

GUDE LANDFILL REMEDIATION

GLCC/DEP MEETING NO. 28

DATE: February 21, 2013
TIME: 7:30 PM to 9:00 PM
LOCATION: Montgomery County Transfer Station

ATTENDANCE:

<u>Name</u>	<u>Organization</u>	<u>Designation</u>
Laszlo Harsanyi	Gude Landfill Concerned Citizens (GLCC)	Member
Nick Radonic	Gude Landfill Concerned Citizens (GLCC)	Member
Julia Tillery	Gude Landfill Concerned Citizens (GLCC)	Member
George Wolohojian	Gude Landfill Concerned Citizens (GLCC)	Member
Peter Karasik	Montgomery County Dept. of Env. Protection (DEP)	Section Chief
Steve Lezinski	Montgomery County Dept. of Env. Protection (DEP)	Engineer III
Jamie Foster	Montgomery County Dept. of Env. Protection (DEP)	Engineer I
Mark Gutberlet	EA Engineering, Science, and Technology, Inc.	DEP Consultant

The Meeting Agenda is included as Attachment 1.
Contact information for attendees is included as Attachment 2.
Chronology of Closed Action and Follow-up Items is included as Attachment 3.
Other Attachments are referenced within the text.

MINUTES:

- 1) Steve Lezinski of DEP requested approval of the minutes from GLCC/DEP Meeting No. 27. GLCC accepted the minutes.
- 2) Steve L. provided an update on remediation-related project activities:
 - EA field-verified surveyor modifications to property corner monuments. EA will have the final documents signed and sealed by the surveyor. Upon DEP receipt, the final deeds and the plat drawing will be provided to the County Office of Real Estate to start the new land disposition process that requires County Council approval.
 - DEP continues to work with MDE to finalize the language of the Consent Order. The County and MDE attorneys are working together on the language.
 - EA has completed a preliminary draft of Section 4 of the Assessment of Corrective Measures (ACM) Report. Mark Gutberlet of EA discussed the content of draft Figures 4-1 through 4-7 and Table 4-2 (Attachment 4). GLCC members asked many questions regarding the documents and a constructive discussion followed.

- Specific details of the discussion included:
 - Julia Tillery of GLCC offered some ideas to clarify the figures.
 - Julia T. and George Wolohojian of GLCC noted that Figure 4-4 seemed to indicate that the remediation would focus on the site perimeter. They asked if the middle of Landfill site would be remediated. Mark Gutberlet explained that the remediation would likely be focused (at least initially) on the site perimeter, which is the compliance boundary for the remedial action objectives.
 - George W. asked how land reuse ties into remediation options. Mark G. explained that Section 5 of the ACM Report would include a discussion of the compatibility of land reuses with the remediation options.
 - Julia T. asked if complete landfill capping is still being considered. Mark G. stated that EA did not retain complete landfill capping as a remedial technology in the ACM Report at this time. It could be reintroduced through future discussions with the County and MDE.
 - DEP continues to update the Gude Landfill Remediation webpage.
- 3) Steve L. stated that post-closure care activities continue at the Landfill as needed. Steve L. stated that site regrading has been performed to repair portions of the Landfill cover system along the northwest slope. Some regrading has also been performed on top of the Landfill to improve drainage where settlement has occurred. Some of the regraded areas had previously settled up to 1 foot and up to 100 square feet in area.
- Steve L. also stated the Landfill Gas Management System is operating properly. Some soil sloughed on the northwest slope in January – February 2013 and the gas management system vacuum was reduced to avoid drawing air into the Landfill. There were intermittent methane exceedences at the property boundary during the time of reduced vacuum. The County’s maintenance contractor made repairs to the cover system and normal operating conditions of the gas management system were restored. The exceedences have reduced with the full operation of the gas management system.
- 4) Jamie Foster of DEP discussed the County’s plan to install new methane gas detectors in Derwood Station South homes along the natural gas pipeline Right-of-Way (western/northwestern boundary of the Gude Landfill). Letters were sent to 22 homeowners on February 15, 2013 to indicate the County’s offer to install the gas detection meters. A few residents have responded that they would like to have their existing meter replaced or a new meter installed.
- 5) GLCC requested a preliminary meeting with County representatives, such as the County Executive and the County Council, as discussed in Action Item 17-1. The goal would be to present GLCC and community ideas for land reuse and ask the County representatives if they have ideas for land reuse.
- 6) DEP and the County agreed to decide on the date of the next GLCC/DEP meeting closer to March 14, 2013, the next scheduled date. If significant progress has been made on the ACM, the meeting will be held; otherwise the meeting could be re-scheduled in the future.

Recently Closed Action and Follow-up Items

- 27-1 GLCC will review the draft Table 4-2 from the ACM and provide any comments or ask questions about the initial analysis summarized in the table.
Status: Closed. Table 4-2 was discussed at GLCC/DEP Meeting No. 28.

Open Action and Follow-up Items

These items will be addressed further during the ACM/Reuse evaluation process.

- 16-2 DEP and EA will further evaluate end use options and present these to GLCC in a future monthly meeting.
Status: Open.
- 17-1 DEP will contact senior County representatives and stakeholders regarding their attendance at a future GLCC/DEP monthly meeting to discuss the County's decision making process for Landfill site reuse, potential County site reuse options and the integration and consideration of the Community's reuse options.
Status: Open.
- 18-1 Once the Landfill land reuse discussion is documented and agreed upon in a decision memo with the County Executive and/or other stakeholders, DEP will share the final findings of the agreed upon process with GLCC.
Status: Open.

New Action and Follow-up Items

There were no new action or follow-up items to report.

The above summation is the writer's interpretation of the items discussed at the meeting. Comments involving differences in understanding of any of the meeting items will be received for a period of thirty (30) days from the date of these meeting minutes. Clarifications will be made, as deemed necessary. If no comments are received within the specified time period, the minutes will remain as written.

**Gude Landfill Remediation
Gude Landfill Concerned Citizens
Monthly Meeting No. 28**

Meeting Agenda

1. Meeting Sign-In Sheet

- a. Please sign-in.

2. GLCC/DEP Meeting Minutes (Meeting No. 27 on 12/12/12)

- a. DEP to request review and acceptance.

3. Remediation Project Activity Updates

- a. Land Exchange with M-NCPPC.
 - EA field verified surveyor modifications to property corner monuments based on their field inspection. Final survey drawings are being signed/sealed by the surveyor.
- b. Consent Order.
 - County Office of Attorney and MDE's Attorney (Attorney General) are finalizing the Consent Order.
- c. Assessment of Corrective Measures.
 - Chapter 4 Review.
 - ❖ Content and Initial Screening Process for Technologies.
 - General Description, Case Study Review, Effectiveness, Implementability and Cost.
 - ❖ Technologies Retained through Screening Process.
 - Refer to Figure and Table Handouts.
 - Next Steps.
 - ❖ Chapter 5. Detailed Analysis of Technology Alternatives.
 - ❖ Chapter 6. Comparative Analysis of Technology Alternatives.
- d. Landfill Remediation Webpage – updates continue.

4. Current Gude Landfill Operations

- a. Standard post-closure care activities.
 - Site regrading – repairs to portions of the Landfill cover system on the N.W. Slope. Also, regrading work to correct stormwater drainage on the plateau (top) of the Landfill due to settlement.
 - Landfill Gas Management – there have been intermittent gas exceedences in the monitoring wells along the N.W. property boundary. The County's maintenance contractor made repairs to the Landfill cover system and the County's gas operation contractor has made well field adjustments to increase vacuum to this area of the site. Additional measures will be assessed if the conditions persist.

**Gude Landfill Remediation
Gude Landfill Concerned Citizens
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Meeting Agenda

5. Methane Gas Detectors in Derwood Station South Homes along the Right-of-Way

- a. The letters for the methane gas detectors were mailed to the Derwood Station South residents that border the high-pressure gas right-of-way on 2/15/13.
- b. 22 homes received the letter; the original 12 homes with existing detectors installed and 10 others that border the right-of-way.

