	✓			filled, seeded, straw	9/22/17
	- LOCALIZED SETTLEMENT/SUMPING	✓				
- PONDING OF WATER/DRAINAGE	✓					
- SIGNS OF BURROWING BY ANIMALS	✓					
- ROOTING OF TREES	✓					

TABLE D.1

COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
VEGETATED SOIL COVER SYSTEM (CONTINUED)						
Transect EV3	- QUALITY OF VEGETATIVE COVER	✓			heavy weed growth	
	- LENGTH OF GRASS	✓				
	- DEAD/DYING GRASS	✓				
	- GRASS COVERAGE	✓				
	- NOXIOUS WEEDS	✓				
	- EXPOSURE OF LINER	✓				
	- EROSION	✓			filled, seeded, straw	9/22/17
	- LOCALIZED SETTLEMENT/SLUMPING	✓				
	- PONDING OF WATER/DRAINAGE	✓				
Transect EV4	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓				
	- QUALITY OF VEGETATIVE COVER	✓				
	- LENGTH OF GRASS	✓				
	- DEAD/DYING GRASS	✓				
	- GRASS COVERAGE	✓				
	- NOXIOUS WEEDS	✓				
	- EXPOSURE OF LINER	✓				
	- EROSION	✓			filled, seeded, straw	9/22/17
Transect EV5	- LOCALIZED SETTLEMENT/SLUMPING	✓				
	- PONDING OF WATER/DRAINAGE	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓				
	- QUALITY OF VEGETATIVE COVER	✓				
	- LENGTH OF GRASS	✓				
	- DEAD/DYING GRASS	✓				
	- GRASS COVERAGE	✓				
	- NOXIOUS WEEDS	✓				
- EXPOSURE OF LINER	✓					
Transect EV5	- EROSION	✓			filled, seeded, straw	9/22/17
	- LOCALIZED SETTLEMENT/SLUMPING	✓				
	- PONDING OF WATER/DRAINAGE	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓			trees cut	9/18/17

TABLE D.1

COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
VEGETATED SOIL COVER SYSTEM (CONTINUED)						
Transect EV6	- QUALITY OF VEGETATIVE COVER	✓			heavy weed growth	
	- LENGTH OF GRASS	✓				
	- DEAD/DYING GRASS	✓				
	- GRASS COVERAGE	✓				
	- NOXIOUS WEEDS	✓				
	- EXPOSURE OF LINER	✓				
	- EROSION	✓			filled, seeded, straw	9/22/17
	- LOCALIZED SETTLEMENT/SLUMPING	✓				
Transect EV7	- PONDING OF WATER/DRAINAGE	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓			Trees cut	9/18/17
	- QUALITY OF VEGETATIVE COVER	✓			heavy weed growth	
	- LENGTH OF GRASS	✓				
	- DEAD/DYING GRASS	✓				
	- GRASS COVERAGE	✓				
	- NOXIOUS WEEDS	✓				
- EXPOSURE OF LINER	✓					
Transect EV8	- EROSION	✓			filled, seeded, straw	9/22/17
	- LOCALIZED SETTLEMENT/SLUMPING	✓				
	- PONDING OF WATER/DRAINAGE	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓				
	- QUALITY OF VEGETATIVE COVER	✓			heavy weed growth	
	- LENGTH OF GRASS	✓				
	- DEAD/DYING GRASS	✓				
- GRASS COVERAGE	✓					
- NOXIOUS WEEDS	✓					
- EXPOSURE OF LINER	✓					
- EROSION	✓			filled, seeded, straw	9/22/17	
- LOCALIZED SETTLEMENT/SLUMPING	✓					
- PONDING OF WATER/DRAINAGE	✓					
- SIGNS OF BURROWING BY ANIMALS	✓					
- ROOTING OF TREES	✓			Trees cut	9/18/17	

