

Regular Meeting of the Mt. Pleasant City Commission
Monday, September 25, 2023
7:00 p.m.

AGENDA

CALL TO ORDER:

PLEDGE OF ALLEGIANCE:

LAND ACKNOWLEDGEMENT STATEMENT:

ROLL CALL:

PROCLAMATIONS AND PRESENTATIONS:

ADDITIONS/ DELETIONS TO AGENDA:

PUBLIC INPUT ON AGENDA ITEMS:

RECEIPT OF PETITIONS AND COMMUNICATIONS:

1. Minutes of the Planning Commission (August).

CONSENT ITEMS:

2. Approval of the minutes from the regular meeting held September 11, 2023.
3. Consider approval of a contract with Wonsey Tree Service of Alma for 2024-2025 tree trimming and removal.
4. Consider authorization of a Grant Application Assurance form as part of a Mt. Pleasant Area Community Foundation grant request for thermal imaging equipment.
5. Consider resolution authorizing an amendment to the Standard Lighting Contract with Consumers Energy for the Pickard-Bradley intersection.
6. Consider resolution authorizing Michigan Department Natural Resources (MI-DNR) Urban and Community Forestry Program Grant Application – Town Center Civic Space Project.
7. Receive an ordinance to amend the City Snow and Ice Removal from Sidewalks ordinance and set a public hearing for October 9, 2023, on the same.
8. Receive an ordinance to amend the City Parking Ordinance and set a public hearing for October 9, 2023, on the same.
9. Consider approval of a budget amendment for the City's network firewall.

All interested persons may attend and participate. Persons with disabilities who need assistance to participate may call the Human Resources Office at 989-779-5313. A 48-Hour advance notice is necessary for accommodation. Hearing or speech impaired individuals may contact the City via the Michigan Relay Service by dialing 7-1-1.

City Commission Agenda

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10. Receive an ordinance to amend Table 154.405.A District Standards: CD-4 General Urban and CD-5 Urban Center Character Districts of the Mt. Pleasant Zoning Ordinances regarding driveway widths and set a public hearing for October 23, 2023, on the same.
11. Receive an ordinance to amend Table 154.410.A Building and Lot Principal Use, Section 154.410.B Special Uses and Article VII of the Mt. Pleasant Zoning Ordinances Regarding Institutional Uses and set a public hearing for October 23, 2023, on the same.
12. Receive an ordinance to amend Table 154.405.A District Standards: CD-3L Sub-Urban Large, CD-3 Sub-Urban, and CD-04 General Urban Character Districts of the Mt. Pleasant Zoning Ordinances Regarding the Ratio of Houses Versus Garage at Frontage and set a public hearing for October 23, 2023, on the same.
13. Consider approval of Payrolls and Warrants.

PUBLIC HEARINGS:

NEW BUSINESS:

14. Consider prioritization and approval of submission of City requests for fall 2023 Saginaw Chippewa Indian Tribe 2% allocation.

ANNOUNCEMENTS ON CITY-RELATED ISSUES AND NEW BUSINESS:

PUBLIC COMMENT ON AGENDA AND NON-AGENDA ITEMS:

RECESS:

WORK SESSION:

15. Presentation by Finance Director Chris Saladine on the 2024 Proposed Operating Budget.

CLOSED SESSION:

16. Consider closed session pursuant to subsection 8(h) of the Open Meetings Act to consider material exempt from discussion or disclosure by state or federal statute.
17. Third Party Administrator.

ADJOURNMENT:

All interested persons may attend and participate. Persons with disabilities who need assistance to participate may call the Human Resources Office at 989-779-5313. A 48-Hour advance notice is necessary for accommodation. Hearing or speech impaired individuals may contact the City via the Michigan Relay Service by dialing 7-1-1.

TO: MAYOR AND CITY COMMISSION SEPTEMBER 25, 2023
FROM: AARON DESENTZ, CITY MANAGER
SUBJECT: CITY MANAGER REPORT ON AGENDA ITEMS

Proclamations and Presentations:

Receipt of Petitions and Communications:

Consent Items:

3. Consider approval of a contract with Wonsey Tree Service of Alma for 2024-2025 tree trimming and removal.
 - a. The City contracts with a private firm for tree trimming and removal services for trees located in the street rights-of-way. Wonsey Tree Service is the lowest bidder based on a price per hour. Wonsey has done business with the City in the past and are capable of providing the service for 2024-2025.
4. Consider authorization of a Grant Application Assurance form as part of a Mt. Pleasant Area Community Foundation grant request for thermal imaging equipment.
 - a. Staff is applying for a grant through the Mt. Pleasant Area Community Foundation. The total request is for \$38,823 to replace thermal imaging units used in the Fire Department. The City Commission is requested to approve the grant application.
5. Consider resolution authorizing an amendment to the Standard Lighting Contract with Consumers Energy for the Pickard-Bradley intersection.
 - a. Consumers Energy is requesting to remove the existing center suspension light over the intersection and Pickard and Bradley and replace it with two bracket LED streetlights to accommodate a future traffic signal at this intersection. The streetlight removal and installation work will be completed by Consumers at no cost to the city.
6. Consider resolution authorizing Michigan Department Natural Resources (MI-DNR) Urban and Community Forestry Program Grant Application – Town Center Civic Space Project.
 - a. Staff is applying for an MDNR grant to remove 9 trees and add 57 trees to the Town Center project next year. The estimated total cost of this activity is \$50,000 with a match of \$38,990 already dedicated to the project budget. The City Commission is asked to approve the attached Resolution authorizing the grant.
7. Receive an ordinance to amend the City Snow and Ice Removal from Sidewalks ordinance and set a public hearing for October 9, 2023, on the same.
 - a. At the May 22nd City Commission meeting, a work session was held where Commissioners provided feedback on the City's sidewalk snow removal efforts and overall walkability. From that feedback, staff has developed the attached ordinance which requires property owners to remove snow and ice from sidewalks 24 hours after a snow or ice event. City staff will continue to provide snow removal services on sidewalks already established in the City's program. The City Commission is asked to set a public hearing on the proposed ordinance.

8. Receive an ordinance to amend the City Parking Ordinance and set a public hearing for October 9, 2023, on the same.
 - a. The City Commission is asked to set a public hearing to consider an update to the City's ordinance that establishes rules for parking. The amended ordinance modifies definitions to the previous ordinance, removes the even/odd overnight parking system and establishes a system for parking lot snow removal similar to the snow emergency process, provides reference to special parking arrangements for future ease of recall, and establishes regulations for parking at electric car charging stations.
9. Consider approval of a budget amendment for the City's network firewall.
 - a. The firewall is a highly important piece of equipment that is part of our cybersecurity infrastructure. The old system was scheduled for replacement in 2024 however, the vendor which the City purchases this equipment and support from has offered a deal for an early upgrade. The early upgrade will save the City \$2,460. The City Commission is asked to approve a budget amendment to authorize the purchase in the current fiscal year.
10. Receive an ordinance to amend Table 154.405.A District Standards: CD-4 General Urban and CD-5 Urban Center Character Districts of the Mt. Pleasant Zoning Ordinances regarding driveway widths and set a public hearing for October 23, 2023, on the same.
 - a. The Planning Commission has recommended the attached ordinance amendment regarding driveway widths. The proposed amendments increase maximum driveway width from 24 feet to 30 feet along Pickard, Mission and High Streets within the CD-4 and CD-5 districts. It also permits driveways wider than 30 feet along MDOT routes if the proposal incorporates increased pedestrian safety measures. Lastly, the amendment increases the maximum driveway width for residential development from 10 feet to 18 feet in the CD-4 district.
11. Receive an ordinance to amend Table 154.410.A Building and Lot Principal Use, Section 154.410.B Special Uses and Article VII of the Mt. Pleasant Zoning Ordinances Regarding Institutional Uses and set a public hearing for October 23, 2023, on the same.
 - a. The Planning Commission has recommended the attached ordinance amendments regarding transitional housing, adult day care centers, and certain medical offices. It authorizes transitional housing in the CD-4 and CD-5 districts as part of a Special Use Permit for larger (more than 16 occupants) facilities and by right for smaller facilities (16 or less occupants). Certain medical offices would be allowed by right and urgent and emergency care facilities would be allowed by Special Use Permit in the SD-RC district. Lastly, adult day care centers would be a use by right in the CD-3L, CD-3, CD-4, and CD-5 districts.
12. Receive an ordinance to amend Table 154.405.A District Standards: CD-3L Sub-Urban Large, CD-3 Sub-Urban, and CD-04 General Urban Character Districts of the Mt. Pleasant Zoning Ordinances Regarding the Ratio of Houses Versus Garage at Frontage and set a public hearing for October 23, 2023, on the same.
 - a. The Planning Commission has recommended the attached ordinance amendments regarding home façade to garage ratios. The proposal would allow for greater flexibility for residential buildings by increasing the threshold for the home façade to garage ratio.

Public Hearings:

New Business:

14. Consider prioritization and approval of submission of City requests for fall 2023 Saginaw Chippewa Indian Tribe 2% allocation.

- a. The City Commission annually reviews staff requests for 2% Allocation Grants through the Saginaw Chippewa Indian Tribe. Proceeds from certain types of gaming are offered by the SCIT as part of this grant program. As part of this review the City Commission is asked to rank the top five (5) projects for consideration from the Tribe. The City Commission packet from 09/11/2023 included all of the applications that staff has prepared. At the upcoming meeting, each Commissioner will state their top five (5) projects that are a priority for them. Staff will then provide the collective top 5 ranking to the Tribe while submitting all of the grant applications. The Tribal Council considers these priority projects listed by the City Commission when making their awards.
 - i. Recommended Action: Feedback on the top 5 projects is needed from each City Commissioner.

Work Session:

15. Presentation by Finance Director Chris Saladine on the 2024 Proposed Operating Budget.
 - a. Finance Director Chris Saladine will present the highlights of the 2024 proposed operating budget. The presentation will include a review of the General Fund, Special Revenue Funds, and Enterprise Funds. The City Commission will be asked to engage in a discussion around several City services and provide feedback and thoughts on the proposed budget. A follow-up work session on the budget will be scheduled for October 23rd

Closed Session:

16. Consider closed session pursuant to subsection 8(h) of the Open Meetings Act to consider material exempt from discussion or disclosure by state or federal statute.
 - a. The City Commission is asked to go into a closed session to discuss material exempt from disclosure by state or federal statute.
 - i. Recommended Action: A motion to enter closed session pursuant to subsection 8(h) of the Open Meetings Act to consider material exempt from discussion or disclosure by state or federal statute.
17. Third Party Administrator.
 - a. The City Commission may need to take action based on discussion that will take place in the above closed session.

**Mt. Pleasant Planning Commission
Minutes of the Regular Meeting
August 3, 2023**

I. Chair Hoenig called the meeting to order at 7:00 p.m.

Present: Hoenig, Irwin, Kingsworthy, Liesch, Nicholas
Absent: Devenney, Friedrich, Haveles, Ortman

Staff: Manuela Powidayko, Laura Delamater

II. Approval of the Agenda:

Motion by Liesch, support by Irwin to approve the agenda.

Motion approved unanimously.

III. Approval of the Minutes:

A. July 6, 2023 Regular Meeting

Motion by Kingsworthy, support by Liesch to approve the minutes from the July 6, 2023 regular meeting as presented.

Motion approved unanimously.

B. July 6, 2023 Work Session Meeting

Motion by Liesch, support by Irwin to approve the minutes from the July 6, 2023 work session meeting as presented.

Motion approved unanimously.

IV. Zoning Board of Appeals report for July:

Commissioner Friedrich was absent. Powidayko reported that the Zoning Board of Appeals did not meet in July.

V. Communications:

Powidayko reported that there were no communications.

VI. Public Hearings:

A. SUP-23-12 – 603 N. Washington – Marc and Holly Knudson – Request for Special Use Permit for a short-term rental.

Powidayko introduced SUP-23-12, a request for Special Use Permit for a short-term rental.

Powidayko reviewed the current and prior uses of the property. Powidayko provided an overview of the property including current zoning, future, current and prior land use. Powidayko reviewed photos showing current conditions of the property.

Powidayko reviewed Special Use Conditions regarding short-term rentals.

Powidayko closed her presentation with recommendation to approve SUP-23-12 subject to conditions.

Discussion took place.

Marc and Holly Knudson, owners, were on hand to address the board and answer questions.

Discussion took place.

Chair Hoenig opened the public comment.

Powidayko noted that there were no other public comments submitted via zoom or electronically.

There being no one else who wished to speak, public comment was closed.

Discussion took place.

Motion by Liesch, support by Irwin to approve SUP-23-12 subject to the following conditions:

1. The applicant shall comply with the requirements of Public Safety and get approval for a rental license with the Mt. Pleasant Fire Department.

Discussion took place.

Ayes: Hoenig, Irwin, Kingsworthy, Liesch, Nicholas

Nays: None

Motion approved unanimously.

VII. Public Comments:

Chair Hoenig opened the public comment. Powidayko noted that there were no public comments submitted via zoom or electronically. There being no one who wished to speak, public comment was closed.

VIII. Site Plan Reviews:

A. None

IX. Unfinished Business:

A. None

X. New Business:

- A. (TC-23-01)** Discuss amendment to Table 154.405.A of the zoning ordinance regarding driveway widths in CD-4 (General Urban) and CD-5 (Urban Center) Character Districts and consider setting a public hearing on this issue at the September 7, 2023 regular meeting.

Powidayko introduced Text Change 23-01 to increase the maximum driveway width requirement from 24 to 30 feet along Pickard, Mission and High Street (west of Mission) and allow for a wider driveway along MDOT's routes, if the applicant incorporates increased pedestrian safety designs. The packet also included information about allowing residential development to design 18-foot wide driveways within CD-4 Districts to match the standard in CD-3L and CD-3 districts.

Discussion took place.

Motion by Irwin, support by Nicholas to set a public hearing to consider the proposed text change at the September 7, 2023 regular meeting.

Motion approved unanimously.

- B. (TC-23-02)** - Discuss amendment to Article VII and Table 154.410.A of the zoning ordinance regarding institutional uses (homeless shelters, adult day care centers, and detoxification facilities) and consider setting a public hearing on this issue at the September 7, 2023 regular meeting.

Powidayko introduced Text Change 23-02 to allow transitional housing within commercial districts (CD-4, CD-5) pursuant to a SUP and consider two options for regulating smaller transitional housing:

Option 1: Permit smaller transitional housing within CD-3L, CD-3, CD-4 and CD-5 Character Districts by right.

Option 2: Continue to permit smaller shelters by classifying them under an existing residential use category (single-family, two-family, multi-family, or rooming dwelling).

The packet also included information about allowing medical uses (medical and dental offices and outpatient/urgent care facilities/emergency rooms) within SD-RC and adult day care centers within CD-3L, CD-3, CD-4 and CD-5 Districts.

Discussion took place.

Motion by Kingsworthy, support by Irwin to set a public hearing to consider the proposed text change (with Option 1) at the September 7, 2023 regular meeting.

Roll Call Vote.

Ayes: Nicholas, Kingsworthy, Liesch, Irwin, Hoenig

Nays: None

Motion approved unanimously.

- C. **(TC-23-03)** – Discuss amendment to Table 154.405.A of the zoning ordinance regarding the required ratio of house versus garages in CD-3L, CD-3 and CD-4 and consider setting a public hearing on this issue at the September 7, 2023 regular meeting.

Powidayko introduced Text Change 23-03 to exempt two-story residences from the “ratio of house versus garage at frontage” requirement, which requires garages to occupy less than 50% of the total width of buildings located within CD-3L, CD-3 and CD-4 districts, and to increase the requirement from 50% to 60% for single-story residences.

Discussion took place.

Motion by Irwin, support by Kingsworthy to set a public hearing to consider the proposed text change at the September 7, 2023 regular meeting.

Motion approved unanimously.

XI. Other:

A. Staff report.

Powidayko reviewed the Administrative Site Plan Reviews that staff had approved in July.

XII. Adjournment:

Motion by Irwin, support by Liesch for adjournment.

Motion approved unanimously.

Meeting adjourned at 7:53 p.m.

lkd

Minutes of the regular meeting of the City Commission held Monday, September 11, 2023, at 7:00 p.m. in the City Commission Room, 320 W. Broadway St., Mt. Pleasant, Michigan with virtual options.

Mayor Perschbacher called the meeting to order.

The Pledge of Allegiance was recited.

Land Acknowledgement statement was recited.

Commissioners Present: Mayor Amy Perschbacher, Vice Mayor Mary Alsager; Commissioners Brian Assmann, Liz Busch, Bryan Chapman, Maureen Eke & Boomer Wingard

Commissioners Absent: None

Others Present: City Manager Aaron Desentz and City Clerk Heather Bouck

Proclamations and Presentations

Finance Director Christopher Saladine introduced Utility Billing Office Professional Susan Tham.

Parks & Public Spaces Director Philip Biscorner introduced Parks and Public Spaces I Joe Bryant.

Mayor Perschbacher read and presented to Maureen Eke on behalf of the Isabella County Human Rights Coalition, a Proclamation recognizing International Day of Peace "September 21, 2023". September 23, 2023 is the annual Peace event starting with a walk beginning at 3 pm at City Hall and ending at Island Park.

Mary Freeman of Lean & Green Michigan gave a presentation on the PACE Program.

MERS Regional Manager Tony Radjenovich gave a presentation on Municipal Employees' Retirements System of Michigan (MERS).

Casey Thomas Ahlbrandt-Rains of Gabriel, Roeder, Smith & Company (GRS) gave a presentation on Act 345.

Moved by Commissioner Chapman and seconded by Commissioner Eke to approve the agenda as presented. Motion unanimously adopted.

Receipt of Petitions and Communications

Received the following petitions and communications:

7. Monthly report on police related citizen complaints received.
8. Zoning Board of Appeals November Meeting Minutes.
9. Notice of Temporary Traffic Control Orders #6-2023 and #7-2023.

Moved by Commissioner Eke and seconded by Commissioner Busch to approve the following items on the Consent Calendar:

10. Minutes of the regular meeting of the City Commission held August 28, 2023;
11. Resolution in support of final approval of Temporary Traffic Control Order #5-2023 as follows:

WHEREAS, under the date of July 27, 2023 the Traffic Engineer of the City of Mt. Pleasant issued temporary traffic control order No. 5-2023:

Remove 15 minute parking sign at 121 S Kinney. New property owners do not want the sign. Sign was requested by a previous owner.

Said temporary traffic control order was presented to the City Commission on September 11, 2023, for review and after reviewing said temporary control order and being fully advised in the premises,

BE IT RESOLVED, that the City Commission approves making temporary traffic control order No. 5-2023 a permanent traffic control order.

12. Amendment to bond counsel contract with Dickinson Wright for an additional \$10,500.
13. Contract with R & T Murphy Trucking of Mt. Pleasant, Michigan for 2023-2024 leaf hauling in the amount of \$124.50 per hour.
14. Contract with R & T Murphy Trucking of Mt. Pleasant, Michigan for 2023-2025 snow hauling in the amount of \$124.50 per hour.
15. Contract with Fleis & Vandenbrink of Midland, Michigan for Professional Engineering Services – Mill Pond Park Weir & Pedestrian Bridge Repairs and Chipp-A-Waters Park Riverbank Restoration for a total price of \$77,500.
16. Receive Fall 2023 Saginaw Chippewa Indian Tribe 2% funding requests from City departments. No action required at this time.
17. Receive proposed 2024 Annual Operating Budget and set a public hearing for Monday, November 13, 2023 at 7:00 p.m. on same.
18. Resolution to amend 2023 Operating Budget as follows:

WHEREAS, Article VII, Section 10 authorizes the City Commission to amend the annual operating budget by resolution, and

WHEREAS, the 2023 operating budget was originally adopted by resolution on November 21, 2022 and

WHEREAS, the activities of the City since the budget was adopted have been such as to necessitate an amendment at this time, during the year beginning January 1, 2023 and ending December 31, 2023;

NOW THEREFORE, BE IT RESOLVED, that the following revenue and expenditure appropriations be approved and the 2023 operating budget be amended, effective immediately.

	Fund			Fund
	Balance	2023	2023	Balance
	January 1	Revenue	Expenditures	December 31
GOVERNMENTAL FUNDS				
GENERAL FUND				
Unassigned	\$4,861,913	\$15,323,740		
Legislative Division			1,283,880	
Finance Division			1,821,580	
Public Safety Division			7,729,020	

Community Services Division			2,913,520	
Public Works Division			890,110	
Amount from Fund Balance			(383,620)	
Total Unassigned	\$4,861,913	\$15,323,740	\$14,254,490	\$5,931,163
Assigned for Next Year's Budget	383,620	69,030	383,620	69,030
Assigned for Economic Initiatives	736,088	0	15,000	721,088
Assigned for Projects/Programs	3,447,588	251,950	404,130	3,295,408
Restricted	483,210	12,500	12,750	482,960
Committed for Special Assessments	337,101	0	0	337,101
Committed for Neighborhoods	222,670	40,400	80,000	183,070
Committed for Capital Projects	1,824,700	776,430	404,720	2,196,410
Non-spendable	446,775	0	0	446,775
Total General Fund	\$12,743,665	\$16,474,050	\$15,554,710	\$13,663,005
SPECIAL REVENUE FUNDS				
MAJOR STREET FUND				
Restricted	\$1,609,783	\$1,979,880	\$2,617,420	\$972,243
Restricted for Donation	15,400	0	0	15,400
Total Major Street Fund	1,625,183	1,979,880	2,617,420	987,643
LOCAL STREET FUND				
Restricted	883,423	\$1,200,830	\$1,778,910	\$305,343
Restricted for Donation	15,209	0	0	15,209
Total Local Street Fund	898,632	1,200,830	1,778,910	320,552
STORM SEWER FUND				
Restricted	0	946,500	946,500	0
DOWNTOWN SPECIAL ASSESSMENT				
Restricted from Special Assessment	141,619	109,400	125,860	125,159
Total Governmental Funds				
Appropriated Budget	\$15,409,099	\$19,764,160	\$20,076,900	\$15,096,359
		Sources of	Uses of	Working
		Working	Working	Capital
		Capital	Capital	December 31
Component Units				
MISSION STREET DDA FUND				
Assigned	\$1,209,916	\$374,000	\$141,600	\$1,442,316
TAX INCREMENT FIN AUTH FUND				
Central Business District Assigned	121,222	300	121,522	0
Central Business District Restricted	42,437	0	42,437	0
Ind Park North Assigned	90,000	0	0	90,000
Ind Park North Unassigned	6,181	0	4,000	2,181
Total TIFA	259,840	0	4,000	92,181

BROWNFIELD REDEVELOPMENT FUND				
Assigned	14,252	53,520	53,660	14,112
Unassigned	1,021	300	0	1,321
Total Brownfield	15,273	53,820	53,660	15,433
Total Component Unit Funds				
Informational Summaries	\$1,485,029	\$427,820	\$199,260	\$1,549,930
		Sources of	Uses of	Working
		Working	Working	Capital
		<u>Capital</u>	<u>Capital</u>	<u>December 31</u>
<u>PROPRIETARY FUNDS</u>				
Enterprise Funds				
RECREATION FUND				
Restricted for PEAK	0	498,660	498,660	0
Assigned for PEAK	1,197,040	351,350	457,730	1,090,660
Restricted for Recreation	10,000	0	10,000	0
Assigned for Recreation	99,804	615,340	682,890	32,254
Total Recreation Fund	1,306,844	1,465,350	1,649,280	1,122,914
LAND DEVELOPMENT FUND				
Restricted	\$50,000	0	0	\$50,000
Unassigned	9,031	96,380	92,380	13,031
Total Land Development	54,187	96,380	92,380	63,031
AIRPORT FUND				
Restricted	162,527	80,000	80,000	162,527
Assigned	82,519	0	0	82,519
Unassigned	303,383	608,210	717,620	193,973
Total Airport	548,429	688,210	797,620	439,019
WATER RESOURCE RECOVERY FUND				
Assigned	2,634,436	150,000	184,180	2,600,256
Restricted	7,135,301	27,120,000	9,161,910	25,093,391
Unassigned	1,596,961	3,112,210	2,906,920	1,802,251
Total Water Resource Recovery Fund	11,366,698	30,382,210	12,253,010	29,495,898
WATER FUND				
Assigned	1,255,154	689,000	865,000	1,079,154
Unassigned	2,172,721	3,318,480	3,361,000	2,130,201
Total Water	3,427,875	4,007,480	4,226,000	3,209,355
SOLID WASTE FUND				
Restricted	200,000	0	0	200,000
Unassigned	882,141	665,970	780,090	768,021

Total Solid Waste	1,082,141	665,970	780,090	968,021
Internal Service Funds				
MOTOR POOL FUND				
Assigned	14,000		14,000	0
Unassigned	899,323	973,930	1,245,540	627,713
Total Motor Pool	913,323	973,930	1,259,540	627,713
SELF INSURANCE FUND	1,188,210	2,579,100	3,238,580	528,730
Total Proprietary Funds				
Informational Summaries	\$19,873,707	\$40,858,630	\$24,282,500	\$36,454,681

19. Payrolls and Warrants dated September 7, 2023 all totaling \$214,743.15.

Motion unanimously adopted.

Moved by Commissioner Eke and seconded by Commissioner Assmann to approve the following appointments as recommended by the Appointments Committee:

<u>Local Officers Compensation Commission (LOCC)</u>	<u>Term Expires</u>
Brian Hansen	12/31/2023
Jim Kridler	12/31/2026
Gary Mark	12/31/2029

Motion unanimously adopted.

Moved by Commissioner Eke and seconded by Commissioner Assmann to approve the purchase of three Netzsch Peripro peristaltic pumps and one set of replacement parts from Kerr Pump & Supply of Oak Park, Michigan, in the amount of \$41,690. Motion unanimously adopted.

Announcements on City-Related Issues and New Business

Commissioner Busch announced that the Cat Coalition is interested in a TNR contract with the City and would like to see this added as a work session item in the future.

Commissioner Eke raised concerns regarding speeding on City streets including Preston, Watson and Washington.

Commissioner Wingard commented that he would like to see a future discussion on options for natural landscaping rather than cut grass. He encouraged residents to get their updated COVID Booster.

Commissioner Alsager commented that she would like to see a plaque or other dedication of the historic bridge into Island Park.

City Manager Desentz thanked the Commission for their time and attention this evening with the presentations.

Public Comment on Agenda and Non-Agenda Items

Joelle Delucia, 634 S. University supports the efforts to permit naturalized landscaping and amendment to the City Ordinances to allow for same.

Moved by Commissioner Eke and seconded by Commissioner Chapman to adjourn the meeting at 8:54 p.m. Motion unanimously adopted.

Amy Perschbacher, Mayor

Heather Bouck, City Clerk

Memorandum



TO: Aaron Desentz, City Manager

FROM: Jason Moore, DPW Director

DATE: September 15, 2023

SUBJECT: Award 2024-2025 Tree Trimming and Removal Contract

The City Commission is requested to award the contract for the 2024-2025 Tree Trimming and Removal bid to Wonsey Tree Service for the bid prices stated.

The City contracts with a private firm for tree trimming and removal services for trees located in the street rights-of-way. These services include routine trimming, removals, and emergency tree services on an as-needed basis. The Street Department will remove all tree stumps and complete the necessary ground restoration.

The following bids were received on August 29, 2023. For reference, the previous contract pricing is listed in parentheses.

	Tree Trimming per Hour	Tree Removal per Hour	Emergency Work per Hour
Wonsey Tree Service Alma	\$130.00 (no bid)	\$210.00 (no bid)	\$260.00 (no bid)
Always There Tree Care Ithaca (first-time bidder)	\$150.00 (2 person crew)	\$150.00 (2 person crew)	\$255.00 (2 person crew)
	\$185.00 (3 person crew)	\$188.00 (3 person crew)	\$310.00 (3 person crew)
F & K's Tree Service Mt. Pleasant	\$200.00 (\$150.00)	\$300.00 (\$200.00)	\$450.00 (\$250.00)

Wonsey Tree Service is the low bidder for the tree trimming and removal bid. The Street Department last worked with Wonsey in 2016, and they were the City's awarded contract holder from 2011-2014. They are an established company with proven field expertise.

I recommend the City Commission award the contract for the 2024-2025 Tree Trimming and Removal bid to Wonsey Tree Service at the prices stated. Funds have been budgeted for the 2024 work. The future work will be included in the 2025 operating budget.



City of Mount Pleasant, Michigan
DEPARTMENT OF PUBLIC SAFETY



DATE: September 25, 2023
TO: City Commission
FROM: Doug Lobsinger, Fire Chief and Neighborhood Resource Unit Coordinator
SUBJECT: Mt. Pleasant Area Community Foundation Grant

The Fire Department has submitted a grant request to the Mt. Pleasant Area Community Foundation (MPACF) for consideration to fund thermal imaging equipment. The grant request is for \$38,823. This is to replace existing thermal imaging units with new improved technologies. These Thermal Imagers are used to help identify unseen fire conditions, hot spots and search for people during no visibility conditions.

I have submitted a Grant Application Assurance form that requires the governing board to approve our request through the MPACF. I recommend to the City Commission authorize the Mayor to sign this form. Thank you in advance for your consideration.

Mt. Pleasant Area

community foundationSM

For good. For ever.SM

Grant Application Assurance

The Mt. Pleasant Area Community Foundation manages more than 275 permanently endowed funds. These funds were created by families, individuals, businesses and organizations to address a particular charitable purpose in our community. Because these funds reflect the diverse interests of our community, they are able to provide grants to a wide variety of community programs. Community Foundation staff will match your request with those endowed funds whose charitable purpose would be served by awarding a grant to your program or project. Representatives of these funds will review your application and make grant recommendations to the Foundation's Board of Trustees. (You should not directly solicit any particular fund or fund representative.) The Board has the sole authority to authorize grants from the Mt. Pleasant Area Community Foundation. Monies for a single grant may come from more than one of the Community Foundation's endowed funds.

Applications must be reviewed and approved by an authorized official* of the applying organization.

*For purposes of this award, an Authorized Financial Officer is an organization employee or board member with legal authority to accept money on behalf of the organization.

This application was approved by the governing board on: ____/____/____
(Must be before the grant application due date)

Organization Name:

City of Mt. Pleasant

Program/Project Name:

Thermal Imaging Equipment

Authorized Official of the Governing Board:

Name (print): _____ **Date:** ____/____/____

Name (signature): _____

City of Mt. Pleasant, Michigan



CITY HALL
320 W. Broadway • 48858
(989) 779-5300
(989) 773-4691 fax

PUBLIC SAFETY
804 E. High • 48858
(989) 779-5100
(989) 773-4020 fax

PUBLIC WORKS
320 W. Broadway • 48858
(989) 779-5400
(989) 772-6250 fax

September 8, 2023

TO: Aaron Desentz, City Manager

FROM: Stacie Tewari, City Engineer

SUBJECT: Approval of Authorization and Resolution for a Change in the Standard Lighting Contract with Consumers Energy for the Pickard-Bradley Intersection

In order to make room for the proposed traffic signal at the intersection of Pickard and Bradley Streets, Consumers Energy is requesting to remove the existing center suspension light over the intersection and replace it with two bracket LED streetlights. The streetlight removal and installation work will be completed by Consumers at no cost to the city. The city will be billed for the new streetlights at the LED rate.

Consumers Energy requires approval of changes to the existing lighting contract prior to beginning this work. I recommend that the attached resolution and authorization be approved by the City Commission including authorization of the City Clerk to execute the documents on behalf of the city.



**AUTHORIZATION FOR CHANGE IN STANDARD LIGHTING
CONTRACT(COMPANY-OWNED) FORM 547**

Contract Number: 103017033103

Consumers Energy Company is authorized as of _____ by the City of MT PLEASANT, to make changes, as listed below, in the lighting system(s) covered by the existing Standard Lighting Contract between the Company and the City of MT PLEASANT, dated 10/1/2014.

Lighting Type: General Unmetered Light Emitting Diode Lighting Rate GU-LED

Except for the changes in the lighting system(s) as herein authorized, all provisions of the aforesaid Standard Lighting Contract dated 10/1/2014 shall remain in full force and effect.

Notification Number(s): 1067818318

Comments: Replacing center suspension light over intersection of Pickard and Bamber/Bradley with two bracket LED lights overhanging Pickard to make room for a traffic signal.

City of MT PLEASANT

By: _____

(Signature)

(Printed)

Its: _____

(Title)

This Agreement may be executed and delivered in counterparts, including by a facsimile or an electronic transmission thereof, each of which shall be deemed an original. Any document generated by the parties with respect to this Agreement, including this Agreement, may be imaged and stored electronically and introduced as evidence in any proceeding as if original business records. Neither party will object to the admissibility of such images as evidence in any proceeding on account of having been stored electronically.

RESOLUTION

RESOLVED, that it is hereby deemed advisable to authorize Consumers Energy Company to make changes in the lighting service as provided in the Standard Lighting Contract between the Company and the City of MT PLEASANT, dated 10/1/2014, in accordance with the Authorization for Change in Standard Lighting Contract dated _____,

heretofore submitted to and considered by this commission council board; and

RESOLVED, further, that the _____ Clerk be and are authorized to execute such authorization for change on the behalf of the City.

STATE OF MICHIGAN
COUNTY OF ISABELLA

I, _____, clerk of the City of MT PLEASANT do hereby certify that the foregoing resolution was duly adopted by the

commission council board of said municipality, at the meeting held on _____.