6. Action/Follow-up Items and Next Meeting

- a. Open Action Items
 - 16-2, 17-1 and 18-1. For review during ACM and Land Reuse process.
 - 27-1. GLCC comments on Table 4-2 for the initial screening analysis of technologies.
- b. Summarize New Action Items from Meeting
- c. Next Meeting date.
 - March 14, 2013 (Meeting No. 29).

Date	February 21, 2013	Meeting No. 28
Time	7:30 -9:00 PM	
Meeting	Gude Landfill Remediation: GLCC/DEP	

Name	Initial if Present	Affiliation	Phone	Email	Address
Stephen Lezinski	SL2	DEP	240-777-6590	Steve.Lezinski@montgomerycountymd.gov	16101 Frederick Road Derwood, MD 20855
Peter Karasik	PKK	DEP	240-777-6569	Peter.karasik@montgomerycountymd.gov	16101 Frederick Road Derwood, MD 20855
Jamie Foster	JCF	DEP	240-777-6564	jamie.foster@montgomerycountymd.gov	16102 Frederick Road Derwood, MD 20855
Mark Gutberlet	M/G	EA Eng.	410-329-5135	mgutberlet@easst.com	15 Loveton Circle Sparks, MD 21152
Dave Peterson		GLCC/DS1 HOA	301-921-6357	Knopdhp@hotmail.com	7612 Anamosa Way Derwood, MD 20855
Keith Ligon		GLCC	301-340-3358	KLigonfamily@verizon.net	15501 Moravia Court Derwood, MD 20855
Julia Tillery	J/T	GLCC	202-329-8740	julia@tilleryoffice.com	15461 Indianola Drive Derwood, MD 20855
Laszlo Harsanyi	L/H	GLCC/DS2 HOA	301-840-3822	LaszloH@comcast.net	7228 Tikonka Way Derwood, MD 20855
Nick Radonic	N/R	GLCC/DSS HOA	301-294-9124	Nic.Rad@rmail.com	15408 Indianola Drive Derwood, MD 20855
George Wolohojian	G/W	GLCC/DSS HOA	301-738-7148	gwolohojian@aol.com	15448 Indianola Drive Derwood, MD 20855
Other Meeting Attendees					

Chronology of Closed Action and Follow-up Items
as of
GLCC/DEP Meeting No. 28

- 5-01 DEP and EA to research the existence of a comprehensive database for closed landfill reuse options.
Status: Closed. EA provided a list of landfill reuse resources, which was attached to the minutes for Meeting No. 7.
- 5-02 GLCC to schedule next Derwood Community Meeting; second quarter 2010.
Status: Closed. GLCC noted that the Community will continue to be welcome at the monthly meetings, and these will be included in the DEP letter to the HOAs and the residents. Therefore, GLCC does not plan to schedule another community meeting at this time.
- 5-03 DEP to contact MDE regarding the spring and northwest slope surface water sampling, and leachate seep repairs on northwest slope.
Status: Closed. DEP and MDE met on December 21, 2009 and discussed these issues. The outcome was summarized in Attachment No. 4 of the Meeting No. 7 minutes.
- 5-04 DEP to post the recent aerial survey of the Gude Landfill on the remediation project website.
Status: Closed. The image has been posted on the website.
- 5-05 DEP to evaluate if Biochemical and Chemical Oxygen Demand (BOD/COD) can be included for analysis purposes in surface water samples.
Status: Closed. After further discussion, GLCC agreed that BOD sampling would not be conducted, since it would be difficult to discern whether the results were affected by the landfill. DEP agreed to collect samples for COD analysis. The objectives and plan for COD sampling was and agreed to between DEP and GLCC.
- 5-06 DEP to reschedule the dioxin/furan testing of the Gude Landfill gas-to-energy engine.
Status: Closed. The testing was conducted in early March 2010 but the results have not yet been reported.
- 5-07 EA to provide a list of the chemical analytes that were detected in the Gude Landfill groundwater/surface water sampling that are carcinogens.
Status: Closed. EA provided a summary of risk and carcinogenic effects for chemical analytes, which is included as Attachment No. 6 to the Meeting No. 7 minutes.
- 6-01 DEP and EA to create a list of open agenda items (i.e., action and follow-up items).
Status: Closed. This list is included in the meeting minutes and will be carried into subsequent minutes.
- 6-02 DEP and EA to finalize more precise locations of the new monitoring wells. Follow-up work with permitting agencies, utility locators, and adjoining property owners will be conducted.
Status: Closed. Additional location information finalized.

Chronology of Closed Action and Follow-up Items
as of
GLCC/DEP Meeting No. 28

- 6-03 GLCC/DEP/EA to finalize an approach to communicate all aspects of the expanded monitoring well program to the Derwood Community.
Status: Closed. Initial letters to be sent to the HOAs, with follow-up letters to residents in the immediate area of proposed intrusive activities.
- 7-01 DEP to complete interim measures for leachate redirection at seep locations.
Status: Closed. Completed May/June 2010.
- 7-02 DEP to finalize and send letter to HOAs regarding the landfill remediation project and proposed groundwater monitoring well locations within the Community.
Status: Closed. DEP prepared the Community notification letter dated 2-26-10 for distribution to the residents via the HOA presidents.
- 7-03 DEP to obtain dioxin/furan test results for flare and engine.
Status: Closed. Results provided to GLCC June 2010.
- 8-01 EA will provide DEP with a full version of the Draft Study Plan as a PDF for posting on the website and an abbreviated PDF version for distribution to GLCC members.
Status: Closed. Received by County on August 6, 2010. County to post on remediation webpage.
- 8-02 GLCC will distribute the DEP Community Letter in a special edition of each of the three HOA newsletters, both by e-mail and standard mail, by the end of March.
Status: Closed.
- 9-01 DEP and EA will provide a list of milestones and dates to include as a schedule update with minutes from each meeting.
Status: Closed.
- 9-02 DEP and EA will identify special instructions for residents and the driller to be used during the actual well drilling for inclusion in the individual resident notification letters.
Status: Closed. Completed June 2010.
- 10-1 EA will prepare a Maryland Toxic Air Pollutant regulation compliance demonstration for dioxin/furan emissions from the flares and engines at Oaks and Gude.
Status: Closed. DEP will post on the Remediation webpage.
- 10-2 GLCC will meet independently on June 20, 2010 to discuss the process of early integration of end use objectives into the corrective action planning process and will propose a pathway and procedure to DEP at the July 8, 2010 DEP/GLCC meeting.
Status: Closed. During Meeting No. 11, GLCC provided the County guidance on preferred end uses from the Community for the Gude Landfill site.

Chronology of Closed Action and Follow-up Items
as of
GLCC/DEP Meeting No. 28

- 11-1 GLCC requested Bob Hoyt, Director of DEP to attend the next GLCC/DEP monthly meeting on September 15, 2010 to discuss the Request for Expression of Interest (REOI).
Status: Closed.
- 11-2 GLCC inquired if the County had investigated the potential for a Brownfields Grant for the Remediation/Land Reuse project.
Status: Closed. Grant funding options were presented to GLCC on 4/14/11.
- 12-1 Using the risk evaluation methodology, EA will back calculate contaminant concentrations that would represent a human risk concern for vapor intrusion from groundwater into indoor air.
Status: Closed. The calculation was made by EA and included in the analysis and provided to GLCC.
- 13-1 EA will revise the last two sentences in paragraph 5) of the minutes for Meeting No. 12 to clarify the concept.
Status: Closed. Changes are reflected in Meeting No. 12 Minutes.
- 13-2 EA will prepare and submit to DEP for review a summary of the project status including background, status, and the remaining activities to complete the project. The HOA Presidents will distribute this summary to Derwood Station residents.
Status: Closed. The Nature and Extent Study Fact Sheet was e-mailed to GLCC/HOA Presidents by Steve Lezinski on 12/23/10 for distribution to the Derwood Station Residential Community.
- 13-3 EA will research the applicability of 40 CFR Part 258 Subpart E and report back to DEP and GLCC.
Status: Closed. A response was provided via e-mail by Steve Lezinski to GLCC on 11/3/10 – the regulation is not applicable to Gude Landfill.
- 14-1 DEP will address conformance of the current monitoring program to the 2001 County Groundwater Protection Plan.
Status: Closed. It was determined that the Ground Water Protection Strategy is not an active program within DEP.
- 14-2 DEP will contact the County Attorney and the County Real Estate Office concerning potential property value impacts and seller's obligations.
Status: Closed. The Office of the County Attorney cannot provide legal advice to members of the Community. If members of the Community desire advice on property value impacts and seller's obligations, they would have to obtain this legal advice from their own legal counsel.
- 15-1 DEP and EA will establish a list of key project milestones for inclusion in the Project Communications Plan.
Status: Closed. As part of the Project Communications Plan, an updated project

Chronology of Closed Action and Follow-up Items
as of
GLCC/DEP Meeting No. 28

schedule and key project milestones were presented to GLCC on 4/14/11.

