



**Global Environmental
Compliance & Sustainability**

July 15, 2015

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 57, Second Quarter 2015
GM CET – Bedford Facility, IND 006036099, Docket No. RCRA-05-2014-0011
Bedford, Indiana

Please find enclosed the Progress Report 57 (Second Quarter 2015) for the Resource Conservation and Recovery Act (RCRA) Corrective Action (CA) project at the GM Castings, Engines, and Transmissions (CET; formerly Powertrain) Bedford Facility (Facility) at 105 GM Drive 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 third Quarter of 2015 will be submitted on or before October 15, 2015.

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

Yours truly,

General Motors LLC

Cheryl R. Hiatt
Project Manager

PG/ac/155
Encl.

c.c.: See Attached Distribution List

Mr. Ramanaukas
July 15, 2015

Page 2

GM Bedford Distribution List

Peter Ramanaukas	U.S. EPA, Region 5
Brad Stimple	U.S. EPA, OSC
Gerald O'Callaghan	IDEM Management
Carl Wodrich	Indiana Department of Natural Resources
Cheryl Hiatt/Ed Peterson	GM WFG Remediation
Lisa LaCouver	GM Bedford Environmental Compliance
James McGuigan	GHD Project Manager
Bill Steinmann	GHD Project Geologist
Katie Kamm	GHD Oversight Engineer
Stephen Song	Ramboll Environ



Second Quarter 2015 Progress Report 57

GM CET – Bedford Facility

105 GM Drive

Bedford, Indiana

EPA ID# IND006036099

AOC Docket No. RCRA-05-2014-0011

General Motors, LLC

651 Colby Drive Waterloo Ontario N2V 1C2

013968 | Report No 387 | July 15 2015

Table of Contents

1.	Introduction.....	1
2.	List of Completed Activities	1
3.	Summaries of all Problems and Planned Resolutions Heading Title.....	3
4.	Summaries of all Changes Made in the Corrective Action (CA) During the Reporting Period	4
5.	Community Relations	4
6.	Changes in Personnel During the Reporting Period	4
7.	Projected Work For The Next Reporting Period	4
8.	Copies of Daily Reports, Inspection Reports, Laboratory/Monitoring Data	5

Table Index

Table 2.1	Spring 018 Sampling Results
Table 2.2	Storm Water and Groundwater Water Treatment Plant PCB Mass Removal Estimate

Appendices

Appendix A	First Quarter 2015 Cover System Inspection: Field Logs, Transect Figures, and Photograph Log
------------	---

1. Introduction

This Progress Report is submitted by General Motors LLC (GM) in accordance with the GM Bedford Castings, Engines, Transmissions (CET) Facility Resource Conservation and Recovery Act 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 second calendar quarter of 2015 for the RCRA Corrective Action (CA) Project at the GM Castings, Engines, and Transmissions (CET; formerly Powertrain) – Bedford Facility (Facility) and select surrounding properties (Site), Bedford, Indiana. Please note that Conestoga-Rovers & Associates Inc. (CRA) is now GHD, as of July 1, 2015.

The next RCRA progress report covering the third quarter of 2015 will be submitted on or before October 15, 2015.

2. List of Completed Activities

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

- Maintenance of storm water and erosion controls continued on an as-needed basis.
- 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 IDEM as they became available. As of the end of June 2015 sampling, the 12-month rolling average concentration of PCBs in the Spring 018 discharge is 0.18 micrograms per liter ($\mu\text{g/L}$). Regular monthly sampling was conducted on April 22, May 13 and June 10, 2015. An opportunistic sample was collected on April 4, 2015 following a rain event of greater than 1 inch in 24-hours. The regular May 13, 2015 sample had a detectable concentration of PCBs (including a replicate and split duplicate), and a re-sampling event was conducted on May 18, 2015. The sample on May 18 was non-detect for PCB concentration. The regular June 10, 2015 sample also had a detectable concentration of PCBs (including a replicate and split duplicate), and a re-sampling event occurred on June 15, 2015, with a PCB result of non-detect.
- The 300 gpm design capacity (Site Source Control [SSC]) and 2,000 gpm design capacity water treatment plants (WTPs) collected and treated 2,340,000 gallons of water this past quarter. A summary of the volumes and sample results used for this calculation is provided in Table 2.2. An estimated 0.08 pounds of PCBs were removed during the second quarter of 2015 through collection and treatment of the groundwater, and an estimated 0.45 pounds of PCBs in the twelve months inclusive of July 2014.
- Concrete sealing of Pool #2, upstream of the confluence with Tributary 3 and Spring 018 is delayed pending the issuance of a CERCLA Administrative Order on Consent (CERCLA AOC) being prepared to allow GM LLC to conduct remaining creek work in the Spring 018 area. Following the amendment, the filling will be scheduled as the weather allows.
- The second quarter 2015 Environmental Indicator (EI) CA750 monitoring of static groundwater levels was conducted on May 4-5, 2015.
 - GM submitted responses to U.S. EPA's February 25, 2015, comments on the 2nd Half 2014 EI CA750 sampling memo via email on June 4, 2015.