Dated:

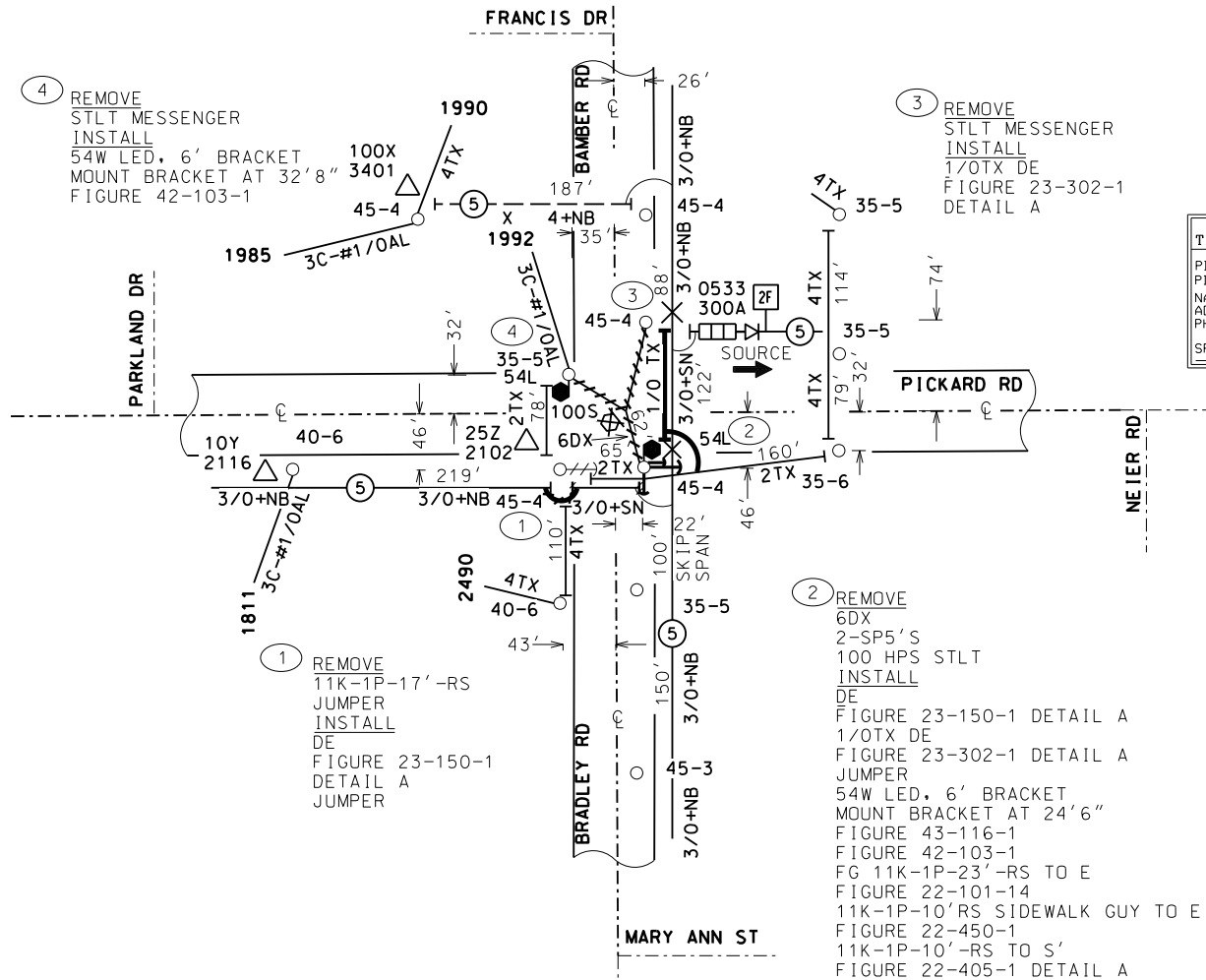
Municipal Customer Type: City

GENERAL SERVICE UNMETERED LIGHTING RATE GUL, STANDARD HIGH INTENSITY DISCHARGE


- (1) 100 watt HPS Center Suspension NA to Remove at location 2490 E Pickard St.;

GENERAL UNMETERED LIGHT EMITTING DIODE LIGHTING RATE GU-LED

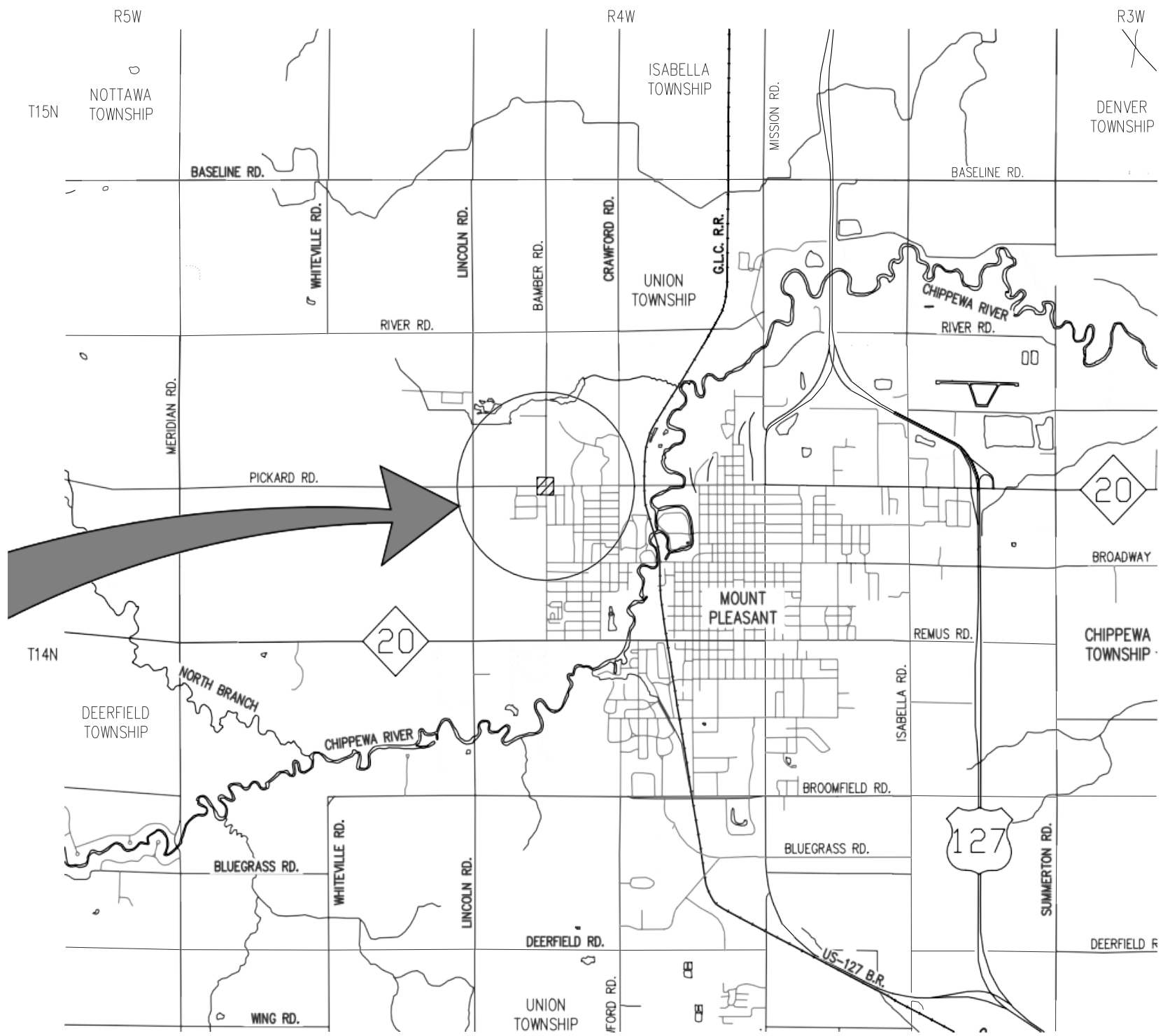
- (2) 54 watt LED Cobrahead NA to Install at location 2490 E Pickard St. ;



CAUTION!
TRANSMISSION PIPELINE IN AREA.
 PIPELINE OWNER: WOLVERINE PIPELINE
 PIPELINE OWNER CONTACT INFO:
 NAME: DOUG MELLINGER
 ADDRESS: 8075 CREEKSIDE DR. STE 210
 PHONE: 269-377-3828
 CRUDE OIL. CONTACT
 SPECIAL NOTES: BEFORE DIGGING

SUBSTATION	WD NO.	METER ORDER NUMBER	METER NUMBER	READ	METER LOCATION		
FORDYCE	0820						
CIRCUIT	CKT NO.	TLM NUMBER	# OF RODS	OHMS	THDPY23 PICKARD/BAMBER TRAFFIC SIGNAL		
BAMBER	01	14041621			CM NO. 100007334245		
 A CMS Energy Company ELECTRIC	CE STAKING REO'D	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ORDER TYPE	MAT. TYPE	NOTIFICATION NUMBER	DESIGN NUMBER	ORDER NUMBER
	FORESTRY REO'D	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	ECNC	RLO	1067818318	11538818	

JOB PURPOSE: THIRD PARTY REQUESTED RELOCATION OF STREETLIGHT FOR TRAFFIC SIGNAL		
UPSTREAM SECTIONALIZING DEVICE: 0533-300A LOCATION: PICKARD N1E BAMBER WR		CONSUMERS ENERGY CONTACTS
DEPARTMENT	NAME	NUMBER
COORDINATOR DESIGNER	E. BAUMANN	517-285-4629



Memorandum



TO: Aaron Desentz, City Manager

FROM: Michelle Sponseller, Downtown Development Director

CC: Chris Saladine, Finance Director
Phil Biscorner, Parks, Public Spaces and Recreation Director
Stacie Tewari, City Engineer

DATE: September 13, 2023

SUBJECT: 2024 Michigan Department Natural Resources (MI-DNR) Urban and Community Forestry Program Grant Application and Resolution
– Town Center Civic Space Project

Staff is intending to apply for a Michigan Department Natural Resources (MI-DNR) Urban and Community Forestry Program grant for the proposed replacement trees as part of the Town Center Civic Space project. Although the MI-DNR does not require a resolution as part of the completed grant package, staff would like to include one to indicate the City Commission's support for the request.

Background of the grant application includes:

- Grant request for \$50,000 which includes:
 - Addition of 57 trees (maple and elm) = \$43,320;
 - Removal of 9 trees = \$6,680;
- Match of \$38,990 comes from funds already allocated towards the project for removal of the remaining 41 trees.

The pursuit of grants continues to be a resource to provide additional funds for capital projects. Staff reviews upcoming CIP projects and analyzes the best funding opportunities for our proposed projects.

The application deadline for the MI-DNR Urban and Community Forestry Program grant is October 13, 2023 and awards are announced by December 31, 2023. Staff is requesting the attached resolution be approved after review of the project.

REQUESTED ACTION

Approve the MI-DNR Urban and Community Forestry Program grant resolution as presented and direct staff to sign all grant documentation as necessary.

ATTACHMENTS

- Resolution for the MI-DNR Urban and Community Forestry Program grant.

**RESOLUTION OF AUTHORIZATION
MICHIGAN DEPARTMENT OF NATURAL RESOURCES URBAN AND COMMUNITY
FORESTRY GRANT PROGRAM**

WHEREAS, the City Commission of Mt. Pleasant supports the submission of an application titled, Town Center Civic Space Project Tree Replacement to the Michigan Department of Natural Resources Urban and Community Forestry Grant Program and,

WHEREAS, the City of Mt. Pleasant is hereby making a financial commitment to the project in the amount of \$38,990 in matching funds, and,

NOW THEREFORE, BE IT RESOLVED that City Commission hereby authorizes submission of a Michigan Department of Natural Resources Urban and Community Forestry Grant Program Application for \$50,000.

AYES:

NAYES:

ABSENT:

MOTION APPROVED.

I HEREBY CERTIFY, that the foregoing is a Resolution duly made and passed by the Mt. Pleasant City Commission at their regular meeting held on September 25, 2023, at 7:00 p.m. at 320 West Broadway, Mt. Pleasant, Michigan with a quorum present.

Clerk

Dated: _____



**DIVISION OF PUBLIC SAFETY
CITY OF MT. PLEASANT**



804 E. High Street, Mount Pleasant, MI 48858
Phone: (989) 779-5100 Fax: (989) 773-4020

MEMORANDUM

DATE: September 11, 2023
TO: Aaron Desentz, City Manager
FROM: Paul Lauria, Director of Public Safety
SUBJECT: Snow and Ice Removal from Sidewalks Ordinance

During the 2024 Goals and Objectives process the City Commission set as one of their goals was to "Provide safe accommodations for pedestrians and bicyclists." During that meeting having property owners keep clear any sidewalk adjoining their property of snow and ice was discussed. It was determined that staff would prepare a draft ordinance for consideration by the City Commission. The draft ordinance is attached to this memorandum.

While considering this ordinance the following should be kept in mind:

1. The Downtown Principal Shopping District's (PSD) Special Assessment will remain the same. Downtown sidewalks, around municipal parking lots, will continued to be cleared by a private contractor. Downtown sidewalks, around/in front of private property, already has this requirement and requires no change.
2. The property owners along school routes are **NOT** exempt from this ordinance. The city will clear these routes only after the completion of street plowing.
3. The city will continue to clear any previously adopted areas of sidewalk (see attached map).
4. The Mission/Pickard Downtown Development Authority (DDA) along Mission and Pickard Streets already has this requirement and requires no change.
5. The recent adoption of the International Property Maintenance Code does not apply to public sidewalks.
6. Property owned or occupied by members of the Saginaw Chippewa Indian Tribe that are within the recognized area of the Reservation are exempt from direct enforcement of this ordinance. Any violation(s) must be handled by the Tribal Planning Department through Tribal Court.

Prior to implementation we will do public outreach and notifications on the city's website and social media platforms. Consideration has been made to do mailings regarding this change if adopted as well.

Enforcement of this ordinance will primarily be the responsibility of Code Enforcement Officers. When violations occur property owners will be educated and given a warning on the new ordinance. Any repeat violations may result in a citation. Portions of sidewalk that remain uncleaned for periods of time may be cleaned by the city. Any and all costs associated with the city performing the work will be passed onto the property owner.

It is the sole responsibility of the property owner to make sure they stay in compliance with this ordinance.

**CITY COMMISSION
CITY OF MOUNT PLEASANT**

Isabella County, Michigan

Ordinance No. 23-_____

Commissioner _____, supported by Commissioner _____, moved for adoption of the following ordinance:

**AN ORDINANCE TO AMEND THE CITY SNOW AND ICE REMOVAL FROM SIDEWALKS
ORDINANCE**

THE CITY OF MT. PLEASANT ORDAINS:

Section 1. Amendment to Section 98.37.

Section 98.37 of the City Code entitled “Snow and Ice Removal From Sidewalks” is amended to read, in its entirety, as follows:

Section 98.37: Snow and Ice Removal From Sidewalks.

- (A) For the purposes of this Section, “owner” means an owner, owners, occupant, or occupants of real property.
- (B) The owner of every property within the City must clear any accumulation of ice or snow from the public sidewalks adjoining such property within 24 hours of the accumulation or placement of snow or ice on said sidewalks.
- (C) If a sidewalk is not cleared within 24 hours of the accumulation or placement of snow or ice, the City may issue the owner a civil infraction ticket that is a personal debt owed to the City for each day that the owner fails to clear the sidewalk, or the City may clear the sidewalk and impose a lien on the property for the cost of clearing the sidewalk. The City Commission must set the civil infraction fees and the amount of any lien under this subsection by resolution.

Section 2. Repealer.

Any and all Ordinances in conflict with this Ordinance are repealed to the extent necessary to give this Ordinance full force and effect.

Section 3. Severability.

If any portion or portions of this Ordinance are found invalid, the remainder of the Ordinance will remain in full force and effect.

Section 4. Publication and Effective Date.

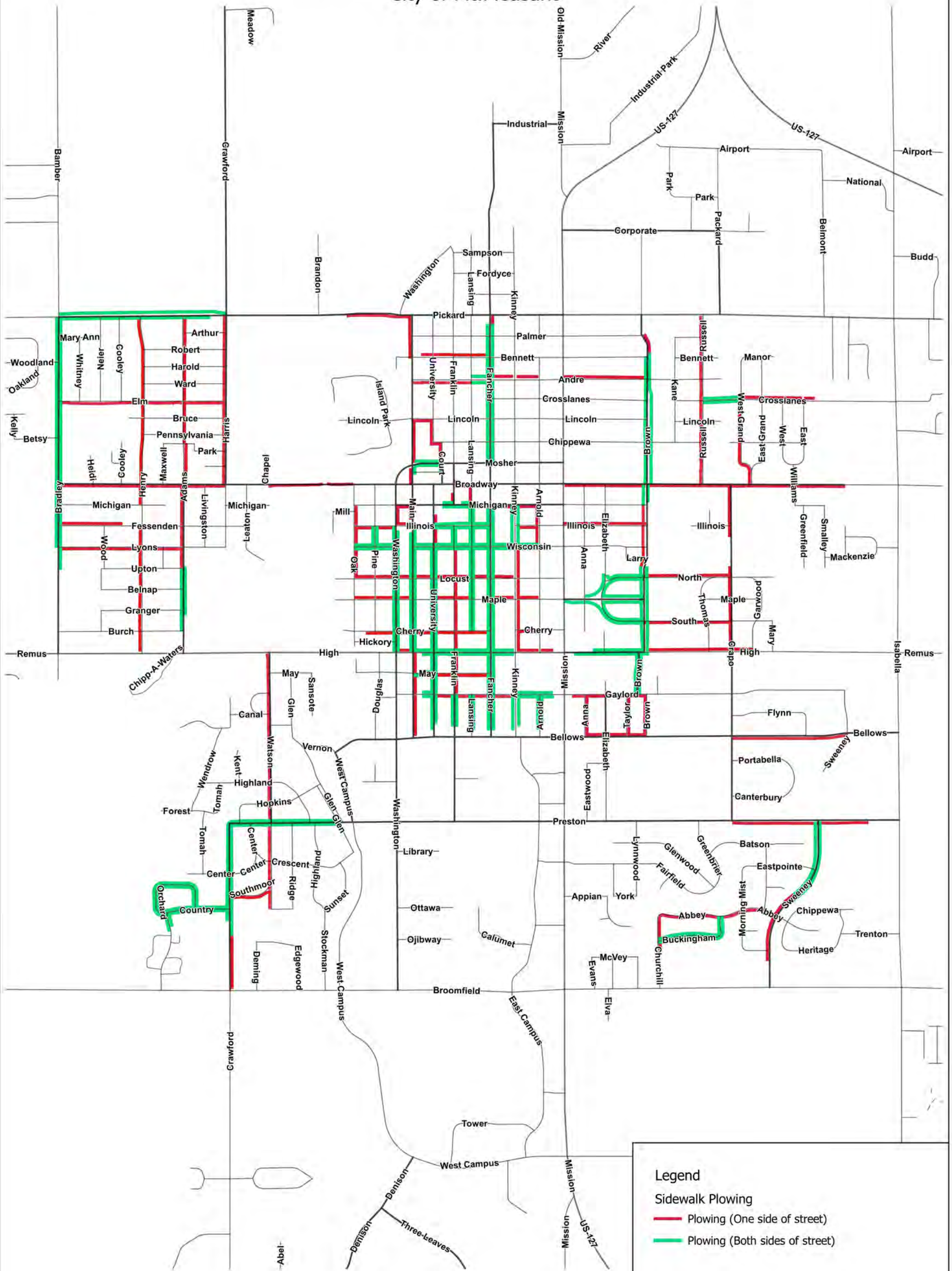
The City Clerk will cause to be published a notice of adoption of this Ordinance within 10 days of the date of adoption. This Ordinance will take effect 30 days after its adoption.

85714:00001:7154538-2

DRAFT

Sidewalk Snow Plow Route

City of Mt. Pleasant



Legend

- Sidewalk Plowing
- Plowing (One side of street)
- Plowing (Both sides of street)



Public Works Mt. Pleasant
Engineering

City of Mt. Pleasant - 220 West Broadway - Mt. Pleasant, MI 49688 - www.mt-pleasant.org

0 1,000 2,000 3,000 ft



Memorandum



TO: Aaron Desentz, City Manager
FROM: Michelle, Sponseller, Downtown Development Director
DATE: September 12, 2023
SUBJECT: Request To Set A Public Hearing – Parking Ordinance Update

As part of the evaluation of parking enforcement in February 2023, staff recommended an in-depth reassessment of the parking ordinance (Chapter 71), given its original drafting in 1964. After careful examination, the staff determined that a complete rewrite of the chapter would be more effective than making piecemeal modifications, given the updates required.

Highlights of the new parking ordinance are as follows:

1. Revamped definitions, encompassing terms such as dumpsters, construction trailers, and recreational vehicle parking.
2. The transition from the "even/odd" overnight parking system to one that aligns more closely with the existing snow emergency protocol, driven by the dual aim of operational efficiency and enhancing resident convenience by simplifying the process for residents, requiring them to relocate their vehicles only as needed rather than every evening.
 - As part of our permitting process, we collect contact details to ensure residents can be promptly notified during such times.
3. Recording of special agreements with:
 - Feight Apartments (119 South Franklin) – sanctioned by the City Commission on February 2, 1987.
 - Michigan Community Capital (410 West Broadway) – documented on January 29, 2020.
4. Incorporation of electric car charging station regulations.

Requested Action:

Staff requests setting a public hearing for October 9, 2023 on the parking ordinance update.

City of Mt. Pleasant

Ordinance No. 23-_____

An Ordinance to Amend the City Parking Ordinance

THE CITY OF MT. PLEASANT ORDAINS:

Section 1. Amendment to Chapter 71 of the City Code.

Chapter 71 of the City Code is amended to read as follows:

Section 71.01. Purpose and Scope.

The purpose of this Chapter is to regulate parking in the City. This Chapter applies to all public roads and parking lots in the City and as otherwise indicated herein.

Section 71.02. Definitions.

“*Central Business District*” or “*Downtown*” means the area with the following legal description:

Commencing at the intersection of the North right-of-way line of Illinois Street and the West right-of-way line of Washington Street; thence East, along said North right-of-way line of Illinois Street, to the West right-of-way line of Lansing Street; thence North, along said West right-of-way line of Lansing Street, to the North right-of-way line of Mosher Street; thence West, along said North right-of-way line of Mosher Street, to the West right-of-way line of Main Street; thence South, along said West right-of-way line of Main Street, to the midpoint on the East line of Lot 5, Block 14 of the Original Plat; thence West along the North line of the South 1/2 of said Lot 5, Block 14 of the Original Plat, extended to a point 40.8 feet West of the West line of said Lot 5, Block 14 of the Original Plat; thence Southwesterly, along a curve to the left, to a point on the North right-of-way line of Broadway, lying 122.04 feet West of the Southwest corner of Lot 1, Block 14 of the Original Plat; thence West, along the North right-of-way of Broadway Street, 113.96 feet to a point 203 feet West and 43.75 feet North of the Interior 1/4 Corner (Center) of Section 15, T14N-R4W; thence North, 231.31 feet, to the Southerly line of the former Ann Arbor Railroad spur right-of-way line; thence Northeasterly, along said Southerly right-of-way line of the former Railroad spur, to the North-South 1/4 line of said Section 15; thence North, along said North-South 1/4 line to the top bank traverse line of the Chippewa River; thence Southwesterly, along said traverse line, to the centerline of Oak Street, extended; thence South, along said centerline of Oak Street, extended, to the North right-of-way line of Broadway Street; thence West, along said North right-of-way line of Broadway Street, to the West right-of-way of Walnut Street, extended;

thence South, along said West line of Walnut Street, extended, to a point being 82.5 feet South of the East-West 1/4 line of said Section 15; thence East, to a point on the West right-of-way line of Oak Street, lying 82.5 feet South of the intersection of said West right-of-way line of Oak Street and said East-West 1/4 line; thence South, along said West right-of-way line of Oak Street, to the South right-of-way line of Michigan Street; thence East, along said South right-of-way line of Michigan Street, to the West right-of-way line of Washington Street; thence South, along said West right-of-way line of Washington Street, to the North right-of-way line of Illinois Street and the point of beginning.

The area can also be described as within the following boundaries:

- North of the North side of Illinois Street;
- West of the West side of Lansing Street;
- South of the North side of Mosher Street;
- East of the West side of Main Street;
- South of the North side of Broadway Street;
- East of the West side of Walnut Street, extended;
- East of the West side of Oak Street;
- North of the South side of Michigan Street;
- East of the West side of Washington Street;
- Southeasterly of the center thread of the Chippewa River

City Manager means the City Manager or his or her designee.

Park means to cause, allow, permit, or suffer any vehicle to stand or be parked.

Recreational Vehicle (RV) means a vehicle that has its own motive power or is towed by a motor vehicle; is primarily designed to provide temporary living quarters for recreational, camping, travel, or seasonal use; complies with all applicable federal vehicle regulations; and does not require a special highway movement permit under section 719a to be operated or towed on a street or highway. The term includes, but is not limited to, a motor home, travel trailer, park model trailer that does not require a special highway movement permit under section 719a, or pickup camper. See MCL 257.49a.

Dumpster means a large trash receptacle designed to be hoisted and emptied into a truck.

Motor Vehicle is defined for the purposes of this Ordinance it is in MCL 257.33. It means every vehicle that is self-propelled, except for the following

- A. industrial equipment such as a forklift, a front-end loader, or other construction equipment that is not subject to registration under the motor vehicle code.
- B. a power-driven mobility device when that power-driven mobility device is being used by an individual with a mobility disability.

- C. an electric patrol vehicle being operated in compliance with the electric patrol vehicle act, 1997 PA 55, MCL 257.1571 to 257.1577.
- D. an electric personal assistive mobility device.
- E. e an electric carriage.
- F. a commercial quadricycle.
- G. an electric bicycle.
- H. an electric skateboard.

Section 71.03. Parking Restrictions.

A. *Prohibition Of Parking In Certain Areas.* No person may park a motor vehicle in any of the following places except when necessary to avoid conflict with other traffic, in compliance with law or the directions of a police officer or traffic control device, or when a permit has been granted by the City Manager:

- 1. On a sidewalk.
- 2. In front of or across a public or private driveway.
- 3. Within an intersection.
- 4. Within three (3') feet of a fire hydrant.
- 5. On any portion of a fire lane, unless permitted by the City Manager.
- 6. In any place or in any manner so as to obstruct the immediate egress from an emergency exist of a building or a designated fire escape.
- 7. Between a curb and a sidewalk.
- 8. In a side or front yard in a residential district.
- 9. ADA spaces will be in compliance with all State of Michigan codes.
- 10. Without a permit in a space designated as permit parking only.

B. *Prohibitions on Method of Parking in Certain Areas.* The following methods of parking are prohibited where specified:

- 1. With a vehicle's left wheels nearest to the curb, except on one-way roadways where parking is permitted on the left side of the roadway.
- 2. Back-in parking, in any angled parking spot.

C. *Time Restrictions For Parking In Certain Areas.*

- 1. No person may park overtime beyond the period of legal parking time identified by regulatory sign.

2. No person may park any vehicle on any street in the Central Business District between the hours of 4:00 a.m. to 6:00 a.m. during any day of the year:
3. Snow Emergencies.
 - a) No person may park or leave any vehicle, RV, construction trailer, or dumpster on a street or highway in the City when a snow emergency is in effect.
 - b) The City Manager may declare a snow emergency after making a finding that, on the basis of falling snow, sleet, or freezing rain, or based on a National Weather Service forecast, weather conditions will make it necessary that motor vehicle traffic be expedited and that parking on city streets will be prohibited or restricted for plowing or other purposes. A snow emergency must be publicly announced prior to its effective time by means of press release, web posting, telephone information line, and/or emergency communications system where feasible.
 - c) Once in effect, a snow emergency remains in effect until terminated by an announcement of the City Manager in the same manner in which it was declared.

D. Restrictions On Parking Of Certain Vehicles And Use of City Right Of Way.

1. Stalled or Disabled Vehicles.
 - a) Whenever a vehicle becomes stalled or disabled for any reason on any portion of a City street to which a parking prohibition applies, the person operating the vehicle shall take immediate action to have the vehicle towed or pushed off the street.
 - b) No person may abandon or leave a vehicle on a City street, except for the purpose of securing assistance during the actual time necessary to go to a nearby telephone, garage, automobile service station, or other place of assistance and return without delay.
2. Dumpsters.
 - a) No dumpster may be left overnight on any street, alley, parking lot, highway, or other public place unless authorized by the Director of Public Works. The Director of Public Works may provide for the issuance of a temporary dumpster permit for parking and use of a dumpster on public grounds owned or controlled by the City, on such order and conditions as the City Manager shall, in his/her discretion, determine to be just and reasonable, for a period of time not to exceed ten days in any one calendar year.

3. Recreational Vehicles - (RV)

- a) A Recreational Vehicle may be parked, used, or occupied on the premises of a dwelling only if the occupants of the RV have access to and the unlimited use of the sanitary facilities of the dwelling and the operator of the RV secures a permit as provided by this Chapter.
- b) No Recreational Vehicle may be parked overnight on any street, alley, parking lot, highway, or other public place unless authorized by the Building Official. The Building Official may provide for the issuance of temporary RV permit, for parking, use, and occupancy of recreational vehicle on public grounds owned or controlled by the City, on such order and conditions as the City Manager shall, in his/her discretion, determine to be just and reasonable, for a period of time not to exceed ten days in any one calendar year.
- c) No Recreational Vehicle may be parked at any time between the established setback line and the curb line of any lot.
- d) No person may park or permit the occupancy of any Recreational Vehicle on a lot, field, or tract of land not specifically licensed as a campground, except only as provided by this Chapter.

Section 71.04. Parking Permits.

A. *Fees, Eligibility, and Designation.* The City Commission shall by resolution set the cost of parking permits, the eligibility requirements for each type, and the designation of lots and streets where parking is allowed by permit only.

B. *Types of Permits.*

1. Overnight. Overnight parking in the Central Business District is restricted to holders of an overnight permit. Overnight permit holders may only park in designated lots.
 - a. The City Manager may declare it necessary, on the basis of falling snow, sleet, or freezing rain, or based on a National Weather Service forecast, weather conditions will make it necessary that motor vehicle traffic be expedited and that parking in city parking lots will be prohibited or restricted for plowing or other purposes. This declaration must be publicly announced prior to its effective time by means of press release, web posting, email, and telephone information line where feasible.
2. Guest. Guest permits are required of guests visiting downtown residents wishing to park in a downtown lot overnight and of guests of residents of designated

residential neighborhoods wishing to park overnight on any street in a designated residential neighborhood. Guest permits are limited to seven days.

- a. The City Manager may declare it necessary, on the basis of falling snow, sleet, or freezing rain, or based on a National Weather Service forecast, weather conditions will make it necessary that motor vehicle traffic be expedited and that parking in city parking lots will be prohibited or restricted for plowing or other purposes. This declaration must be publicly announced prior to its effective time by means of press release, web posting, email, and telephone information line where feasible.
3. Residential Neighborhood. Residential Neighborhood permits are available to property owners and tenants in designated residential neighborhood permit zones.
4. Recreational Vehicles. The owner, occupant, or user of a recreational vehicle to be parked in the City and in a City lot must procure a permit as prescribed in Section 71.04(D).
5. Construction Trailer. Construction trailer permits, issued by the Building Official, are intended for use by construction companies and personnel during a specific construction project, to utilize space in a municipal parking lot or the use of on-street parking space/s. The permit will be valid for the duration of the project. The permit shall specify the parking location(s) for which it is valid.
6. Commercial. Commercial permits are intended for use by City businesses that require parking of vehicles primarily used for business purposes in the City and allow daytime and overnight parking in streets, spaces, or lots designated by the City Manager.

C. Use of Permits.

1. Permits are only valid according to their type and do not permit a driver to park outside the scope of the permit.
2. As necessary from time to time, the City Manager or his/her designee may contact permit holders to move their vehicle(s) so that lots may be cleaned. Failure to move a vehicle as requested constitutes a violation of this Chapter.

D. Recreational Vehicles.

1. An application for a permit to park, use, and occupy a recreational vehicle on the premises of a dwelling or parcel of land must be made to the Department of Building Safety.
 - a. The application must

- i) state the name of the owner or occupant in control of the trailer coach,
 - ii) the name and address of the owner or operator of the recreational vehicle,
 - iii) the license number on the recreational vehicle, and
 - iv) the required fee, if one has been set.
 - b. Attached to the application must be written consent by the owner in control of the dwelling or parcel of land at which the recreational vehicle will park and be used and occupied for the persons using the trailer coach the unlimited use of the sanitary facilities on the premises.
 - c. Upon the filing of the application, the Department must cause an inspection to be made of the dwelling premises or parcel of land and the recreational vehicle. If the inspection finds that adequate facilities are afforded on the premises for the disposal of waste created and it appears that the parking, use, and occupancy of the trailer coach complies with applicable statutes and ordinances, approval will be granted.
 - d. After the application is approved and the permit fee is paid, the Building Official shall issue a permit starting the limit of time for the parking, use, or occupancy of the trailer coach. The permit may authorize the parking, use, or occupancy of the trailer coach for not more than six weeks.
 - e. No more than two permits may be issued for any one trailer coach or to any one trailer coach operator or occupant in one 12-month period.
2. The Building Official may provide for the issuance of temporary RV permit , for parking, use, and occupancy of recreational vehicle on public grounds owned or controlled by the City, on such order and conditions as the City Manager shall, in his/her discretion, determine to be just and reasonable, for a period of time not to exceed ten days in any one calendar year.
 3. The Building Official or his or her authorized representative or a member of the Department of Public Safety has the authority to enter and inspect at any reasonable time any premises upon which a recreational vehicle is parked, used, or occupied for the purpose of ascertaining that the owner, operator, or occupant of the trailer coach is complying with all applicable statutes, ordinances, rules, and regulations.

E. *Special Agreements.*

1. *Feight Apartments (119 South Franklin).* Eight parking spaces for 24-hour parking shall be reserved in the City-owned parking lot on the corner of E. Michigan and S. Lansing Street for tenants of Feight Apartments.
2. *MCC Parcel B Title Holding Corporation (410 West Broadway).* MCC Parcel B Title Holding Corporation and its agents, employees, tenants, licensees, permittees, and contractors shall enjoy the rights granted to it by the Parking and Access Easement recorded at 1877 Liber 310.

Section 71.05. Electric Vehicle Charging Stations.

- A. Public electric vehicle charging stations are reserved for parking and charging electric vehicles. Electric vehicles may be parked in any space designated for public parking, subject to the restrictions that apply to any other vehicle.
- B. When a sign provides notice that a parking space is a publicly designated electric vehicle charging station, no person shall park or stand any non-electric vehicle in a designated electric vehicle charging station space. Further, no person shall park or stand an electric vehicle in a publicly designated electric vehicle charging station space when not electrically charging or parked beyond the days and hours designated on the regulatory signs posted. For purposes of this section, “charging” means an electric vehicle parked at an electric vehicle charging station and connected to the charging station equipment.

Section 71.06. Enforcement.