TABLE D.1

COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
VEGETATED SOIL COVER SYSTEM (CONTINUED)						
Transect EV9	- QUALITY OF VEGETATIVE COVER	✓			Weed About two foot tall	
	- LENGTH OF GRASS					
	- DEAD/DYING GRASS					
	- GRASS COVERAGE					
	- NOXIOUS WEEDS					
	- EXPOSURE OF LINER	✓				
	- EROSION	✓			Filled, seeded, straw	9/22/17
	- LOCALIZED SETTLEMENT/SLUMPING	✓				
Transect WV1	- PONDING OF WATER/DRAINAGE	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓			Trees cut	9/18/17
	- QUALITY OF VEGETATIVE COVER					
	- LENGTH OF GRASS	✓				
	- DEAD/DYING GRASS					
	- GRASS COVERAGE					
	- NOXIOUS WEEDS					
	- EXPOSURE OF LINER	✓				
	- EROSION	✓				
- LOCALIZED SETTLEMENT/SLUMPING	✓					
- PONDING OF WATER/DRAINAGE	✓					
- SIGNS OF BURROWING BY ANIMALS	✓					
- ROOTING OF TREES	✓					

TABLE D.1

COVER SYSTEMS INSPECTION LOG
 CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
 GM CET BEDFORD FACILITY
 BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
HARD SURFACE COVER SYSTEMS						
	Transect EA1	- QUALITY OF ASPHALT COVER	✓			
		- PRESENCE OF CRACKING OR DISCOLORATION	✓			
	Transect EA2	- QUALITY OF ASPHALT COVER	✓			
		- PRESENCE OF CRACKING OR DISCOLORATION	✓			
	Transect WA1	- QUALITY OF ASPHALT COVER	✓			
		- PRESENCE OF CRACKING OR DISCOLORATION	✓			
ACCESS ROAD						
	ACCESS ROAD	- EROSION	✓			
		- OBSTRUCTIONS/DEBRIS	✓			
		- POTHOLES	✓			
		- DAMAGE CAUSED BY VEHICULAR TRAFFIC	✓			

TABLE D.1

COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

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Rev. 1

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
SWALE/DRAINAGE DITCHES						
Transect ES1	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	✓			heavy weed growth	
	- EROSION	✓			filled, seeded, straw	9/22/17
	- OBSTRUCTIONS	✓				
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓				
	Transect ES2	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	✓			Heavy weed growth
- EROSION		✓			filled, seeded, straw	9/22/17
- OBSTRUCTIONS		✓				
- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION		✓				
- SIGNS OF BURROWING BY ANIMALS		✓				
- ROOTING OF TREES		✓				
Transect ES3		- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	✓			Heavy weed growth
	- EROSION	✓			filled, seeded, straw	9/22/17
	- OBSTRUCTIONS	✓				
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓				

TABLE D.1

COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

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Rev. 1

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
SWALE/DRAINAGE DITCHES (CONTINUED)						
Transect ES4	- QUALITY OF VEGETATIVE COVER	✓			heavy weed growth	
	- LENGTH OF GRASS	✓				
	- DEAD/DYING GRASS	✓				
	- GRASS COVERAGE	✓				
	- NOXIOUS WEEDS	✓				
	- EROSION	✓			filled, seeded, straw	9/22/17
	- OBSTRUCTIONS	✓				
	- CULVERT/CATCH BASIN	✓				
Transect ES5	- OBSTRUCTIONS	✓				
	- SEDIMENT ACCUMULATION	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓				
	- QUALITY OF VEGETATIVE COVER	✓			heavy weed growth	
	- LENGTH OF GRASS	✓				
	- DEAD/DYING GRASS	✓				
	- GRASS COVERAGE	✓				
Transect ES6	- NOXIOUS WEEDS	✓				
	- EROSION	✓			filled, seeded, straw	9/22/17
	- OBSTRUCTIONS	✓				
	- CULVERT/CATCH BASIN	✓				
	- OBSTRUCTIONS	✓				
	- SEDIMENT ACCUMULATION	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓				