- GM and Conestoga-Rovers & Associates, Ltd, (CRA) (CRA is GHD Services, Inc, effective as of July 1, 2015) chemists continue to review the surrogate recovery issues with the laboratory. A technical summary of the issue, including corrective measures to address the issue in the future, was submitted January 22, 2015.
 - The expanded laboratory reports requested by U.S. EPA chemists were sent by GM to U.S. EPA on June 4, 2015, along with the response to comments on the First and Second Half 2014 EI CA750 Sampling Memos.
- Formal monitoring of the East Plant, West Plant and Vault cover systems were completed on June 11, 2015.
 - Maintenance requirements identified in the March 2015 monitoring of cover systems has not yet been completed. A change-order to complete the repairs has been approved by GM and the maintenance activities will be conducted in the third quarter 2015.
- A memorandum summarizing the work plan for additional surficial sampling in previously unsampled areas that are not covered with a barrier was submitted to the U.S. EPA on October 31, 2014.
 - U.S. EPA submitted further comments on the unsampled areas memorandum on April 16, 2015.
 - GM will submit responses and finalize the unsampled areas sampling plan in third quarter 2015.
- The Construction Certification Report for the West Plant Area Interim Measures (IMs) was submitted to the U.S. EPA and IDEM on November 12, 2014.
 - U.S. EPA emailed one comment on the response to comments on April 9, 2015.
 - GM submitted an emailed response to this comment on May 14, 2015.
 - Additional clarification was provided to U.S. EPA on June 26, 2015, with confirmation from U.S. EPA that they were satisfied with the responses.
- The Pilot Perimeter Groundwater Collection Trench Study was submitted to the U.S. EPA and IDEM on December 2, 2014.
 - Request for Bid (RFB) was sent to five contractors on April 13, 2015.
 - A pre-bid Site meeting was conducted on May 13, 2015.
 - Bid documents were sent to bidders on May 11, 2015. Addendum No. 1 was sent on May 26, 2015. Addendum No. 2 was sent on June 10, 2015. Addendum No. 3 was sent on June 15, 2015.
 - Responses to the RFB were received June 19, 2015.
 - Interviews with selected bidders were conducted on June 25, 2015.
 - The Bid will be awarded in July 2015.
- The AOI 8 Groundwater Source Collection System Interim Measure was submitted to the U.S. EPA and IDEM on December 31, 2014.
 - U.S. EPA emailed comments on the report on March 11, 2015.
 - CRA responded to U.S. EPA emailed comments on May 11, 2015.

- Additional U.S. EPA Comments were received on July 1, 2015.
- On May 26, 2015, repairs were completed to reverse a check valve installed in the Leachate Collection System Sump in July 2014. The check valve was part of a new system of piping that was intended to permit direct pumping from the Leak Detection Sump to the forcemain to the 300 gpm design capacity water treatment plant, and no longer pumping it into the LCS sump.
- The storm water pond required treatment with a chemical compound with the trade name “phoslock” in order to reduce the amount of algae buildup on the pond surface. The phoslock was applied by CRA crew in a boat, under the direction of the firm Jones Fish, in June 2015.
- Parcel 400 sampling plan was approved with modifications by the U.S. EPA. Implementation of the sampling plan to complete delineation is scheduled to commence in July 2015.
- Conference calls were held with U.S. EPA and IDEM on April 13, May 14, and June 10 and 26, 2015, to discuss items related to the project.
- On-Site construction meetings for the reporting period have been held informally daily and formally as needed. Formal SES construction meetings are no longer being held following SES demobilization from the Site in December 2014.
- The RCRA/CERCLA Quarterly Progress Report #56, covering the first quarter of 2015, was submitted to the U.S. EPA and IDEM on April 15, 2015.
- Fact Sheet 40 was published on June 6, 2015.
- Representatives from GM, U.S. EPA, IDEM, and CRA met on April 28, 2015, at the Facility, for the 2015 Annual Project Status Meeting. The meeting reviewed tasks completed in the last year and the proposed schedule of completion for tasks this year.
- Public and Community Liaison Panel (CLP) meetings were held on June 10, 2015, to provide an update of the project and address questions and concerns from local residents. The Bedford Times Mail published an article on the meeting on June 11, 2015.

3. Summaries of all Problems and Planned Resolutions Heading Title

- Detectable concentrations of PCBs from the monthly Spring 018 sampling events in excess of the action level of 0.3 µg/L occurred in May (0.46 J µg/L) and June (0.53 J µg/L). Upon receipt of these results in each case the laboratory (TestAmerica) ran analysis on a second bottle and a split-duplicate was run at a secondary laboratory (TriMatrix) to rule out laboratory issues in the result detection. In accordance with the sampling plan, second monthly samples were collected in May and June, five days after the initial samples, and returned non-detect in both cases. Monitoring of Spring 018 will continue in the Third Quarter 2015 and U.S. EPA and IDEM will continue to be notified of monitoring results as they are received. A summary of results from the Second Quarter can be found in Table 2.1.