- A. *Enforcement Personnel.* A civil infraction citation for any parking violation may be issued by any authorized personnel.
- B. *Parking Violations Bureau.* The Parking Violations Bureau, under the supervision and control of the City Manager, is tasked with handling alleged violations of the schedule enumerated in Section 71.06(I). The Bureau’s authority is limited to enforcement of this Chapter.
- C. *Ongoing Violations.* Each and every day and hour during which a violation of the Uniform Traffic Code and other provisions of this Chapter continues is a separate, distinct, and independent offense.
- D. *Operator As Violator.* A police officer or the Parking Violations Bureau may issue a citation for the violation to the operator of the vehicle if the operator is present at the time of the violation.
- E. *Administrative fee.* An administrative fee must be added to each account for each notice sent for delinquent parking fines. The City Commission must set the administrative fee by resolution.

- F. *Civil Infraction.* Any person that violates any provision of this Chapter is responsible for a civil infraction.
- G. *Contents of citation.* The citation must indicate:
1. the length of time in which the person to whom the citation was issued must respond before the Parking Violations Bureau,
 2. the address of the Bureau,
 3. the hours during which the Bureau is open,
 4. the amount of the penalty scheduled for the offense for which the ticket was issued, and
 5. advise that a warrant for the arrest of the person to whom the ticket was issued will be sought if the person fails to respond within the time limited.
- H. *Effect of Citation.* The issuance of a citation by a police officer or the Parking Violations Bureau is an allegation of a parking violation.
- I. *Schedule of Violations.* The fine for violation of a municipal civil infraction under this Chapter must be set by resolution by the City Commission.
- J. *Disposition of Claims.*
1. Only violations that are scheduled in Section 71.06(I) may be disposed of by the Parking Violations Bureau.
 2. The fact that a particular violation appears on the fine schedule, as adopted by the City Commission, does not entitle the alleged violator to disposition of the violation at the Bureau. If the Bureau declines to dispose of a violation, the violation must be disposed of before a court having jurisdiction and any person having knowledge of the facts may make a sworn complaint as provided by law.
 3. No violation may be settled at the Parking Violations Bureau except at the specific request of the alleged violator.
 4. The Bureau may not accept a penalty for any violation from any person who denies having committed the offense. The Bureau may not determine, or attempt to determine, the truth or falsity of any fact or matter related to the alleged violation.
- K. *Prima Facie Evidence.* In any proceeding for a violation of this Chapter, proof that the vehicle described in the citation was parked in violation of this Chapter and that the defendant named in the citation was, at the time of parking, the registered owner of the vehicle, is prima facie evidence that the registered owner violated this Chapter.

L. *Conflict of Provisions.* Any temporary prohibition or regulation of parking declared by the City Manager under this Chapter, while in effect, supersedes any conflicting provisions, except for laws applicable to traffic accidents, emergency travel of authorized emergency vehicles, or emergency traffic directions ordered by a police officer.

M. *Relationship to Other Laws.* No provision of this Chapter may be construed to permit parking at any time or place where it is forbidden by any other law.

Section 2. Repealer.

Any and all ordinances in conflict with this Ordinance are repealed to the extent necessary to give this Ordinance full force and effect.

Section 3. Severability.

If any portion or portions of this Ordinance are found invalid, the remainder of the Ordinance will remain in full force and effect.

Section 4. Publication and Effective Date.

The City Clerk will publish a notice of adoption of this ordinance within 10 days of the date of its adoption. This ordinance will take effect 30 days after its adoption.

85714:00001:7075134-1

Memorandum



MEMO TO: Aaron Desentz, City Manager

FROM: Mike Kurbel, Information Technology Director

DATE: September 11, 2023

SUBJECT: 2023 Firewall Replacement

Reason:

The City had planned to replace the network firewall in 2024, as part of a larger network upgrade, but due to a special limited time offer from Fortinet, we would like to amend the budget and purchase it before the offer expires at the end of October.

The below is a breakdown on what it would cost for the new firewall, labor and three years support compared to three years support on our current device:

	Current Support	Replacement Firewall (3 year support and labor included)
2024	\$2,800.00	\$12,290.00
2025	\$2,950.00	
2026	\$3,100.00	
Total	\$8,850.00	\$12,290.00

The difference comes out to \$3,440 for the 201F firewall. If you subtract \$1,500 in labor from the \$3,440 difference, the total device price comes to \$1,940. This price is cheaper than the MSRP of \$4,400 for a 201F. We are saving \$2,460 by buying the firewall now.

Recommendation:

The City Commission is requested to approve a budget amendment to purchase a new firewall, labor and three year's support for \$12,290.

Memorandum



TO: Aaron Desentz
City Manager

FROM: Manuela Powidayko
Director of Planning and Community Development

DATE: September 25, 2023

SUBJECT: Text Change 23-01

As explained in the attached staff memorandum, the proposed ordinance would make the following changes to the manner in which driveway widths are regulated:

1. Increase the maximum driveway width from 24 to 30 feet along Pickard, Mission and High Street (west of Mission) within CD-4 (General Urban) and CD-5 (Urban Center) Character Districts.
2. Permit driveways wider than 30 feet along MDOT's routes to accommodate specific site designs, if the applicant incorporates increased pedestrian safety measures;
3. Increase the maximum driveway width for residential development from 10 to 18 feet within CD-4 districts to match the standards in CD-3L (Sub-Urban Large Lot) and CD-3 (Sub-Urban) Character Districts.

The Planning Commission held a public hearing on the proposed ordinance on September 7, 2023. There were no public comments on the subject. Following the public hearing, the Planning Commission recommended that the City Commission adopt Text Change 23-01.

REQUESTED ACTION:

The City Commission receive the Planning Commission recommendation and set a public hearing on the proposed text change for October 23, 2023.

Attachments:

1. Draft ordinance
2. Staff memorandum from September 7, 2023

**CITY COMMISSION
CITY OF MOUNT PLEASANT**

Isabella County, Michigan

Commissioner _____, supported by Commissioner _____, moved adoption of the following ordinance:

ORDINANCE NO. ____

AN ORDINANCE TO AMEND TABLE 154.405.A DISTRICT STANDARDS: CD-4 GENERAL URBAN AND CD-5 URBAN CENTER CHARACTER DISTRICTS OF THE MOUNT PLEASANT ZONING ORDINANCES REGARDING DRIVEWAY WIDTHS.

It is Hereby Ordained by the People of the City of Mount Pleasant:

Section 1. Amendment to Table. The portions within Table 154.405.A District Standards: CD-4 General Urban Character District pertaining to Vehicular Parking Standards – Driveway/Vehicular Entrance Maximum Width is amended to read as follows:

Generally, 18 ft max in 1st Lot Layer if Residential; 24 ft max in 1st Lot Layer if non-Residential, regardless if shared or not.

If non-Residential and along Pickard, Mission and High Street (west of Mission): may be 30 ft max. Along Thoroughfares where the Michigan Department of Transportation has jurisdiction and requires a width exceeding 30 ft. because of circumstances relating to safety that are unique to the lot and its use: may exceed 30 ft, provided that the driveway is designed in a manner so as to increase pedestrian safety to the extent reasonably possible.

Section 2. Amendment to Table. The portions within Table 154.405.A District Standards: CD-5 Urban Center Character District pertaining to Vehicular Parking Standards – Driveway/Vehicular Entrance Maximum Width is amended to read as follows:

Generally, 24 ft max in 1st Lot Layer and 2nd Lot Layer regardless if shared or not.

If non-Residential and along Pickard, Mission and High Street (west of Mission): may be 30 ft max. Along Thoroughfares where the Michigan Department of Transportation has jurisdiction and requires a width exceeding 30 ft. because of circumstances relating to safety that are unique to the lot and its use: may exceed 30 ft, provided that the driveway is designed in a manner so as to increase pedestrian safety to the extent reasonably possible.

Section 3. Publication and Effective Date. The City Clerk shall cause to be published a notice of adoption of this ordinance within 10 days of the date of its adoption. This ordinance shall take effect 30 days after its adoption.

YEAS: Commissioner(s) _____

NAYS: Commissioner(s) _____

ABSTAIN: Commissioner(s) _____

ABSENT: Commissioner(s) _____

CERTIFICATION

As the City Clerk of the City of Mount Pleasant, Isabella County, Michigan, I certify this is a true and complete copy of an ordinance adopted by the Mount Pleasant City Commission at a regular meeting held on _____, 2023.

Amy Perschbacher, Mayor

Heather Bouck, City Clerk

PC Hearing: _____, 2023
Introduced: _____, 2023
Adopted: _____, 2023
Published: _____, 2023
Effective: _____, 2023

Memorandum



TO: Planning Commission

FROM: Manuela Powidayko
Director of Planning and Community Development

DATE: September 7, 2023

SUBJECT: TC-23-01 – Driveway Widths

At the work session in April, the Planning Commission heard an update about *Zoning for Economic Opportunity* ("ZEO"), when staff summarized the feedback received during the project's outreach process and the Planning Commission adopted a draft schedule of work sessions for the years of 2023 and 2024. ZEO participants recommended to add flexibility with existing driveway width requirements to (1) allow for better truck access in certain situations, and (2) to ensure that the zoning ordinance is not in conflict with requirements from the Michigan Department of Transportation (MDOT), which may require wider driveways in certain situations along Thoroughfares that MDOT has jurisdiction over: Mission Street, High Street (west of Mission) and Pickard Road (east of Mission). At your June and August meetings (work session and text amendment introduction, respectively), the Planning Commission discussed, provided direction and reached general consensus to support the attached draft text amendment.

Driveway widths are currently limited to a maximum of 24 feet in the CD-4 (General Urban) and CD-5 (Urban Center) Character Districts. This limit was imposed to help advance the goal in the City's Master Plan to make Mt Pleasant more walkable. More specifically to Mission, the Master Plan called for reducing traffic speeds while still maintaining a safe and efficient traffic flow. Narrower driveways, combined with creating more cross-access connections between businesses and encourage driveways to be combined will help reduce the number of crossings and increase pedestrian safety in the corridor.

While 24 feet of maximum width is a good standard to ensure that pedestrians are not having to cross wide driveways, MDOT has been requiring 30 feet in most cases as that is their design standard for two-way driveways along Thoroughfares like Mission Street across the State to ensure that rear-end accidents are avoided when vehicles slow down to access a site through the driveway. The City's Department of Public Works is also in agreement that 30-foot driveways may be more suitable along busier Thoroughfares. Therefore, the City worked with MDOT and Public Works on a zoning text amendment draft, which would allow for driveways to be 30 feet wide along Pickard, Mission and High Street (west of Mission). In particular instances, MDOT may require wider driveways to accommodate specific site designs (for example: if a particular use foresees large trucks coming in and out of the site frequently). In those cases, the zoning text would allow for a wider driveway along MDOT's routes, if the applicant incorporates increased pedestrian safety designs. Examples of solutions include, but are not limited to: the reduction in the number of driveways within a site, the combination of driveways between adjacent sites, the incorporation of materials and elevation of the pedestrian way at grade (forcing vehicles to yield), or the addition of a median refuge island to shorten the crossing.

Ultimately the proposed text amendment would codify existing practice by acknowledging engineering principles while balancing that with the City's vision for more inclusive and safe streets for all legal users of the right-of-way. The proposed text amendment also includes allowing residential development to design 18-foot wide driveways within CD-4 Districts to match the standard in CD-3L and CD-3 districts.

Requested Action:

Recommend that the City Commission adopt Text Change 23-01.

Attachment

1. Draft ordinance

Memorandum



TO: Aaron Desentz
City Manager

FROM: Manuela Powidayko
Director of Planning and Community Development

DATE: September 25, 2023

SUBJECT: Text Change 23-02

As explained in the attached staff memorandum, the proposed ordinance would make the following changes to the manner in which institutional uses are regulated:

1. Permit transitional housing (with more than 16 occupants) pursuant to a Special Use Permit within CD-4 (General Urban) and CD-5 (Urban Center) Character Districts;
2. Permit transitional housing (with 16 occupants or less) by-right within CD-3L (Sub-Urban Large Lot), CD-3 (Sub-Urban), CD-4 and CD-5 Districts;
3. Permit medical offices by-right and outpatient, urgent and emergency care facilities pursuant to a Special Use Permit within SD-RC (Research Center) Special Districts;
4. Permit adult day care centers by-right within CD-3L, CD-3, CD-4 and CD-5 districts.

The Planning Commission held a public hearing on the proposed ordinance on September 7, 2023. There were no public comments on the subject. Following the public hearing, the Planning Commission recommended that the City Commission adopt Text Change 23-02.

REQUESTED ACTION:

The City Commission receive the Planning Commission recommendation and set a public hearing on the proposed text change for October 23, 2023.

Attachments:

1. Draft ordinance
2. Staff memorandum from September 7, 2023

**CITY COMMISSION
CITY OF MOUNT PLEASANT**

Isabella County, Michigan

Commissioner _____, supported by Commissioner _____, moved adoption of the following ordinance:

ORDINANCE NO. _____

AN ORDINANCE TO AMEND TABLE 154.410.A BUILDING AND LOT PRINCIPAL USE, SECTION 154.410.B. SPECIAL USES, AND ARTICLE VII OF THE MOUNT PLEASANT ZONING ORDINANCES REGARDING INSTITUTIONAL USES.

It is Hereby Ordained by the People of the City of Mount Pleasant:

Section 1. Addition. A new subsection 154.410.B.4.x is added to the Mount Pleasant Zoning Ordinances to read as follows:

x. Transitional Housing must comply with the following:

i. District Density limitations set forth in Table 154.405.A District Standards may be exceeded, provided that the Building area or part thereof, reserved for overnight accommodations, does not exceed 40 square feet per occupant.

Section 2. Renumbering. The subsection currently labeled 154.410.B.4.x, which provides special use standards for Two-Family Dwellings, and all subsequent subsections within subsection 154.410.B.4 are renumbered to accommodate the new subsection provided above.

Section 3. Amendment to Table. The portion of Table 154.410.A Residential / Dwelling Uses is amended to indicate that “Transitional Housing” with 16 or fewer occupants is permitted as-of-right in the CD-3L, CD-3, CD-4, and CD-5 districts. Accordingly, that portion of the table shall appear as follows:

District	CD-3L	CD-3	CD-4	CD-5	SD-H	SD-I	SD-RC	SD-A	CZ
Transitional Housing with 16 or fewer occupants	P	P	P	P					

Section 4. Amendment to Table. The portion of Table 154.410.A Educational / Institutional / Civic Uses is amended to indicate that “Transitional Housing” with more than 16 occupants is permitted pursuant to a Special Use Permit within CD-4 and CD-5 districts and that “Adult Day Care Centers” are permitted as-of-right in CD-3L, CD-3, CD-4 and CD-5 districts. Accordingly, that portion of the table shall appear as follows:

District	CD-3L	CD-3	CD-4	CD-5	SD-H	SD-I	SD-RC	SD-A	CZ
Transitional Housing with more than 16 occupants			SUP	SUP					
Adult Day Care Center	P	P	P	P					

Section 5. Amendment to Table. The portion of Table 154.410.A Medical Uses is amended to permit “Medical and dental offices” and “Outpatient surgical centers, urgent care facilities, and standalone emergency room facilities” in the SD-RC district, either as-of-right or pursuant to a Special Use Permit, respectively. Accordingly, that portion of the table shall appear as follows:

District	CD-3L	CD-3	CD-4	CD-5	SD-H	SD-I	SD-RC	SD-A	CZ
Medical and dental offices			P	P	P		P		
Outpatient surgical centers, urgent care facilities, and standalone emergency room facilities			SUP	SUP	P		SUP		

Section 6. Addition. A new definition of “Adult Day Care Center” is added in Article VII: Definitions of the Mount Pleasant Zoning Ordinances to read as follows:

Adult Day Care Center: A facility that provides care and companionship for older adults who need assistance or supervision during the day.

Section 7. Addition. A new definition of “Transitional Housing” is added in Article VII: Definitions of the Mount Pleasant Zoning Ordinances to read as follows:

Transitional Housing: A non-profit facility that provides temporary sleeping accommodations and support services (on-site or off-site) emphasizing social rehabilitation for persons or families requiring interim housing arrangements and who would otherwise be without safe overnight shelter.

Section 8. Publication and Effective Date. The City Clerk shall cause to be published a notice of adoption of this ordinance within 10 days of the date of its adoption. This ordinance shall take effect 30 days after its adoption.

YEAS: Commissioner(s) _____
NAYS: Commissioner(s) _____
ABSTAIN: Commissioner(s) _____
ABSENT: Commissioner(s) _____

CERTIFICATION

As the City Clerk of the City of Mount Pleasant, Isabella County, Michigan, I certify this is a true and complete copy of an ordinance adopted by the Mount Pleasant City Commission at a regular meeting held on _____, 2023.

Amy Perschbacher, Mayor

Heather Bouck, City Clerk

PC Hearing: _____, 2023
Introduced: _____, 2023
Adopted: _____, 2023
Published: _____, 2023
Effective: _____, 2023

Memorandum



TO: Planning Commission

FROM: Manuela Powidayko
Director of Planning and Community Development

DATE: September 7, 2023

SUBJECT: Institutional Uses

In the past months, the Planning and Community Development Department was approached by applicants interested in opening institutional uses that are currently not permitted in the City (or not fully reflected in the zoning ordinance):

1. The Isabella County Restoration House (ICRH) is looking to relocate their current day shelter facility from 120 S Pine to 555 N Main St, to also provide overnight accommodations. There are overnight shelters spread across church sites, which can accommodate approximately 25 individuals. However, the need is much greater, with more than 150 homeless living in the community¹. ICRH plans to offer another 50 beds.
2. A private provider wanting to open within University Park would offer substance use disorder recovery services. While detoxification facilities could be considered a medical use (medical office with outpatient treatment), these uses are not fully allowed within the university area by the City's current zoning ordinances.
3. Staff also flagged the need to allow adult day care centers considering the aging population (a 38.6% increase country-wide in just 10 years) and the ongoing need to assist disabled adults. The zoning ordinance currently only lists day care services for children.

At your June, July and August meetings (work sessions and introduction, respectively), the Planning Commission discussed, provided direction and reached general consensus to support the attached draft text amendment.

In summary, the proposed zoning text amendment for institutional uses would:

- Permit larger transitional housing such as homeless shelters (with more than 16 occupants) within CD-4 (General Urban) and CD-5 (Urban Center) Character Districts pursuant to a Special Use Permit;
- Permit smaller transitional housing such as domestic violence shelters (with 16 occupants or less²) by-right within CD-4 and CD-5, as well as in CD-3L (Sub-Urban Large Lot) and CD-3 (Sub-Urban) Character Districts;
- Allow medical uses within SD-RC (Research Center) Special Districts, which would enable detoxification facilities to come into those areas, while not hindering medical uses within SD-U (University) Special Districts, if service providers decide to purchase those properties from CMU³. This text change will also bring the existing medical use (McLaren Wellness Central) into compliance with zoning;
- Allow adult day care centers by-right within CD-3L, CD-3, CD-4 and CD-5 districts, similarly to child care centers.

Requested Action:

Recommend that the City Commission adopt Text Change 23-02.

Attachment

1. Draft ordinance

¹ The National Coalition to End Homelessness states that for central Michigan, bed capacity is at 102% and 800 individuals are unsheltered and sleeping on the streets. For families, the bed capacity is 113% with 100 families unsheltered. Educational statistics indicate that there are 150 homeless children in Isabella County, confirming that we more than likely have more than 157 homeless in our county that we were able to identify and count.

² The 2015 International Building Code commentary provides the direction to classify occupancies with less than 16 residents as residential as opposed to institutional due to the following reasons: (1) statistics show that 98% of single-family households in the U.S. have less than 16 occupants, (2) federal housing laws regarding nondiscrimination prohibit regulating what constitutes a family through blood or marriage, and (3) fire protection rules require more stringent sprinkler requirements for facilities that exceed 16 occupants.

³ Mt Pleasant Zoning Ordinances do not regulate properties within SD-U districts. However, if Central Michigan University conveys any portion of the land within University Park, that land becomes automatically subject to the provisions of SD-RC districts which do not currently allow for medical uses.

Memorandum



TO: Aaron Desentz
City Manager

FROM: Manuela Powidayko
Director of Planning and Community Development

DATE: September 25, 2023

SUBJECT: Text Change 23-03

As explained in the attached staff memorandum, the proposed ordinance would make the following changes to the manner in which attached garages are regulated:

1. Exempt two-story buildings from the requirement that attached garages shall not exceed 50% of the total width of the building;
2. Increase the maximum percentage from 50 to 60% for single-story homes.

The Planning Commission held a public hearing on the proposed ordinance on September 7, 2023. There were no public comments on the subject. Following the public hearing, the Planning Commission recommended that the City Commission adopt Text Change 23-02.

REQUESTED ACTION:

The City Commission receive the Planning Commission recommendation and set a public hearing on the proposed text change for October 23, 2023.

Attachments:

1. Draft ordinance
2. Staff memorandum from September 7, 2023

**CITY COMMISSION
CITY OF MOUNT PLEASANT**

Isabella County, Michigan

Commissioner _____, supported by Commissioner _____, moved adoption of the following ordinance:

ORDINANCE NO. ____

AN ORDINANCE TO AMEND TABLE 154.405.A DISTRICT STANDARDS: CD-3L SUB-URBAN LARGE, CD-3 SUB-URBAN, AND CD-4 GENERAL URBAN CHARACTER DISTRICTS OF THE MOUNT PLEASANT ZONING ORDINANCES REGARDING THE RATIO OF HOUSE VERSUS GARAGE AT FRONTAGE.

It is Hereby Ordained by the People of the City of Mount Pleasant:

Section 1. Amendment to Table. The portions within Table 154.405.A District Standards: CD-3L Sub-Urban Large Character District pertaining to Vehicular Parking Standards – Attached Garage Location is amended to read as follows:

P in 3rd Lot Layer; P in 2nd Lot Layer and may encroach up to 6 ft. into 1st Lot Layer when Garage is architecturally integrated into the overall Building design and the garage is less than 60% of the total width of the Building, except that such percentage rule shall not apply to two-story buildings; No front-facing Garage door shall be located less than 24 ft. to the closer of the Frontage line or public sidewalk

Section 2. Amendment to Table. The portions within Table 154.405.A District Standards: CD-3 Sub-Urban Character District pertaining to Vehicular Parking Standards – Attached Garage Location is amended to read as follows:

P in 3rd Lot Layer; P in 2nd Lot Layer and may encroach up to 6 ft. into 1st Lot Layer when Garage is architecturally integrated into the overall Building design and the garage is less than 60% of the total width of the Building, except that such percentage rule shall not apply to two-story buildings; No front-facing Garage door shall be located less than 24 ft. to the closer of the Frontage line or public sidewalk

Section 3. Amendment to Table. The portions within Table 154.405.A District Standards: CD-4 General Urban Character District pertaining to Vehicular Parking Standards – Attached Garage Location is amended to read as follows:

P in 3rd Lot Layer; P in 2nd Lot Layer and may encroach up to 6 ft. into 1st Lot Layer when Garage is architecturally integrated into the overall Building design and the garage is less than 60% of the total width of the Building, except that such percentage rule shall not apply to two-story buildings; No front-facing Garage door shall be located less than 24 ft. to the closer of the Frontage line or public sidewalk

Section 3. Publication and Effective Date. The City Clerk shall cause to be published a notice of adoption of this ordinance within 10 days of the date of its adoption. This ordinance shall take effect 30 days after its adoption.

YEAS: Commissioner(s) _____

NAYS: Commissioner(s) _____

ABSTAIN: Commissioner(s) _____

ABSENT: Commissioner(s) _____

CERTIFICATION

As the City Clerk of the City of Mount Pleasant, Isabella County, Michigan, I certify this is a true and complete copy of an ordinance adopted by the Mount Pleasant City Commission at a regular meeting held on _____, 2023.

Amy Perschbacher, Mayor

Heather Bouck, City Clerk

PC Hearing: _____, 2023
Introduced: _____, 2023
Adopted: _____, 2023
Published: _____, 2023
Effective: _____, 2023

DRAFT

Memorandum

TO: Planning Commission
FROM: Manuela Powidayko
Director of Planning and Community Development
DATE: September 7, 2023
SUBJECT: Ratio of house versus garage at frontage

In work session in April, staff provided a summary to the Planning Commission regarding the findings from the *Zoning for Economic Opportunity* outreach process, which included the suggestion that for residential development, the City should look at rules governing the ratio of house versus garage at frontage, to ensure that starter homes¹ can be more easily constructed. At your July and August meetings (work session and text amendment introduction, respectively), the Planning Commission discussed, provided direction and reached general consensus to support the attached draft text amendment.

Attached Garages are currently limited to be either located within the back of properties, or if located closed to the front façade, garages must occupy less than 50% of the total width of the building. This design control was put in place to ensure that the garage is not the prevalent design element of the façade of residential buildings. While such “ratio of house versus garage at frontage” can be an important rule to ensure quality designs in the city, it has been hindering the ability of property owners to design two-car garages in smaller lots².

The proposed text amendment would:

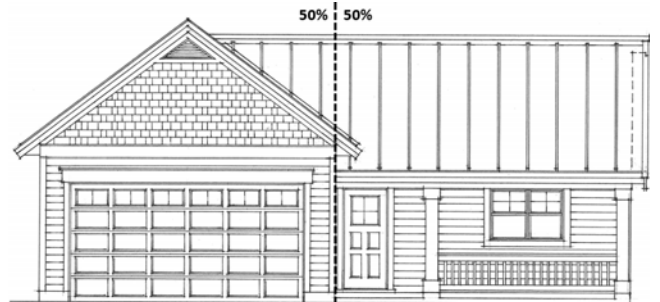
1. Exempt two-story buildings from such 50% requirement since the second story provides visual relief from wide garages located at the ground-floor level;
2. Increase the maximum percentage from 50 to 60% for single-story homes, which would enable 50-foot lots³ accommodate two-car garages.

Requested Action:

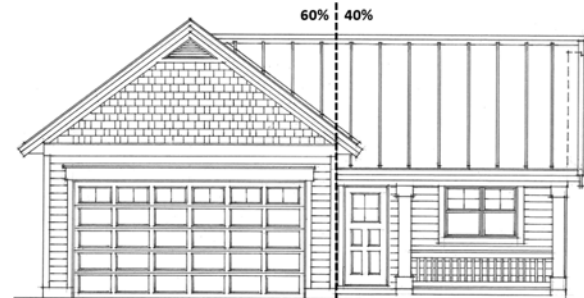
Recommend that the City Commission adopt Text Change 23-03.

Attachment

1. Draft ordinance



Example: CD-3 (min lot width required: 50 ft) – Current 50% rule
Minimum Lot Width needed to accommodate a 2-car garage: 56 feet*
*Total Side Yards: 12 ft + Total House Width: 44 ft (22 ft garage + 22 ft house)



Example: CD-3 (min lot width required: 50 ft) – Amended 60% rule
Minimum Lot Width needed to accommodate a 2-car garage: 49 feet*
*Total Side Yards: 12 ft + Total House Width: 37 ft (22 ft garage + 15 ft house)

¹ A relatively small, economical house or condominium that meets the requirements of first home buyers.

² Data analysis shows that almost one quarter of lots within CD-3 districts would not be able to accommodate two-car garages (13.5% citywide). This percentage is relevant considering that 92.5% of households in Michigan own two cars.

³ 50 feet is the minimum lot width required in CD-3 districts

CHECK REGISTER FOR CITY OF MT PLEASANT
CHECK DATE FROM 09/08/2023 THRU 09/21/2023

Check Date	Vendor Name	Description	Amount
Bank COMM COMMON CASH			
09/14/2023	DEPARTMENT OF THE NAVY	CONTAINMENT TEAM	\$2,100.00
09/22/2023	21ST CENTURY MEDIA - MICHIGAN	CONTRACT SVCS	1,051.97
09/22/2023	AARON DESENTZ	REIMBURSEMENT	124.99
09/22/2023	ABC FASTENER GROUP, INC	SUPPLIES	302.53
09/22/2023	AIRGAS USA, LLC	EQUIPMENT RENTAL	1,141.70
09/22/2023	ALAN CLARK	FARMER MKT	35.50
09/22/2023	ALAN CLARK	FARMER MKT	97.10
09/22/2023	ALEXANDER MATTHEWS	REIMBURSEMENT	100.00
09/22/2023	ALMA TIRE SERVICE INC	SUPPLIES/VEHICLE MAINT	2,739.26
09/22/2023	AMY RASCH	FARMER MKT	592.95
09/22/2023	ANDREW CURTISS	FARMER MKT	324.20
09/22/2023	ANGEL REINSHUTTLE	FARMER MKT	36.90
09/22/2023	ANGEL REINSHUTTLE	FARMER MKT	65.25
09/22/2023	ARIC STEWART	UMPIRE	36.00
09/22/2023	ARIC STEWART	UMPIRE	108.00
09/22/2023	AUDRA SZELAG	UMPIRE	45.00
09/22/2023	AUDRA SZELAG	UMPIRE	45.00
09/22/2023	BEN DVORAK	UMPIRE	15.00
09/22/2023	BEN DVORAK	UMPIRE	60.00
09/22/2023	BENDZINSKI & CO.	CONTRACT SVCS	15,450.00
09/22/2023	BILL KEHOE	FARMER MKT	192.75
09/22/2023	BILL KEHOE	FARMER MKT	166.00
09/22/2023	BLOCK ELECTRIC COMPANY	CONTRACT SVCS	1,869.80
09/22/2023	BOUND TREE MEDICAL, LLC	SUPPLIES	231.09
09/22/2023	BRAD DOEPKER	REIMBURSEMENT	56.00
09/22/2023	BRANDON CRAWFORD	REIMBURSEMENT	56.00
09/22/2023	BRUCE JORCK	FARMER MKT	1,804.50
09/22/2023	BRYCE HOLLINS	UMPIRE	36.00
09/22/2023	BRYCE HOLLINS	UMPIRE	90.00
09/22/2023	BS&A SOFTWARE	TRAINING	150.00
09/22/2023	BSN SPORTS LLC	SUPPLIES	19.00
09/22/2023	C & O SPORTSWEAR	SUPPLIES	323.60
09/22/2023	CARMEUSE AMERICAS	CHEMICALS	13,160.55
09/22/2023	CDW GOVERNMENT, INC	SUPPLIES	5,628.16
09/22/2023	CENTRAL CONCRETE INC	SUPPLIES	2,239.00
09/22/2023	CENTRAL MICH UNIV - MAILROOM	POSTAGE/HANDLING	2,475.70
09/22/2023	CENTRAL MICHIGAN UNIVERSITY	CONTRACT SVCS	183.00
09/22/2023	CENTRAL MICHIGAN UNIVERSITY	CONTRACT SVCS	735.00
09/22/2023	CENTRAL MICHIGAN UNIVERSITY	CONTRACT SVCS	183.00
09/22/2023	CENTRAL MICHIGAN UNIVERSITY	CONTRACT SVCS	897.88
09/22/2023	CHRIS BECK	FARMER MKT	667.40
09/22/2023	CHRIS LEONARD	REIMBURSEMENT	324.07
09/22/2023	CHRISTINE WITMER	REIMBURSEMENT	50.00
09/22/2023	CHRISTOPHER CARABELLI	REIMBURSEMENT	421.82
09/22/2023	CHRISTOPHER SWIER	FARMER MKT	217.95
09/22/2023	CINTAS CORP	SUPPLIES/CONTRACT SVCS	75.32
09/22/2023	CLAYTON MOLYNEUX	UMPIRE	45.00
09/22/2023	CLAYTON MOLYNEUX	UMPIRE	75.00

CHECK REGISTER FOR CITY OF MT PLEASANT
CHECK DATE FROM 09/08/2023 THRU 09/21/2023

Check Date	Vendor Name	Description	Amount
Bank COMM	COMMON CASH		
09/22/2023	COMMUNITY CONSTRUCT/SKILLS FOR	CONTRACT SVCS	13,115.00
09/22/2023	CONSUMERS ENERGY	UTILITIES	55,852.25
09/22/2023	COREY DION WALTHER	FARMER MKT	141.50
09/22/2023	COREY DION WALTHER	FARMER MKT	153.30
09/22/2023	COYNE OIL CORPORATION	FUEL	9,509.82
09/22/2023	CULLIGAN	CONTRACT SVCS	51.00
09/22/2023	DAN SODINI	FARMER MKT	11.40
09/22/2023	DAVID GROTHAUSE	FARMER MKT	58.60
09/22/2023	DAVID GROTHAUSE	FARMER MKT	46.40
09/22/2023	DAVID MCCLAIN	UMPIRE	60.00
09/22/2023	DAVID W WHITEHEAD	FARMER MKT	100.95
09/22/2023	DAVID W WHITEHEAD	FARMER MKT	57.95
09/22/2023	DORNBOS SIGN & SAFETY, INC.	SUPPLIES	81.97
09/22/2023	DTE ENERGY	UTILITIES	4,733.66
09/22/2023	ERNEST WOLF	FARMER MKT	209.15
09/22/2023	ERNEST WOLF	FARMER MKT	297.55
09/22/2023	FIDELITY SECURITY LIFE INSURANCE CO	OPTICAL INSURANCE	1,204.14
09/22/2023	FISHBECK - ENGINEERS/ARCHITECTS/	CONTRACT SVCS	6,191.00
09/22/2023	FLEX ADMINISTRATORS	FSA ADMINISTRATIVE FEE	243.60
09/22/2023	FRONT LINE SERVICES, INC	CONTRACT SVCS	2,139.36
09/22/2023	GALGOCI OIL COMPANY	FUEL	415.69
09/22/2023	GALLOUP/FORBERG SMITH/MERLO	SUPPLIES	269.90
09/22/2023	GARY BRANDT	FARMER MKT	565.20
09/22/2023	GEMINI CAPITAL	UB REFUND	94.92
09/22/2023	GRAINGER	SUPPLIES	123.06
09/22/2023	GRANGER	CONTRACT SVCS	76.68
09/22/2023	GREEN SCENE LANDSCAPING, INC.	CONTRACT SVCS	3,792.40
09/22/2023	GT RUBBER SUPPLY	SUPPLIES	3,106.22
09/22/2023	HACH COMPANY	CONTRACT SVCS	867.00
09/22/2023	HANK MCDONALD	UMPIRE	54.00
09/22/2023	HCC LIFE INS. CO	ADMIN - STOP LOSS INS	21,732.28
09/22/2023	HIRERIGHT	CONTRACT SVCS	874.99
09/22/2023	HOFFMAN CONSTRUCTION	CONTRACT SVCS	16,900.00
09/22/2023	INFOSEND, INC	CONTRACT SVCS	3,154.03
09/22/2023	ISABELLA BANK	CAPITAL IMPROVEMENT BONDS	442,725.00
09/22/2023	ISABELLA CAT CLINIC	CONTRACT SVCS	2,960.00
09/22/2023	ISABELLA VALENZUELA-WATSON	UMPIRE	108.00
09/22/2023	JACK DOHENY COMPANIES, INC	SUPPLIES	1,219.35
09/22/2023	JANENE CHISEL	REIMBURSEMENT	20.50
09/22/2023	JENNIFER MAYER	FARMER MKT	59.70
09/22/2023	JENNIFER MAYER	FARMER MKT	41.85
09/22/2023	JESSA SKONIECZNY	UMPIRE	45.00
09/22/2023	JESSA SKONIECZNY	UMPIRE	75.00
09/22/2023	JOHN JOHNSON	FARMER MKT	102.60
09/22/2023	JOHN JOHNSON	FARMER MKT	169.00
09/22/2023	JOSEPH BRYANT	REIMBURSEMENT	100.00
09/22/2023	JOSEPH M DAY COMPANY INC	CONTRACT SVCS	1,021.00
09/22/2023	KAREN FENTON	FARMER MKT	143.15