- 15-2 DEP and EA will determine the current regulation for setbacks at new landfills and report this information to GLCC.
Status: Closed. Applicable setback requirements were determined and presented to GLCC on 4/14/11.
- 15-3 DEP will submit the proposed action plan for further investigation and analysis to satisfy MDE's concerns about the Nature and Extent Study to MDE by March 18, 2011.
Status: Closed. The work plan of Amendment No. 1 to the Nature and Extent Study was submitted to and accepted by MDE in March 2011.
- 16-1 DEP and EA will evaluate the potential corrective measure of excavation and relocation of waste in greater detail, and present this to GLCC at a future monthly meeting.
Status: Closed. DEP and EA presented the potential corrective measure of waste excavation and reclamation during the GLCC/DEP Meeting No. 17.
- 17-2 DEP will add a timeline/milestone review section to future meeting agendas.
Status: Closed. DEP added this item as a standard topic for future agendas.
- 17-3 DEP will create a quarterly newsletter to orient the larger Community and other adjacent property stakeholders on the Landfill. The newsletter will contain an update on the Nature and Extent Study activities that have occurred in the past three months. The newsletter will be provided to GLCC to include in an upcoming HOA newsletter.
Status: Closed. DEP provided the Quarterly Newsletter to GLCC and the Derwood Station HOA's on June 30, 2011.
- 20-1 DEP and EA will provide a map that combines analytes with MCL exceedences and their individual inferred extent of contamination. DEP stated this could be accomplished after MDE approval of the NES Amendment No.1 Report.
Status: Closed. DEP and EA presented the information at GLCC/DEP Meeting No. 21.
- 20-2 DEP and EA will prepare a written explanation of the chemical degradation of TCE and PCE.
Status: Closed. DEP and EA presented the information at GLCC/DEP Meeting No. 21.
- 20-3 DEP will prepare a Fact Sheet for the NES Amendment No. 1 after MDE approval of the Report.
Status: Closed. DEP provided the draft fact sheet for review and will prepare the final version by the end of May. DEP provided the fact sheet to GLCC via email on May 31, 2012 for inclusion in the June 2012 Derwood Community Newsletter.
- 20-4 DEP will prepare a Fact Sheet to summarize the ACM process after MDE approval of the NES Amendment No.1 Report.
Status: Closed. DEP provided the draft fact sheet for review and will prepare the final

Chronology of Closed Action and Follow-up Items
as of
GLCC/DEP Meeting No. 28

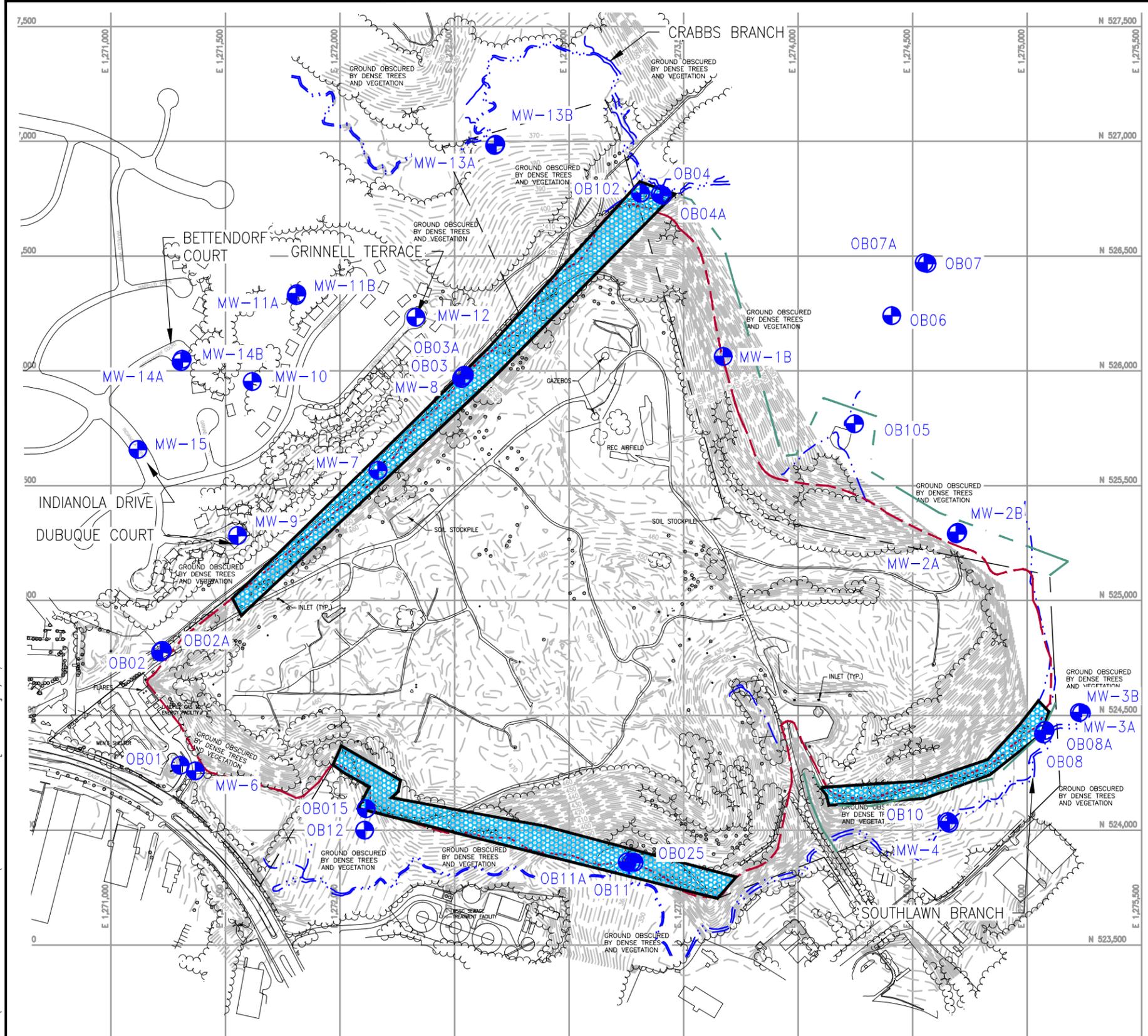
version by the end of May. DEP provided the fact sheet to GLCC via email on May 31, 2012 for inclusion in the June 2012 Derwood Community Newsletter.