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

- There were no changes made in the CA during the reporting period.

5. Community Relations

The telephone number for public contact is 812-277-8956 (Katie Kamm, GHD). Individual meetings can be arranged to discuss project progress with residents as requested.

Community Liaison Panel (CLP) and public meetings were held at the CRA trailers to update the CLP and public on the status of the clean-up efforts on December 10, 2014. The next neighborhood/public meeting and CLP meetings are tentatively scheduled for June, 2015. Presentations for 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. All data located in the Library repository can also be found on the aforementioned website.

6. Changes in Personnel During the Reporting Period

Oversight personnel for CRA remain unchanged. The final demobilization of SES's WTP was completed as of end of December 2014. SES is currently not under contract to GM at Bedford although they did bid on the next phase of work.

7. Projected Work For The Next Reporting Period

Work anticipated for the next reporting period includes:

- Construction will begin on the Groundwater Treatment Plant and the Pilot Perimeter Groundwater Collection Trench in the third quarter 2015.
- Finalize Unsampled Areas Soil Sampling Work Plan. Upon U.S. EPA approval of the Work Plan, GM will perform the additional on-site soil sampling within the unsampled areas and report results to U.S. EPA.
- Re-submittal of the following after response to comments are approved by the U.S. EPA:
 - 2012 Annual Vault Report
 - Vault Post-Closure Plan
 - Vault Construction Certification Report
 - Unsampled Areas Soil Sampling Work Plan
 - Construction Certification Report for the West Plant Area IM

- AOI 8 Groundwater Source Collection System IM
- Parcel 400 sampling plan was approved with modifications by the U.S. EPA. Implementation of the sampling plan is scheduled to commence in July 2015.
- Continuance of monitoring Spring 018 on a monthly basis in accordance with the approved plan.
- Conductance of groundwater monitoring and sampling activities related to the EI CA750 in second half 2015.
- Submittal of the EI CA750 First Half 2015 Results Memorandum.
- Completion of the third quarter EI CA750 groundwater level statics.
- Finalization of the proposed CERCLA Administrative Order on Consent for Removal Action.
- The following documents will be submitted in accordance with the schedule set out by the RCRA AOC:
 - Vault 2014 Annual Report, due July 15, 2015.
 - RCRA Facility Investigation Report, due August 31, 2015.

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 site source control systems for the past 12 months.

Appendix A includes the field monitoring forms for the cover systems and a photograph log. A number of issues were noted in this quarter's cover inspection, as listed below. Repairs are anticipated to occur early in the third quarter 2015 prior to the next inspection:

1. In the exterior ditch, adjacent to wooded areas (south side of Parcel 201 and the east side of the cover system along Parcels 205, 207, 412 and 413), saplings were noted starting to grow in the first quarter, which were removed. A few new saplings were identified during the second quarter inspection and have also been removed.
2. Numerous mole holes were identified on the west and north and east side of the east plant cover system (EV2, EV3, EV4, EV5, and EV6). Moles typically burrow 8-12 inches, however, they tend to damage root growth in their quest for grubs. CRA has been in contact with the liner companies to see if there is any concern for damage to the geocomposite drainage layer. In the meantime, an exterminator for the grubs has been contacted to assess removal of the moles food source (the grubs).
3. There were some erosion ruts along the east side of GM Drive, outside the cover system area adjacent to power poles. This does not appear to be due to any on-Site RCRA activities, but could have an impact on the liner system in the ditch and so will be addressed by filling and grading and seeding.
4. There were some minor bare patches, and clover/weed growth noted along various transects however, these minor issues were not found in areas where erosion was occurring and will continue to be monitored.

5. A few minor cracks were present along the seams in the asphalt cover system. The cracks do not extend the full depth of the asphalt thickness. O'Mara Paving will be addressing the cracks in the third quarter 2015.
6. During the inspection it was noted that the velocity of the water coming from Detention Basin 1 (DB1) into DB2 displaced the riprap at the point the water enters the basin, exposing about a 5 foot length of the channel, including the underlying liner. The riprap will be replaced with larger diameter stone as used in DB1. The problem was also identified in the channel further upgradient as well (ES6) in the channel south and adjacent to Parcel 401.
7. Some of the catch basins in the detention basins were covered with dead grasses. These were not enough to impede normal flow, however, the debris was cleared during the inspection.
8. The Facility repaired two fire hydrants along the far west side of the paved West Plant cover system. This is outside of the actual cover system although under the pavement. The Facility's contractor excavated the soils surrounding the hydrant, repaired the hydrant, backfilled, and SES/O'Mara Paving made the necessary repairs to the asphalt. There are signs of settlement under the repaved area as the new asphalt has sunk. O'Mara Paving will look at this area for recommended repairs.