TABLE D.1

COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

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Rev. 1

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED									
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED												
SWALE/DRAINAGE DITCHES (CONTINUED)															
Transect ES7	- QUALITY OF VEGETATIVE COVER	✓			Heavy weed growth	9/22/17									
	- LENGTH OF GRASS														
	- DEAD/DYING GRASS														
	- GRASS COVERAGE														
	- NOXIOUS WEEDS														
	- EROSION														
	- OBSTRUCTIONS														
	- CULVERT/CATCH BASIN						✓								
- OBSTRUCTIONS															
- SEDIMENT ACCUMULATION															
- SIGNS OF BURROWING BY ANIMALS	✓														
- ROOTING OF TREES															
- QUALITY OF VEGETATIVE COVER						✓									
- LENGTH OF GRASS															
- DEAD/DYING GRASS															
- GRASS COVERAGE															
- NOXIOUS WEEDS															
- EROSION															
- OBSTRUCTIONS	✓														
- CULVERT/CATCH BASIN															
- OBSTRUCTIONS															
- SEDIMENT ACCUMULATION															
- SIGNS OF BURROWING BY ANIMALS						✓									
- ROOTING OF TREES															
- QUALITY OF VEGETATIVE COVER											✓				
- LENGTH OF GRASS															
- DEAD/DYING GRASS															
- GRASS COVERAGE															
- NOXIOUS WEEDS															
- EROSION															
- OBSTRUCTIONS	✓														
- CULVERT/CATCH BASIN															
- OBSTRUCTIONS															
- SEDIMENT ACCUMULATION															
- SIGNS OF BURROWING BY ANIMALS						✓									
- ROOTING OF TREES															
- QUALITY OF VEGETATIVE COVER											✓				
- LENGTH OF GRASS															
- DEAD/DYING GRASS															
- GRASS COVERAGE															
- NOXIOUS WEEDS															
- EROSION															
- OBSTRUCTIONS	✓														
- CULVERT/CATCH BASIN															
- OBSTRUCTIONS															
- SEDIMENT ACCUMULATION															
- SIGNS OF BURROWING BY ANIMALS						✓									
- ROOTING OF TREES															