- 20-5 DEP to coordinate with GLCC to organize a larger community meeting to present the accepted findings of the NES and introduce the ACM process. This will be initiated after MDE approval of the NES Amendment No.1 Report. GLCC/DEP will review dates for the larger community meeting. DEP will confirm dates with appropriate staff and consultants. GLCC/DEP will develop the agenda for the larger community meeting. GLCC suggested the following major topics: 1) review of the overall purpose and process for the project, 2) a status update on recent activities, 3) explain the next steps, and 4) discuss landfill re-use options. GLCC will secure meeting space. Potential meeting date for September 11th, 12th, 13th, or 18th will be confirmed. Meeting on September 18 at Candlewood Elementary School has been tentatively decided. The date or location could be changed based on Montgomery County Public School calendar and Candlewood Elementary School availability.
Status: Closed. Community meeting has been scheduled and the draft presentation was reviewed with GLCC.
- 22-1 DEP to provide electronic copy of fact sheets via e-mail so GLCC can comment in those documents.
Status: Closed. DEP e-mailed Microsoft Word versions of the fact sheets to GLCC via email prior to finalization on May 31, 2012.
- 22-2 DEP to develop workshops starting with the next GLCC meeting (MNA and bioremediation topics suggested). Part 1 of the workshop was presented at GLCC/DEP Meeting No. 23. Part 2 of the workshop was presented at GLCC/DEP Meeting No. 24.
Status: Closed. Workshops were presented.
- 25-1 DEP will revise the community presentation based on the feedback and discussion at GLCC/DEP Meeting No. 25.
Status: Closed. Presentation was revised and presented at the Community Meeting on September 18, 2012.
- 25-2 DEP will prepare the public notice for the community meeting and send it to GLCC for distribution to the community.
Status: Closed. The public notice was provided before the Community Meeting.
- 25-3 GLCC will distribute the public notice provided by DEP via e-mail and door-to-door through existing HOA communication networks.
Status: Closed. The public notice was distributed before the Community Meeting.
- 25-4 DEP will prepare and provide two signs announcing the community meeting to be placed along the streets at the two entrances to Derwood Station.
Status: Closed. The signs were provided and posted before the Community Meeting.

Chronology of Closed Action and Follow-up Items
as of
GLCC/DEP Meeting No. 28

- 26-1 DEP will provide a briefing on the draft of Section 4 of the ACM Report at the December 2012 GLCC/DEP Meeting.
Status: Closed. A briefing was provided at the December 2012 meeting.
- 26-2 DEP will post the overall remediation schedule on the Gude Landfill Remediation Website.
Status: Closed. The anticipated schedule is posted on the Remediation webpage.
- 26-3 DEP will post the M-NCPPC pamphlet of the Gude-Southlawn Recreational Area dated 1973 on the Gude Landfill Remediation Website.
Status: Closed. The pamphlet is posted on the Remediation webpage.
- 27-1 GLCC will review the draft Table 4-2 from the ACM and provide any comments or ask questions about the initial analysis summarized in the table.
Status: Closed. Table 4-2 was discussed at GLCC/DEP Meeting No. 28.

FILE PATH: G:\PROJECTS\1498201 GUDE PHASE 2 ACM\GUDE FIGURE 4-1.DWG [4-1 11X17] 1/21/13



- NOTES:
1. TOPOGRAPHY COMPILED BY APPLIED MAPPING SOLUTIONS, INC. USING PHOTOGRAMMETRIC METHODS WITH PHOTOGRAPHY DATED 06/24/09 AND SUPPLEMENTED WITH FIELD SURVEY PERFORMED BY C.C. JOHNSON & MALHOTRA, P.C., OCTOBER 2009.
 2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983/91 (NAD-83/91). COORDINATE SYSTEM IS MARYLAND STATE PLANE, U.S. SURVEY FEET. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD-88) WITH ELEVATIONS SHOWN IN FEET.
 3. TOPOGRAPHY IS APPROXIMATE IN AREAS NOTED "GROUND OBSCURED BY DENSE TREES AND VEGETATION".
 4. MONTGOMERY COUNTY IS CURRENTLY IN NEGOTIATIONS WITH M-NCPPC TO EXCHANGE TWO PARCELS OF LAND (LOCATED TO THE NORTH AND SOUTHEAST OF THE GUDE LANDFILL) FOR PROPERTY TO THE NORTHEAST. THE FUTURE PROPERTY BOUNDARY LINE REPRESENTS THE AGREED UPON PROPERTY BOUNDARY FOR THE GUDE LANDFILL FOLLOWING THE PROPERTY EXCHANGE. THE FUTURE PROPERTY BOUNDARY WAS ESTABLISHED WITH PERMANENT PROPERTY BOUNDARY MARKERS AND SURVEYED BY C.C. JOHNSON AND MALHOTRA, P.C. IN MAY 2012.
 5. MCL = MAXIMUM CONTAMINANT LEVEL. AREAS OF MCL EXCEEDANCES ARE BASED ON THE OVERALL MCL COMPLIANCE EXTENT MAP" (APRIL AND SEPTEMBER 2011 SAMPLING EVENTS) FROM THE NATURE AND EXTENT STUDY AMENDMENT NO. 1 (2012), WITH MODIFICATIONS TO ALIGN WITH THE PROPOSED FUTURE PROPERTY BOUNDARY.