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 - April/May/June 2015
GM CET Bedford Facility
Bedford, Indiana

Area: Sample Location: Sample Identification: Sample Date:		P015 Spring 018C SW-015-040415-GS-40232 4/4/2015	P015 Spring 018C SW-015-040815-GS-40234 4/8/2015	P015 Spring 018C SW-015-051315-GS-40237 5/13/2015	P015 Spring 018C SW-015-051315-GS-40237~ 5/13/2015 Replicate	P015 Spring 018C SW-015-051315-GS-40238 5/13/2015 Split Duplicate
PCBs	Units					
Aroclor-1016 (PCB-1016)	µg/L	0.19 U	0.19 UJ	0.19 U	0.19 U	0.19 U
Aroclor-1221 (PCB-1221)	µg/L	0.19 U	0.19 UJ	0.19 U	0.19 U	0.19 U
Aroclor-1232 (PCB-1232)	µg/L	0.19 U	0.19 UJ	0.19 U	0.19 U	0.19 U
Aroclor-1242 (PCB-1242)	µg/L	0.19	0.19 UJ	0.46 J	0.43	0.19 UJ
Aroclor-1248 (PCB-1248)	µg/L	0.19 U	0.19 UJ	0.19 UJ	0.19 U	0.32 J
Aroclor-1254 (PCB-1254)	µg/L	0.19 U	0.19 U	0.19 U	0.19 UJ	0.19 U
Aroclor-1260 (PCB-1260)	µg/L	0.19 U	0.19 U	0.19 U	0.19 UJ	0.19 U
Total PCBs	µg/L	0.19	ND	0.46 J	0.43	0.32 J
General Chemistry						
Total suspended solids (TSS)	µg/L	1000000	2000	33000	--	--

Notes:

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

Twelve month average as of June 15, 2015 - 0.18 µg/L PCBs

Table 2.1

Spring 018 Sampling Results - April/May/June 2015
GM CET Bedford Facility
Bedford, Indiana

Area: Sample Location: Sample Identification: Sample Date:		P015 Spring 018C SW-015-051815-GS-40239 5/18/2015	P015 Spring 018C SW-015-061015-GS-40242 6/10/2015	P015 Spring 018C SW-015-061015-GS-40242~ 6/10/2015 Replicate	P015 Spring 018C SW-015-061015-GS-40243 6/10/2015 Split Duplicate	P015 Spring 018C SW-015-061515-GS-40244 6/15/2015
PCBs	Units					
Aroclor-1016 (PCB-1016)	µg/L	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Aroclor-1221 (PCB-1221)	µg/L	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Aroclor-1232 (PCB-1232)	µg/L	0.19 U	0.19 U	0.19 U	0.19 U	0.19 U
Aroclor-1242 (PCB-1242)	µg/L	0.19 U	0.53 J	0.44	0.19 UJ	0.19 U
Aroclor-1248 (PCB-1248)	µg/L	0.19 U	0.19 UJ	0.19 U	0.39 J	0.19 U
Aroclor-1254 (PCB-1254)	µg/L	0.19 UJ	0.19 U	0.19 U	0.19 U	0.19 U
Aroclor-1260 (PCB-1260)	µg/L	0.19 UJ	0.19 U	0.19 U	0.19 U	0.19 U
Total PCBs	µg/L	ND	0.53 J	0.44	0.39 J	ND
General Chemistry						
Total suspended solids (TSS)	µg/L	5100	5800	--	--	2300

Notes:

U - Not detected at the associated reporting limit.

UJ - Not detected; associated reporting limit is estimated.

Twelve month average as of June 15, 2015 - 0.18 µg/L PCBs

Table 2.2

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

	<i>Estimated 300 gpm Design Capacity System Treated Volume ⁽¹⁾ (gallon)</i>	<i>300 gpm Design Capacity System Treated Volume (gallon)</i>	<i>PCB Influent Concentration (µg/L)</i>	<i>Mass PCB Treated (pound)</i>
July 2014	--	440,460	4.4	0.016
August 2014	--	791,734	3.7	0.024
September 2014	--	1,068,718	2.4	0.021
October 2014	--	1,359,936	4.9	0.056
November 2014	--	1,198,730	3.5	0.04
December 2014	--	2,340,508	1.6	0.031
January 2015	--	1,439,400	1	0.012
February 2015	--	464,672	7.8	0.030
March 2015	--	3,193,494	5.7	0.152
April 2015	--	2,510,870	1.4	0.029
May 2015	--	1,000,860	3.6	0.030
June 2015	--	1,603,546	1.2	0.016
Total Estimated Volume of Water Treated, Second Quarter 2015		5,115,276	gallons	
Total Estimated Mass of PCB Treated, Second Quarter 2015		0.08	pounds	
Total Estimated Mass of PCB Treated, Since April 2014		0.45	pounds	

Notes:

⁽¹⁾ The groundwater treatment system was down from Oct. 2013-April 2014. During this time, groundwater was redirected to the storm water pond. Estimated treated volumes are estimated based on the treated volumes for the corresponding month for years 2008 - 2013.