TABLE D.1

COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

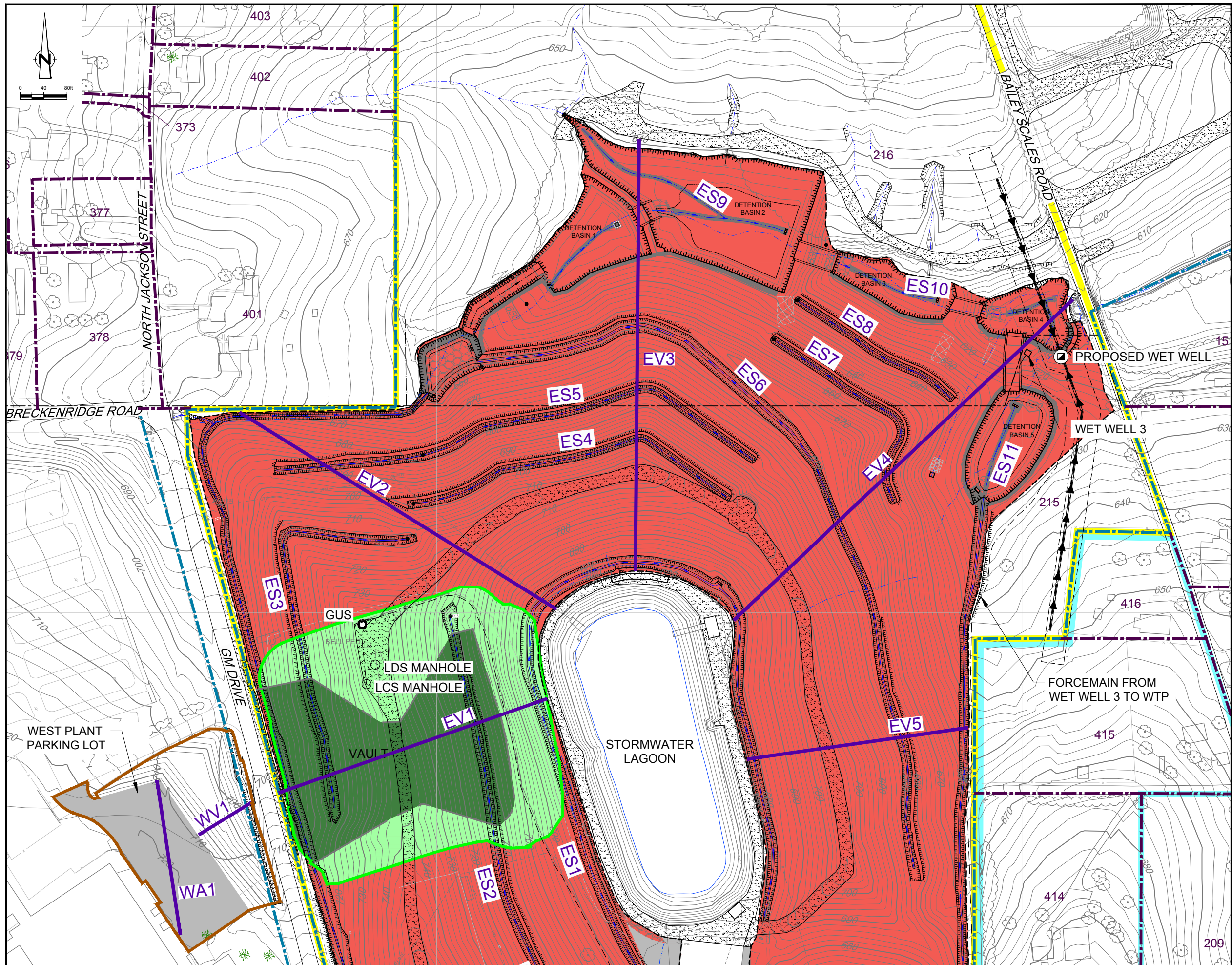
Page 9 of 10
Rev. 1

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED			
SWALE/DRAINAGE DITCHES (CONTINUED)						
Transect ES10	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	✓			heavy weed growth	
	- EROSION	✓				
	- OBSTRUCTIONS	✓				
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓				
	Transect ES11	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	✓			heavy weed growth
- EROSION		✓				
- OBSTRUCTIONS		✓				
- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION		✓				
- SIGNS OF BURROWING BY ANIMALS		✓				
- ROOTING OF TREES		✓				
Transect ES12		- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	✓			heavy weed growth
	- EROSION	✓			filled, seeded, sternal	9/22/17
	- OBSTRUCTIONS	✓				
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	✓				
	- SIGNS OF BURROWING BY ANIMALS	✓				
	- ROOTING OF TREES	✓			Trees cut	9/18/17

TABLE D.1

COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	NOTES	DATE AND NATURE OF ACTIONS COMPLETED		
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED					
SWALE/DRAINAGE DITCHES (CONTINUED)								
	Transect ES13	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	✓		heavy weed growth			
		- EROSION	✓					
		- OBSTRUCTIONS	✓					
		- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	✓					
		- SIGNS OF BURROWING BY ANIMALS	✓					
		- ROOTING OF TREES	✓					
		Transect ES13	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	✓			heavy weed growth	
			- EROSION	✓				
			- OBSTRUCTIONS	✓				
			- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	✓				
- SIGNS OF BURROWING BY ANIMALS	✓							
- ROOTING OF TREES	✓							