- LEGEND**
- 400 --- 10-FT CONTOUR
 - 2 --- 2-FT CONTOUR
 - CURRENT PROPERTY BOUNDARY
 - FUTURE PROPERTY BOUNDARY
 - LIMIT OF WASTE
 - --- STREAM
 - ~~~~~ TREELINE
 - ⊕ MW-X/OBX GROUNDWATER MONITORING WELL
 - █ APPROXIMATE AREAS OF MCL EXCEEDANCES IN GROUNDWATER



DRAFT

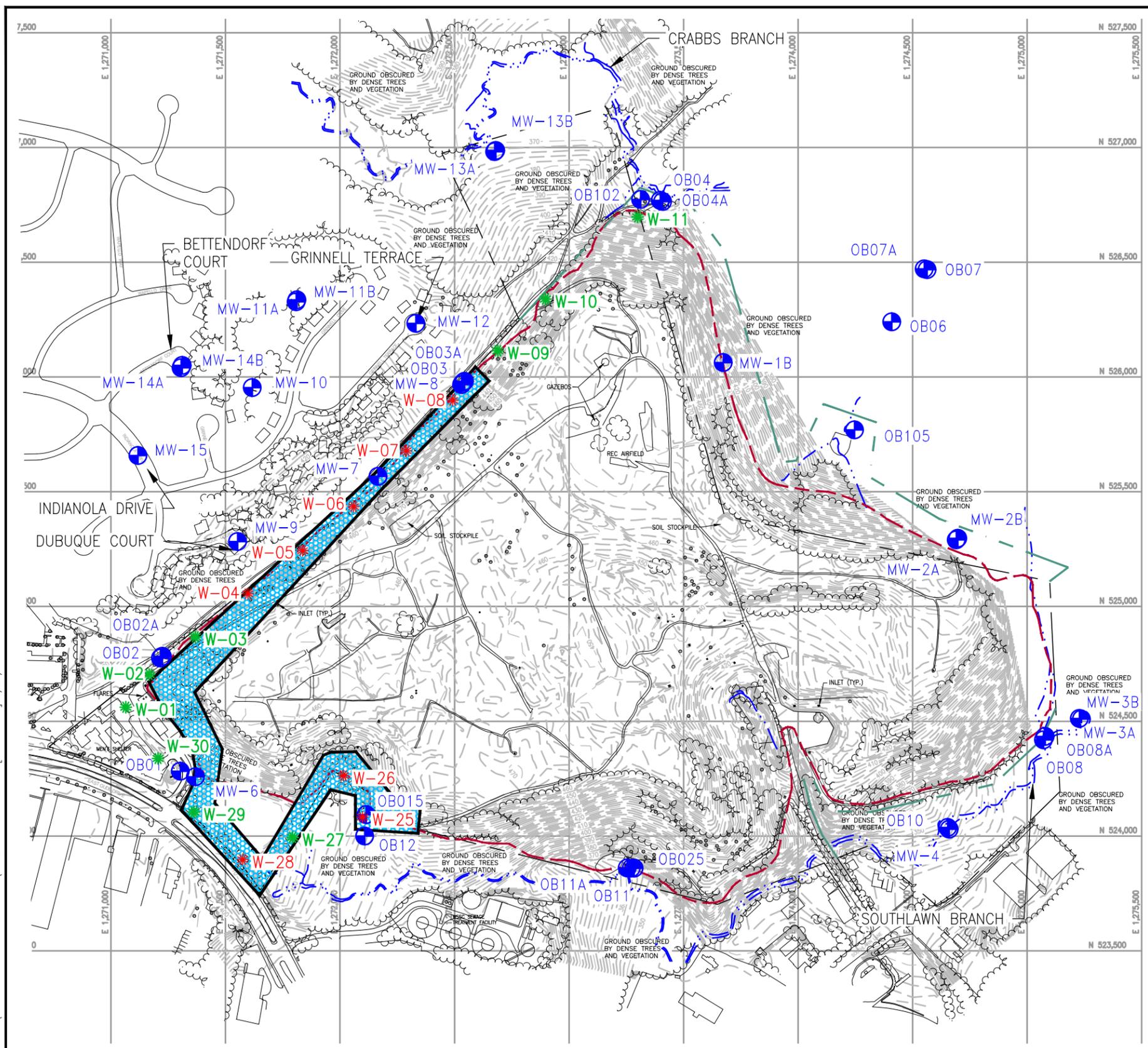


GUDE LANDFILL
ASSESSMENT OF CORRECTIVE MEASURES
MONTGOMERY COUNTY, MARYLAND

FIGURE 4-1
APPROXIMATE AREAS OF MCL EXCEEDANCES IN GROUNDWATER

DESIGNED BY SS	DRAWN BY JSP	DATE JAN. 2013	PROJECT NO. 14982.01
CHECKED BY PC	PROJECT MGR. JK	DRAWING NO. -	FIGURE 4-1

FILE PATH: G:\PROJECTS\1498201 GUDE PHASE 2 ACM\GUDE FIGURE 4-2.DWG [4-1 11X17] 1/21/13



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1. TOPOGRAPHY COMPILED BY APPLIED MAPPING SOLUTIONS, INC. USING PHOTOGRAMMETRIC METHODS WITH PHOTOGRAPHY DATED 06/24/09 AND SUPPLEMENTED WITH FIELD SURVEY PERFORMED BY C.C. JOHNSON & MALHOTRA, P.C., OCTOBER 2009.
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 5. LEL = LOWER EXPLOSIVE LIMIT. EXCEEDANCES INDICATED ARE METHANE CONCENTRATIONS EXCEEDING LEL OF 5 PERCENT DURING WEEKLY MONITORING IN 2011 AND 2012.

LEGEND

- 400 --- 10-FT CONTOUR
- 2 --- 2-FT CONTOUR
- CURRENT PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- LIMIT OF WASTE
- STREAM
- TREELINE
- MW-X/OBX GROUNDWATER MONITORING WELL
- ★ W-26 LANDFILL GAS MONITORING WELL (NO LEL EXCEEDANCES)
- ★ W-26 LANDFILL GAS MONITORING WELL (LOCATION OF LEL EXCEEDANCE IN 2011-2012)
- APPROXIMATE AREAS OF LEL EXCEEDANCES, 2011-2012



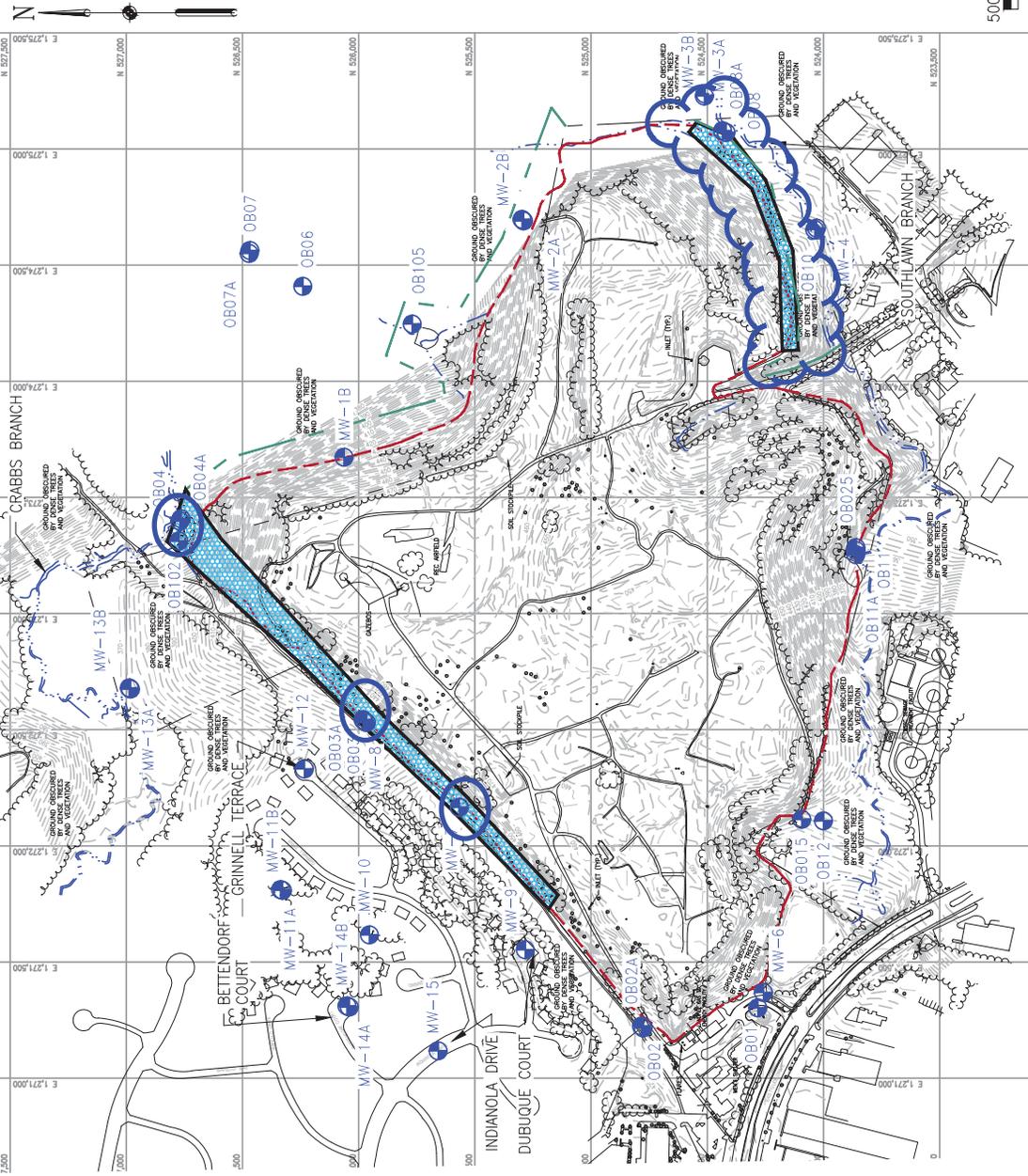
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GUDE LANDFILL
ASSESSMENT OF CORRECTIVE MEASURES
MONTGOMERY COUNTY, MARYLAND

FIGURE 4-2
APPROXIMATE AREAS OF LANDFILL GAS EXCEEDANCES
(2011-2012)

DESIGNED BY SS	DRAWN BY JSP	DATE JAN. 2013	PROJECT NO. 14982.01
CHECKED BY PC	PROJECT MGR. JK	DRAWING NO. -	FIGURE 4-2



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1. TOPOGRAPHY COMPILED BY APPLIED MAPPING SOLUTIONS, INC. USING PHOTOGRAMMETRIC METHODS WITH PHOTOGRAPHY DATED 06/24/09 AND SUPPLEMENTED WITH FIELD SURVEY PERFORMED BY C.C. JOHNSON & MALHOTRA, P.C., OCTOBER 2009.

2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983/91 (NAD-83/91). COORDINATE SYSTEM IS MARYLAND STATE PLANE, U.S. SURVEY FEET. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD-88) WITH ELEVATIONS SHOWN IN FEET.
3. TOPOGRAPHY IS APPROXIMATE IN AREAS NOTED "GROUND OBSCURED BY DENSE TREES AND VEGETATION".