Appendices

Appendix A
First Quarter 2015 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: June 11 2015 Weather: Hot, 93° Humid
 Inspector: G. Song Temperature: _____

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
VEGETATED SOIL COVER SYSTEM					
Transect EV1	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK		Some weed and clear growth	
	- EXPOSURE OF LINER	OK			
	- EROSION	OK			
	- LOCALIZED SETTLEMENT/SLUMPING	OK			
	- PONDING OF WATER/DRAINAGE	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			
Transect EV2	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK		some clear growth	
	- EXPOSURE OF LINER	OK			
	- EROSION	OK			
	- LOCALIZED SETTLEMENT/SLUMPING	OK			
	- PONDING OF WATER/DRAINAGE	OK			
	- SIGNS OF BURROWING BY ANIMALS	✓		minimal moles	
	- ROOTING OF TREES	OK			

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	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
VEGETATED SOIL COVER SYSTEM (CONTINUED)					
Transect EV3	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK		clover and wildflower growth some bare spots	
	- EXPOSURE OF LINER	OK			
	- EROSION	OK			
	- LOCALIZED SETTLEMENT/SLUMPING	OK			
	- PONDING OF WATER/DRAINAGE	OK			
	- SIGNS OF BURROWING BY ANIMALS	✓		moles	
	- ROOTING OF TREES	OK			
Transect EV4	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK		clover growth some bare spots	
	- EXPOSURE OF LINER	OK			
	- EROSION	OK			
	- LOCALIZED SETTLEMENT/SLUMPING	OK			
	- PONDING OF WATER/DRAINAGE	OK			
	- SIGNS OF BURROWING BY ANIMALS	✓		moles	
	- ROOTING OF TREES	OK			
Transect EV5	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK		Heavy clover growth small tree sprouts	June 11, 2015 tree sprouts removed
	- EXPOSURE OF LINER	OK			
	- EROSION	OK			
	- LOCALIZED SETTLEMENT/SLUMPING	OK			
	- PONDING OF WATER/DRAINAGE	OK			
	- SIGNS OF BURROWING BY ANIMALS	✓		moles	
	- ROOTING OF TREES	✓			trees removed

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	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
VEGETATED SOIL COVER SYSTEM (CONTINUED)					
<u>Transect EV6</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK		some bare spots	
	- EXPOSURE OF LINER	OK			
	- EROSION	OK			
	- LOCALIZED SETTLEMENT/SLUMPING	OK			
	- PONDING OF WATER/DRAINAGE	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK		some moles	
	- ROOTING OF TREES	OK			
<u>Transect EV7</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EXPOSURE OF LINER	OK			
	- EROSION	OK		see note *	
	- LOCALIZED SETTLEMENT/SLUMPING	OK			
	- PONDING OF WATER/DRAINAGE	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			
<u>Transect EV8</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EXPOSURE OF LINER	OK			
	- EROSION	OK			
	- LOCALIZED SETTLEMENT/SLUMPING	OK			
	- PONDING OF WATER/DRAINAGE	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			

*Erosion along GM power poles, outside cap limits, across from Substation

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	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
VEGETATED SOIL COVER SYSTEM (CONTINUED)					
<u>Transect EV9</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	✓		Few birch spots southside	
	- EXPOSURE OF LINER	OK			
	- EROSION	OK			
	- LOCALIZED SETTLEMENT/SLUMPING	OK			
	- PONDING OF WATER/DRAINAGE	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	✓		tree removed from cell	tree removed June 11, 2015
<u>Transect WV1</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EXPOSURE OF LINER	OK			
	- EROSION	OK			
	- LOCALIZED SETTLEMENT/SLUMPING	OK			
	- PONDING OF WATER/DRAINAGE	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			

Small saplings have taken root where the cover is adjacent to wooded areas
 Saplings have been removed.