CHECK REGISTER FOR CITY OF MT PLEASANT
CHECK DATE FROM 09/08/2023 THRU 09/21/2023

Check Date	Vendor Name	Description	Amount
Bank COMM	COMMON CASH		
09/22/2023	KAREN FENTON	FARMER MKT	16.15
09/22/2023	KATHERINE BUGBEE	FARMER MKT	19.95
09/22/2023	KNOWBE4, INC.	CONTRACT SVCS	3,689.40
09/22/2023	KRAPOHL FORD LINCOLN MERC	SUPPLIES/VEHICLE MAINT	538.61
09/22/2023	LAURA DELAMATER	REIMBURSEMENT	11.07
09/22/2023	LAURA FOX	REIMBURSEMENT	49.38
09/22/2023	LISE WHITE	REIMBURSEMENT	12.70
09/22/2023	LITHOPREP	SUPPLIES	940.00
09/22/2023	LOUISE WYMER	FARMER MKT	263.60
09/22/2023	LOUISE WYMER	FARMER MKT	327.75
09/22/2023	LUCY KEYES	UMPIRE	45.00
09/22/2023	LUCY KEYES	UMPIRE	75.00
09/22/2023	MARK KARIMI	UMPIRE	30.00
09/22/2023	MARK KARIMI	UMPIRE	45.00
09/22/2023	MATTHEW BOOTH	UMPIRE	36.00
09/22/2023	MATTHEW BOOTH	UMPIRE	108.00
09/22/2023	MATTHEW BOOTH	UMPIRE	30.00
09/22/2023	MATTHEW STOREY	REFUND	90.00
09/22/2023	MAYA GONZALES	UMPIRE	45.00
09/22/2023	MAYA GONZALES	UMPIRE	120.00
09/22/2023	MCGUIRK SAND & GRAVEL INC	CONTRACT SVCS	15,963.00
09/22/2023	MCLAREN CORPORATE SERVICES	CONTRACT SVCS	927.00
09/22/2023	MEDLER ELECTRIC COMPANY	SUPPLIES	5.61
09/22/2023	MELINDA MORRISON	CONTRACT SVCS	750.00
09/22/2023	MICHIGAN PIPE & VALVE	SUPPLIES	16,816.00
09/22/2023	MID-MICHIGAN INDUSTRIES	CONTRACT SVCS	8,758.00
09/22/2023	MILAN SUPPLY COMPANY	SUPPLIES	667.80
09/22/2023	MIRANDA LEY	FARMER MKT	56.55
09/22/2023	MPPS FOOD & NUTRITION SERV	SUPPLIES	6,130.10
09/22/2023	MT PLEASANT KIWANIS CLUB	DUES	150.00
09/22/2023	MT PLEASANT OPTIMIST CLUB	CONTRACT SVCS	98.33
09/22/2023	MT. PLEASANT PUBLIC SCHOOLS	CONTRACT SVCS	7,924.51
09/22/2023	NCL OF WISCONSIN	SUPPLIES	2,618.58
09/22/2023	NYE UNIFORM COMPANY	UNIFORMS	484.00
09/22/2023	ODP BUSINESS SOLUTIONS, LLC	SUPPLIES	214.04
09/22/2023	OHM ADVISORS	CONTRACT SVCS	1,628.00
09/22/2023	ON DUTY GEAR, LLC	UNIFORMS	118.50
09/22/2023	O'NEIL & DUSO PLLC	ATTORNEY SVCS	7,785.98
09/22/2023	PAPAS PUMPKIN PATCH	FARMER MKT	1,872.30
09/22/2023	PAPAS PUMPKIN PATCH	FARMER MKT	731.20
09/22/2023	PHILLIP BISCORNER	REIMBURSEMENT	150.00
09/22/2023	PIYUSH SARAIYA	UMPIRE	45.00
09/22/2023	PIYUSH SARAIYA	UMPIRE	60.00
09/22/2023	PLEASANT GRAPHICS, INC	SUPPLIES	50.00
09/22/2023	PRO COMM, INC	COMMUNICATIONS	1,652.50
09/22/2023	PVS TECHNOLOGIES, INC	CHEMICALS	9,682.32
09/22/2023	REBECCA PARKER	FARMER MKT	153.20
09/22/2023	REBECCA PARKER	FARMER MKT	191.80

CHECK REGISTER FOR CITY OF MT PLEASANT
CHECK DATE FROM 09/08/2023 THRU 09/21/2023

Check Date	Vendor Name	Description	Amount
Bank COMM COMMON CASH			
09/22/2023	RENEE EARLE	FARMER MKT	84.10
09/22/2023	RENEE EARLE	FARMER MKT	98.65
09/22/2023	ROMANOW BUILDING SERVICES	CONTRACT SVCS	6,327.69
09/22/2023	ROSEMARY CARSON	FARMER MKT	27.55
09/22/2023	RYLEIGH FOSTER	UMPIRE	45.00
09/22/2023	SADIE WHEATON	SUPPLIES	335.00
09/22/2023	SAM MEASE	UMPIRE	60.00
09/22/2023	SARAH GOWARD	UMPIRE	45.00
09/22/2023	SARAH GOWARD	UMPIRE	30.00
09/22/2023	STATE OF MICHIGAN	CONTRACT SVCS	7,141.63
09/22/2023	STATE OF MICHIGAN	CONTRACT SVCS	310.00
09/22/2023	STERICYCLE, INC.	CONTRACT SVCS	964.64
09/22/2023	STEVIE SWAREY	FARMER MKT	55.35
09/22/2023	STEVIE SWAREY	FARMER MKT	37.25
09/22/2023	SUNRISE ASSESSING SERVICES, LLC	CONTRACT SVCS	7,955.00
09/22/2023	SYNERGY EQUIPMENT	CONTRACT SVCS	1,300.00
09/22/2023	SYNERGY EQUIPMENT	CONTRACT SVCS	4,308.23
09/22/2023	T.H. EIFERT, LLC	CONTRACT SVCS	1,487.77
09/22/2023	TINA CAPUSON	FARMER MKT	31.05
09/22/2023	TINA CAPUSON	FARMER MKT	66.20
09/22/2023	TRACE ANALYTICAL LABORATORIES, INC.	CONTRACT SVCS	386.00
09/22/2023	UNIFIRST CORPORATION	CONTRACT SVCS	136.18
09/22/2023	USABLUBOOK	SUPPLIES	1,814.44
09/22/2023	VALET AUTO CARE, INC	SUPPLIES/VEHICLE MAINT	1,475.00
09/22/2023	VANESSA LABELLE	UMPIRE	45.00
09/22/2023	VANESSA LABELLE	UMPIRE	45.00
09/22/2023	WOMEN'S AID SERVICES	CONTRACT SVCS	6,674.40
09/22/2023	YEO & YEO TECHNOLOGY	CONTRACT SVCS	28,524.00

COMM TOTALS:

Total of 173 Checks:	\$813,907.12
Less 0 Void Checks:	0.00
Total of 173 Disbursements:	<u>\$813,907.12</u>



SEMI-ANNUAL TWO PERCENT ALLOCATION
 CITY OF MT. PLEASANT REQUESTS
 FALL 2023

<u>DEPARTMENT/PROJECT NAME</u>	<u>AMOUNT</u>	<u>PRIORITY</u>
<i>Airport</i>		
Runway/Taxiway Rehab	\$ 50,000	C
<i>Building</i>		
Energy Efficiency and Building Sustainability	\$ 60,000	H
<i>Downtown Development</i>		
Town Center Civic Space	\$ 189,000	H
<i>Engineering</i>		
1303 N Franklin Former Landfill Remediation & Monitoring	\$ 50,000	L
City Hall Retaining Wall-Broadway Street Sidewalk Replacement	\$ 70,000	M
Sidewalk Replacement	\$ 150,000	M
<i>Parks</i>		
Mid Michigan/GKB Riverwalk Pathway Northern Connection	\$ 200,000	H
<i>Police</i>		
Aerial Fire Apparatus	\$ 250,000	C
Mt. Pleasant Police Vehicle and Body Camera Project	\$ 406,620	C
<i>Public Works</i>		
Pickard and Bradley Traffic Signal	\$ 84,100	H
<i>Streets</i>		
Asphalt Overlays and Street Resurfacing	\$ 976,000	M
Broadway Street Storm Sewer Upgrade	\$ 215,000	M
Close Crawford Road Sidewalk Gaps	\$ 23,000	M
Kinney Street Mill and Overlay	\$ 290,000	M
Pickard Storm Sewer	\$ 247,780	H
<i>Water</i>		
Automatic Water Meters	\$ 59,940	M
Lime Disposal	\$ 215,000	H
<i>Water Resource Recovery</i>		
Food Waste/Organics Receiving	\$ 300,000	M
Total Requested	\$ 3,836,440	

Priority Definitions

Critical:

- Project must be done to address failure of infrastructure OR
- Funding is needed to support essential program or it will not be able to continue

High:

- Important project or program to meet current service or program needs

Medium:

- Important project or program to meet future or new service or program needs

Low:

- New project or program that would be nice to have

Overview

Project Name

Runway/Taxiway Rehab

Total Requested

\$50,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Critical

Reoccurring Need?

This Request is Reoccurring

Applicant Information

Applicant Name

bbrickner@mt-pleasant.org

Applicant Email

Bill Brickner

Organization

Mt. Pleasant Airport

Address

5453 E. Airport Rd

Mt. Pleasant , 48858

Phone Number

9897722965

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway

Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Project Partners

Partnered With

Union Township

Authorizers

Mark Stuhldreher mstuhldreher@unionshipmi.com

Status

Review

Address

2010 S Lincoln Road

Mount Pleasant, Michigan 48858

Phone

989-772-4600

Fax

989-773-1988

Partnered With

Isabella County

Authorizers

nfrost@isabellacounty.org

Dan Gahagan dguhagan@sagchip.org

Erik Rodriguez erodriguez@sagchip.org

Status

Review

Address

200 N. Main Street
Mount Pleasant, Michigan 48858

Phone

989 772-0911

Fax

Categories

- Economic development
- Infrastructure
- Safety/Security
- Transportation

Project Description

This funding is to match the Federal and State funding provided to rehabilitate Taxiway "A" and Runway 9/27. In 2022, consultants began the design work for the Taxiway "A" rehabilitation. This project will include lighting, signage, runway re-designation, and repaving of Taxiway "A". It is anticipated the construction work will commence during the 2024 construction season. In 2024, it is anticipated the design work for Runway 9/27 would begin with construction taking place in 2025. Projected costs for these projects are \$7,036,000 with Federal grants covering \$6,332,400, and State grants covering \$351,800, and required local share of \$351,800. The lighting and pavement in these areas are near the end of their useful life, and will be in need of rehabilitation in order for the airport to remain an economic driver for the community.

Benefit Description

The airport is a driver for economic development and business growth. The Mt. Pleasant Airport is a major gateway to the Tribal community's casino and resort operations. The funding would help to ensure safe airport operations by having safe and reliable infrastructure. Entertainers and patrons alike, appreciate the convenience and service they experience at the airport when coming to visit or preform at the resort. Runways and Taxiways are the most important features for safe travel to and from the airport.

Funding Requirements

The funding request is for \$50,000 for each of the next two years, to accumulate funds, which will assist in covering the match requirements for Federal and State grants for these required projects. This request is for the third contribution towards the required match.

Description of Recurring Need

Project Timeline

Taxiway "A" anticipated schedule

2022 Design

2024 Construction

Runway 9/27 anticipated schedule

2024 Design

2025 Construction

Budget Items

Name	Cost	Quantity	Total	Category
Runway/Taxiway Rehab	\$50,000.00	1	\$50,000.00	Transportation
AmountRequested	\$50,000.00			

Matching Funds

Name	Cost	Quantity	Total
Runway/Taxiway Rehab Federal Grant	\$6,332,400.00	1	\$6,332,400.00
Runway/Taxiway Rehab State Grant	\$351,800.00	1	\$351,800.00
Runway/Taxiway Rehab Local Share	\$351,800.00	1	\$351,800.00
AmountMatched	\$7,036,000.00		

Budget Summary

Amount Requested

\$50,000.00

Amount Matched

\$7,036,000.00

Total Amount

\$7,086,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

Energy Efficiency and Building Sustainability

Total Requested

\$60,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

High

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

bkench@mt-pleasant.org

Applicant Email

Brian Kench

Organization

City of Mt. Pleasant

Address

320 W Broadway Street
Mount Pleasant , 48858

Phone Number

9893303866

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Education
 - Environmental
-

Project Description

- Building Sustainability

Project Description

Central Michigan University sponsored an internship with the city to assist in creating a city-wide energy efficiency and building sustainability program in the summer of 2023. Much of the initial work included reviewing available rebate/grant opportunities and placing them into a condensed and easily understandable format for residents. Some of that work is already available on the City's website.

The next phase of the project will include securing funding to provide an extensive energy audit, for residents, that will provide a report

that will target low cost-no cost items to reduce energy, along with recommendation on upgrading obsolete heating and cooling equipment, water heaters, water saving devices, along with improving building envelope to address comfort and performance through updated windows, insulation, and sealants.

The program will allow us to benchmark the city as a whole and look for ways to challenge the community in making updates to their property that are more sustainable and reduce the use of fossil fuels. The program will also explore the use of alternative energy such as wind and solar.

Staff will be looking to do this work as part of a paid internship with CMU, along with contracting the services of an approved energy auditor. The estimated cost for the audit is planned at \$500 per site. The review will take into consideration the following:

Energy Audit (Example)

- Explore options for initiating the energy audit, i.e., consultant, other resources that may be available, or looking at energy raters through the State of Michigan/Utility Companies.
- Program to evaluate the home for energy consumption in comparison with similar buildings/uses.
- Conduct a “blower door” test as part of the energy audit to determine building tightness.
- Use infrared scanning to identify air leakage through windows, doors, and wall areas.

Low Cost / No Cost items (Inventory components of building envelope)

- Sealing penetrations of the exterior envelope
- Weather sealing (doors and windows)
- Window condition and type
- Door condition and type
- Insulation types and levels
- Scheduling equipment
- Low flow water reducing devices.
- Smart devices to turn out lights and adjust systems.
- Planned landscaping for shading.
- Window treatments

Low Cost/Short Term return on investment (1-2 years)

- Heating Equipment -Fuel, type, size (Was the equipment sized properly for the home)
- Water Heating-Fuel, type, size (Age, is the tank insulated, is there a recirculating pump for on-demand systems, etc.)
- Windows – Low E or better
- Increased insulation in foundation, walls, and attics. (Type and R-value)

Alternative Energy

- Photovoltaic, PV's (Electricity from the Sun)
- Wind Generation

Funding Requirements – Request for \$60,000

Partnerships with area agencies will be a focus along with pursuit and leveraging of available grants to offset cost for upgrade to the building.

This project is proposed to be complete in 2024 -2025

Benefit Description

The community will benefit through reducing our use of fossil fuels. This program will provide an educational component with CMU and provide information to the public on ways in which to reduce our use of fossil fuels through energy efficiency and building sustainability.

Funding Requirements

We are looking at a start up of \$60,000.

\$15,000 for paid internship

\$45,000 allocated to cost associated with energy audits of homes.

Project Timeline

Staff will continue our energy efficiency and building sustainability work in early 2024.

November - Dec Work with CMU to bring our second intern to head up the program.

Jan 2023 - Partner with our utility providers on rebates incentives for energy efficiency upgrades for homeowners.

Jan-March 2024 Work with local material suppliers and HVAC (Heating, Ventilating and Air-Conditioning) contractors to seek potential incentives to buy/contract local as part of our program.

Jan-Feb - Solicit energy consultant to assist with energy audits and reporting.

Jan-Feb Complete program requirements and application

March 2023 Promote program through social media, radio, website and mailings.

April - Oct - Field Work

Oct - Dec Evaluate program and review our findings

Budget Items

Name	Cost	Quantity	Total	Category
Energy Efficiency and Building Sustainability	\$60,000.00	1	\$60,000.00	Environmental
AmountRequested	\$60,000.00			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	\$0.00		

Budget Summary

Amount Requested

\$60,000.00

Amount Matched

\$0.00

Total Amount

\$60,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

Town Center Civic Space

Total Requested

\$189,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

High

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

msponseller@mt-pleasant.org

Applicant Email

Michelle Sponseller

Organization

City of Mt. Pleasant

Address

320 West Broadway

Mt. Pleasant , 48858

Phone Number

9897795348

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway

Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Economic development
 - Park Improvements
-

Project Description

The Town Center Civic Space project is to create a dynamic community space that is accessible and inclusive to all members of the community. The proposed design will increase the green space by 4 ½ times, incorporate universal accessibility design principles, offer public restrooms, expand sidewalks, install seating and bike racks, upgrade electrical for special events, and install electrical car charging stations.

The total project estimated cost is \$2,278,462 and is intended to be a long-term investment in the city's economic development. The proposed Town Center Civic Space will be an attractive destination for tourists and will help to create a vibrant business district in the heart of Mt. Pleasant. More importantly, the project will be a community gathering space, providing year-round entertainment for all ages and abilities, and an outdoor venue for art, music, and other events.

Public Space Features:

- **Multi-Purpose Community Hub:** A versatile space for year-round public gatherings, events, and activities, including farmers' markets, music concerts, and festivals.
- **Expansive Green Space and Enhanced Urban Greenery:** Significant increase in green space, with added trees and plantings to improve air quality, provide shade, and support biodiversity.
- **Universal Accessibility Design:** Curbless transitions between parking and multi-functional areas, wide accessible sidewalks, and seating areas to ensure easy navigation and maximum comfort for all community members.
- **Accessible Public Restrooms:** Construction of public restrooms adhering to accessibility standards to ensure comfort and convenience for all community members during events and daily activities.
- **Comprehensive Site Amenities:** Installation of comfortable benches, strategically placed trash cans, bike racks, universally accessible pathways, and seating areas to encourage a clean, welcoming environment and promote alternative transportation options.
- **Upgraded Electrical Infrastructure:** Modernized electrical systems to support a wide range of events and activities, enhancing the functionality and adaptability of the multi-functional space.
- **Traffic Calming Measures:** Removal of a bypass around the historic downtown area to encourage slower vehicle speeds, increased pedestrian safety, and a more vibrant, walkable community.
- **Enhanced Pedestrian Lighting:** Additional pedestrian lighting throughout the area to promote comfort, safety, and a sense of security during nighttime hours and low-light conditions.
- **Green Infrastructure and Sustainability:** Commitment to sustainable practices, including the installation of electric vehicle charging stations to promote clean transportation options and reduce the community's carbon footprint.

Benefit Description

The Town Center Civic Space project will greatly benefit the community by creating a modern, accessible, and multifunctional space that caters to the diverse needs of Mt. Pleasant's residents and visitors, 63% of whom are low to moderate-income individuals. The universal accessible design will provide a year-round event and gathering area for the community, becoming an attractive venue for events such as concerts, the weekly farmers' market, and various other community activities. This revitalized space will not only enhance the quality of life for residents but also serve as a catalyst for economic development and increased tourism in the downtown area.

Funding Requirements

The estimated cost for the Town Center Civic Space project is \$2,278,462. The budget breakdown is as follows:

- Site Amenities: \$189,000 (universally accessible walkways, trees, benches, bike racks, electrical upgrades and EV car charging stations)
- Universally accessible restrooms: \$553,625
- Additional green space: \$353,060
- Parking lot reconstruction and additional on-street parking spaces: \$1,182,777

Funding Requirements Met: \$2,089,462

\$1,000,000 = Revitalization and Placemaking Grant from Michigan Economic Development Corporation

\$1,089,462 = City of Mt. Pleasant

Project Timeline

The proposed timeline for the Town Center Civic Space project is as follows:

- May - August 2023: Project planning and design phase, including community engagement and public consultation phase
- November 2023: Design finalized
- January 2024: Project bid
- May 2024: Construction begins
- October 2024: Project completion

Budget Items

Name	Cost	Quantity	Total	Category
Site Amenities	\$189,000.00	1	\$189,000.00	Park Improvements
Amount Requested	\$189,000.00			

Matching Funds

Name	Cost	Quantity	Total
Universally Accessible Bathrooms	\$553,625.00	1	\$553,625.00
Additional Green Space	\$353,060.00	1	\$353,060.00
Parking Lot Reconstruction and On-street Parking	\$1,182,777.00	1	\$1,182,777.00
AmountMatched	\$2,089,462.00		

Budget Summary

Amount Requested

\$189,000.00

Amount Matched

\$2,089,462.00

Total Amount

\$2,278,462.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

1303 N Franklin Former Landfill Remediation

Total Requested

\$50,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Medium

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Environmental
-

Project Description

This request is for funding to continue work at 1303 N Franklin Street (a City-owned property). We would continue work according to the advisement of our environmental consultant and the Michigan Department of Environment Great Lakes and Energy (EGLE). We are expecting to be able to begin remediation activities once the site assessment has been completed. This funding would be used for the eventual remediation project.

Community landfills were common throughout the state and country for several decades for the disposal of local trash. This former landfill was operated until 1975 for placement of general refuse from residents and business owners throughout the community. In the early 1980s, the landfill was closed and capped with clean fill material, as appropriate with the regulatory requirements applicable at the time. The City is working in conjunction with the State and Federal regulatory agencies to evaluate the environmental condition of the former landfill.

Previous funding awarded during the 2020-2022 two-percent processes have allowed for further characterization of the site and refinement of the Conceptual Site Model (CSM). Deep wells were installed in the spring of 2022 and have been sampled. The environmental consultant compiled data and put together a report of work done. It was determined that another deep well outside the landfill area should be installed and water tested to verify that the clay layer found during prior work is sufficient to eliminate the drinking water pathway. This work has been completed.

Benefit Description

The retired municipal landfill at 1303 N Franklin was utilized by Mt. Pleasant and the surrounding area from some time in the 1950s to 1975 when it was closed. Shortly after closure, the area had a clay cap placed over it to limit the rainwater entering the landfill area.

Funding for this project will allow for future work at the site in accordance with the advisement of our environmental consultant and the Michigan Department of Environment Great Lakes and Energy (EGLE).

Funding Requirements

Future funding requirements are unknown and will depend on the type of remediation that may be required.

Project Timeline

Fall of 2023 to Summer of 2024

Budget Items

Name	Cost	Quantity	Total	Category
Remediation	\$50,000.00	1	\$50,000.00	Environmental
AmountRequested	\$50,000.00			

Matching Funds

Name	Cost	Quantity	Total
Remediation	\$50,000.00	1	\$50,000.00
AmountMatched	\$50,000.00		

Budget Summary

Amount Requested

\$50,000.00

Amount Matched

\$50,000.00

Total Amount

\$100,000.00

Uploaded Files

Name
M3460004Report 2023-09-06.pdf
M3460003ReportRed 2023-09-06.pdf

There are no comments to display.



June 22, 2023

Mr. Jason Moore
DPW Director
City of Mount Pleasant, Michigan
320 West Broadway
Mount Pleasant, Michigan 48858

RE: Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
Mount Pleasant, Michigan

Dear Mr. Moore:

The Mannik & Smith Group, Inc. (MSG) was retained by the City of Mount Pleasant, Michigan to provide professional environmental consulting services for investigation of a former landfill area at City-owned property located north of the intersection of West Pickard and North Franklin Streets in Mount Pleasant. The subject site is located at 1303 North Franklin Street in Mount Pleasant, Michigan.

MSG has been assisting the City with regulatory compliance issues associated with the former landfill area since November 2020. This letter report documents the installation and sampling of a deep groundwater monitoring well at the former landfill area, as authorized by the City on February 28, 2023 under an Agreement for Services between the City of Mount Pleasant and MSG based on MSG's February 1, 2023 Proposal No. M3460003.CO1.

DEEP MONITORING WELL INSTALLATION

A deep exploratory boring designated MW-300 was drilled and sampled at the approximate location shown on *Figure 1, Site Map, in Attachment A, Figure 1*. The boring was drilled and sampled on April 4, 2023 by Cascade Environmental (Cascade) of Flint, Michigan using a rubber track mounted Boart Longyear 150 Minisonic drill rig and rotosonic drilling methodology. A subsurface utility staking request was made through the MISS DIG utility locating system prior to commencement of drilling and sampling. The boring log for MW-300 is included in *Attachment B, Boring and Monitoring Well Log*. Photographs of the field activities are included in *Attachment C, Photo Log*.

The rotosonic drilling method uses high-frequency resonant energy to advance a core barrel into the subsurface formations. The resonant energy is transferred down the drill string to the drill bit face at various sonic frequencies. The subsurface materials are continuously cored and recovered using a 4-inch diameter steel coring barrel. The 4-inch diameter coring barrel is overridden by a six-inch diameter steel barrel that cases the borehole and prevents collapse. Water is used when necessary to reduce drilling friction and heat buildup. Potable water from the City of Mount Pleasant's municipal water system was used by Cascade.

Four-inch diameter soil cores were collected on a continuous basis from the ground surface to the boring terminus depth at 85 feet below the ground surface (bgs). Five-foot long coring runs were used in the uppermost 10 feet of drilling, followed by 10-foot long runs. The recovered soils at each boring location were examined and logged in the



TECHNICAL SKILL.
CREATIVE SPIRIT.

field by an experienced MSG Certified Professional Geologist (CPG).

A groundwater monitoring well was installed in boring MW-300 on April 5, 2023 following completion of drilling and soil sampling. The monitoring well construction details are included on the boring/monitoring well log in Attachment B. The well assembly for monitoring well MW-300 consists of a 2-inch diameter 10-slot¹ Schedule 40 PVC well screen flush threaded to 2-inch diameter Schedule 40 PVC riser pipe. The 10 foot-long well screen for MW-300 was set in the 75-85 feet bgs depth interval.

The location of monitoring well MW-300 was surveyed by MSG field personnel using a hand-held global positioning system (GPS) instrument with sub-centimeter accuracy capability. The location coordinates are included on the boring and well construction log in Attachment B. The ground surface and top of casing elevation for MW-300 were surveyed to the nearest 0.1 foot and 0.01 foot, respectively, as referenced to an onsite vertical datum established by a professional survey crew from MSG's Canton, Michigan office.

As shown on the boring log in Attachment B, no granular soil layers were observed below a depth of 25 feet bgs at the location of MW-300. A boulder, or possibly a portion of a boulder, was encountered in the depth interval of approximately 81-83 feet bgs, within the screened interval of monitoring well MW-300 (see page 8 of the photo log in Attachment B). It is possible that there is a layer of cobbles and boulders within the glacial till at that depth that extends laterally outward beyond the 4-inch radius of the MW-300 soil core.

GROUNDWATER SAMPLING AND ANALYSIS

Monitoring well MW-300 was initially purged by MSG personnel on April 20, 2023 using a bladder pump and a new, disposable high density polyethylene (HDPE) bailer. Following removal of approximately 32 gallons of purge water from MW-300, the purge water was cloudy and silty and was not suitable for representative groundwater sampling.

MSG personnel returned to the site on May 24, 2023 and removed an additional 35 gallons of water from monitoring well MW-300 using a submersible pump² and new HDPE tubing. Upon completion of purging on May 24, 2023, the purge water from MW-300 appeared relatively clear and free of visible silt or sediment. A groundwater sample was collected using the purge pump and HDPE tubing. A new, disposable HDPE bailer was also used for sampling for per and polyfluoroalkyl substances (PFAS) analysis. Both filtered and unfiltered groundwater samples were collected for metals analysis. The filtered sample (designated as sample MW-300F) was collected using a disposable 0.45-micron filter specifically designed for environmental groundwater sampling.

Two groundwater samples were collected from MW-300 for PFAS analysis. Groundwater sample MW-300P was collected using the purge pump and HDPE tubing. Groundwater sample MW-300 was collected using a new, disposable HDPE bailer. A field blank sample was also collected for PFAS analysis. The field sampling forms are included in *Attachment D, Field Sampling Forms*.

The groundwater samples from MW-300 on May 24, 2023, the field blank sample, and a laboratory-supplied trip blank sample were submitted under standard chain of custody protocol to the ALS Environmental laboratory in Holland, Michigan (ALS) for analysis. The groundwater samples were analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), total and dissolved phase metals (10 Michigan metals plus aluminum, antimony, beryllium, boron, nickel, and thallium), ammonia, and PFAS

¹ A 10-slot well screen has 0.010-inch openings

² Geo-Squirt purge pump manufactured by Geotech Environmental Equipment, Inc. (Denver, Colorado)

compounds. The field blank was analyzed for PFAS compounds. The trip blank sample was analyzed for VOCs. The laboratory analytical data report is included in *Attachment E, Laboratory Analytical Report*.

GROUNDWATER SAMPLE ANALYTICAL RESULTS

As shown on the laboratory analytical data report in Attachment E, PCBs, VOCs, and SVOCs were not detected in the groundwater samples collected from monitoring well MW-300. The reported ammonia concentration of 1.2 milligrams/liter (mg/l) is below the Michigan Public Act 451 Part 201 Generic Residential Cleanup Criterion (GRCC) of 10 mg/l for drinking water. The reported aluminum concentration of 0.42 mg/l for the unfiltered groundwater sample is above the aesthetic GRCC of 0.050 mg/l for aluminum. However, aluminum was not reported at or above the laboratory reporting limit of 0.010 mg/l for the filtered groundwater sample (sample MW-300F).

MSG appreciates the opportunity to be of service to the City of Mount Pleasant. Please do not hesitate to contact the undersigned if you have any questions or require clarifications pertaining to the specifics of this report.

Sincerely,

The Mannik & Smith Group, Inc.

David Adler

David J. Adler, CPG

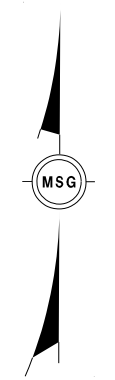
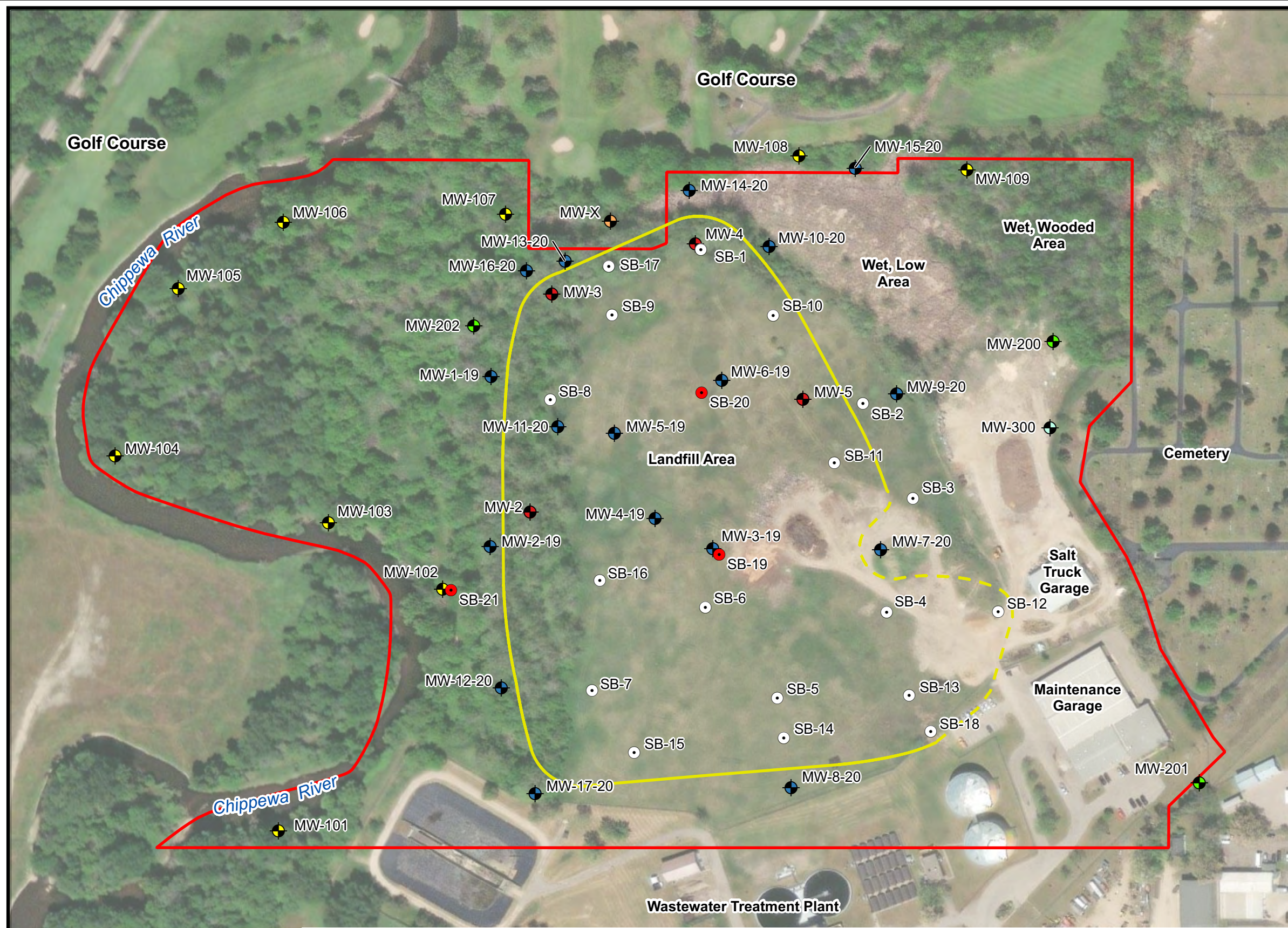
Project Manager

Cc: Larry Engelhart, EGLE RRD

Bay City District Office

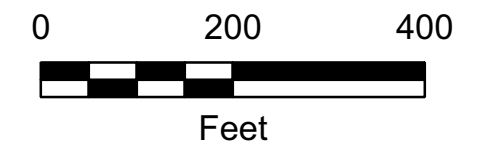
ATTACHMENT A

FIGURE 1



Legend

- Soil Boring Location - MSG (May 2021)
- Soil Boring Location - MSG (April 2022)
- ⊕ PVC Monitoring Well - MSG (April 2023)
- ⊕ PVC Monitoring Well -- MSG (April 2022)
- ⊕ PVC Monitoring Well - MSG (Nov. 2020)
- ⊕ PVC Monitoring Well - AKT (2019-2020)
- ⊕ Steel Monitoring Well - Keck (1977)
- ⊕ Monitoring Well - Undocumented Origin
- Approximate Extent of Buried Refuse
- Site Boundary (Approximate)



Notes:

1. Site boundary adapted from parcel boundaries provided on the Isabella County website and AKTPeerless "Site Map" dated July 26, 2020.
2. Aerial imagery collected on November 18, 2020.
3. 2-inch diameter steel monitoring wells are believed to be wells installed by Keck in 1977.
4. Monitoring well MW-11-20 could not be located in the field.