LEGEND

- EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- EXISTING VEGETATION
- EXISTING BUILDINGS
- EXISTING FENCE LINE
- EXISTING RAILROAD TRACKS
- EXISTING DIRT ROADS
- EXISTING ROADS / PAVED AREAS
- EXISTING ELECTRICAL POWER LINE
- EXISTING FORCEMAIN TO TREATMENT FACILITY
- EXISTING OVERHEAD ELECTRICAL POWER LINE
- APPROXIMATE SURFACE WATER LOCATION
- APPROXIMATE GM PROPERTY BOUNDARY
- APPROXIMATE PROPERTY BOUNDARY
- EXISTING STORM SEWER
- WEST PLANT COVER LIMIT
- VAULT LIMIT
- EAST PLANT COVER LIMIT
- DRAINAGE DITCH
- ASPHALT PAVEMENT AREA
- LOW FLOW CHANNEL
- EAST PLANT AREA
- GM LLC OWNED RESIDENTIAL
- EAST PLANT COVER SYSTEM
- FINAL VAULT COVER SYSTEM AT SURFACE
- FINAL VAULT COVER SYSTEM BURIED BY EAST PLANT AREA COVER SYSTEM
- GRAVEL BED
- PAVED COVER SURFACE
- PROPOSED PILOT TRENCH
- VAULT GROUNDWATER UNDERDRAIN SYSTEM SUMP
- LEAK DETECTION SYSTEM SUMP
- LEACHATE COLLECTION SYSTEM SUMP
- TRANSECT

TRANSECT LABELING

- E EAST PLANT COVER
- V VEGETATIVE COVER
- A ASPHALT COVER
- W WEST PLANT COVER
- S SWALE

SCALE VERIFICATION

THIS BAR MEASURES 1" ON ORIGINAL. ADJUST SCALE ACCORDINGLY.

**GM CET BEDFORD FACILITY
BEDFORD, INDIANA**

INTERIM OPERATIONS, MAINTENANCE AND MONITORING PLAN
EAST PLANT COVER SYSTEM

**EAST PLANT COVER SYSTEM INSPECTIONS
NORTHERN SECTION AND WEST PLANT
COVER SYSTEM INSPECTIONS**

GHD

Source Reference:
BASE MAP COMPLETED BY AIR-LAND SURVEYS, FLINT, MI, APRIL 2001
AND CRA SURVEYS 2002 TO 2008

Project Manager: J.M.	Reviewed By: P.G.	Date: 01/11/2011
Scale: 1:80	Project N°: 13968-00	Report N°: 2 Drawing N°: figure D.1