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	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
HARD SURFACE COVER SYSTEMS					
<u>Transect EA1</u>	- QUALITY OF ASPHALT COVER	OK			
	- PRESENCE OF CRACKING OR DISCOLORATION	OK			
<u>Transect EA2</u>	- QUALITY OF ASPHALT COVER	OK			
	- PRESENCE OF CRACKING OR DISCOLORATION		Some cracking		Contract in works for Seal coating
<u>Transect WA1</u>	- QUALITY OF ASPHALT COVER	OK			
	- PRESENCE OF CRACKING OR DISCOLORATION		Some cracking		Contract for repairs in progress
ACCESS ROAD					
<u>ACCESS ROAD</u>	- EROSION	OK			
	- OBSTRUCTIONS/DEBRIS	OK			
	- POTHOLES	OK			
	- DAMAGE CAUSED BY VEHICULAR TRAFFIC	OK			

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	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
SWALE/DRAINAGE DITCHES					
<u>Transect ES1</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			
<u>Transect ES2</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK		clover and weed growth	
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			
<u>Transect ES3</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			

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	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
SWALE/DRAINAGE DITCHES (CONTINUED)					
<u>Transect ES4</u>	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK		clover growth	
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	✓	mole		
	- ROOTING OF TREES	OK			
<u>Transect ES5</u>	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK		clover and weed growth some bare spots	
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	✓		small trees	trees removed
<u>Transect ES6</u>	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			

**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	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
SWALE/DRAINAGE DITCHES (CONTINUED)					
<u>Transect ES7</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			
<u>Transect ES8</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			
<u>Transect ES9</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK	*	SES to Make repairs when weather permits	
	- SIGNS OF BURROWING BY ANIMALS	OK	⊕		
	- ROOTING OF TREES	OK			

* Washout of low flow channel, RipRap. exposed liner

TABLE D.1

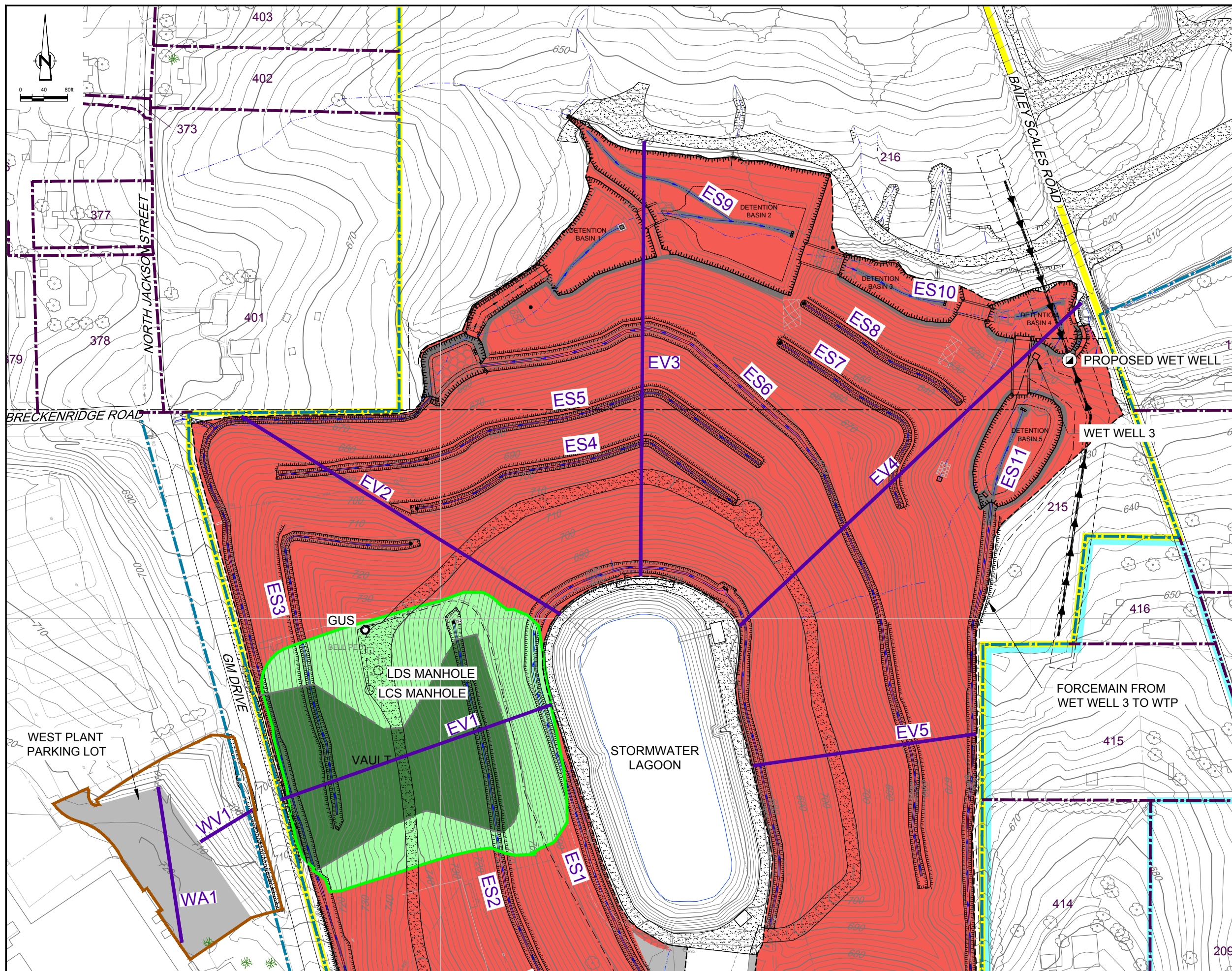
**COVER SYSTEMS INSPECTION LOG
CONSTRUCTION CERTIFICATION REPORT EAST PLANT COVER SYSTEM
GM CET BEDFORD FACILITY
BEDFORD, INDIANA**