4. MONTGOMERY COUNTY IS CURRENTLY IN NEGOTIATIONS WITH M-NOPPC TO EXCHANGE TWO PARCELS OF LAND (LOCATED TO THE NORTH AND SOUTHEAST OF THE GUIDE LANDFILL) FOR PROPERTY TO THE NORTHEAST. THE FUTURE PROPERTY BOUNDARY LINE REPRESENTS THE AGREED UPON PROPERTY BOUNDARY FOR THE GUIDE LANDFILL FOLLOWING THE PROPERTY EXCHANGE. THE FUTURE PROPERTY BOUNDARY WAS ESTABLISHED WITH PERMANENT PROPERTY BOUNDARY MARKERS AND SURVEYED BY C.C. JOHNSON AND MALHOTRA, P.C. IN MAY 2012.

5. AREAS OF LEACHATE SEEP OCCURRENCES ARE BASED ON LOCATIONS OF HISTORICAL SEEPS IDENTIFIED AND REPAIRED BY MONTGOMERY COUNTY.

- LEGEND**
- 400 --- 10-FT CONTOUR
 - 2-FT CONTOUR
 - CURRENT PROPERTY BOUNDARY
 - FUTURE PROPERTY BOUNDARY
 - LIMIT OF WASTE
 - STREAM
 - TREELINE
 - MW-X/OBX GROUNDWATER MONITORING WELL
 - APPROXIMATE AREAS OF LEACHATE SEEP OCCURRENCES



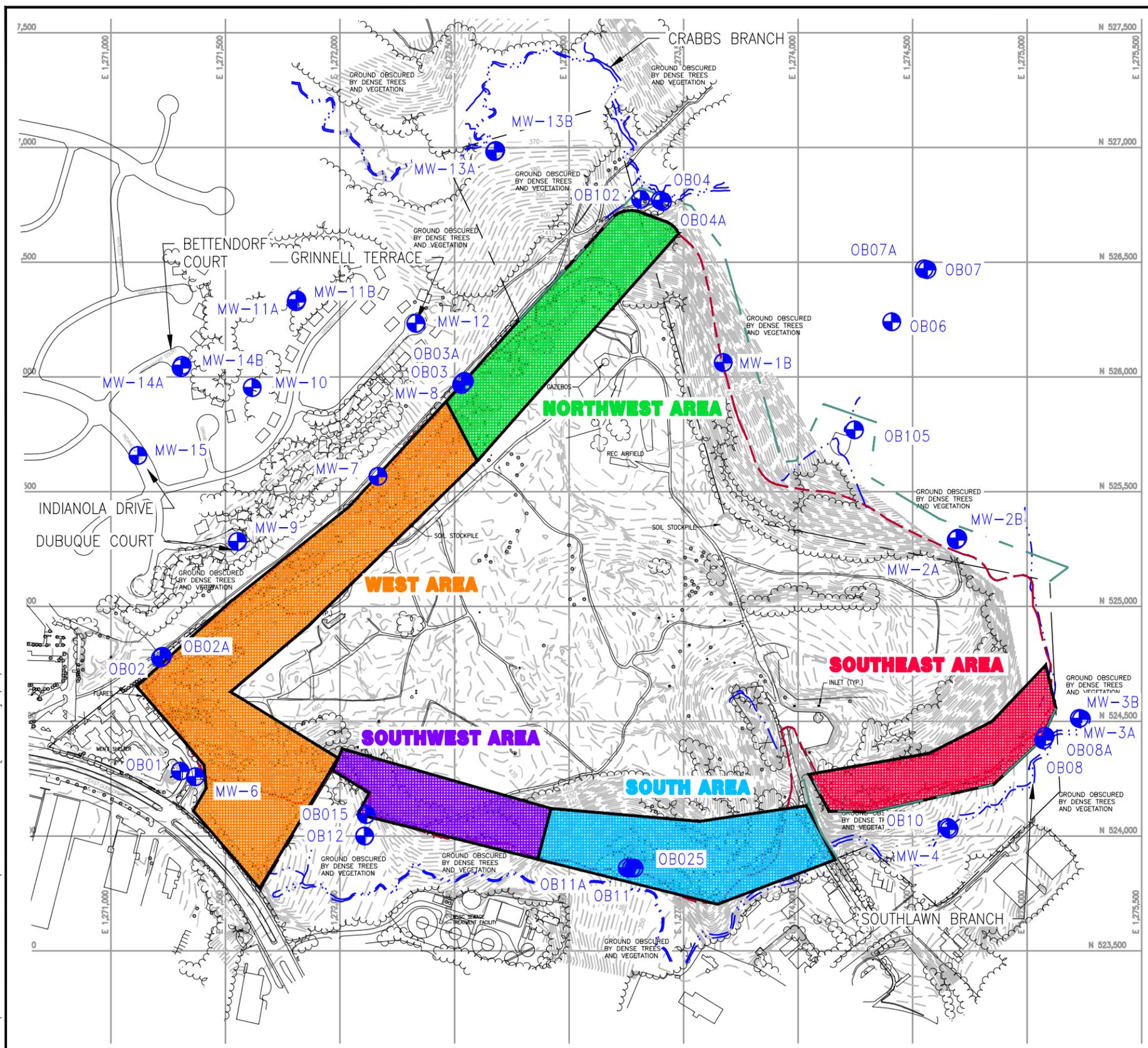
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EA ENGINEERING, SCIENCE, AND TECHNOLOGY	ASSESSMENT OF CORRECTIVE MEASURES MONTGOMERY COUNTY, MARYLAND	APPROXIMATE AREAS OF LEACHATE SEEP OCCURRENCES	DESIGNED BY SS	DRAWN BY JSP	DATE JAN. 2013	PROJECT NO. 14982.01
		FIGURE 4-3	CHECKED BY PC	PROJECT MGR. JK	DRAWING NO. —	FIGURE 4-3

○ = Areas of Historical Non-Stormwater Discharge Occurrences (Leachate Seeps)

○ = Previous Area of Non-Stormwater Discharge Occurrence Evaluation. Not Leachate Seep Related

FILE PATH: G:\PROJECTS\1498201 GUDE PHASE 2 ACM\GUDE FIGURE 4-4.DWG [4-1 11X17] 1/21/13



- NOTES:
1. TOPOGRAPHY COMPILED BY APPLIED MAPPING SOLUTIONS, INC. USING PHOTOGRAMMETRIC METHODS WITH PHOTOGRAPHY DATED 06/24/09 AND SUPPLEMENTED WITH FIELD SURVEY PERFORMED BY C.C. JOHNSON & MALHOTRA, P.C., OCTOBER 2009.
 2. HORIZONTAL DATUM IS NORTH AMERICAN DATUM OF 1983/91 (NAD-83/91). COORDINATE SYSTEM IS MARYLAND STATE PLANE, U.S. SURVEY FEET. VERTICAL DATUM IS NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD-88) WITH ELEVATIONS SHOWN IN FEET.
 3. TOPOGRAPHY IS APPROXIMATE IN AREAS NOTED "GROUND OBSCURED BY DENSE TREES AND VEGETATION".
 4. MONTGOMERY COUNTY IS CURRENTLY IN NEGOTIATIONS WITH M-NCPPC TO EXCHANGE TWO PARCELS OF LAND (LOCATED TO THE NORTH AND SOUTHWEST OF THE GUDE LANDFILL) FOR PROPERTY TO THE NORTH AND SOUTHWEST. THE FUTURE PROPERTY BOUNDARY LINE REPRESENTS THE AGREED UPON PROPERTY BOUNDARY FOR THE GUDE LANDFILL FOLLOWING THE PROPERTY EXCHANGE. THE FUTURE PROPERTY BOUNDARY WAS ESTABLISHED WITH PERMANENT PROPERTY BOUNDARY MARKERS AND SURVEYED BY C.C. JOHNSON AND MALHOTRA, P.C. IN MAY 2012.

LEGEND

- 400 --- 10-FT CONTOUR
- 2 --- 2-FT CONTOUR
- CURRENT PROPERTY BOUNDARY
- FUTURE PROPERTY BOUNDARY
- - - - - LIMIT OF WASTE
- --- STREAM
- ~~~~~ TREELINE
- ⊕ MW-X/OBX GROUNDWATER MONITORING WELL