FIGURE 1

Site Map

1301-1303 North Franklin Street
 Mount Pleasant, Isabella County, MI

DATE	DRAWN BY	DESIGNED BY	PROJECT NO.
6/1/2023	JRO	DJA	M3460003

ATTACHMENT B
BORING AND MONITORING WELL LOG



The Mannik & Smith Group, Inc.
 2365 Haggerty Road South, Canton, MI 48188
 ph: (734) 397-3100 fax: (734) 397-3131
 www.manniksmithgroup.com

CLIENT City of Mt. Pleasant, MI	PROJECT NAME Former Mt Pleasant Landfill
PROJECT NUMBER M3460004	PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/4/23	COMPLETED 4/5/23
DRILLING CONTRACTOR Cascade Drilling	BORING DIAMETER: 6 inches
DRILLING METHOD Rotasonic	SURVEY COORDINATES: 772,009.8 N; 13,015,468.6 E (USSP MI South)
LOGGED BY DJA	CHECKED BY PDH
NOTES	GROUND WATER ENCOUNTERED DURING DRILLING: 8 FEET BGS
	WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
0									Surface Elev. = 758.60 NAD83	<p>← Above-Ground Protective Cover</p> <p>← Concrete Pad</p> <p>← Bentonite Chips from 1.5-8' bgs</p> <p>← Bentonite Grout from 8-64' bgs</p>
5	SC 1	5.0	[Pattern]		SAND and Clayey SAND, Trace - little gravel and debris (brick, wood, asphalt, concrete), Moist (FILL)					
10	SC 2	5.0	[Pattern]	10.5	▽ Becomes wet at approximately 8' bgs	748.1				
15	SC 3	10.0	[Pattern]	14.0	Brown SAND, Trace - little Silt, Trace - little Gravel, Wet	744.6				
25	SC 4	10.0	[Pattern]	24.5 25.0	Gray Sandy SILT, Wet Gray Silty Clay, Trace - some Sand, Trace - little Gravel, Dry-Moist (Very Hard Till CLAY)	734.1 733.6				
35	SC 5	10.0	[Pattern]		Becomes Dry-Moist, very hard Till Clay at 33.5' bgs					

(Continued Next Page)



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CLIENT City of Mt. Pleasant, MI	PROJECT NAME Former Mt Pleasant Landfill
PROJECT NUMBER M3460004	PROJECT LOCATION Mt. Pleasant, MI
DATE STARTED 4/4/23 COMPLETED 4/5/23	BORING DIAMETER: 6 inches
DRILLING CONTRACTOR Cascade Drilling	SURVEY COORDINATES: 772,009.8 N; 13,015,468.6 E (USSP MI South)
DRILLING METHOD Rotosonic	TOP OF CASING ELEV.: 761.58 feet NAD83
LOGGED BY DJA CHECKED BY PDH	GROUND WATER ENCOUNTERED DURING DRILLING: 8 FEET BGS
NOTES	WATER LEVEL AFTER DRILLING: N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
35										
	SC 5 (cont.)	10.0 (cont.)			Gray Silty Clay, Trace - some Sand, Trace - little Gravel, Dry-Moist (Very Hard Till CLAY) (continued)					
40					Becomes less Sandy from 41-48' bgs.					
45	SC 6	10.0								
50										
55	SC 7	10.0								
60					Becomes more Sandy and Hardpan-like till at 60' bgs.					
65	SC 8	5.0								
65										Bentonite Grout from 8-64' bgs
65	SC 9	10.0								
69.0				69.0	Becomes very hard till Clay at 70' bgs.	689.6				Bentonite Chips from 64-72' bgs
70										

(Continued Next Page)



The Mannik & Smith Group, Inc.
 2365 Haggerty Road South, Canton, MI 48188
 ph: (734) 397-3100 fax: (734) 397-3131
 www.manniksmithgroup.com

CLIENT <u>City of Mt. Pleasant, MI</u>	PROJECT NAME <u>Former Mt Pleasant Landfill</u>
PROJECT NUMBER <u>M3460004</u>	PROJECT LOCATION <u>Mt. Pleasant, MI</u>
DATE STARTED <u>4/4/23</u> COMPLETED <u>4/5/23</u>	BORING DIAMETER: <u>6 inches</u>
DRILLING CONTRACTOR <u>Cascade Drilling</u>	SURVEY COORDINATES: <u>772,009.8 N; 13,015,468.6 E (USSP MI South)</u>
DRILLING METHOD <u>Rotosonic</u>	TOP OF CASING ELEV.: <u>761.58 feet NAD83</u>
LOGGED BY <u>DJA</u> CHECKED BY <u>PDH</u>	GROUND WATER ENCOUNTERED DURING DRILLING: <u>8 FEET BGS</u>
NOTES	WATER LEVEL AFTER DRILLING: <u>N/A</u>

ENV BORING/WELL LOG (PID) - GINT STD US LAB.GDT - 5/31/23 16:09 - W:\PROJECTS\PROJECTS K-O\M3460004\ADMIN\BORING LOGS\M3460004 BORING LOGS REV2.GPJ

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
70										
75	SC 9 (cont.)	10.0 (cont.)			Gray Silty Clay, Trace - some Sand, Trace - little Gravel, Dry-Moist (Very Hard Till CLAY) (continued)					
80	SC 10	10.0			Becomes Hardpan-like till from 76.5-85' bgs.					
85				85.0	Boulder from approx. 81-83' bgs	673.6				
					Bottom of borehole at 85.0 feet.					

ATTACHMENT C
PHOTO LOG

Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
April 2023



Boart Longyear Minisonic Drill Rig (4/4/2023).



Retrieving soil core sample (4/4/2023).



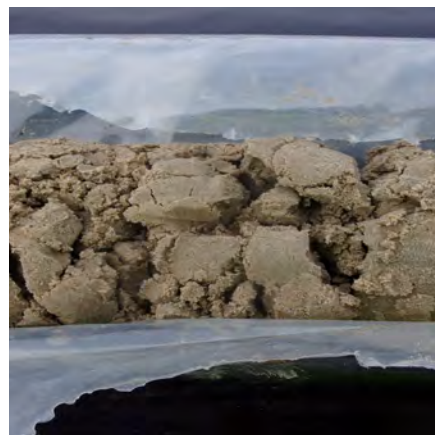
Rotasonic drilling and soil sampling at MW-300 (4/4/2023).



Brown glacial outwash sand from 10.5-14 feet bgs at MW-300 (4/4/2023).



Brown glacial outwash sand from 10.5-14 feet bgs at MW-300 (4/4/2023).



Lt. brown glacial outwash silty fine sand from 14-24.5 feet bgs at MW-300 (4/4/2023).

Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
April 2023



Lt. brown glacial outwash silty fine sand from 14-24.5 feet bgs at MW-300 (4/4/2023).



Gray sandy silt (bottom of photo) transitioning to gray glacial till clay at 25 feet bgs at MW-300 (4/4/2023).



Hard glacial till clay from 25-30 feet bgs at MW-300 (4/4/2023).



Hard glacial till clay from 25-30 feet bgs at MW-300 (4/4/2023).



Hard glacial till clay from 30-35 feet bgs at MW-300 (4/4/2023).



Hard glacial till clay from 45-50 feet bgs at MW-300 (4/4/2023).

Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
April 2023



Very hard glacial till clay from 55-60 feet bgs at MW-300 (4/4/2023).



Very hard glacial till clay from 55-60 feet bgs at MW-300 (4/4/2023).



Hardpan-like glacial till from 60-65 feet bgs at MW-300 (4/4/2023).



Very hard glacial till clay at 70 feet bgs at MW-300 (4/4/2023).



Very hard glacial till clay from 70-75 feet bgs at MW-300 (4/4/2023).



Very hard glacial till clay from 75-80 feet bgs at MW-300 (4/4/2023).

Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
April 2023



Hardpan-like glacial till from 76.5-80 feet bgs at MW-300 (4/4/2023).



Glacial till from 75-85 feet bgs at MW-300. Note boulder @ 81-83 ft. bgs near bottom left (4/4/2023).



Hardpan-like glacial till and boulder from 80-85 feet bgs at MW-300 (4/4/2023).



Hardpan-like glacial till and boulder from 80-85 feet bgs at MW-300 (4/4/2023).



Hardpan-like glacial till from 79-81 feet bgs (just above boulder) at MW-300 (4/4/2023).



Very hard glacial till clay at 80 feet bgs at MW-300 (4/4/2023).

Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
April 2023



Location of boring/monitoring well MW-300 (4/5/2023).



Installing filter sand in annular space at MW-300 (4/5/2023).



Installing bentonite chip seal in annular space at MW-300 (4/5/2023).



Tremie grouting annular space at MW-300 (4/5/2023).



Monitoring well MW-300 looking south (4/5/2023).



Monitoring well MW-300 looking east (4/5/2023).

Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
April 2023



MW-300 soil sample from 10-15 ft bgs (4/8/2023).



MW-300 soil sample from 15-20 ft bgs (4/8/2023).



MW-300 soil sample from 20-25 ft bgs (4/8/2023).



MW-300 soil sample from 25-30 ft bgs (4/8/2023).

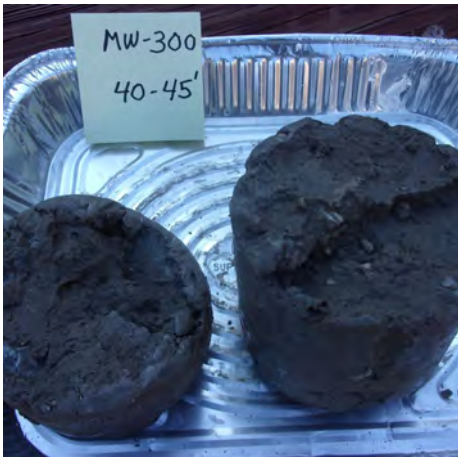


MW-300 soil sample from 30-35 ft bgs (4/8/2023).



MW-300 soil sample from 35-40 ft bgs (4/8/2023).

Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
April 2023



MW-300 soil sample from 40-45 ft bgs (4/8/2023).



MW-300 soil sample from 45-50 ft bgs (4/8/2023).



MW-300 soil sample from 45-50 ft bgs (4/8/2023).



MW-300 soil sample from 50-55 ft bgs (4/8/2023).



MW-300 soil sample from 55-60 ft bgs (4/8/2023).



MW-300 soil sample from 60-65 ft bgs (4/8/2023).

Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
April 2023



MW-300 soil sample from 65-70 ft bgs (4/8/2023).



MW-300 soil sample from 70-75 ft bgs (4/8/2023).



MW-300 soil sample from 75-80 ft bgs (4/8/2023).



MW-300 soil sample from 80-85 ft bgs (4/8/2023).



Boulder encountered in MW-300 from approx. from 81-83 ft bgs (4/8/2023).



Boulder encountered in MW-300 from approx. from 81-83 ft bgs (4/8/2023).

Deep Groundwater Monitoring Well
Former Mount Pleasant Landfill
April 2023



Purging Deep Monitoring Well MW-300 (4/20/2023).



Bladder Pump Controller (4/20/2023).



MW-300 Cloudy/Silty Purge Water (4/20/2023).



Purging Deep Monitoring Well MW-300 (4/20/2023).



MW-300 Cloudy Purge Water (4/20/2023).



Establishing MW-300 location coordinates with GPS (4/20/2023).

ATTACHMENT D
FIELD SAMPLING FORMS

LOW FLOW GROUND WATER SAMPLING FORM



TECHNICAL SKILL.
CREATIVE SPIRIT.

SAMPLE LOCATION: MW-300

DATE: 4/20/23

PROJECT #: M3460004
SITE NAME: FORMER MT PLEASANT LANDFILL

PERSONNEL: DA, PH

SITE ADDRESS: _____

OBSERVERS: JASON MOORE, LALLY ENELHART

SITE CONDITIONS: _____

DEPTH OF WELL: 85'

DEPTH TO WATER LEVEL: 13.38' TUC

SCREEN LENGTH: 10'

WELL DIAMETER: 2"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: GEOTECH BLADDER PUMP (RENTAL), HORIBA, HDPE TUBING

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU) ²	DO (mg/L) ¹	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1107	18.76	53.2	7.26	-114	0.566	1000±	6.06			
1110	19.70	52.6	7.40	-181	0.549	1000±	4.10			
1113	20.25 21.25	52.3	7.38	-194	0.535	1000±	3.63			
1116	21.69	52.4	7.58	-200	0.535	1000±	3.55			
1119	22.19	53.0	7.54	-201	0.587	1000±	3.46			
1122	22.82	53.0	7.56	-206	0.651	1000±	3.26			
1125										
1130	24.15	53.1	7.55	-208	0.803	1000±	3.07			
1135	25.25	53.5	7.59	-208	0.654	1000±	2.94			
1140	25.97	53.7	7.58	-205	0.926	1000±	2.91			
1145										
1150	27.64	53.6	7.52	-197	1.07	1000±	2.74			
1155	28.56	53.5	7.51	-191	1.11	1000±	2.79	5		
1200	29.63	54.1	7.49	-186	1.17	1000±	2.76			
1205	29.95	54.3	7.56	-184	1.17	1000±	2.95			
1210	30.47	54.0	7.48	-183	1.24	1000±	2.93			
1215	31.42	54.1	7.48	-182	1.20	1000±	2.86			

SAMPLE ID: _____

SAMPLE DATE: _____

SAMPLE TIME: _____

Notes: NO SAMPLE COLLECTED. WATER IN WELL WAS TOO CLOUDY

¹ - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

² - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM

Sheet 2 of 2



TECHNICAL SKILL.
CREATIVE SPIRIT.

DATE: 4 / 20 / 2019

SAMPLE LOCATION: MW-300

PROJECT #: M3460013

SITE NAME: FORMER MT. PLEASANT LANDFILL

PERSONNEL: DA, PH

SITE ADDRESS: _____

OBSERVERS: LARRY ENVELHART, ELLERD

SITE CONDITIONS: _____

DEPTH OF WELL: 85'
10'

DEPTH TO WATER LEVEL: 13.38' TOC

SCREEN LENGTH: 10'

WELL DIAMETER: 2"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU) ²	DO (mg/L) ¹	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1225	33.45	54.6	7.47	1.19	1.19	1000	3.03			
1235	35.22	55.1	7.41	1.28	1.28	1000	2.83			
1245	36.11	55.0	7.39	-175	1.38	1000	2.81			
1255	37.55	55.4	7.35	-172	1.44	925	2.71	10		
1305	38.14	55.0	7.33	-172	1.51	852	2.53			
1315	38.99	55.6	7.32	-175	1.65	740	1.84			
1325	39.29	57.7	7.29	-174	1.78	652	1.62	12.5		
1354	59.20							17.5		USING HDPE BAILER
1411	72.41							22.5		
1430	78.75							27.5		BAILER
1447	81.40							32		BAILER

SAMPLE ID: _____

SAMPLE DATE: _____

SAMPLE TIME: _____

Notes: STOPPED EVACUATING AT 1446 - ± 32 GALLONS TOTAL
REMOVED. NO GROUNDWATER SAMPLE COLLECTED. WATER IN
WELL WAS TOO SILTY + CLOUDY.

¹ - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

² - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM



TECHNICAL SKILL.
CREATIVE SPIRIT.

DATE: 5/24/2023

SAMPLE LOCATION: MW-300

PROJECT #: M3460004

SITE NAME: FORMER MT. PLEASANT LANDFILL

PERSONNEL: DA, PH

SITE ADDRESS: _____

OBSERVERS: _____

SITE CONDITIONS: _____

DEPTH OF WELL: 85'

DEPTH TO WATER LEVEL: 13.60 FT BTDC

SCREEN LENGTH: 10'

WELL DIAMETER: 2"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: _____

TIME	WATER LEVEL (<small><0.3 feet once stabilized</small>)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU) ²	DO (mg/L) ¹	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1030 1030	13.60							0		
1045	32.54							5		
1108	47.61							10		
1140	52.80							15		
1209	59.81							20		
1235	62.87							25		
1309	65.04							30		
1338	65.10							35		

SAMPLE ID: MW-300

SAMPLE DATE: 5-24-2023

SAMPLE TIME: 1400

Notes: PURGED 35 GALLONS FROM MON. WELL MW-300 WITH GEOTECH GEOSPIRIT PUMP + NEW HDPE TUBING. WATER SAMPLED WAS CLEAR - NO VISIBLE SILT OR SEDIMENT.

¹ - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized
² - 10% for values greater than 5 NTU, if three Turbidity values are less than 5 NTU, consider the values as stabilized

ATTACHMENT E
LABORATORY ANALYTICAL REPORT



06-Jun-2023

Dave Adler
The Mannik & Smith Group, Inc.
2365 Haggerty Road South
Suite 100
Canton, MI 48188

Re: **Former Mount Pleasant Landfill**

Work Order: **23052445**

Dear Dave,

ALS Environmental received 5 samples on 25-May-2023 10:30 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 55.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

Electronically approved by: Bill Carey

Bill Carey
Project Manager

Report of Laboratory Analysis

Certificate No: MI: 0022

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: 23052445

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
23052445-01	MW-300	Groundwater		5/24/2023 14:00	5/25/2023 22:30	<input type="checkbox"/>
23052445-02	MW-300F	Groundwater		5/24/2023 14:00	5/25/2023 22:30	<input type="checkbox"/>
23052445-03	MW-300P	Groundwater		5/24/2023 14:00	5/25/2023 22:30	<input type="checkbox"/>
23052445-04	Trip Blank	Water		5/24/2023	5/25/2023 22:30	<input type="checkbox"/>
23052445-05	Field Blank	Water		5/24/2023 14:00	5/25/2023 22:30	<input type="checkbox"/>

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
WorkOrder: 23052445

**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
µg/L	Micrograms per Liter
mg NH3-N/L	Milligrams Ammonia-Nitrogen per Liter
mg/L	Milligrams per Liter
ng/L	Nanograms per Liter

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: 23052445

Case Narrative

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. A copy of the laboratory's scope of accreditation is available upon request.

Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

Any flags on MS/MSD samples not addressed in this narrative are unrelated to samples in this report.

With the following exceptions, all sample analyses achieved analytical criteria.

Batch 217127, Method E537 Mod, Sample MW-300 (23052445-01E): Sediment present in sample bottle. Sample spiked and poured off into 250 mL HDPE.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: MW-300

Lab ID: 23052445-01

Collection Date: 5/24/2023 02:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/30/23 15:40	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1221	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1232	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1242	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1248	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1254	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1260	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1262	ND		0.20	µg/L	1	5/30/2023 08:10 PM
Aroclor 1268	ND		0.20	µg/L	1	5/30/2023 08:10 PM
PCBs, Total	ND		0.20	µg/L	1	5/30/2023 08:10 PM
<i>Surr: Decachlorobiphenyl</i>	88.7		45-143	%REC	1	5/30/2023 08:10 PM
<i>Surr: Tetrachloro-m-xylene</i>	99.4		64-125	%REC	1	5/30/2023 08:10 PM
MERCURY BY CVAA			SW7470A		Prep: SW7470 5/30/23 15:26	Analyst: KRA
Mercury	ND		0.00020	mg/L	1	5/30/2023 04:40 PM
METALS BY ICP-MS			SW6020B		Prep: SW3015A 6/1/23 16:54	Analyst: STP
Aluminum	0.42		0.010	mg/L	1	6/1/2023 08:01 PM
Antimony	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Arsenic	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Barium	0.030		0.0050	mg/L	1	6/1/2023 08:01 PM
Beryllium	ND		0.0020	mg/L	1	6/1/2023 08:01 PM
Boron	0.26		0.020	mg/L	1	6/1/2023 08:01 PM
Cadmium	ND		0.0020	mg/L	1	6/1/2023 08:01 PM
Chromium	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Copper	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Lead	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Nickel	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Selenium	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Silver	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Thallium	ND		0.0050	mg/L	1	6/1/2023 08:01 PM
Zinc	ND		0.010	mg/L	1	6/1/2023 08:01 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/30/23 17:51	Analyst: MNM
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorobutanesulfonic Acid (PFBS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorobutanoic Acid (PFBA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: MW-300

Lab ID: 23052445-01

Collection Date: 5/24/2023 02:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorododecanoic Acid (PFDoA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluoroheptanoic Acid (PFHpA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorohexanoic Acid (PFHxA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorononanesulfonic Acid (PFNS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorononanoic Acid (PFNA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorooctanesulfonamide (PFOSA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/31/2023 03:19 AM
Perfluorooctanoic Acid (PFOA)	ND		2.0	ng/L	1	5/31/2023 03:19 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluoropentanoic Acid (PFPeA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluorotridecanoic Acid (PFTriA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Perfluoroundecanoic Acid (PFUnA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/31/2023 03:19 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.1	ng/L	1	5/31/2023 03:19 AM
11Cl-Pf3OUdS	ND		5.1	ng/L	1	5/31/2023 03:19 AM
9Cl-PF3ONS	ND		5.1	ng/L	1	5/31/2023 03:19 AM
Surr: 13C2-FtS 4:2	95.1		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C2-FtS 6:2	99.2		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C2-FtS 8:2	72.2		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C2-PFDA	79.3		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C2-PFDoA	73.9		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C2-PFHxA	91.9		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C2-PFTeA	97.4		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C2-PFUnA	71.5		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C3-HFPO-DA	75.2		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C3-PFBS	91.1		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C4-PFBA	88.4		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C4-PFHpA	84.7		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C4-PFOA	95.5		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C4-PFOS	85.1		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C5-PFNA	88.4		50-150	%REC	1	5/31/2023 03:19 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: MW-300

Lab ID: 23052445-01

Collection Date: 5/24/2023 02:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	74.2		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 13C8-FOSA	78.7		50-150	%REC	1	5/31/2023 03:19 AM
Surr: 18O2-PFHxS	97.8		50-150	%REC	1	5/31/2023 03:19 AM
Surr: d5-N-EtFOSAA	65.0		50-150	%REC	1	5/31/2023 03:19 AM
Surr: d3-N-MeFOSAA	63.4		50-150	%REC	1	5/31/2023 03:19 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW8270E

Prep: SW3510 5/31/23 12:17

Analyst: MMO

1,1'-Biphenyl	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4,5-Trichlorophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4,6-Trichlorophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4-Dichlorophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4-Dimethylphenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4-Dinitrophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,4-Dinitrotoluene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2,6-Dinitrotoluene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Chloronaphthalene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Chlorophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Methylnaphthalene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Methylphenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Nitroaniline	ND		3.5	µg/L	1	6/1/2023 03:33 PM
2-Nitrophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
3&4-Methylphenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
3,3'-Dichlorobenzidine	ND		3.5	µg/L	1	6/1/2023 03:33 PM
3-Nitroaniline	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4,6-Dinitro-2-methylphenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Bromophenyl phenyl ether	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Chloro-3-methylphenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Chloroaniline	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Chlorophenyl phenyl ether	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Nitroaniline	ND		3.5	µg/L	1	6/1/2023 03:33 PM
4-Nitrophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Acenaphthene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Acenaphthylene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Acetophenone	ND		0.69	µg/L	1	6/1/2023 03:33 PM
Anthracene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Atrazine	ND		0.69	µg/L	1	6/1/2023 03:33 PM
Benzaldehyde	ND		0.69	µg/L	1	6/1/2023 03:33 PM
Benzo(a)anthracene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Benzo(a)pyrene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Benzo(b)fluoranthene	ND		3.5	µg/L	1	6/1/2023 03:33 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: MW-300

Lab ID: 23052445-01

Collection Date: 5/24/2023 02:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Benzo(k)fluoranthene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Bis(2-chloroethoxy)methane	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Bis(2-chloroethyl)ether	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Bis(2-chloroisopropyl)ether	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Bis(2-ethylhexyl)phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Butyl benzyl phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Caprolactam	ND		6.9	µg/L	1	6/1/2023 03:33 PM
Carbazole	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Chrysene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Dibenzo(a,h)anthracene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Dibenzofuran	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Diethyl phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Dimethyl phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Di-n-butyl phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Di-n-octyl phthalate	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Fluoranthene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Fluorene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Hexachlorobenzene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Hexachlorobutadiene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Hexachlorocyclopentadiene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Hexachloroethane	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Indeno(1,2,3-cd)pyrene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Isophorone	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Naphthalene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Nitrobenzene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
N-Nitrosodi-n-propylamine	ND		3.5	µg/L	1	6/1/2023 03:33 PM
N-Nitrosodiphenylamine	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Pentachlorophenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Phenanthrene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Phenol	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Pyrene	ND		3.5	µg/L	1	6/1/2023 03:33 PM
Surr: 2,4,6-Tribromophenol	72.1		38-103	%REC	1	6/1/2023 03:33 PM
Surr: 2-Fluorobiphenyl	68.3		36-96	%REC	1	6/1/2023 03:33 PM
Surr: 2-Fluorophenol	46.7		20-73	%REC	1	6/1/2023 03:33 PM
Surr: 4-Terphenyl-d14	114		44-114	%REC	1	6/1/2023 03:33 PM
Surr: Nitrobenzene-d5	77.5		33-100	%REC	1	6/1/2023 03:33 PM
Surr: Phenol-d6	30.7		10-48	%REC	1	6/1/2023 03:33 PM

VOLATILE ORGANIC COMPOUNDS

SW8260D

Analyst: **NAD**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: MW-300

Lab ID: 23052445-01

Collection Date: 5/24/2023 02:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
2-Butanone	ND		5.0	µg/L	1	5/27/2023 09:59 AM
2-Hexanone	ND		5.0	µg/L	1	5/27/2023 09:59 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Acetone	ND		10	µg/L	1	5/27/2023 09:59 AM
Benzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Bromoform	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Bromomethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Carbon disulfide	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Chlorobenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Chloroethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Chloroform	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Chloromethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Cyclohexane	ND		2.0	µg/L	1	5/27/2023 09:59 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Ethylbenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Methyl acetate	ND		2.0	µg/L	1	5/27/2023 09:59 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Methylene chloride	ND		5.0	µg/L	1	5/27/2023 09:59 AM
Styrene	ND		1.0	µg/L	1	5/27/2023 09:59 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: MW-300

Lab ID: 23052445-01

Collection Date: 5/24/2023 02:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Toluene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Trichloroethene	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Vinyl chloride	ND		1.0	µg/L	1	5/27/2023 09:59 AM
Xylenes, Total	ND		3.0	µg/L	1	5/27/2023 09:59 AM
<i>Surr: 1,2-Dichloroethane-d4</i>	103		80-120	%REC	1	5/27/2023 09:59 AM
<i>Surr: 4-Bromofluorobenzene</i>	95.6		80-120	%REC	1	5/27/2023 09:59 AM
<i>Surr: Dibromofluoromethane</i>	98.4		80-120	%REC	1	5/27/2023 09:59 AM
<i>Surr: Toluene-d8</i>	98.9		80-120	%REC	1	5/27/2023 09:59 AM
AMMONIA AS NITROGEN			E350.1 R2.0			Analyst: JMT
Ammonia as Nitrogen	1.2		0.020	mg NH3-N/L	1	5/31/2023 12:48 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: MW-300F

Lab ID: 23052445-02

Collection Date: 5/24/2023 02:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
MERCURY BY CVAA (DISSOLVED)			SW7470A	Prep: SW7470 5/30/23 15:26	Analyst: KRA	
Mercury	ND		0.00020	mg/L	1	5/30/2023 04:46 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B	Prep: SW3005A 5/30/23 11:01	Analyst: STP	
Aluminum	ND		0.010	mg/L	1	5/30/2023 06:13 PM
Antimony	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Arsenic	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Barium	0.023		0.0050	mg/L	1	5/30/2023 06:13 PM
Beryllium	ND		0.0020	mg/L	1	5/30/2023 06:13 PM
Boron	0.22		0.020	mg/L	1	5/30/2023 06:13 PM
Cadmium	ND		0.0020	mg/L	1	5/30/2023 06:13 PM
Chromium	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Copper	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Lead	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Nickel	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Selenium	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Silver	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Thallium	ND		0.0050	mg/L	1	5/30/2023 06:13 PM
Zinc	ND		0.010	mg/L	1	5/30/2023 06:13 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: MW-300P

Lab ID: 23052445-03

Collection Date: 5/24/2023 02:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			E537 MOD	Prep: E537 Mod 5/30/23 17:51	Analyst: MNM	
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorobutanesulfonic Acid (PFBS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorobutanoic Acid (PFBA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/31/2023 03:33 AM
Perfluorooctanoic Acid (PFOA)	ND		2.0	ng/L	1	5/31/2023 03:33 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/31/2023 03:33 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/31/2023 03:33 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/31/2023 03:33 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/31/2023 03:33 AM
Surr: 13C2-FtS 4:2	112		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C2-FtS 6:2	107		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C2-FtS 8:2	96.3		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C2-PFDA	96.7		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C2-PFDoA	86.6		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C2-PFHxA	100		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C2-PFTeA	120		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C2-PFUnA	82.5		50-150	%REC	1	5/31/2023 03:33 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: MW-300P

Collection Date: 5/24/2023 02:00 PM

Work Order: 23052445

Lab ID: 23052445-03

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C3-HFPO-DA	98.6		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C3-PFBS	116		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C4-PFBA	84.2		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C4-PFHpA	105		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C4-PFOA	102		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C4-PFOS	100		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C5-PFNA	94.3		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C5-PFPeA	95.8		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 13C8-FOSA	93.9		50-150	%REC	1	5/31/2023 03:33 AM
Surr: 18O2-PFHxS	110		50-150	%REC	1	5/31/2023 03:33 AM
Surr: d5-N-EtFOSAA	76.9		50-150	%REC	1	5/31/2023 03:33 AM
Surr: d3-N-MeFOSAA	79.2		50-150	%REC	1	5/31/2023 03:33 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: Trip Blank

Lab ID: 23052445-04

Collection Date: 5/24/2023

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			SW8260D		Analyst: HJ	
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
2-Butanone	ND		5.0	µg/L	1	5/31/2023 01:16 AM
2-Hexanone	ND		5.0	µg/L	1	5/31/2023 01:16 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Acetone	ND		10	µg/L	1	5/31/2023 01:16 AM
Benzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Bromoform	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Bromomethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Carbon disulfide	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Chlorobenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Chloroethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Chloroform	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Chloromethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Cyclohexane	ND		2.0	µg/L	1	5/31/2023 01:16 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Ethylbenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Methyl acetate	ND		2.0	µg/L	1	5/31/2023 01:16 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/31/2023 01:16 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: Trip Blank

Lab ID: 23052445-04

Collection Date: 5/24/2023

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Methylene chloride	ND		5.0	µg/L	1	5/31/2023 01:16 AM
Styrene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Tetrachloroethene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Toluene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Trichloroethene	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Vinyl chloride	ND		1.0	µg/L	1	5/31/2023 01:16 AM
Xylenes, Total	ND		3.0	µg/L	1	5/31/2023 01:16 AM
Surr: 1,2-Dichloroethane-d4	98.3		80-120	%REC	1	5/31/2023 01:16 AM
Surr: 4-Bromofluorobenzene	100		80-120	%REC	1	5/31/2023 01:16 AM
Surr: Dibromofluoromethane	93.0		80-120	%REC	1	5/31/2023 01:16 AM
Surr: Toluene-d8	99.8		80-120	%REC	1	5/31/2023 01:16 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 23052445

Sample ID: Field Blank

Lab ID: 23052445-05

Collection Date: 5/24/2023 02:00 PM

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			E537 MOD	Prep: E537 Mod 5/30/23 17:51	Analyst: MNM	
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorobutanesulfonic Acid (PFBS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorobutanoic Acid (PFBA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/31/2023 04:28 AM
Perfluorooctanoic Acid (PFOA)	ND		2.0	ng/L	1	5/31/2023 04:28 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/31/2023 04:28 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/31/2023 04:28 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/31/2023 04:28 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/31/2023 04:28 AM
Surr: 13C2-FtS 4:2	105		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C2-FtS 6:2	118		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C2-FtS 8:2	125		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C2-PFDA	117		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C2-PFDoA	99.6		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C2-PFHxA	111		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C2-PFTeA	136		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C2-PFUnA	96.5		50-150	%REC	1	5/31/2023 04:28 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 06-Jun-2023