ITEM	TYPES OF PROBLEMS	CHECKED		DETAILED ACTIONS REQUIRED	DATE AND NATURE OF ACTIONS COMPLETED
		NO PROBLEMS	CORRECTIVE ACTION REQUIRED		
SWALE/DRAINAGE DITCHES (CONTINUED)					
<u>Transect ES10</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			
<u>Transect ES11</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK		Clear growth	
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			
<u>Transect ES12</u>	- QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	- CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			

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	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	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	✓		Some rooting trees	trees removed
Transect ES13	QUALITY OF VEGETATIVE COVER - LENGTH OF GRASS - DEAD/DYING GRASS - GRASS COVERAGE - NOXIOUS WEEDS	OK			
	- EROSION	OK			
	- OBSTRUCTIONS	OK			
	CULVERT/CATCH BASIN - OBSTRUCTIONS - SEDIMENT ACCUMULATION	OK			
	- SIGNS OF BURROWING BY ANIMALS	OK			
	- ROOTING OF TREES	OK			



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.

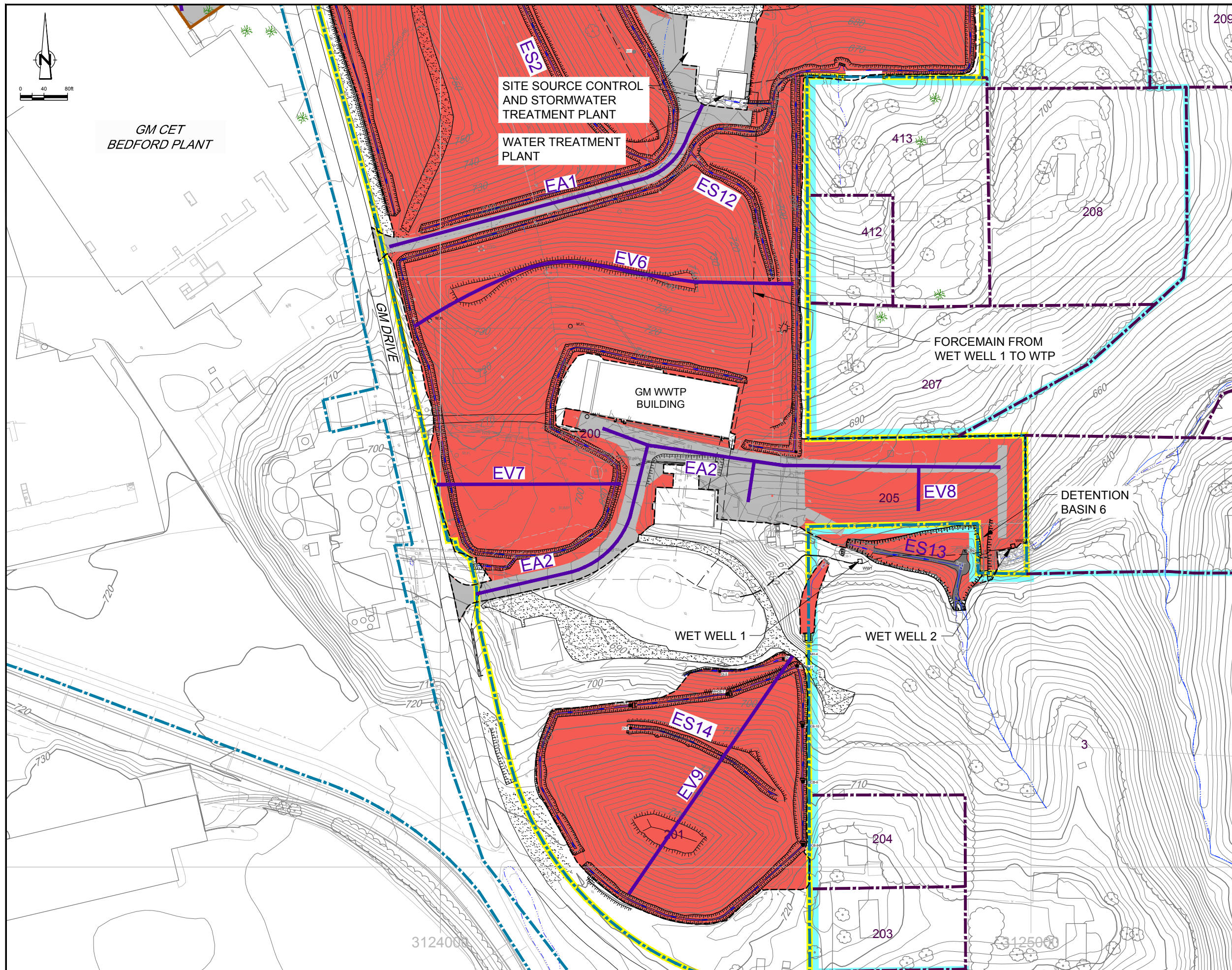
**GM CET BEDFORD FACILITY
BEDFORD, INDIANA**