500 250 0 500 1000
GRAPHIC SCALE IN FEET

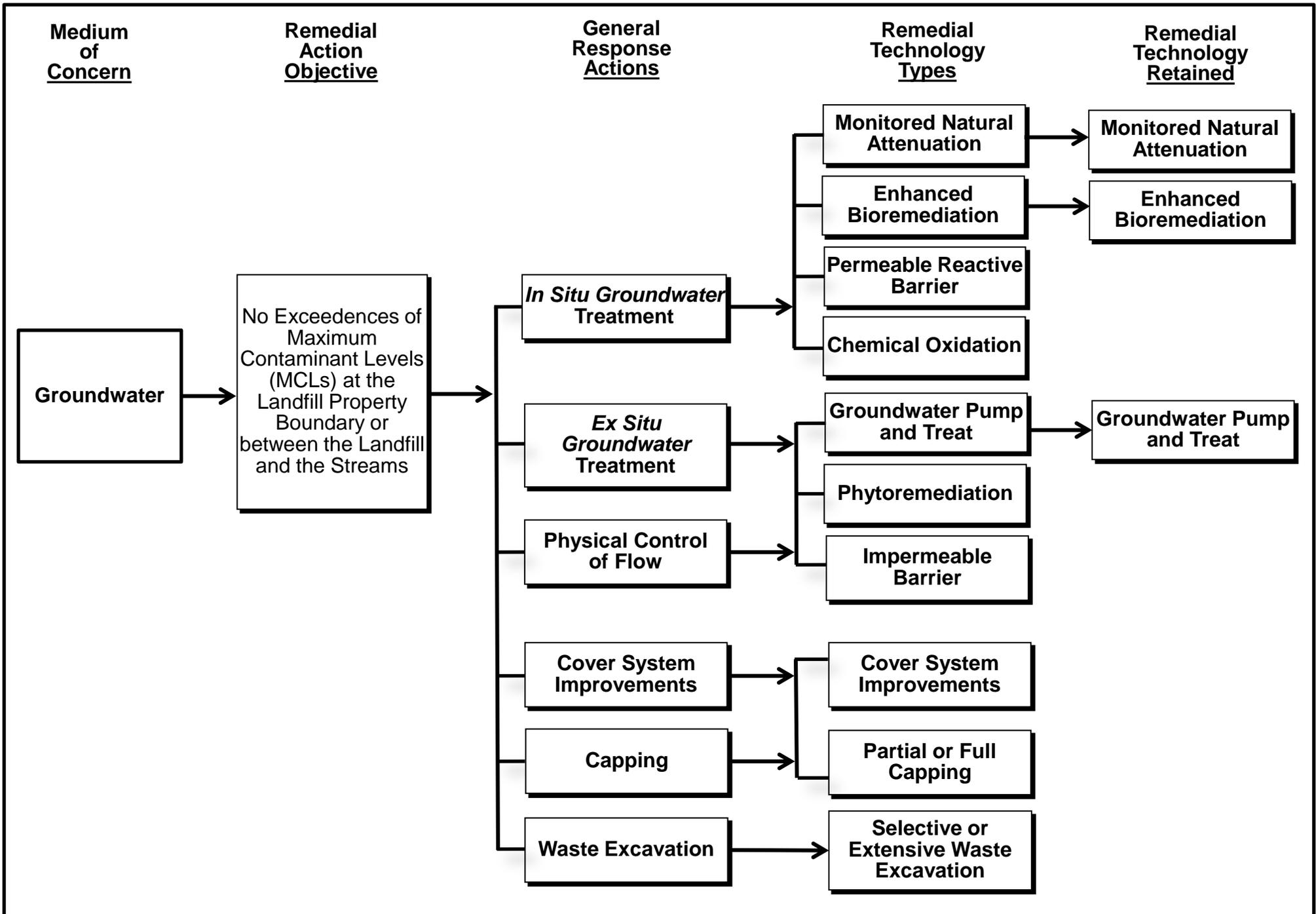
DRAFT

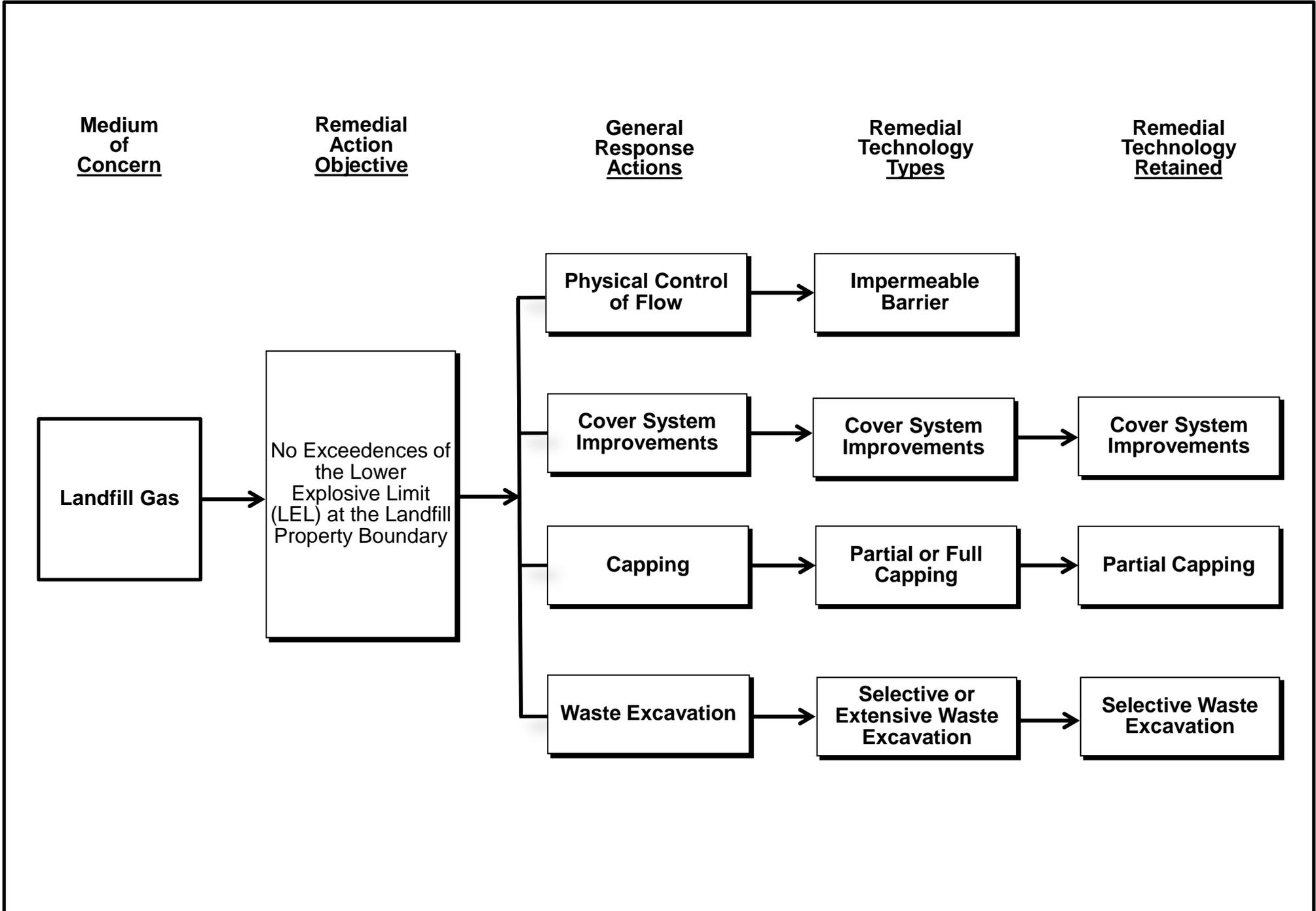


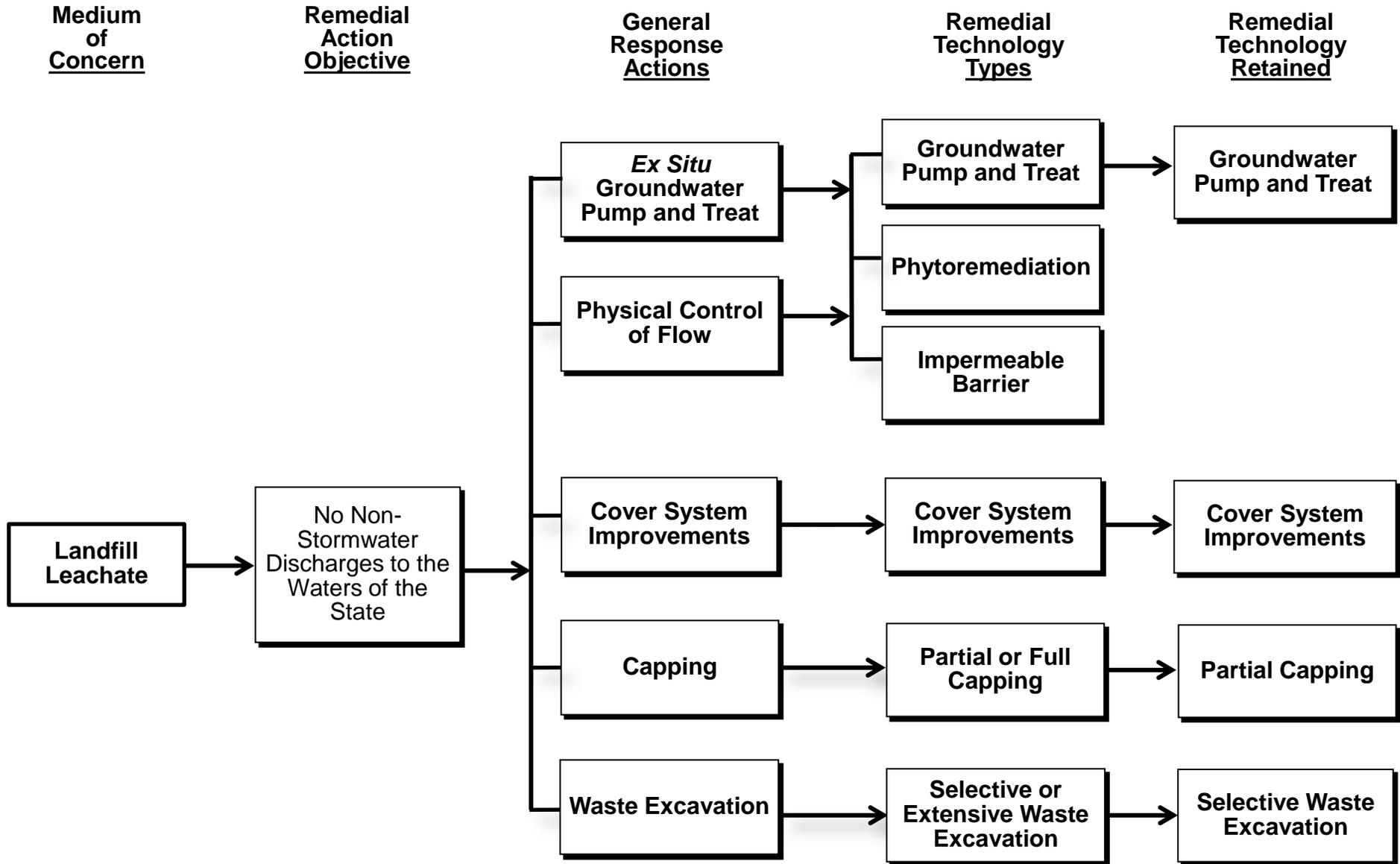
GUDE LANDFILL
ASSESSMENT OF CORRECTIVE MEASURES
MONTGOMERY COUNTY, MARYLAND

FIGURE 4-4
APPROXIMATE REMEDIAL AREAS FOR
CORRECTIVE MEASURES ALTERNATIVES ANALYSIS

DESIGNED BY SS	DRAWN BY JSP	DATE JAN. 2013	PROJECT NO. 14982.01
CHECKED BY PC	PROJECT MGR. JK	DRAWING NO. -	FIGURE 4-4







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Table 4-2 Screening of Preliminary Corrective Measures Alternatives

Remedial Technology	Effectiveness	Implementability	Cost¹	Retained for Further Consideration	Additional Notes
Monitored Natural Attenuation	Moderate—natural attenuation is active at site, but COC concentrations in groundwater exceed MCLs at the point of compliance	High—relies upon sampling and analysis; detailed assessment required for regulatory approval	Low—mainly long-term monitoring and analysis	Retained	
Enhanced Bioremediation	High—could decrease COC concentrations in shallow and deep groundwater to less than MCLs	Moderate—relatively easy to implement; some well installation challenges	Moderate—capital costs and long-term O&M	Retained	
Permeable Reactive Barrier	Moderate—would not address COCs in groundwater within bedrock	Moderate—would require waste relocation, long-term maintenance	High—capital costs and O&M	Not retained, due to inability to treat groundwater within bedrock	
Chemical Oxidation	Moderate—oxidant delivery to deep bedrock would likely be limited	Low—would require frequent reapplication of oxidizing agents; not typically used for sites with COC sources that cannot be treated	Moderate-High—mostly associated with multiple annual injections for many decades	Not retained, due to need for frequent injections in the long-term	
Groundwater Pump and Treat	Moderate—would extract impacted groundwater and remove COCs, but may not completely control deep impacts	Moderate—would require careful design and significant long-term maintenance	Moderate-High—capital costs and long-term O&M	Retained	
Phytoremediation	Low—small decrease in flow of impacted groundwater across a portion of the property boundary	High—requires tree clearing prior to planting and maintenance of trees	Low—relatively low level of effort involved	Not retained, due to limited short-term effectiveness and need to remove trees	Possible enhancement to remedial alternatives
Impermeable Barrier	Low—would only marginally reduce migration of landfill gas and shallow groundwater	Moderate—would require waste relocation, trench construction	Low—cost of constructing the barrier	Not retained, due to inability to control flow of groundwater within bedrock	
Cover System Improvements	Moderate—could decrease potential for formation of leachate seeps	High—requires minimal site disturbance	Moderate—cost of additional topsoil	Retained	