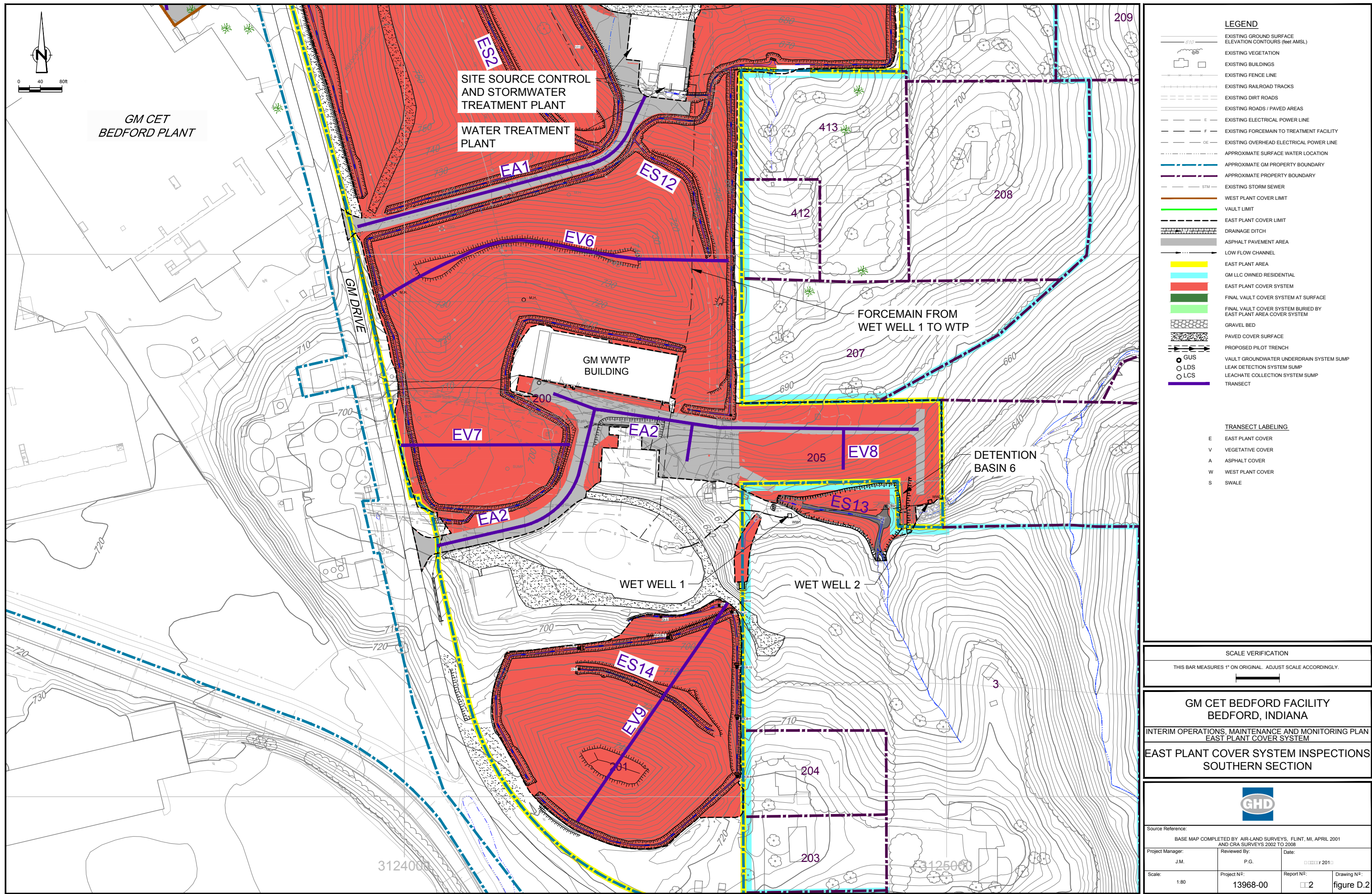




Photo 1: EV1 Vault Cover System west slope erosion area filled, seeded and straw placed.



Photo 2: EV1 Vault Cover facing northeast toward pond

Cover System Inspection Third Quarter 2017



Photo 3: Vegetation at ES1 facing southwest.



Cover System Inspection Third Quarter 2017



Photo 4: Vegetation growth at EV2



Photo 5: Erosion filled, seeded and straw placed at ES3.



Photo 6: EV2 East Plant Area Cover facing southeast towards pond



Cover System Inspection Third Quarter 2017



Photo 7: Drainage channel at ES6 East Plant Area Cover facing northeast.



Photo 8: Drainage pipe along EV3 East Plant Area Cover.



Photo 9: Vegetation on ES1 East Plant Area Cover at south end of Pond.



Photo 10: Vegetation along ES6 East Plant Area Cover



Photo 11: South of EV1 East Plant Cover System facing north



Cover System Inspection Third Quarter 2017



Photo 12: EV4 East Plant Area Cover vegetation filled, seeded and straw placed.



Photo 13: Vegetation south of EV5, facing pond



Cover System Inspection Third Quarter 2017



Photo 14: Vegetative growth along EV5 East Plant Area facing east, away from pond.



Cover System Inspection Third Quarter 2017



Photo 15: Vegetation growth at ES12 East Plant Area Cover.



Photo 16: Facing east along EV7 East Plant Cover.



Photo 17: East Plant Area Cover System along EV6, facing west.



Cover System Inspection Third Quarter 2017



Photo 18: ES14 catch basin East Plant Area Cover.



Photo 19: EV9 East Plant Area Cover erosion patch filled, seeded and straw placed.

Cover System Inspection Third Quarter 2017



Photo 20: ES14 East Plant Area Cover vegetation growth.

Cover System Inspection Third Quarter 2017