INTERIM OPERATIONS, MAINTENANCE AND MONITORING PLAN
EAST PLANT COVER SYSTEM
**EAST PLANT COVER SYSTEM INSPECTIONS
NORTHERN SECTION AND WEST PLANT
COVER SYSTEM INSPECTIONS**



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: FEBRUARY 2015
Scale: 1:80	Project N°: 13968-00	Report N°: 350
		Drawing N°: figure D.1



LEGEND

- 810 — EXISTING GROUND SURFACE ELEVATION CONTOURS (feet AMSL)
- ☁ EXISTING VEGETATION
- ▭ EXISTING BUILDINGS
- - - EXISTING FENCE LINE
- +—+—+— EXISTING RAILROAD TRACKS
- - - - EXISTING DIRT ROADS
- +—+—+— EXISTING ROADS / PAVED AREAS
- - - - E EXISTING ELECTRICAL POWER LINE
- - - - F EXISTING FORCEMAIN TO TREATMENT FACILITY
- - - - OE EXISTING OVERHEAD ELECTRICAL POWER LINE
- - - - APPROXIMATE SURFACE WATER LOCATION
- +—+—+— APPROXIMATE GM PROPERTY BOUNDARY
- - - - APPROXIMATE PROPERTY BOUNDARY
- STM — 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
- GUS VAULT GROUNDWATER UNDERDRAIN SYSTEM SUMP
- LDS LEAK DETECTION SYSTEM SUMP
- LCS 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
 SOUTHERN SECTION**

CRA CONESTOGA-ROVERS & ASSOCIATES

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: FEBRUARY 2015
Scale: 1:80	Project N°: 13968-00	Report N°: 350
		Drawing N°: figure D.2



Photo 1: EV1 Vault cover facing northwest



Photo 2: EV1 Vault cover (and East Plant Area cover beyond) facing east



Cover System Inspection 2nd Quarter 2015



Photo 3: EV2 East Plant Area cover facing northwest



Photo 4: EV3 East Plant Area cover facing northwest



Cover System Inspection 2nd Quarter 2015



Photo 5: EV3 East Plant Area cover facing south



Photo 6: EV4 East Plant Area cover facing northeast



Cover System Inspection 2nd Quarter 2015



Photo 7: EV5 East Plant Area cover facing northeast



Photo 8: EV6 East Plant Area cover facing east



Cover System Inspection 2nd Quarter 2015



Photo 9: EV6 erosion rut outside cap limit



Cover System Inspection 2nd Quarter 2015



Photo 10: EV6 East Plant Area cover facing southwest



Cover System Inspection 2nd Quarter 2015



Photo 11: ES14 drainage swale facing east



Cover System Inspection 2nd Quarter 2015



Photo 12: EV9 East Plant Area cover facing south (removed tree growth at time of inspection)



Photo 13: EV9 East Plant Area cover facing east (at base of slope)



**Cover System Inspection
2nd Quarter 2015**



Photo 14: ES14 East Plant Area cover facing northwest



Photo 15: EV9 East Plant Area cover facing south



**Cover System Inspection
2nd Quarter 2015**



Photo 16: EV9 patchy vegetation



Cover System Inspection 2nd Quarter 2015



Photo 17: ES2 drainage swale facing north



Photo 18: ES5 drainage swale facing west



Cover System Inspection 2nd Quarter 2015



Photo 19: ES5 drainage swale facing northeast



**Cover System Inspection
2nd Quarter 2015**



Photo 20: ES6 drainage swale facing southwest, channel erosion.



Cover System Inspection 2nd Quarter 2015



Photo 21: EV9 rip rap erosion at storm drain into detention basin #2 facing west



Cover System Inspection 2nd Quarter 2015



Photo 22: ES10 channel through detention basin #3 facing east



Cover System Inspection 2nd Quarter 2015



Photo 23: ES11 detention basin #5 facing north



**Cover System Inspection
2nd Quarter 2015**



Photo 24: EA2 crack near WWTP aeration basin facing north



Cover System Inspection 2nd Quarter 2015



Photo 25: EA2 facing east, cracks in asphalt west of Parcel 205



Cover System Inspection 2nd Quarter 2015



Photo 26: WV1 West Plant Area cover facing southwest



Photo 27: Phoslock Application in the stormwater pond facing southwest



Cover System Inspection 2nd Quarter 2015