Client: The Mannik & Smith Group, Inc.**Project:** Former Mount Pleasant Landfill**Work Order:** 23052445**Sample ID:** Field Blank**Lab ID:** 23052445-05**Collection Date:** 5/24/2023 02:00 PM**Matrix:** WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C3-HFPO-DA	105		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C3-PFBS	131		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C4-PFBA	106		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C4-PFHpA	125		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C4-PFOA	118		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C4-PFOS	122		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C5-PFNA	111		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C5-PFPeA	114		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 13C8-FOSA	110		50-150	%REC	1	5/31/2023 04:28 AM
Surr: 18O2-PFHxS	114		50-150	%REC	1	5/31/2023 04:28 AM
Surr: d5-N-EtFOSAA	91.3		50-150	%REC	1	5/31/2023 04:28 AM
Surr: d3-N-MeFOSAA	85.2		50-150	%REC	1	5/31/2023 04:28 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217137** Instrument ID **GC14** Method: **SW8082A**

MBLK		Sample ID: PBLKW1-217137-217137			Units: µg/L		Analysis Date: 5/30/2023 06:36 PM			
Client ID:		Run ID: GC14_230530B			SeqNo: 9608256		Prep Date: 5/30/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	ND	0.20								
Aroclor 1221	ND	0.20								
Aroclor 1232	ND	0.20								
Aroclor 1242	ND	0.20								
Aroclor 1248	ND	0.20								
Aroclor 1254	ND	0.20								
Aroclor 1260	ND	0.20								
Aroclor 1262	ND	0.20								
Aroclor 1268	ND	0.20								
PCBs, Total	ND	0.20								
<i>Surr: Decachlorobiphenyl</i>	<i>0.2434</i>	<i>0</i>	<i>0.25</i>	<i>0</i>	<i>97.4</i>	<i>45-143</i>	<i>0</i>			
<i>Surr: Tetrachloro-m-xylene</i>	<i>0.2284</i>	<i>0</i>	<i>0.25</i>	<i>0</i>	<i>91.4</i>	<i>64-125</i>	<i>0</i>			

LCS		Sample ID: PLCSW1-217137-217137			Units: µg/L		Analysis Date: 5/30/2023 06:59 PM			
Client ID:		Run ID: GC14_230530B			SeqNo: 9608258		Prep Date: 5/30/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	5.302	0.20	5	0	106	77-126	0			
Aroclor 1260	4.686	0.20	5	0	93.7	66-126	0			
<i>Surr: Decachlorobiphenyl</i>	<i>0.2646</i>	<i>0</i>	<i>0.25</i>	<i>0</i>	<i>106</i>	<i>45-143</i>	<i>0</i>			
<i>Surr: Tetrachloro-m-xylene</i>	<i>0.2716</i>	<i>0</i>	<i>0.25</i>	<i>0</i>	<i>109</i>	<i>64-125</i>	<i>0</i>			

MS		Sample ID: 23052409-02B MS			Units: µg/L		Analysis Date: 5/30/2023 07:11 PM			
Client ID:		Run ID: GC14_230530B			SeqNo: 9608259		Prep Date: 5/30/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	5.414	0.20	5	0	108	77-126	0			
Aroclor 1260	5.049	0.20	5	0	101	66-126	0			
<i>Surr: Decachlorobiphenyl</i>	<i>0.2492</i>	<i>0</i>	<i>0.25</i>	<i>0</i>	<i>99.7</i>	<i>45-143</i>	<i>0</i>			
<i>Surr: Tetrachloro-m-xylene</i>	<i>0.462</i>	<i>0</i>	<i>0.25</i>	<i>0</i>	<i>185</i>	<i>64-125</i>	<i>0</i>			S

MSD		Sample ID: 23052409-02B MSD			Units: µg/L		Analysis Date: 5/30/2023 07:23 PM			
Client ID:		Run ID: GC14_230530B			SeqNo: 9608260		Prep Date: 5/30/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aroclor 1016	5.347	0.20	5	0	107	77-126	5.414	1.25	20	
Aroclor 1260	5.163	0.20	5	0	103	66-126	5.049	2.22	20	
<i>Surr: Decachlorobiphenyl</i>	<i>0.279</i>	<i>0</i>	<i>0.25</i>	<i>0</i>	<i>112</i>	<i>45-143</i>	<i>0.2492</i>	<i>11.3</i>	<i>20</i>	
<i>Surr: Tetrachloro-m-xylene</i>	<i>0.4802</i>	<i>0</i>	<i>0.25</i>	<i>0</i>	<i>192</i>	<i>64-125</i>	<i>0.462</i>	<i>3.86</i>	<i>20</i>	S

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 23052445

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217137**

Instrument ID **GC14**

Method: **SW8082A**

The following samples were analyzed in this batch:

23052445-01C

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 23052445
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217154 Instrument ID HG4 Method: SW7470A

MBLK		Sample ID: MBLK-217154-217154				Units: mg/L		Analysis Date: 5/30/2023 03:54 PM			
Client ID:		Run ID: HG4_230530B				SeqNo: 9604039		Prep Date: 5/30/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Mercury	ND	0.00020									

LCS		Sample ID: LCS-217154-217154				Units: mg/L		Analysis Date: 5/30/2023 03:56 PM			
Client ID:		Run ID: HG4_230530B				SeqNo: 9604040		Prep Date: 5/30/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Mercury	0.00213	0.00020	0.002	0	106	80-120	0				

MS		Sample ID: 23052445-01FMS				Units: mg/L		Analysis Date: 5/30/2023 04:42 PM			
Client ID: MW-300		Run ID: HG4_230530B				SeqNo: 9604066		Prep Date: 5/30/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Mercury	0.00192	0.00020	0.002	-0.0000255	97.3	75-125	0				

MSD		Sample ID: 23052445-01FMSD				Units: mg/L		Analysis Date: 5/30/2023 04:44 PM			
Client ID: MW-300		Run ID: HG4_230530B				SeqNo: 9604067		Prep Date: 5/30/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Mercury	0.001905	0.00020	0.002	-0.0000255	96.5	75-125	0.00192	0.784	20		

The following samples were analyzed in this batch: 23052445-01F 23052445-02A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217123** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK		Sample ID: MBLK-217123-217123				Units: mg/L		Analysis Date: 5/30/2023 05:41 PM		
Client ID:		Run ID: ICPMS3_230530A		SeqNo: 9605010		Prep Date: 5/30/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

LCS		Sample ID: LCS-217123-217123				Units: mg/L		Analysis Date: 5/30/2023 05:43 PM		
Client ID:		Run ID: ICPMS3_230530A		SeqNo: 9605011		Prep Date: 5/30/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1036	0.010	0.1	0	104	80-120	0			
Antimony	0.1014	0.0050	0.1	0	101	80-120	0			
Arsenic	0.1025	0.0050	0.1	0	103	80-120	0			
Barium	0.1004	0.0050	0.1	0	100	80-120	0			
Beryllium	0.09793	0.0020	0.1	0	97.9	80-120	0			
Boron	0.4615	0.020	0.5	0	92.3	80-120	0			
Cadmium	0.101	0.0020	0.1	0	101	80-120	0			
Chromium	0.1024	0.0050	0.1	0	102	80-120	0			
Copper	0.104	0.0050	0.1	0	104	80-120	0			
Lead	0.09949	0.0050	0.1	0	99.5	80-120	0			
Nickel	0.1023	0.0050	0.1	0	102	80-120	0			
Selenium	0.1064	0.0050	0.1	0	106	80-120	0			
Silver	0.1051	0.0050	0.1	0	105	80-120	0			
Thallium	0.09564	0.0050	0.1	0	95.6	80-120	0			
Zinc	0.1046	0.010	0.1	0	105	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217123** Instrument ID **ICPMS3** Method: **SW6020B**

MS				Sample ID: 23051019-06BMS			Units: mg/L		Analysis Date: 5/30/2023 05:46 PM		
Client ID:		Run ID: ICPMS3_230530A			SeqNo: 9605013		Prep Date: 5/30/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	1.04	0.10	1	0.06449	97.5	80-120		0			
Barium	1.104	0.050	1	0.1147	98.9	80-120		0			
Beryllium	0.9896	0.020	1	0.0011	98.8	80-120		0			
Boron	4.71	0.20	5	0.1348	91.5	80-120		0			
Cadmium	1.026	0.020	1	0.05414	97.2	80-120		0			
Lead	1.22	0.050	1	0.2617	95.9	80-120		0			
Thallium	0.9206	0.050	1	0.01316	90.7	80-120		0			

MS				Sample ID: 23051019-06BMS			Units: mg/L		Analysis Date: 5/31/2023 12:06 PM		
Client ID:		Run ID: ICPMS3_230531A			SeqNo: 9607241		Prep Date: 5/30/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Antimony	0.9957	0.050	1	0.00678	98.9	80-120		0			
Arsenic	1.019	0.050	1	0.00057	102	80-120		0			
Chromium	0.9945	0.050	1	0.00215	99.2	80-120		0			
Copper	0.9857	0.050	1	0.00635	97.9	80-120		0			
Nickel	0.9953	0.050	1	0.0109	98.4	80-120		0			
Selenium	1.056	0.050	1	0.00408	105	80-120		0			
Silver	0.9824	0.050	1	0.00009	98.2	80-120		0			
Zinc	2.761	0.10	1	1.761	100	80-120		0			

MSD				Sample ID: 23051019-06BMSD			Units: mg/L		Analysis Date: 5/30/2023 05:48 PM		
Client ID:		Run ID: ICPMS3_230530A			SeqNo: 9605014		Prep Date: 5/30/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	1.069	0.10	1	0.06449	100	80-120	1.04	2.75	20		
Barium	1.136	0.050	1	0.1147	102	80-120	1.104	2.91	20		
Beryllium	1.011	0.020	1	0	101	80-120	0.9896	2.16	20		
Boron	4.845	0.20	5	0	96.9	80-120	4.71	2.81	20		
Cadmium	1.056	0.020	1	0.05414	100	80-120	1.026	2.91	20		
Lead	1.262	0.050	1	0.2617	100	80-120	1.22	3.33	20		
Thallium	0.9598	0.050	1	0.01316	94.7	80-120	0.9206	4.18	20		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217123** Instrument ID **ICPMS3** Method: **SW6020B**

MSD		Sample ID: 23051019-06BMSD				Units: mg/L		Analysis Date: 5/31/2023 12:08 PM		
Client ID:		Run ID: ICPMS3_230531A			SeqNo: 9607243		Prep Date: 5/30/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	1.009	0.050	1	0.00678	100	80-120	0.9957	1.29	20	
Arsenic	1.027	0.050	1	0.00057	103	80-120	1.019	0.762	20	
Chromium	0.9958	0.050	1	0.00215	99.4	80-120	0.9945	0.132	20	
Copper	0.9993	0.050	1	0.00635	99.3	80-120	0.9857	1.37	20	
Nickel	1.009	0.050	1	0.0109	99.8	80-120	0.9953	1.36	20	
Selenium	1.099	0.050	1	0.00408	109	80-120	1.056	3.93	20	
Silver	0.9848	0.050	1	0.00009	98.5	80-120	0.9824	0.244	20	
Zinc	2.787	0.10	1	1.761	103	80-120	2.761	0.922	20	

The following samples were analyzed in this batch:

23052445-02A

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217388** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK		Sample ID: MBLK-217388-217388				Units: mg/L		Analysis Date: 6/1/2023 07:57 PM		
Client ID:		Run ID: ICPMS3_230601A		SeqNo: 9614350		Prep Date: 6/1/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	0.003465	0.010								J

LCS		Sample ID: LCS-217388-217388				Units: mg/L		Analysis Date: 6/1/2023 07:59 PM		
Client ID:		Run ID: ICPMS3_230601A		SeqNo: 9614351		Prep Date: 6/1/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1148	0.010	0.1	0	115	80-120	0			
Antimony	0.09976	0.0050	0.1	0	99.8	80-120	0			
Arsenic	0.09613	0.0050	0.1	0	96.1	80-120	0			
Barium	0.1029	0.0050	0.1	0	103	80-120	0			
Beryllium	0.09966	0.0020	0.1	0	99.7	80-120	0			
Boron	0.4976	0.020	0.5	0	99.5	80-120	0			
Cadmium	0.09932	0.0020	0.1	0	99.3	80-120	0			
Chromium	0.09822	0.0050	0.1	0	98.2	80-120	0			
Copper	0.09724	0.0050	0.1	0	97.2	80-120	0			
Lead	0.09973	0.0050	0.1	0	99.7	80-120	0			
Nickel	0.09558	0.0050	0.1	0	95.6	80-120	0			
Selenium	0.09943	0.0050	0.1	0	99.4	80-120	0			
Silver	0.103	0.0050	0.1	0	103	80-120	0			
Thallium	0.09732	0.0050	0.1	0	97.3	80-120	0			
Zinc	0.1019	0.010	0.1	0	102	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 23052445
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217388 Instrument ID ICPMS3 Method: SW6020B

MS				Sample ID: 23052606-10AMS			Units: mg/L		Analysis Date: 6/1/2023 08:18 PM		
Client ID:		Run ID: ICPMS3_230601A			SeqNo: 9614362		Prep Date: 6/1/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	0.1024	0.010	0.1	0.001845	101	75-125	0				
Antimony	0.1016	0.0050	0.1	0.0000946	102	75-125	0				
Arsenic	0.0972	0.0050	0.1	0.0002376	97	75-125	0				
Barium	0.1936	0.0050	0.1	0.0919	102	75-125	0				
Beryllium	0.1021	0.0020	0.1	0.0000484	102	75-125	0				
Boron	0.5487	0.020	0.5	0.04667	100	75-125	0				
Cadmium	0.09889	0.0020	0.1	0.0000198	98.9	75-125	0				
Chromium	0.09799	0.0050	0.1	0.0001782	97.8	75-125	0				
Copper	0.09499	0.0050	0.1	0.0004675	94.5	75-125	0				
Lead	0.1007	0.0050	0.1	0.0000297	101	75-125	0				
Nickel	0.09494	0.0050	0.1	0.0002442	94.7	75-125	0				
Selenium	0.103	0.0050	0.1	-0.0002563	103	75-125	0				
Silver	0.1011	0.0050	0.1	0	101	75-125	0				
Thallium	0.09787	0.0050	0.1	0.000022	97.9	75-125	0				
Zinc	0.09927	0.010	0.1	0.003094	96.2	75-125	0				

MSD				Sample ID: 23052606-10AMSD			Units: mg/L		Analysis Date: 6/1/2023 08:20 PM		
Client ID:		Run ID: ICPMS3_230601A			SeqNo: 9614363		Prep Date: 6/1/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	0.1019	0.010	0.1	0.001845	100	75-125	0.1024	0.429	20		
Antimony	0.1008	0.0050	0.1	0.0000946	101	75-125	0.1016	0.863	20		
Arsenic	0.09772	0.0050	0.1	0.0002376	97.5	75-125	0.0972	0.535	20		
Barium	0.1928	0.0050	0.1	0.0919	101	75-125	0.1936	0.438	20		
Beryllium	0.09983	0.0020	0.1	0.0000484	99.8	75-125	0.1021	2.28	20		
Boron	0.5423	0.020	0.5	0.04667	99.1	75-125	0.5487	1.17	20		
Cadmium	0.09845	0.0020	0.1	0.0000198	98.4	75-125	0.09889	0.449	20		
Chromium	0.09832	0.0050	0.1	0.0001782	98.1	75-125	0.09799	0.335	20		
Copper	0.09439	0.0050	0.1	0.0004675	93.9	75-125	0.09499	0.639	20		
Lead	0.09959	0.0050	0.1	0.0000297	99.6	75-125	0.1007	1.13	20		
Nickel	0.09443	0.0050	0.1	0.0002442	94.2	75-125	0.09494	0.538	20		
Selenium	0.09992	0.0050	0.1	-0.0002563	100	75-125	0.103	3.07	20		
Silver	0.09986	0.0050	0.1	0	99.9	75-125	0.1011	1.26	20		
Thallium	0.09864	0.0050	0.1	0.000022	98.6	75-125	0.09787	0.785	20		
Zinc	0.09875	0.010	0.1	0.003094	95.7	75-125	0.09927	0.524	20		

The following samples were analyzed in this batch:

23052445-01F

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217127** Instrument ID **LCMS1** Method: **E537 Mod**

MBLK		Sample ID: MBLK-217127-217127				Units: ng/L		Analysis Date: 5/30/2023 10:58 PM		
Client ID:		Run ID: LCMS1_230530A		SeqNo: 9607201		Prep Date: 5/30/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS)	ND	5.0								
Fluorotelomer Sulphonic Acid 6:2 (FtS)	ND	5.0								
Fluorotelomer Sulphonic Acid 8:2 (FtS)	ND	5.0								
Perfluorobutanesulfonic Acid (PFBS)	ND	5.0								
Perfluorobutanoic Acid (PFBA)	ND	5.0								
Perfluorodecanesulfonic Acid (PFDS)	ND	5.0								
Perfluorodecanoic Acid (PFDA)	ND	5.0								
Perfluorododecanoic Acid (PFDoA)	ND	5.0								
Perfluoroheptanesulfonic Acid (PFHpS)	ND	5.0								
Perfluoroheptanoic Acid (PFHpA)	ND	5.0								
Perfluorohexanesulfonic Acid (PFHxS)	ND	5.0								
Perfluorohexanoic Acid (PFHxA)	ND	5.0								
Perfluorononanesulfonic Acid (PFNS)	ND	5.0								
Perfluorononanoic Acid (PFNA)	ND	5.0								
Perfluorooctanesulfonamide (PFOSA)	ND	5.0								
Perfluorooctanesulfonic Acid (PFOS)	ND	2.0								
Perfluorooctanoic Acid (PFOA)	ND	2.0								
Perfluoropentanesulfonic Acid (PFPeS)	ND	5.0								
Perfluoropentanoic Acid (PFPeA)	ND	5.0								
Perfluorotetradecanoic Acid (PFTeA)	ND	5.0								
Perfluorotridecanoic Acid (PFTriA)	ND	5.0								
Perfluoroundecanoic Acid (PFUnA)	ND	5.0								
N-Ethylperfluorooctanesulfonamidoace	ND	5.0								
N-Methylperfluorooctanesulfonamidoa	ND	5.0								
Hexafluoropropylene oxide dimer acid	ND	5.0								
4,8-Dioxa-3H-perfluorononanoic Acid (	ND	5.0								
11Cl-Pf3OUdS	ND	5.0								
9Cl-PF3ONS	ND	5.0								
Surr: 13C2-FtS 4:2	119.5	0	149.4	0	79.9	50-150	0			
Surr: 13C2-FtS 6:2	134.5	0	152	0	88.5	50-150	0			
Surr: 13C2-FtS 8:2	144.7	0	153.3	0	94.4	50-150	0			
Surr: 13C2-PFDA	137.4	0	160	0	85.9	50-150	0			
Surr: 13C2-PFDoA	132.9	0	160	0	83.1	50-150	0			
Surr: 13C2-PFHxA	139.2	0	160	0	87	50-150	0			
Surr: 13C2-PFTeA	187.6	0	160	0	117	50-150	0			
Surr: 13C2-PFUnA	127	0	160	0	79.4	50-150	0			
Surr: 13C3-HFPO-DA	130.6	0	160	0	81.6	50-150	0			
Surr: 13C3-PFBS	148.7	0	148.8	0	99.9	50-150	0			
Surr: 13C4-PFBA	129.6	0	160	0	81	50-150	0			
Surr: 13C4-PFHpA	142.6	0	160	0	89.1	50-150	0			
Surr: 13C4-PFOA	145.7	0	160	0	91.1	50-150	0			
Surr: 13C4-PFOS	139	0	152.8	0	91	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 23052445

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217127	Instrument ID LCMS1	Method: E537 Mod						
<i>Surr: 13C5-PFNA</i>	139.3	0	160	0	87	50-150	0	
<i>Surr: 13C5-PFPeA</i>	137.8	0	160	0	86.1	50-150	0	
<i>Surr: 13C8-FOSA</i>	126.4	0	160	0	79	50-150	0	
<i>Surr: 18O2-PFHxS</i>	137.8	0	151.2	0	91.1	50-150	0	
<i>Surr: d5-N-EtFOSAA</i>	122	0	160	0	76.2	50-150	0	
<i>Surr: d3-N-MeFOSAA</i>	119.9	0	160	0	75	50-150	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 23052445
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217127 Instrument ID LCMS1 Method: E537 Mod

LCS		Sample ID: LCS-217127-217127				Units: ng/L		Analysis Date: 5/31/2023 08:38 PM		
Client ID:		Run ID: LCMS1_230531A			SeqNo: 9611558		Prep Date: 5/30/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS)	28.86	5.0	29.9	0	96.5	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS)	29.21	5.0	30.3	0	96.4	63-162	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS)	27.5	5.0	30.7	0	89.6	61-165	0			
Perfluorobutanesulfonic Acid (PFBS)	24.97	5.0	28.3	0	88.2	72-130	0			
Perfluorobutanoic Acid (PFBA)	32.36	5.0	32	0	101	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	24.35	5.0	30.8	0	79.1	53-142	0			
Perfluorodecanoic Acid (PFDA)	26.27	5.0	32	0	82.1	71-129	0			
Perfluorododecanoic Acid (PFDoA)	27.39	5.0	32	0	85.6	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS)	25.35	5.0	30.5	0	83.1	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	28.8	5.0	32	0	90	72-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	21.76	5.0	29.1	0	74.8	68-131	0			
Perfluorohexanoic Acid (PFHxA)	27.38	5.0	32	0	85.6	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	26.06	5.0	30.7	0	84.9	69-127	0			
Perfluorononanoic Acid (PFNA)	25.93	5.0	32	0	81	69-130	0			
Perfluorooctanesulfonamide (PFOSA)	28.2	5.0	32	0	88.1	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	24.98	2.0	29.7	0	84.1	65-140	0			
Perfluorooctanoic Acid (PFOA)	27.46	2.0	32	0	85.8	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS)	24.17	5.0	30	0	80.6	71-127	0			
Perfluoropentanoic Acid (PFPeA)	28.09	5.0	32	0	87.8	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	27.76	5.0	32	0	86.7	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	29.08	5.0	32	0	90.9	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	26.55	5.0	32	0	83	69-133	0			
N-Ethylperfluorooctanesulfonamide	31.16	5.0	32	0	97.4	61-135	0			
N-Methylperfluorooctanesulfonamide	29.46	5.0	32	0	92.1	65-136	0			
Hexafluoropropylene oxide dimer acid	31.58	5.0	32	0	98.7	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (11Cl-Pf3OUdS)	23.78	5.0	30.1	0	79	70-130	0			
11Cl-Pf3OUdS	21.21	5.0	30.1	0	70.5	70-130	0			
9Cl-PF3ONS	24.32	5.0	29.8	0	81.6	70-130	0			
Surr: 13C2-FtS 4:2	175.7	0	149.4	0	118	50-150	0			
Surr: 13C2-FtS 6:2	176.5	0	152	0	116	50-150	0			
Surr: 13C2-FtS 8:2	183.8	0	153.3	0	120	50-150	0			
Surr: 13C2-PFDA	199.6	0	160	0	125	50-150	0			
Surr: 13C2-PFDoA	185.8	0	160	0	116	50-150	0			
Surr: 13C2-PFHxA	190.7	0	160	0	119	50-150	0			
Surr: 13C2-PFTeA	186	0	160	0	116	50-150	0			
Surr: 13C2-PFUnA	193.4	0	160	0	121	50-150	0			
Surr: 13C3-HFPO-DA	182.5	0	160	0	114	50-150	0			
Surr: 13C3-PFBS	186.5	0	148.8	0	125	50-150	0			
Surr: 13C4-PFBA	160.1	0	160	0	100	50-150	0			
Surr: 13C4-PFHpA	189.9	0	160	0	119	50-150	0			
Surr: 13C4-PFOA	204.6	0	160	0	128	50-150	0			
Surr: 13C4-PFOS	201.8	0	152.8	0	132	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 23052445

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217127	Instrument ID LCMS1	Method: E537 Mod						
<i>Surr: 13C5-PFNA</i>	203.3	0	160	0	127	50-150	0	
<i>Surr: 13C5-PFPeA</i>	180	0	160	0	112	50-150	0	
<i>Surr: 13C8-FOSA</i>	168	0	160	0	105	50-150	0	
<i>Surr: 18O2-PFHxS</i>	194.9	0	151.2	0	129	50-150	0	
<i>Surr: d5-N-EtFOSAA</i>	165.9	0	160	0	104	50-150	0	
<i>Surr: d3-N-MeFOSAA</i>	160.6	0	160	0	100	50-150	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 23052445
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217127 Instrument ID LCMS1 Method: E537 Mod

MS				Sample ID: 23052527-05A MS		Units: ng/L		Analysis Date: 5/31/2023 08:52 PM		
Client ID:		Run ID: LCMS1_230531A		SeqNo: 9611568		Prep Date: 5/30/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS)	28.31	5.3	31.44	0	90	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS)	30.52	5.3	31.86	0	95.8	63-162	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS)	30.48	5.3	32.28	0	94.4	61-165	0			
Perfluorobutanesulfonic Acid (PFBS)	25.74	5.3	29.76	1.182	82.5	72-130	0			
Perfluorobutanoic Acid (PFBA)	32.09	5.3	33.65	4.022	83.4	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	25.15	5.3	32.38	0	77.7	53-142	0			
Perfluorodecanoic Acid (PFDA)	28.1	5.3	33.65	0	83.5	71-129	0			
Perfluorododecanoic Acid (PFDoA)	28.6	5.3	33.65	0	85	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS)	22.87	5.3	32.07	0	71.3	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	28.36	5.3	33.65	0	84.3	72-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	24.04	5.3	30.6	1.321	74.3	68-131	0			
Perfluorohexanoic Acid (PFHxA)	29.52	5.3	33.65	0	87.7	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	25.28	5.3	32.28	0	78.3	69-127	0			
Perfluorononanoic Acid (PFNA)	28.34	5.3	33.65	0	84.2	69-130	0			
Perfluorooctanesulfonamide (PFOSA)	28.13	5.3	33.65	0	83.6	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	24.38	2.1	31.23	0	78.1	65-140	0			
Perfluorooctanoic Acid (PFOA)	30.28	2.1	33.65	1.459	85.7	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS)	24.18	5.3	31.54	0	76.7	71-127	0			
Perfluoropentanoic Acid (PFPeA)	28.43	5.3	33.65	0	84.5	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	27	5.3	33.65	0	80.3	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	28.99	5.3	33.65	0	86.2	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	28.84	5.3	33.65	0	85.7	69-133	0			
N-Ethylperfluorooctanesulfonamidoa	30.88	5.3	33.65	0	91.8	61-135	0			
N-Methylperfluorooctanesulfonamidoa	30.6	5.3	33.65	0	91	65-136	0			
Hexafluoropropylene oxide dimer acid	29.63	5.3	33.65	0	88	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	24.73	5.3	31.65	0	78.1	70-130	0			
11Cl-Pf3OUdS	24.02	5.3	31.65	0	75.9	70-130	0			
9Cl-PF3ONS	25.62	5.3	31.33	0	81.8	70-130	0			
Surr: 13C2-FtS 4:2	160	0	157.1	0	102	50-150	0			
Surr: 13C2-FtS 6:2	156.1	0	159.8	0	97.7	50-150	0			
Surr: 13C2-FtS 8:2	151.4	0	161.2	0	93.9	50-150	0			
Surr: 13C2-PFDA	162.5	0	168.2	0	96.6	50-150	0			
Surr: 13C2-PFDoA	165.4	0	168.2	0	98.3	50-150	0			
Surr: 13C2-PFHxA	157.9	0	168.2	0	93.8	50-150	0			
Surr: 13C2-PFTeA	176.5	0	168.2	0	105	50-150	0			
Surr: 13C2-PFUnA	167.9	0	168.2	0	99.8	50-150	0			
Surr: 13C3-HFPO-DA	157.8	0	168.2	0	93.8	50-150	0			
Surr: 13C3-PFBS	162.3	0	156.5	0	104	50-150	0			
Surr: 13C4-PFBA	144.5	0	168.2	0	85.9	50-150	0			
Surr: 13C4-PFHpA	156.2	0	168.2	0	92.8	50-150	0			
Surr: 13C4-PFOA	166.6	0	168.2	0	99	50-150	0			
Surr: 13C4-PFOS	167.3	0	160.7	0	104	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 23052445

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217127	Instrument ID LCMS1	Method: E537 Mod						
<i>Surr: 13C5-PFNA</i>	169.3	0	168.2	0	101	50-150	0	
<i>Surr: 13C5-PFPeA</i>	147.7	0	168.2	0	87.8	50-150	0	
<i>Surr: 13C8-FOSA</i>	157.9	0	168.2	0	93.9	50-150	0	
<i>Surr: 18O2-PFHxS</i>	174.7	0	159	0	110	50-150	0	
<i>Surr: d5-N-EtFOSAA</i>	150.5	0	168.2	0	89.5	50-150	0	
<i>Surr: d3-N-MeFOSAA</i>	147.8	0	168.2	0	87.9	50-150	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 23052445
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217127 Instrument ID LCMS1 Method: E537 Mod

DUP		Sample ID: 23052527-03A DUP				Units: ng/L		Analysis Date: 5/31/2023 09:05 PM		
Client ID:		Run ID: LCMS1_230531A		SeqNo: 9611577		Prep Date: 5/30/2023		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS)	ND	5.1	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS)	ND	5.1	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 8:2 (FtS)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (PFBS)	0.3852	5.1	0	0	0	0-0	0	0	30	J
Perfluorobutanoic Acid (PFBA)	ND	5.1	0	0	0	0-0	1.722	0	30	
Perfluorodecanesulfonic Acid (PFDS)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFDoA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid (PFHpS)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluoroheptanoic Acid (PFHpA)	ND	5.1	0	0	0	0-0	1.174	0	30	
Perfluorohexanesulfonic Acid (PFHxS)	ND	5.1	0	0	0	0-0	0.6337	0	30	
Perfluorohexanoic Acid (PFHxA)	1.854	5.1	0	0	0	0-0	2.09	0	30	J
Perfluorononanesulfonic Acid (PFNS)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (PFOSA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (PFOS)	ND	2.0	0	0	0	0-0	0.4844	0	30	
Perfluorooctanoic Acid (PFOA)	ND	2.0	0	0	0	0-0	0.345	0	30	
Perfluoropentanesulfonic Acid (PFPeS)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPeA)	1.495	5.1	0	0	0	0-0	1.569	0	30	J
Perfluorotetradecanoic Acid (PFTeA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFTriA)	ND	5.1	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFUnA)	ND	5.1	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoac	ND	5.1	0	0	0	0-0	0.4512	0	30	
N-Methylperfluorooctanesulfonamidoa	ND	5.1	0	0	0	0-0	0.355	0	30	
Hexafluoropropylene oxide dimer acid	ND	5.1	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	ND	5.1	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	ND	5.1	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	ND	5.1	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	151.8	0	152.4	0	99.6	50-150	156.4	2.99	30	
Surr: 13C2-FtS 6:2	165.3	0	155.1	0	107	50-150	172.9	4.5	30	
Surr: 13C2-FtS 8:2	153.4	0	156.4	0	98.1	50-150	165.9	7.84	30	
Surr: 13C2-PFDA	167	0	163.2	0	102	50-150	190	12.9	30	
Surr: 13C2-PFDoA	158.3	0	163.2	0	97	50-150	181.4	13.6	30	
Surr: 13C2-PFHxA	165.1	0	163.2	0	101	50-150	179.1	8.15	30	
Surr: 13C2-PFTeA	176.7	0	163.2	0	108	50-150	181.5	2.68	30	
Surr: 13C2-PFUnA	162.3	0	163.2	0	99.4	50-150	185.2	13.2	30	
Surr: 13C3-HFPO-DA	157.2	0	163.2	0	96.3	50-150	159.5	1.45	30	
Surr: 13C3-PFBS	169.3	0	151.8	0	112	50-150	175.6	3.64	30	
Surr: 13C4-PFBA	152.8	0	163.2	0	93.6	50-150	160.5	4.95	30	
Surr: 13C4-PFHpA	165.4	0	163.2	0	101	50-150	175.4	5.89	30	
Surr: 13C4-PFOA	174.5	0	163.2	0	107	50-150	180.6	3.44	30	
Surr: 13C4-PFOS	166.8	0	155.9	0	107	50-150	182.7	9.05	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217127	Instrument ID LCMS1	Method: E537 Mod								
<i>Surr: 13C5-PFNA</i>	172.1	0	163.2	0	105	50-150	192.8	11.3	30	
<i>Surr: 13C5-PFPeA</i>	154.8	0	163.2	0	94.9	50-150	158.9	2.59	30	
<i>Surr: 13C8-FOSA</i>	149.4	0	163.2	0	91.5	50-150	157.6	5.35	30	
<i>Surr: 18O2-PFHxS</i>	165.3	0	154.2	0	107	50-150	179.7	8.37	30	
<i>Surr: d5-N-EtFOSAA</i>	144.9	0	163.2	0	88.8	50-150	142.4	1.72	30	
<i>Surr: d3-N-MeFOSAA</i>	139.8	0	163.2	0	85.6	50-150	143.3	2.49	30	

The following samples were analyzed in this batch:

23052445-01E	23052445-03A	23052445-05A
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217229** Instrument ID **SVMS8** Method: **SW8270E**

MBLK		Sample ID: SBLKW1-217229-217229			Units: µg/L		Analysis Date: 6/1/2023 12:57 PM			
Client ID:		Run ID: SVMS8_230601A			SeqNo: 9617222		Prep Date: 5/31/2023		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3,3'-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Acetophenone	ND	1.0								
Anthracene	ND	5.0								
Atrazine	ND	1.0								
Benzaldehyde	ND	1.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Caprolactam	ND	10								
Carbazole	ND	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 23052445
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217229	Instrument ID SVMS8	Method: SW8270E						
Chrysene	ND	5.0						
Dibenzo(a,h)anthracene	ND	5.0						
Dibenzofuran	ND	5.0						
Diethyl phthalate	ND	5.0						
Dimethyl phthalate	ND	5.0						
Di-n-butyl phthalate	ND	5.0						
Di-n-octyl phthalate	ND	5.0						
Fluoranthene	ND	5.0						
Fluorene	ND	5.0						
Hexachlorobenzene	ND	5.0						
Hexachlorobutadiene	ND	5.0						
Hexachlorocyclopentadiene	ND	5.0						
Hexachloroethane	ND	5.0						
Indeno(1,2,3-cd)pyrene	ND	5.0						
Isophorone	ND	5.0						
Naphthalene	ND	5.0						
Nitrobenzene	ND	5.0						
N-Nitrosodi-n-propylamine	ND	5.0						
N-Nitrosodiphenylamine	ND	5.0						
Pentachlorophenol	ND	5.0						
Phenanthrene	ND	5.0						
Phenol	ND	5.0						
Pyrene	ND	5.0						
<i>Surr: 2,4,6-Tribromophenol</i>	38.83	0	50	0	77.7	38-103	0	
<i>Surr: 2-Fluorobiphenyl</i>	39.34	0	50	0	78.7	36-96	0	
<i>Surr: 2-Fluorophenol</i>	25.28	0	50	0	50.6	20-73	0	
<i>Surr: 4-Terphenyl-d14</i>	61.64	0	50	0	123	44-114	0	S
<i>Surr: Nitrobenzene-d5</i>	43.75	0	50	0	87.5	33-100	0	
<i>Surr: Phenol-d6</i>	16.74	0	50	0	33.5	10-48	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217229** Instrument ID **SVMS8** Method: **SW8270E**