(1) Low = <\$1 million

Moderate = \$1-10 million

High = >\$10 million

(assuming 30 years of operations and maintenance [O&M], where applicable)

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Table 4-2 Screening of Preliminary Corrective Measures Alternatives

Remedial Technology	Effectiveness	Implementability	Cost¹	Retained for Further Consideration	Additional Notes
Full or Partial Capping	<p>Full Capping: High—would likely improve gas collection and eliminate seeps; could decrease leachate volume and reduce groundwater contamination</p> <p>Partial Capping (side-slopes): High—would likely achieve RAOs for landfill gas and leachate seeps</p>	<p>Full Capping: Low—requires extensive site disturbance and rebuilding of landfill gas and stormwater collection systems</p> <p>Partial Capping (side-slopes): High—could be implemented on side slopes after waste excavation</p>	<p>Full Capping: High—costs of cap construction and rebuilding displaced systems</p> <p>Partial Capping (side-slopes): Moderate—cost assumes capping side-slopes (West and Northwest) after waste excavation</p>	<p>Full Capping: Not retained, due to extensive site disturbance and reconstruction required, with unknown benefits for groundwater</p> <p>Partial Capping (side-slopes): Retained</p>	<p>May be implemented in areas without existing MCL exceedances, where the potential for fugitive gas emissions and/or leachate seeps exists</p>
Extensive or Selective Waste Excavation	<p>Extensive Excavation: High—Would remove sources of groundwater VOCs, landfill gas, and leachate. Would not address current groundwater contamination.</p> <p>Selective Excavation: Moderate—would decrease fugitive gas exceedances at the property boundary. Regrading and cap or improved cover could address leachate seeps. Would not address groundwater contamination, but could provide space for groundwater treatment technologies.</p>	<p>Extensive Excavation: Low—requires extensive site and waste disturbance, and would likely take decades to excavate entire landfill</p> <p>Selective Excavation: Moderate—land and waste disturbance, disturbance to landfill gas recovery system</p>	<p>Extensive Excavation: High—may be offset to some degree by recycling of waste</p> <p>Selective Excavation: Moderate—includes cost of excavation and disposal</p>	<p>Extensive Excavation: Not retained, due to timeframe for removal, degree of site and waste disturbance required</p> <p>Selective Excavation: Retained</p>	<p>May be implemented in areas without existing MCL exceedances, where the potential for fugitive gas emissions and/or leachate seeps exists</p>
No Action	Low—would not provide monitoring and thus would not guarantee lack of unacceptable risk	Low—unlikely regulatory agency approval	Minimal—no capital or annual O&M costs	Not retained	