LCS		Sample ID: SLCSW1-217229-217229				Units: µg/L		Analysis Date: 6/1/2023 01:19 PM		
Client ID:		Run ID: SVMS8_230601A				SeqNo: 9617223		Prep Date: 5/31/2023		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	16.56	5.0	20	0	82.8	24-111	0			
2,4,5-Trichlorophenol	18.07	5.0	20	0	90.4	33-114	0			
2,4,6-Trichlorophenol	16.18	5.0	20	0	80.9	36-113	0			
2,4-Dichlorophenol	16.65	5.0	20	0	83.2	30-111	0			
2,4-Dimethylphenol	18.37	5.0	20	0	91.8	36-109	0			
2,4-Dinitrophenol	11.05	5.0	20	0	55.2	12-113	0			
2,4-Dinitrotoluene	18.78	5.0	20	0	93.9	51-107	0			
2,6-Dinitrotoluene	17.93	5.0	20	0	89.6	51-105	0			
2-Chloronaphthalene	16.4	5.0	20	0	82	22-112	0			
2-Chlorophenol	15.69	5.0	20	0	78.4	35-108	0			
2-Methylnaphthalene	16.38	5.0	20	0	81.9	12-119	0			
2-Methylphenol	14.55	5.0	20	0	72.8	31-100	0			
2-Nitroaniline	20.15	5.0	20	0	101	46-106	0			
2-Nitrophenol	16.92	5.0	20	0	84.6	26-111	0			
3&4-Methylphenol	13.88	5.0	20	0	69.4	24-95	0			
3,3'-Dichlorobenzidine	15.18	5.0	20	0	75.9	48-101	0			
3-Nitroaniline	17.55	5.0	20	0	87.8	52-105	0			
4,6-Dinitro-2-methylphenol	17.8	5.0	20	0	89	28-121	0			
4-Bromophenyl phenyl ether	16.55	5.0	20	0	82.8	49-107	0			
4-Chloro-3-methylphenol	17.42	5.0	20	0	87.1	35-105	0			
4-Chloroaniline	16.72	5.0	20	0	83.6	46-101	0			
4-Chlorophenyl phenyl ether	17.16	5.0	20	0	85.8	40-107	0			
4-Nitroaniline	17.5	5.0	20	0	87.5	49-110	0			
4-Nitrophenol	7.38	5.0	20	0	36.9	10-64	0			
Acenaphthene	16.58	5.0	20	0	82.9	32-108	0			
Acenaphthylene	15.93	5.0	20	0	79.6	34-107	0			
Acetophenone	16.85	1.0	20	0	84.2	41-102	0			
Anthracene	16.76	5.0	20	0	83.8	53-105	0			
Atrazine	17.96	1.0	20	0	89.8	53-112	0			
Benzaldehyde	18.35	1.0	20	0	91.8	32-111	0			
Benzo(a)anthracene	16.39	5.0	20	0	82	57-106	0			
Benzo(a)pyrene	15.21	5.0	20	0	76	54-107	0			
Benzo(b)fluoranthene	15.58	5.0	20	0	77.9	53-109	0			
Benzo(g,h,i)perylene	16.13	5.0	20	0	80.6	50-114	0			
Benzo(k)fluoranthene	17.91	5.0	20	0	89.6	53-110	0			
Bis(2-chloroethoxy)methane	18.1	5.0	20	0	90.5	42-101	0			
Bis(2-chloroethyl)ether	17.66	5.0	20	0	88.3	39-100	0			
Bis(2-chloroisopropyl)ether	14.5	5.0	20	0	72.5	31-104	0			
Bis(2-ethylhexyl)phthalate	16.74	5.0	20	0	83.7	53-116	0			
Butyl benzyl phthalate	16.03	5.0	20	0	80.2	45-112	0			
Carbazole	17.36	5.0	20	0	86.8	55-106	0			
Chrysene	17.2	5.0	20	0	86	57-108	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217229	Instrument ID SVMS8	Method: SW8270E						
Dibenzo(a,h)anthracene	14.79	5.0	20	0	74	51-112	0	
Dibenzofuran	16.8	5.0	20	0	84	37-107	0	
Diethyl phthalate	17.66	5.0	20	0	88.3	44-114	0	
Dimethyl phthalate	17.23	5.0	20	0	86.2	40-115	0	
Di-n-butyl phthalate	17.3	5.0	20	0	86.5	49-112	0	
Di-n-octyl phthalate	15.97	5.0	20	0	79.8	47-120	0	
Fluoranthene	17.74	5.0	20	0	88.7	54-107	0	
Fluorene	16.7	5.0	20	0	83.5	42-107	0	
Hexachlorobenzene	16.2	5.0	20	0	81	50-105	0	
Hexachlorobutadiene	17.68	5.0	20	0	88.4	10-112	0	
Hexachlorocyclopentadiene	13.84	5.0	20	0	69.2	10-102	0	
Hexachloroethane	16.71	5.0	20	0	83.6	10-115	0	
Indeno(1,2,3-cd)pyrene	14.1	5.0	20	0	70.5	49-113	0	
Isophorone	18.19	5.0	20	0	91	42-103	0	
Naphthalene	15.78	5.0	20	0	78.9	18-109	0	
Nitrobenzene	18.56	5.0	20	0	92.8	38-101	0	
N-Nitrosodi-n-propylamine	17.99	5.0	20	0	90	40-104	0	
N-Nitrosodiphenylamine	15.8	5.0	20	0	79	49-105	0	
Pentachlorophenol	11.56	5.0	20	0	57.8	22-109	0	
Phenanthrene	16.76	5.0	20	0	83.8	51-103	0	
Phenol	7.79	5.0	20	0	39	10-63	0	
Pyrene	16.07	5.0	20	0	80.4	50-105	0	
<i>Surr: 2,4,6-Tribromophenol</i>	<i>41.86</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>83.7</i>	<i>38-103</i>	<i>0</i>	
<i>Surr: 2-Fluorobiphenyl</i>	<i>40.77</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>81.5</i>	<i>36-96</i>	<i>0</i>	
<i>Surr: 2-Fluorophenol</i>	<i>26.35</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>52.7</i>	<i>20-73</i>	<i>0</i>	
<i>Surr: 4-Terphenyl-d14</i>	<i>55.49</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>111</i>	<i>44-114</i>	<i>0</i>	
<i>Surr: Nitrobenzene-d5</i>	<i>46.19</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>92.4</i>	<i>33-100</i>	<i>0</i>	
<i>Surr: Phenol-d6</i>	<i>18.05</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>36.1</i>	<i>10-48</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **217229** Instrument ID **SVMS8** Method: **SW8270E**

LCSD		Sample ID: SLCSDW1-217229-217229				Units: µg/L		Analysis Date: 6/1/2023 01:42 PM		
Client ID:		Run ID: SVMS8_230601A				SeqNo: 9617224		Prep Date: 5/31/2023		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	15.72	5.0	20	0	78.6	24-111	16.56	5.2	30	
2,4,5-Trichlorophenol	16.65	5.0	20	0	83.2	33-114	18.07	8.18	30	
2,4,6-Trichlorophenol	15.86	5.0	20	0	79.3	36-113	16.18	2	30	
2,4-Dichlorophenol	16.07	5.0	20	0	80.4	30-111	16.65	3.55	30	
2,4-Dimethylphenol	18.25	5.0	20	0	91.2	36-109	18.37	0.655	30	
2,4-Dinitrophenol	10.01	5.0	20	0	50	12-113	11.05	9.88	30	
2,4-Dinitrotoluene	17.75	5.0	20	0	88.8	51-107	18.78	5.64	30	
2,6-Dinitrotoluene	17.28	5.0	20	0	86.4	51-105	17.93	3.69	30	
2-Chloronaphthalene	15.27	5.0	20	0	76.4	22-112	16.4	7.14	30	
2-Chlorophenol	15.1	5.0	20	0	75.5	35-108	15.69	3.83	30	
2-Methylnaphthalene	15.16	5.0	20	0	75.8	12-119	16.38	7.74	30	
2-Methylphenol	14	5.0	20	0	70	31-100	14.55	3.85	30	
2-Nitroaniline	18.89	5.0	20	0	94.4	46-106	20.15	6.45	30	
2-Nitrophenol	16.48	5.0	20	0	82.4	26-111	16.92	2.63	30	
3&4-Methylphenol	13.02	5.0	20	0	65.1	24-95	13.88	6.39	30	
3,3'-Dichlorobenzidine	13.95	5.0	20	0	69.8	48-101	15.18	8.44	30	
3-Nitroaniline	16.93	5.0	20	0	84.6	52-105	17.55	3.6	30	
4,6-Dinitro-2-methylphenol	17.57	5.0	20	0	87.8	28-121	17.8	1.3	30	
4-Bromophenyl phenyl ether	16	5.0	20	0	80	49-107	16.55	3.38	30	
4-Chloro-3-methylphenol	16.51	5.0	20	0	82.6	35-105	17.42	5.36	30	
4-Chloroaniline	16.77	5.0	20	0	83.8	46-101	16.72	0.299	30	
4-Chlorophenyl phenyl ether	15.94	5.0	20	0	79.7	40-107	17.16	7.37	30	
4-Nitroaniline	15.7	5.0	20	0	78.5	49-110	17.5	10.8	30	
4-Nitrophenol	6.32	5.0	20	0	31.6	10-64	7.38	15.5	30	
Acenaphthene	15.88	5.0	20	0	79.4	32-108	16.58	4.31	30	
Acenaphthylene	14.82	5.0	20	0	74.1	34-107	15.93	7.22	30	
Acetophenone	15.67	1.0	20	0	78.4	41-102	16.85	7.26	30	
Anthracene	16.03	5.0	20	0	80.2	53-105	16.76	4.45	30	
Atrazine	17.36	1.0	20	0	86.8	53-112	17.96	3.4	30	
Benzaldehyde	15.83	1.0	20	0	79.2	32-111	18.35	14.7	30	
Benzo(a)anthracene	16.2	5.0	20	0	81	57-106	16.39	1.17	30	
Benzo(a)pyrene	15.07	5.0	20	0	75.4	54-107	15.21	0.925	30	
Benzo(b)fluoranthene	14.7	5.0	20	0	73.5	53-109	15.58	5.81	30	
Benzo(g,h,i)perylene	15.62	5.0	20	0	78.1	50-114	16.13	3.21	30	
Benzo(k)fluoranthene	18.23	5.0	20	0	91.2	53-110	17.91	1.77	30	
Bis(2-chloroethoxy)methane	17.15	5.0	20	0	85.8	42-101	18.1	5.39	30	
Bis(2-chloroethyl)ether	16.58	5.0	20	0	82.9	39-100	17.66	6.31	30	
Bis(2-chloroisopropyl)ether	13.76	5.0	20	0	68.8	31-104	14.5	5.24	30	
Bis(2-ethylhexyl)phthalate	16.71	5.0	20	0	83.6	53-116	16.74	0.179	30	
Butyl benzyl phthalate	16.51	5.0	20	0	82.6	45-112	16.03	2.95	30	
Carbazole	16.3	5.0	20	0	81.5	55-106	17.36	6.3	30	
Chrysene	16.71	5.0	20	0	83.6	57-108	17.2	2.89	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 23052445
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 217229	Instrument ID SVMS8	Method: SW8270E								
Dibenzo(a,h)anthracene	14.16	5.0	20	0	70.8	51-112	14.79	4.35	30	
Dibenzofuran	15.8	5.0	20	0	79	37-107	16.8	6.13	30	
Diethyl phthalate	17.25	5.0	20	0	86.2	44-114	17.66	2.35	30	
Dimethyl phthalate	16.77	5.0	20	0	83.8	40-115	17.23	2.71	30	
Di-n-butyl phthalate	17.21	5.0	20	0	86	49-112	17.3	0.522	30	
Di-n-octyl phthalate	15.54	5.0	20	0	77.7	47-120	15.97	2.73	30	
Fluoranthene	16.69	5.0	20	0	83.4	54-107	17.74	6.1	30	
Fluorene	15.9	5.0	20	0	79.5	42-107	16.7	4.91	30	
Hexachlorobenzene	15.71	5.0	20	0	78.6	50-105	16.2	3.07	30	
Hexachlorobutadiene	14.53	5.0	20	0	72.6	10-112	17.68	19.6	30	
Hexachlorocyclopentadiene	13.36	5.0	20	0	66.8	10-102	13.84	3.53	30	
Hexachloroethane	13.2	5.0	20	0	66	10-115	16.71	23.5	30	
Indeno(1,2,3-cd)pyrene	13.63	5.0	20	0	68.2	49-113	14.1	3.39	30	
Isophorone	17.58	5.0	20	0	87.9	42-103	18.19	3.41	30	
Naphthalene	14.2	5.0	20	0	71	18-109	15.78	10.5	30	
Nitrobenzene	17.22	5.0	20	0	86.1	38-101	18.56	7.49	30	
N-Nitrosodi-n-propylamine	17.34	5.0	20	0	86.7	40-104	17.99	3.68	30	
N-Nitrosodiphenylamine	15.25	5.0	20	0	76.2	49-105	15.8	3.54	30	
Pentachlorophenol	10.54	5.0	20	0	52.7	22-109	11.56	9.23	30	
Phenanthrene	16.18	5.0	20	0	80.9	51-103	16.76	3.52	30	
Phenol	7.25	5.0	20	0	36.2	10-63	7.79	7.18	30	
Pyrene	16.32	5.0	20	0	81.6	50-105	16.07	1.54	30	
<i>Surr: 2,4,6-Tribromophenol</i>	40.54	0	50	0	81.1	38-103	41.86	3.2	40	
<i>Surr: 2-Fluorobiphenyl</i>	38.06	0	50	0	76.1	36-96	40.77	6.88	40	
<i>Surr: 2-Fluorophenol</i>	24.43	0	50	0	48.9	20-73	26.35	7.56	40	
<i>Surr: 4-Terphenyl-d14</i>	57.22	0	50	0	114	44-114	55.49	3.07	40	S
<i>Surr: Nitrobenzene-d5</i>	42.03	0	50	0	84.1	33-100	46.19	9.43	40	
<i>Surr: Phenol-d6</i>	16.69	0	50	0	33.4	10-48	18.05	7.83	40	

The following samples were analyzed in this batch:

23052445-01B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372023a** Instrument ID **VMS11** Method: **SW8260D**

MBLK		Sample ID: 11V-BLKW3-230526-R372023a				Units: µg/L		Analysis Date: 5/27/2023 08:53 AM		
Client ID:		Run ID: VMS11_230526B		SeqNo: 9602645		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	1.0								
Acetone	ND	10								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
Methyl acetate	ND	2.0								
Methyl tert-butyl ether	ND	1.0								
Methylcyclohexane	ND	1.0								
Methylene chloride	ND	5.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	1.0								
Toluene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 23052445

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R372023a	Instrument ID VMS11	Method: SW8260D					
trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>20.49</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>102</i>	<i>80-120</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>19.14</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>95.7</i>	<i>80-120</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>19.13</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>95.6</i>	<i>80-120</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>19.39</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97</i>	<i>80-120</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372023a** Instrument ID **VMS11** Method: **SW8260D**

LCS				Sample ID: 11V-LCSW3-230526-R372023a			Units: µg/L		Analysis Date: 5/27/2023 07:47 AM		
Client ID:		Run ID: VMS11_230526B		SeqNo: 9602643		Prep Date:		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
1,1,1-Trichloroethane	18.51	1.0	20	0	92.6	75-119	0				
1,1,1,2-Tetrachloroethane	20.11	1.0	20	0	101	80-123	0				
1,1,2-Trichloroethane	19.73	1.0	20	0	98.6	83-118	0				
1,1,2-Trichlorotrifluoroethane	19.58	1.0	20	0	97.9	64-133	0				
1,1-Dichloroethane	20.67	1.0	20	0	103	73-122	0				
1,1-Dichloroethene	22.48	1.0	20	0	112	66-131	0				
1,2,4-Trichlorobenzene	20.63	1.0	20	0	103	73-127	0				
1,2-Dibromo-3-chloropropane	18.07	1.0	20	0	90.4	52-141	0				
1,2-Dibromoethane	18.23	1.0	20	0	91.2	60-159	0				
1,2-Dichlorobenzene	19.18	1.0	20	0	95.9	80-119	0				
1,2-Dichloroethane	19.66	1.0	20	0	98.3	78-121	0				
1,2-Dichloropropane	19.34	1.0	20	0	96.7	78-120	0				
1,3-Dichlorobenzene	19.27	1.0	20	0	96.4	80-120	0				
1,4-Dichlorobenzene	19.73	1.0	20	0	98.6	81-119	0				
2-Butanone	15.47	5.0	20	0	77.4	69-147	0				
2-Hexanone	15.83	5.0	20	0	79.2	67-140	0				
4-Methyl-2-pentanone	20.33	1.0	20	0	102	68-199	0				
Acetone	16.76	10	20	0	83.8	70-166	0				
Benzene	19.68	1.0	20	0	98.4	78-120	0				
Bromodichloromethane	20.26	1.0	20	0	101	73-126	0				
Bromoform	18.19	1.0	20	0	91	60-124	0				
Bromomethane	23.99	1.0	20	0	120	20-183	0				
Carbon disulfide	22.15	1.0	20	0	111	67-159	0				
Carbon tetrachloride	19.51	1.0	20	0	97.6	69-124	0				
Chlorobenzene	18.85	1.0	20	0	94.2	80-118	0				
Chloroethane	18.71	1.0	20	0	93.6	35-136	0				
Chloroform	20.31	1.0	20	0	102	75-119	0				
Chloromethane	16.77	1.0	20	0	83.8	26-117	0				
cis-1,2-Dichloroethene	21.04	1.0	20	0	105	75-123	0				
cis-1,3-Dichloropropene	18.67	1.0	20	0	93.4	69-120	0				
Cyclohexane	20.31	2.0	20	0	102	66-128	0				
Dibromochloromethane	17.34	1.0	20	0	86.7	63-117	0				
Dichlorodifluoromethane	16.87	1.0	20	0	84.4	36-133	0				
Ethylbenzene	18.82	1.0	20	0	94.1	76-116	0				
Isopropylbenzene	20.09	1.0	20	0	100	77-118	0				
Methyl tert-butyl ether	20.44	1.0	20	0	102	77-137	0				
Methylcyclohexane	19.82	1.0	20	0	99.1	66-125	0				
Methylene chloride	19.92	5.0	20	0	99.6	68-125	0				
Styrene	20.09	1.0	20	0	100	76-123	0				
Tetrachloroethene	18.76	1.0	20	0	93.8	80-124	0				
Toluene	18.78	1.0	20	0	93.9	78-116	0				
trans-1,2-Dichloroethene	21.23	1.0	20	0	106	73-124	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 23052445

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R372023a	Instrument ID VMS11	Method: SW8260D						
trans-1,3-Dichloropropene	18.97	1.0	20	0	94.8	67-118	0	
Trichloroethene	18.49	1.0	20	0	92.4	75-122	0	
Trichlorofluoromethane	17.61	1.0	20	0	88	52-115	0	
Vinyl chloride	16.97	1.0	20	0	84.8	49-122	0	
Xylenes, Total	58.08	3.0	60	0	96.8	77-119	0	
<i>Surr: 1,2-Dichloroethane-d4</i>	19.82	0	20	0	99.1	80-120	0	
<i>Surr: 4-Bromofluorobenzene</i>	20.13	0	20	0	101	80-120	0	
<i>Surr: Dibromofluoromethane</i>	19.26	0	20	0	96.3	80-120	0	
<i>Surr: Toluene-d8</i>	19.98	0	20	0	99.9	80-120	0	

The following samples were analyzed in this batch:

23052445-01A 23052445-04A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

MBLK		Sample ID: 12V-BLKW1-230530-R372072c				Units: µg/L		Analysis Date: 5/31/2023 12:26 AM		
Client ID:		Run ID: VMS12_230530A		SeqNo: 9605590		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	1.0								
Acetone	ND	10								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
Methyl acetate	ND	2.0								
Methyl tert-butyl ether	ND	1.0								
Methylcyclohexane	ND	1.0								
Methylene chloride	ND	5.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	1.0								
Toluene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 23052445

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R372072c	Instrument ID VMS12	Method: SW8260D					
trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
<i>Surr: 1,2-Dichloroethane-d4</i>	19.88	0	20	0	99.4	80-120	0
<i>Surr: 4-Bromofluorobenzene</i>	19.56	0	20	0	97.8	80-120	0
<i>Surr: Dibromofluoromethane</i>	19.1	0	20	0	95.5	80-120	0
<i>Surr: Toluene-d8</i>	20.06	0	20	0	100	80-120	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 23052445
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

LCS				Sample ID: 12V-LCSW1-230530-R372072c		Units: µg/L		Analysis Date: 5/30/2023 11:12 PM		
Client ID:		Run ID: VMS12_230530A		SeqNo: 9605588		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	19.47	1.0	20	0	97.4	75-119	0			
1,1,1,2-Tetrachloroethane	18.82	1.0	20	0	94.1	80-123	0			
1,1,2-Trichloroethane	19.99	1.0	20	0	100	83-118	0			
1,1,2-Trichlorotrifluoroethane	20.22	1.0	20	0	101	64-133	0			
1,1-Dichloroethane	21.34	1.0	20	0	107	73-122	0			
1,1-Dichloroethene	20.99	1.0	20	0	105	66-131	0			
1,2,4-Trichlorobenzene	20.26	1.0	20	0	101	73-127	0			
1,2-Dibromo-3-chloropropane	18.16	1.0	20	0	90.8	52-141	0			
1,2-Dibromoethane	20.4	1.0	20	0	102	60-159	0			
1,2-Dichlorobenzene	20.19	1.0	20	0	101	80-119	0			
1,2-Dichloroethane	19.94	1.0	20	0	99.7	78-121	0			
1,2-Dichloropropane	20.41	1.0	20	0	102	78-120	0			
1,3-Dichlorobenzene	20.47	1.0	20	0	102	80-120	0			
1,4-Dichlorobenzene	20.77	1.0	20	0	104	81-119	0			
2-Butanone	20.28	5.0	20	0	101	69-147	0			
2-Hexanone	22.17	5.0	20	0	111	67-140	0			
4-Methyl-2-pentanone	26.19	1.0	20	0	131	68-199	0			
Acetone	20.95	10	20	0	105	70-166	0			
Benzene	21.37	1.0	20	0	107	78-120	0			
Bromodichloromethane	21.66	1.0	20	0	108	73-126	0			
Bromoform	18.28	1.0	20	0	91.4	60-124	0			
Bromomethane	25.33	1.0	20	0	127	20-183	0			
Carbon disulfide	22.72	1.0	20	0	114	67-159	0			
Carbon tetrachloride	19.15	1.0	20	0	95.8	69-124	0			
Chlorobenzene	20.61	1.0	20	0	103	80-118	0			
Chloroethane	20.59	1.0	20	0	103	35-136	0			
Chloroform	21.33	1.0	20	0	107	75-119	0			
Chloromethane	17.17	1.0	20	0	85.8	26-117	0			
cis-1,2-Dichloroethene	21.78	1.0	20	0	109	75-123	0			
cis-1,3-Dichloropropene	20.48	1.0	20	0	102	69-120	0			
Cyclohexane	19.29	2.0	20	0	96.4	66-128	0			
Dibromochloromethane	18.05	1.0	20	0	90.2	63-117	0			
Dichlorodifluoromethane	21.78	1.0	20	0	109	36-133	0			
Ethylbenzene	20.94	1.0	20	0	105	76-116	0			
Isopropylbenzene	20.02	1.0	20	0	100	77-118	0			
Methyl tert-butyl ether	23.17	1.0	20	0	116	77-137	0			
Methylcyclohexane	19.37	1.0	20	0	96.8	66-125	0			
Methylene chloride	22.16	5.0	20	0	111	68-125	0			
Styrene	20.11	1.0	20	0	101	76-123	0			
Tetrachloroethene	19.59	1.0	20	0	98	80-124	0			
Toluene	21.26	1.0	20	0	106	78-116	0			
trans-1,2-Dichloroethene	21.28	1.0	20	0	106	73-124	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 23052445

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R372072c	Instrument ID VMS12	Method: SW8260D					
trans-1,3-Dichloropropene	20.13	1.0	20	0	101	67-118	0
Trichloroethene	20.07	1.0	20	0	100	75-122	0
Trichlorofluoromethane	18.94	1.0	20	0	94.7	52-115	0
Vinyl chloride	19.54	1.0	20	0	97.7	49-122	0
Xylenes, Total	63.08	3.0	60	0	105	77-119	0
<i>Surr: 1,2-Dichloroethane-d4</i>	20.18	0	20	0	101	80-120	0
<i>Surr: 4-Bromofluorobenzene</i>	20.25	0	20	0	101	80-120	0
<i>Surr: Dibromofluoromethane</i>	20.63	0	20	0	103	80-120	0
<i>Surr: Toluene-d8</i>	19.45	0	20	0	97.2	80-120	0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372072c** Instrument ID **VMS12** Method: **SW8260D**

MS				Sample ID: 23051974-23C MS		Units: µg/L		Analysis Date: 5/31/2023 08:40 AM		
Client ID:		Run ID: VMS12_230530A		SeqNo: 9605610		Prep Date:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	193.6	10	200	0	96.8	75-119	0			
1,1,2,2-Tetrachloroethane	170.5	10	200	0	85.2	80-123	0			
1,1,2-Trichloroethane	193.5	10	200	0	96.8	83-118	0			
1,1,2-Trichlorotrifluoroethane	198.6	10	200	0	99.3	64-133	0			
1,1-Dichloroethane	204.5	10	200	0	102	73-122	0			
1,1-Dichloroethene	217.8	10	200	0	109	66-131	0			
1,2,4-Trichlorobenzene	160	10	200	0	80	73-127	0			
1,2-Dibromo-3-chloropropane	145.2	10	200	0	72.6	52-141	0			
1,2-Dibromoethane	189.1	10	200	0	94.6	60-159	0			
1,2-Dichlorobenzene	191	10	200	0	95.5	80-119	0			
1,2-Dichloroethane	192	10	200	0	96	78-121	0			
1,2-Dichloropropane	198.6	10	200	0	99.3	78-120	0			
1,3-Dichlorobenzene	193.2	10	200	0	96.6	80-120	0			
1,4-Dichlorobenzene	195.5	10	200	0	97.8	81-119	0			
2-Butanone	183.6	50	200	0	91.8	69-147	0			
2-Hexanone	199.8	50	200	0	99.9	67-140	0			
4-Methyl-2-pentanone	248.5	10	200	0	124	68-199	0			
Acetone	203.9	100	200	6.8	98.6	70-166	0			
Benzene	214.2	10	200	8.8	103	78-120	0			
Bromodichloromethane	196.3	10	200	0	98.2	73-126	0			
Bromoform	153.8	10	200	0	76.9	60-124	0			
Bromomethane	157.8	10	200	0	78.9	20-183	0			
Carbon disulfide	210.9	10	200	0	105	67-159	0			
Carbon tetrachloride	187.8	10	200	0	93.9	69-124	0			
Chlorobenzene	201.7	10	200	0	101	80-118	0			
Chloroethane	200.5	10	200	0	100	35-136	0			
Chloroform	199.4	10	200	0	99.7	75-119	0			
Chloromethane	174.2	10	200	0	87.1	26-117	0			
cis-1,2-Dichloroethene	195.8	10	200	0	97.9	75-123	0			
cis-1,3-Dichloropropene	175.2	10	200	0	87.6	69-120	0			
Cyclohexane	216	20	200	0	108	66-128	0			
Dibromochloromethane	157.5	10	200	0	78.8	63-117	0			
Dichlorodifluoromethane	223	10	200	0	112	36-133	0			
Ethylbenzene	215.2	10	200	2.8	106	76-116	0			
Isopropylbenzene	213.1	10	200	5.2	104	77-118	0			
Methyl tert-butyl ether	217.1	10	200	6.7	105	77-137	0			
Methylcyclohexane	205.8	10	200	0	103	66-125	0			
Methylene chloride	208.7	50	200	0	104	68-125	0			
Styrene	198.9	10	200	0	99.4	76-123	0			
Tetrachloroethene	196.9	10	200	0	98.4	80-124	0			
Toluene	212.3	10	200	13.4	99.4	78-116	0			
trans-1,2-Dichloroethene	207.7	10	200	0	104	73-124	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 23052445

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R372072c	Instrument ID VMS12	Method: SW8260D						
trans-1,3-Dichloropropene	168.1	10	200	0	84	67-118	0	
Trichloroethene	196.9	10	200	0	98.4	75-122	0	
Trichlorofluoromethane	192.1	10	200	0	96	52-115	0	
Vinyl chloride	201.6	10	200	0	101	49-122	0	
Xylenes, Total	639.4	30	600	0	107	77-119	0	
<i>Surr: 1,2-Dichloroethane-d4</i>	199.2	0	200	0	99.6	80-120	0	
<i>Surr: 4-Bromofluorobenzene</i>	203.4	0	200	0	102	80-120	0	
<i>Surr: Dibromofluoromethane</i>	197	0	200	0	98.5	80-120	0	
<i>Surr: Toluene-d8</i>	196.5	0	200	0	98.2	80-120	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 23052445
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R372072c Instrument ID VMS12 Method: SW8260D

MSD				Sample ID: 23051974-23C MSD		Units: µg/L		Analysis Date: 5/31/2023 09:04 AM		
Client ID:		Run ID: VMS12_230530A		SeqNo: 9605611		Prep Date:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	193.6	10	200	0	96.8	75-119	193.6	0	30	
1,1,1,2-Tetrachloroethane	177	10	200	0	88.5	80-123	170.5	3.74	30	
1,1,2-Trichloroethane	195.8	10	200	0	97.9	83-118	193.5	1.18	30	
1,1,2-Trichlorotrifluoroethane	198.2	10	200	0	99.1	64-133	198.6	0.202	30	
1,1-Dichloroethane	200	10	200	0	100	73-122	204.5	2.22	30	
1,1-Dichloroethene	214.9	10	200	0	107	66-131	217.8	1.34	30	
1,2,4-Trichlorobenzene	161	10	200	0	80.5	73-127	160	0.623	30	
1,2-Dibromo-3-chloropropane	138.6	10	200	0	69.3	52-141	145.2	4.65	30	
1,2-Dibromoethane	190.8	10	200	0	95.4	60-159	189.1	0.895	30	
1,2-Dichlorobenzene	189.9	10	200	0	95	80-119	191	0.578	30	
1,2-Dichloroethane	191.9	10	200	0	96	78-121	192	0.0521	30	
1,2-Dichloropropane	200.1	10	200	0	100	78-120	198.6	0.752	30	
1,3-Dichlorobenzene	192.2	10	200	0	96.1	80-120	193.2	0.519	30	
1,4-Dichlorobenzene	192	10	200	0	96	81-119	195.5	1.81	30	
2-Butanone	179.9	50	200	0	90	69-147	183.6	2.04	30	
2-Hexanone	197.2	50	200	0	98.6	67-140	199.8	1.31	30	
4-Methyl-2-pentanone	252.4	10	200	0	126	68-199	248.5	1.56	30	
Acetone	201.9	100	200	6.8	97.6	70-166	203.9	0.986	30	
Benzene	210.2	10	200	8.8	101	78-120	214.2	1.89	30	
Bromodichloromethane	204	10	200	0	102	73-126	196.3	3.85	30	
Bromoform	160.2	10	200	0	80.1	60-124	153.8	4.08	30	
Bromomethane	202.8	10	200	0	101	20-183	157.8	25	30	
Carbon disulfide	218	10	200	0	109	67-159	210.9	3.31	30	
Carbon tetrachloride	189.7	10	200	0	94.8	69-124	187.8	1.01	30	
Chlorobenzene	202.3	10	200	0	101	80-118	201.7	0.297	30	
Chloroethane	205.2	10	200	0	103	35-136	200.5	2.32	30	
Chloroform	199.9	10	200	0	100	75-119	199.4	0.25	30	
Chloromethane	165.4	10	200	0	82.7	26-117	174.2	5.18	30	
cis-1,2-Dichloroethene	194.4	10	200	0	97.2	75-123	195.8	0.718	30	
cis-1,3-Dichloropropene	172.1	10	200	0	86	69-120	175.2	1.79	30	
Cyclohexane	211.7	20	200	0	106	66-128	216	2.01	30	
Dibromochloromethane	164.1	10	200	0	82	63-117	157.5	4.1	30	
Dichlorodifluoromethane	203.2	10	200	0	102	36-133	223	9.29	30	
Ethylbenzene	211.9	10	200	2.8	105	76-116	215.2	1.55	30	
Isopropylbenzene	211.4	10	200	5.2	103	77-118	213.1	0.801	30	
Methyl tert-butyl ether	219.4	10	200	6.7	106	77-137	217.1	1.05	30	
Methylcyclohexane	199.3	10	200	0	99.6	66-125	205.8	3.21	30	
Methylene chloride	208.1	50	200	0	104	68-125	208.7	0.288	30	
Styrene	199.2	10	200	0	99.6	76-123	198.9	0.151	30	
Tetrachloroethene	196.9	10	200	0	98.4	80-124	196.9	0	30	
Toluene	212.2	10	200	13.4	99.4	78-116	212.3	0.0471	30	
trans-1,2-Dichloroethene	209	10	200	0	104	73-124	207.7	0.624	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 23052445
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R372072c	Instrument ID VMS12	Method: SW8260D								
trans-1,3-Dichloropropene	172.2	10	200	0	86.1	67-118	168.1	2.41	30	
Trichloroethene	194.5	10	200	0	97.2	75-122	196.9	1.23	30	
Trichlorofluoromethane	191.7	10	200	0	95.8	52-115	192.1	0.208	30	
Vinyl chloride	196.3	10	200	0	98.2	49-122	201.6	2.66	30	
Xylenes, Total	632	30	600	0	105	77-119	639.4	1.16	30	
<i>Surr: 1,2-Dichloroethane-d4</i>	195.7	0	200	0	97.8	80-120	199.2	1.77	30	
<i>Surr: 4-Bromofluorobenzene</i>	204.3	0	200	0	102	80-120	203.4	0.442	30	
<i>Surr: Dibromofluoromethane</i>	195.7	0	200	0	97.8	80-120	197	0.662	30	
<i>Surr: Toluene-d8</i>	198.7	0	200	0	99.4	80-120	196.5	1.11	30	

The following samples were analyzed in this batch:

23052445-04A

Client: The Mannik & Smith Group, Inc.
 Work Order: 23052445
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R372137** Instrument ID **LACHAT2** Method: **E350.1 R2.0**

MBLK		Sample ID: MBLK-R372137				Units: mg NH3-N/L		Analysis Date: 5/31/2023 12:33 PM		
Client ID:		Run ID: LACHAT2_230531B				SeqNo: 9607778		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	ND	0.020								

LCS		Sample ID: LCS-R372137				Units: mg NH3-N/L		Analysis Date: 5/31/2023 12:34 PM		
Client ID:		Run ID: LACHAT2_230531B				SeqNo: 9607779		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	1.08	0.020	1	0	108	90-110	0			

MS		Sample ID: 23052359-02A MS				Units: mg NH3-N/L		Analysis Date: 5/31/2023 12:44 PM		
Client ID:		Run ID: LACHAT2_230531B				SeqNo: 9607787		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	0.9666	0.020	1	0.02278	94.4	90-110	0			

MS		Sample ID: 23052606-06A MS				Units: mg NH3-N/L		Analysis Date: 5/31/2023 12:54 PM		
Client ID:		Run ID: LACHAT2_230531B				SeqNo: 9607795		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	0.8472	0.020	1	0.02706	82	90-110	0			S

MSD		Sample ID: 23052359-02A MSD				Units: mg NH3-N/L		Analysis Date: 5/31/2023 12:45 PM		
Client ID:		Run ID: LACHAT2_230531B				SeqNo: 9607788		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	0.9641	0.020	1	0.02278	94.1	90-110	0.9666	0.259	20	

MSD		Sample ID: 23052606-06A MSD				Units: mg NH3-N/L		Analysis Date: 5/31/2023 12:55 PM		
Client ID:		Run ID: LACHAT2_230531B				SeqNo: 9607796		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Ammonia as Nitrogen	0.8506	0.020	1	0.02706	82.4	90-110	0.8472	0.401	20	S

The following samples were analyzed in this batch: 23052445-01D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Chain of Custody Form

ALS Group USA, Corp

Work Order

Company Name	The Mannik & Smith Group, Inc.	Purchase Order		Parameter/Method Request for Analysis	
Send Report To	D. ADLER	Company Name	The Mannik & Smith Group, Inc.	A	VOCS
Project Name	FORMER MT. PLEASANT LANDFILL	Invoice Attr	Accounts Payable	B	SVOCs
Address	2365 Haggerty Road South Suite 100	Project #	M 3460004	C	PCBS
City/State/Zip	Canton, MI 48188	Address	2365 Haggerty Road South Suite 100 Suite 100	D	DISSOLVED METALS - 10 MICR + AL, SB, BE, B, NI, TH
Phone	7343973100	City/State/Zip	Canton, MI 48188	E	AMMONIA
e-Mail Address	DADLER@MANNIK-SMITH GROUP.COM	Phone	7343973100	F	PFAS - SEE ATTACHED EGLE LIST FOR GROUNDWATER
		e-Mail Address		G	TOTAL METALS - 10 MI + AL, SB, BE, B, NI, TH
				H	
				I	
				J	

#	Sample Description	Date	Time	Matrix	Preservative	# Bottles	A	B	C	D	E	F	G	H	I	J	Sample Notes
1	MW-300		1400	GROUNDS WATER		12	X	X	X	X	X	X					
2	MW-300																
3	MW-300F					1			X								
4	MW-300P					3					X						
5	TRIP BLANK					2	X										
6	FIELD BLANK		1400	WATER		2					X						
7																	
8																	
9																	
10																	

23052445

MANNIK&SMITH: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill



Notes: _____

Prepreservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NAOH 5-VAPOUR 6-OTHER 7-Other 8-4 degrees C 9-5035

Required Turnaround Time: STANDARD
 Std 10 Wk days 5 Wk days 2 Wk days 24 hr

Results Due: STANDARD TURNAROUND

Relinquished by	Date	Time	Received by	Date	Time
<i>[Signature]</i>	5-25-2023	08:20	<i>[Signature]</i>	5/25/23	08:20
<i>[Signature]</i>	5/25/23	1700	<i>[Signature]</i>	5/25/23	1700
QS	5/25/23	2230	<i>[Signature]</i>	5/25/23	2230

NOTES:

QC Reporting Level: (check box below)

Level II: Standard QC

Level III: Std QC + Raw data

Level IV: SW846 CLP-Like

Other: DF2
4.0°C
PH34

Sample Receipt Checklist

Client Name: **MANNIK&SMITH**

Date/Time Received: **25-May-23 22:30**

Work Order: **23052445**

Received by: **DS**

Checklist completed by Diane Shaw 26-May-23
eSignature Date

Reviewed by: Bill Carey 26-May-23
eSignature Date

Matrices: Groundwater, Water

Carrier name: Courier

Shipping container/cooler in good condition?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	Not Present <input type="checkbox"/>
Custody seals intact on shipping container/cooler?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Custody seals intact on sample bottles?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	Not Present <input checked="" type="checkbox"/>
Chain of custody present?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody signed when relinquished and received?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Chain of custody agrees with sample labels?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Samples in proper container/bottle?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample containers intact?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sufficient sample volume for indicated test?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
All samples received within holding time?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container/Temp Blank temperature in compliance?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample(s) received on ice?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Temperature(s)/Thermometer(s):	<input type="text" value="4.0/4.0 c"/>		<input type="text" value="DF2"/>
Cooler(s)/Kit(s):	<input type="text"/>		
Date/Time sample(s) sent to storage:	<input type="text" value="5/26/2023 10:00:26 AM"/>		
Water - VOA vials have zero headspace?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	No VOA vials submitted <input type="checkbox"/>
Water - pH acceptable upon receipt?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	N/A <input type="checkbox"/>
pH adjusted by:	<input type="text"/>		

Login Notes: pH check <2.

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction:

REPORT ON RESPONSE ACTIVITY PLAN IMPLEMENTATION

1301-1303 FRANKLIN STREET
MOUNT PLEASANT, MICHIGAN



SEPTEMBER 28, 2022

PREPARED FOR:
THE CITY OF MOUNT PLEASANT
DIVISION OF PUBLIC WORKS
MOUNT PLEASANT, MICHIGAN

320 WEST BROADWAY
MOUNT PLEASANT, MICHIGAN



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1301-1303 Franklin Street
Mount Pleasant, Isabella County, Michigan

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1.0 INTRODUCTION

The Mannik & Smith Group, Inc. (MSG) was retained by the City of Mount Pleasant, Michigan to provide professional environmental consulting services for investigation of a former landfill area at City-owned property located north of the intersection of West Pickard and North Franklin Streets in Mount Pleasant. MSG has been assisting the City with regulatory compliance issues associated with the former landfill area since November 2020. An investigation of the former landfill was conducted by MSG in 2021 under an Agreement for Services with The City based on MSG's March 24, 2021 Proposal for Professional Services No. OP210419. The results of the investigation were documented in MSG's July 20, 2021 *Report on Investigation of Former Landfill*.

The investigation documented in the July 20, 2021 report focused primarily on delineation of the area of buried refuse, determining the suitability and engineering properties of the landfill's clay cap, and characterization of shallow groundwater conditions at the subject site. In addition, a Response Activity Plan for additional investigation of the former landfill was developed by MSG, as necessary and appropriate based on the findings contained in the above noted July 20, 2021 report and on regulatory requirements. The primary objective of the additional investigation described in the September 8, 2021 Response Activity Plan (RAP) was characterization of site hydrogeologic conditions at depths below the base of the landfill.

The scope of work described in the September 8, 2021 RAP was implemented by MSG in 2022 under an Agreement for Services between the City of Mount Pleasant and MSG based on MSG's January 31, 2022 Proposal for RAP Implementation¹, as authorized by The City on February 14, 2022. This report presents the results of the RAP implementation activities.

1.1 Site Description

The subject site is located at 1301-1303 North Franklin Street in Mount Pleasant, Michigan, north of the intersection of North Franklin and West Pickard Streets. *Figure 1, Site Location*, depicts the location of the site as referenced to nearby roads and geographic features. The site is located north of and adjacent to the City's Wastewater Treatment Plant facility (1301 North Franklin) and facilities of the City's Street and Motor Pool Departments (1303 North Franklin), including a vehicle maintenance garage, a garage for storage of salt trucks, and other City-owned staging and storage areas. The site is located in a "SD-I (Industrial)" zoning district.

As shown on *Figure 2, Site Map*, the site is bordered by the Chippewa River on the west side. A golf course is located adjacent to the site on the north and northwest sides. A cemetery is located directly east of the site. Surrounding properties to the south and west of the site and north of West Pickard Street are primarily commercial/industrial. The area located south of West Pickard is primarily residential.

The central portion of the site is occupied by an area that was formerly used as a landfill. There are low-lying wet areas located north and northeast of the former landfill area. A wooded area with numerous patches of wet ground is located east and northeast of the landfill area. Most of the western and northwestern portions of the site, including the area of the site located along the Chippewa River, are heavily wooded and vegetated. Access to most of the wooded/wet areas located to the north, west, and northeast of the former landfill area is very limited.

¹ MSG Proposal No.OP220226

1.2 Project Background

The landfill at the subject site reportedly operated from the 1950s until approximately 1975. For at least part of that time (in the 1960s), the landfill was licensed as a Solid Waste Disposal Area under former Michigan Public Act 87 (Garbage and Refuse Disposal Act). The landfill has a clay cap. The Chippewa River borders the site on the west, although it does not appear that the former landfill area extends laterally to the river.

In late 2018, a clay tile pipe located on the riverbank at the site was identified to be draining into the river. Further investigation by City personnel found four additional pipes near the former landfill area. Water being discharged by the clay pipes was sampled and analyzed. Subsequent investigation by the City and an environmental services provider contracted by the City found elevated levels of regulated substances in the discharge water, including elevated levels of per and polyfluoroalkyl substances (PFAS). Initial investigation of groundwater at the site conducted in 2019 indicated that PFAS concentrations in site-specific shallow groundwater samples exceeded regulatory levels (Michigan Public Act 451² Part 201 Generic Cleanup Criteria) for both the drinking water (DW) and groundwater surface water interface (GSI) exposure pathways.

Additional monitoring wells were installed at the site in 2019-2020 by others and additional groundwater samples were collected and analyzed. The groundwater sample analytical results indicated that PFAS concentrations and concentrations of other analytes (metals, volatile organic compounds, semivolatile organic compounds, and polychlorinated biphenyls) exceeded Part 201 residential and/or nonresidential Generic Cleanup Criteria (GCC). The site-specific shallow groundwater flow direction was not determined. Deeper groundwater underlying the site was not investigated.

The City of Mt. Pleasant has been working closely with the Michigan Department of Environment, Great Lakes, and Energy (EGLE) Remediation and Redevelopment Division (RRD) since the discharge into the Chippewa River was first discovered. Seventeen groundwater monitoring wells were installed in and around the landfill area at the site in 2019-2020 by AKTPeerless (AKT) of Saginaw, Michigan. Groundwater samples have been collected from most of the wells and have been analyzed for an extensive parameter list. The clay pipes have reportedly been grouted and capped.

MSG conducted Ground Water Testing Project Number 3 for the City in November and December 2020 under the scope of work specified in the August 2020 Request for Proposals issued by the City. Nine additional shallow groundwater monitoring wells were installed by MSG in November 2020. Six of the nine monitoring wells installed by MSG are located in close proximity to the Chippewa River. Groundwater samples were collected in November 2020 from the nine new monitoring wells and from four of the previously installed monitoring wells. The November 2020 groundwater samples were analyzed for an extensive suite of analytes including PFAS compounds.

The results of Ground Water Testing Project Number 3 were documented in a report by MSG dated December 22, 2020. The results indicated that the shallow groundwater at some of the onsite monitoring well locations, including locations in close proximity to the Chippewa River, contained concentrations of PFAS compounds and dissolved phase metals (dissolved boron and dissolved arsenic) that exceeded Part 201 GCC for the DW and/or GSI exposure pathways. No PCBs were detected in the November 2020 groundwater samples. None of the samples contained volatile organic compounds or semi-volatile organics at concentrations that exceeded Part 201 GCC.

A meeting with City of Mount Pleasant, EGLE RRD, and MSG personnel was convened on February 22, 2021 to review the results of Ground Water Testing Project Number 3. During the meeting, EGLE RRD personnel outlined additional site characterization measures necessary for regulatory compliance under Part 201 of NREPA. As requested by the City of Mt. Pleasant, MSG developed a scope of work to complete the next phase

² The Natural Resources and Environmental Protection Act (NREPA), Michigan Public Act 451, 1994 as amended.

of site characterization required by EGLE (MSG Proposal No. OP 210419 dated March 2, 2021). Following a request by EGLE RRD personnel, the scope of work was revised to include a shallow groundwater monitoring event. The revised MSG proposal No. OP 210419 was reissued to the City on March 24, 2021 and was authorized by the City on April 14, 2021. The investigation conducted by MSG in 2021 included:

- Determining the exact locations, ground surface elevations, top of well casing elevations, total depths, and overall condition of the site monitoring wells. Seventeen monitoring wells were installed at the site by AKT in 2019-2020. Nine additional monitoring wells were installed at the site by MSG in 2020. In addition, 6 monitoring wells were reportedly installed at the site by Keck Consulting Services, Inc. (Keck) in 1977.
- Measuring and recording static groundwater levels in each of the site monitoring wells, referenced to the respective well top of casing elevations.
- Determining the site-specific groundwater flow direction for the shallow groundwater zone.
- Conducting a groundwater monitoring event utilizing existing groundwater monitoring wells located near the Chippewa River and the wet areas in the northern and northeast portions of the site.
- Investigating the lateral and vertical extent of buried refuse at the site and the composition of the refuse.
- Determining the thickness of the landfill cover (clay cap).
- Collecting samples of the landfill cover materials and testing selected samples for relevant engineering properties.
- Preparing a technical report documenting the investigative methods and findings.
- Developing a work plan (Response Action Plan) for additional investigation, as necessary and appropriate based on the available data and information and EGLE RRD regulatory requirements under Part 201 of NREPA.

The results of the 2021 investigation indicated that the site-specific shallow groundwater flows to the west/northwest towards the Chippewa River with a flow velocity of 3.2-7.8 feet/day (1168-2847 feet/year) and an average hydraulic conductivity of 0.033 cm/sec (93.5 feet/day). The area of buried refuse at the site is approximately 17 acres. The known maximum depth of buried refuse is on the order of approximately 26-30 feet below the ground surface (bgs). The observed buried refuse consists primarily of paper (including decomposing newspaper); metal (including aluminum cans); glass fragments; metal fragments; construction and demolition debris including wood, concrete debris, roofing materials, and bricks; cloth/fabric; and fibrous materials of uncertain origin. The buried refuse was most commonly mixed with soil including sand, clayey sand, and sandy clay. In general, there was more soil and wood than refuse present in the soil/refuse mixture.

The results of the May 2021 shallow groundwater monitoring event indicated that PCBs and SVOCs were not detected in the shallow groundwater samples. One VOC was detected in one shallow groundwater sample at a concentration below residential and nonresidential GCC. The reported dissolved arsenic, dissolved aluminum, and dissolved boron concentrations of some of the May 2021 shallow groundwater samples exceeded the respective GCC for the drinking water exposure pathway. The dissolved arsenic concentrations for two of the shallow groundwater samples exceeded the respective GSI GCC. The reported PFAS concentrations for the groundwater samples from 6 of the shallow groundwater monitoring wells were above the respective DW GCC. The reported PFOS³ concentrations for the groundwater samples from 4 of the shallow monitoring wells were above the GSI GCC for PFOS.

The buried refuse at the site is covered by a clay cap that is at least two feet thick. The results of geotechnical engineering tests completed on samples of the clay cap materials indicate that the clay cap is generally suitable for landfill cover purposes.

³ PFOS (Perfluorooctanesulfonic Acid) is a PFAS compound that is regulated under Part 201 of NREPA

The September 8, 2021 Response Action Plan was formally submitted to EGLE RRD on December 6, 2021 and was approved with conditions by EGLE via correspondence dated December 14, 2021.

2.0 PURPOSE AND SCOPE

The primary objective of the work described in the Response Activity Plan was to investigate and characterize site-specific hydrogeologic conditions at depths below the base of the former landfill and below the shallow groundwater zone at the site. Based on the information provided on the logs for existing AKT monitoring wells MW-3-19, MW-4-19, MW-5-19 and MW-6-19 and the ground surface elevations at those locations determined by MSG during the 2021 monitoring well survey, the base of the former landfill is at elevations generally on the order of 740-750 feet, assuming that buried refuse extends to a maximum depth of 26 feet bgs as noted on the AKT logs. Therefore, the RAP implementation activities included characterizing site-specific hydrogeologic conditions at depths below an approximate elevation of 745 feet.

The investigation of deep groundwater conditions at the site included five primary tasks:

1. Deep exploratory borings
2. Installation of deep groundwater monitoring wells
3. Soil laboratory testing
4. Deep monitoring well sampling and analysis
5. Shallow groundwater sampling and analysis
6. Data review, evaluation, and technical report preparation

The RAP implementation activities were directed and overseen by a Certified Professional Geologist (CPG) from MSG's Canton, Michigan office. The individual tasks are described below in more detail.

3.0 FIELD INVESTIGATION

The field portion of the RAP implementation activities was conducted by MSG personnel in April and May 2022 under the direct supervision of a Certified Professional Geologist (CPG) from MSG's Canton, Michigan office. Six deep exploratory borings were drilled and sampled during the period of April 11-13, 2022. Groundwater monitoring wells were installed in three of the exploratory borings. A shallow groundwater sampling event was conducted by MSG field personnel on May 16, 2022.

The six deep exploratory borings were drilled and sampled to depths of 40-50 feet below the ground surface, corresponding to elevations of approximately 704.2 feet to 719.5 feet. Low permeability cohesive soils (glacial till and hardpan-like till) were encountered at depth in each of the six exploratory borings. The glacial till/hardpan soils extended to the boring terminus depth at each of the deep exploratory boring locations. No deep water-bearing zones or lower aquifers were encountered in the April 2022 borings. Therefore, three new groundwater monitoring wells were installed at the base of the uppermost groundwater bearing zone, with two of the three new monitoring wells located upgradient of the landfill area and one at a downgradient location.

Photographs of the RAP implementation field activities are included in *Appendix A, Photo Log*.

3.1 Deep Exploratory Borings

Six deep exploratory borings, designated SB-19 through SB-21 and MW-200 through MW-202, were drilled and sampled at the approximate locations shown on Figure 2. The borings were drilled and sampled by Cascade Environmental of Flint, Michigan using a rubber track mounted Boart Longyear LS 250 Minisonic drill rig and rotosonic drilling methodology. A subsurface utility staking request was made through the MISS DIG utility locating system prior to commencement of drilling and sampling. The boring logs are included in *Appendix B, Boring and Monitoring Well Logs*.

The rotosonic drilling method uses high-frequency resonant energy to advance a core barrel into the subsurface formations. The resonant energy is transferred down the drill string to the drill bit face at various sonic frequencies. The subsurface materials are continuously cored and recovered using a 4-inch diameter steel coring barrel. The 4-inch diameter coring barrel is overridden by a six-inch diameter steel barrel that cases the borehole and prevents collapse. Water is used when necessary to reduce drilling friction and heat buildup.

As shown on Figure 2, borings SB-19 and SB-20 were located within the area of buried refuse. Each of these borings was drilled and sampled to a depth of 50 feet bgs (boring terminus elevations of 719.5 feet for each boring). Boring SB-21 was drilled to a depth of 40 feet bgs (terminus elevation of 706.5 feet) near the location of groundwater monitoring well MW-102 and approximately 60 feet from the Chippewa River. Borings MW-200 and MW-201 were each drilled to a depth of 50 feet (boring terminus elevations of 706 feet and 711.1 feet, respectively), near the eastern site boundary. Boring MW-202 was drilled to a depth of 40 feet bgs (terminus elevation of 704.2 feet) in relatively close proximity to the northwest corner of the area of buried refuse.

Four-inch diameter soil cores were collected at each boring location on a continuous basis from the ground surface to the respective boring terminus depths. Five foot long coring runs were used in the uppermost 10 feet of drilling, followed by 10-foot long runs from 10 feet bgs to the respective boring terminus depths. Sample recovery, as shown on the boring logs in Appendix B, was generally good, with 100% recovery in many cases. The recovered soils at each boring location were examined and logged in the field by an experienced MSG field geologist/CPG.

Upon completion of drilling and sampling, borings SB-19, SB-20, and SB-21 were backfilled with hydrated bentonite⁴ suitable for borehole decommissioning in environmental applications. Borings MW-200, MW-201, and MW-202 were used for installation of new groundwater monitoring wells, as described below in Section 3.2.

The locations of the borings were surveyed by MSG field personnel using a hand-held global positioning system (GPS) instrument with sub centimeter accuracy capability. The ground surface elevations at the locations of borings SB-19, SB-20, and SB-21 were also surveyed by MSG field personnel using a sub centimeter accuracy capability GPS unit. The ground surface elevations at the locations of the borings used for installation of groundwater monitoring wells (borings MW-200, MW-201, and MW-202) were surveyed by a professional survey crew from MSG's Canton, Michigan office under the supervision of an MSG State of Michigan licensed Professional Surveyor.

3.2 Monitoring Well Installation

Groundwater monitoring wells were installed in borings MW-200, MW-201, and MW-202 upon completion of drilling and soil sampling. The locations of the monitoring wells, also designated MW-200, MW-201, and MW-202 are shown on Figure 2. The monitoring well construction details are included on the boring/monitoring wells logs in Appendix B. Additional monitoring well information, including the location coordinates and elevations, is provided on *Table 1, Monitoring Well Information*.

Each well assembly consists of a 2-inch diameter 10-slot⁵ Schedule 40 PVC well screen flush threaded to 2-inch diameter Schedule 40 PVC riser pipe. As shown on the boring/monitoring well logs in Appendix B, the well screens for MW-200, MW-201 and MW-202 were set at the approximate base of the glacial lacustrine sand and gravel deposit that is the uppermost groundwater bearing geologic unit at the site. There were no

⁴ Puregold Medium Chips (NSF/ANSI/Standard 60 certified) manufactured by Cetgo/Minerals Technologies Incorporated

⁵ A 10-slot well screen has 0.010 inch openings

lower aquifers encountered in the deep exploratory borings. Each boring was terminated in low permeability cohesive glacial till material. Therefore, no deep monitoring wells were installed.

The well screens for MW-200 and MW-201 are 10 feet long and are set from 15-25 feet bgs. MW-202 has a five-foot long screen set from 4-9 feet bgs. Each well is equipped with an above ground riser and an above ground steel protective cover secured in a concrete pad at the ground surface.

The wells were developed by surging and pumping until the purge water became relatively clear. A professional survey crew from MSG's Canton, Michigan office surveyed the top of casing elevations of new monitoring wells MW-200, MW-201, and MW-202 to the nearest 0.01 foot. The survey crew's work was conducted under the supervision of a State of Michigan licensed Professional Surveyor from MSG's Canton office.

3.3 Groundwater Sampling and Analysis

A groundwater monitoring event was included as part of the RAP implementation activities. The following monitoring wells were sampled by MSG field personnel on May 16, 2022: MW-101 through MW-106, MW-108, MW-109, MW-9-20, MW-10-20, MW-14-20, MW-15-20, MW-200, MW-210, and MW-202.

The static groundwater level in each sampled well was measured by MSG personnel using an electronic water level meter prior to well purging and groundwater sampling. Static groundwater levels were also measured in monitoring wells MW-107, MW-1-19, MW-2-19, MW-7-20, MW-12-20, MW-16-20, MW-17-20, and MW-X. The water level meter has an accuracy of +/- 0.01 feet (approximately 1/8 inch). The static groundwater level measurements were recorded on field sampling forms that are included in *Appendix C, Field Sampling Forms*.

MSG personnel then purged and sampled the groundwater monitoring wells in general accordance with the United States Environmental Protection Agency (USEPA) *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures* guidance document (EPA/540/S-95/504, April 1996). Groundwater samples were collected using a peristaltic pump equipped with high-density polyethylene (HDPE) tubing. A new HDPE disposable bailer and nylon rope were used for sampling monitoring well MW-109. Groundwater samples for PFAS analysis were collected in general accordance with the October 16, 2018 EGLE guidance document entitled *General PFAS Sampling Guidance*.

Water quality field parameters including pH, specific conductance, temperature, oxidation-reduction potential, specific conductance, turbidity, and dissolved oxygen were monitored during purging and sampling activities using a Horiba U-52 Multiparameter Water Quality Meter and Flowcell. Samples collected for metals analysis were filtered at the time of sampling using 0.45-micron disposable filters specifically designed for environmental groundwater sampling. A blind duplicate groundwater sample designated DUP was collected from monitoring well MW-200. A PFAS field blank sample was also collected at the location of MW-200 while MW-200 was being purged and sampled.

As noted on the field sampling forms in Appendix C, Monitoring wells MW-108 and MW-9-20 purged dry on May 16, 2022 and did not recharge sufficiently to allow for collection of groundwater samples.

The groundwater samples, PFAS field blank sample, and a laboratory-supplied trip blank sample were submitted under standard chain of custody protocol to the ALS Environmental laboratory in Holland, Michigan (ALS) for analysis. The groundwater samples were analyzed for VOCs, SVOCs, PCBs, sixteen dissolved metals⁶ and the PFAS compounds on the October 1, 2019 EGLE PFAS compound list, as specified in the RAP. PFAS analysis was conducted by Method EPA 537 Modified (537 Mod - isotope dilution method).

⁶ The 10 Michigan metals (arsenic, barium, cadmium, chromium, copper, mercury, lead, selenium, silver, and zinc) and aluminum, antimony, beryllium, boron, nickel, and thallium.

The laboratory analytical data report provided by ALS is included in *Appendix D, Laboratory Analytical Report (Groundwater)*. The May 16, 2022 groundwater sample analytical results are tabulated on *Table 2, Groundwater Sample Analytical Data – Residential Criteria*, and *Table 3, Groundwater Sample Analytical Data – Nonresidential Criteria*.

3.4 Soil Sample Testing

Twelve soil samples from the 4-inch diameter rotosonic drilling cores were collected for analysis for hydrogeologic/geotechnical engineering properties. The twelve soil samples included one sample of the granular glacial lacustrine sand and gravel materials within the screened interval of each of the three new groundwater monitoring wells installed (MW-200, MW-201, and MW-202), and nine samples of the cohesive glacial till materials that were encountered underneath the lacustrine sand and gravel and underneath the buried refuse within the former landfill area. At least one glacial till sample was collected from each deep exploratory boring for analysis.

The three granular lacustrine sand and gravel deposit samples were analyzed by MSG's Canton, Michigan Soil Mechanics Laboratory for grain size distribution by sieve analysis (ASTM D6913). The following lacustrine sand and gravel deposit samples were analyzed:

- Boring MW-200, 17-20 feet bgs
- Boring MW-201, 20-24 feet bgs
- Boring MW-202, 5-7 feet bgs

The nine samples of the cohesive glacial till soils that underlie the glacial sand and gravel and buried refuse at the site were analyzed for grain size distribution by sieve and hydrometer (ASTM D7928) and Atterberg Limits (ASTM D4318). The following glacial till soil samples were analyzed:

- Boring MW-200, 25.5-30 feet bgs
- Boring MW-200, 37-39.5 feet bgs
- Boring MW-201, 29-30 feet bgs
- Boring MW-201, 39-40 feet bgs
- Boring MW-202, 8.5-10 feet bgs
- Boring SB-19, 34-35 feet bgs
- Boring SB-19, 47-49 feet bgs
- Boring SB-20, 45-50 feet bgs
- Boring SB-21, 23-25 feet bgs

The grain size distribution and Atterberg Limits test results are included in *Appendix E, Soil Sample Test Data*. The test results are discussed further in Section 4.2 of this report. Photographs of the analyzed soil samples are included on pages 14-18 of the Photo Log in Appendix A.

4.0 CONCEPTUAL SITE MODEL

The conceptual site model (CSM) presented below for the subject site is based on currently available data and information regarding site hydrogeologic conditions. Like any CSM, it can be modified and updated as additional information and data become available.

4.1 Regional Hydrogeology

The subject site is located in the Saginaw glacial lobe in the south-central portion of the Michigan Basin geomorphic province. The Michigan Basin is a bowl-shaped intracratonic crustal depression that contains several thousand feet of relatively flat-lying sedimentary rocks deposited during the Paleozoic geologic era. These sedimentary rocks overlie older Precambrian age crystalline basement rocks. The maximum thickness of accumulated sedimentary rocks in the Michigan Basin is approximately 15,000 feet in the Midland area of the Lower Peninsula. In general, the Michigan Basin rocks are predominately carbonate evaporates of marine origin (dolomite and limestone) with lesser amounts of shale and sandstone.

Pleistocene age glacial drift sediments overlie the bedrock throughout most of the Michigan Basin. The glacial features are the result of advancing and retreating continental glaciers during the Wisconsin glacial stage of the Pleistocene epoch (approximately 35,000 to 10,000 years before present). The glacial drift ranges in thickness from less than 10 feet to several hundred feet. Glacial drift greater than 1,000 feet thick has been documented in parts of the north central Lower Peninsula of Michigan (Western Michigan University, 1982). Bedrock exposures in the Lower Peninsula are rare. Bedrock is not exposed in the Mount Pleasant area.

The glacial drift deposits in Isabella County range generally from 150 to 600 feet in total thickness and include: granular outwash deposits, lacustrine deposits, and glacial till characteristic of morainal terranes (Apple and Reeves, 2007). The till deposits are generally medium to coarse textured material but can range from clay to boulder size. The tills are found in three prominent glacial moraines that occur in the western portion of Isabella County, including the Gladwin Moraine. The glacial outwash deposits are composed primarily of sand and gravel. The lacustrine deposits can consist of sand, gravel, silt and/or clay.

The regional geologic setting of the site is shown on *Figure 3, Regional Geologic Setting*. The site is located on the western fringe of the Saginaw Lowlands, an extensive, relatively flat-lying glacial lake plain that formed when glacial ice retreated northeast from the Gladwin Moraine to Saginaw Bay (Westjohn and Hoard, 2006). The Gladwin Moraine allowed ponding of glacial meltwater and subsequent deposition of glacial lacustrine sediments when the Saginaw Lobe glacial ice retreated to Saginaw Bay and formed the Port Huron Moraine.

As shown on Figure 3, the subject site is located in an area of glacial lacustrine sand and gravel. The Gladwin Moraine is located to the west, northwest and southeast of the site. The glacial drift in the region is reported to be on the order of 280-350 feet thick (Western Michigan University, 1981; Westjohn and Hoard, 2006; Newcombe, 1933). The regional bedrock formations underlying the glacial drift are the Jurassic Red Beds and the Pennsylvanian age Saginaw Formation, neither of which are exposed at the surface in the Mount Pleasant area. The Jurassic Red Beds bedrock formation has been described as red mudstone, red sandstone/siltstone, and gypsum (Westjohn and Hoard, 2006), and as sandstone and shale with minor limestone and gypsum beds (Dorr and Eschman, 1970). The Pennsylvanian age Saginaw Formation bedrock consists primarily of sandstone with some interlayered shale, limestone, and coal beds. The bedrock underlying the glacial drift deposits at the site has been identified as the Jurassic Red Beds (Westjohn and Hoard, 2006).

Groundwater occurs regionally in the Pleistocene glacial deposits and in the underlying bedrock formations. Groundwater in the glacial lacustrine sand and gravel and glacial outwash deposits has been used historically for domestic use. Freshwater is encountered in the glacial deposits of the region, although saline water has been observed near the base of the glacial deposits. Both freshwater and saline water have been encountered in the underlying bedrock formations.

Glacial sands and gravels form the principal aquifer for domestic water supply wells in the region (Westjohn and Hoard, 2006). Apple and Reeves (2007) note that "According to the February 2005 Wellog database, approximately 99 percent of the wells in Isabella County are completed in the glacial deposits, and less than 1 percent in the bedrock units."

Interpretation of well drillers' logs for water supply wells in the Wellog database has identified a regional sand and gravel aquifer at depths ranging from approximately 60-130 feet bgs. These sands and gravels have been interpreted as glaciofluvial deposits from an outwash plain that form a regional glacial aquifer. Deeper aquifers in the 130-320 feet bgs depth interval within the glacial deposits of the region have also been identified.

In 2006, the United States Geological Survey published a report by D.B. Westjohn and C.J. Hoard titled *Hydrogeology and Groundwater Quality, Chippewa Township, Isabella County, Michigan, 2002-2005*, (U.S. Geological Survey Scientific Investigations Report 2006-5193). That report, which covered a study area that included the City of Mount Pleasant and contiguous townships, notes that logs of water supply wells in Chippewa Township (located directly east of Mount Pleasant) "indicate the presence of a near-surface clay-rich unit in almost all areas. This upper clay unit is probably basal-lodgment till that was deposited by the Saginaw Lobe of glacial ice when ice advanced to the position of the Gladwin Moraine." The upper clay rich lodgment till described by Westjohn and Hoard (2006) is likely represented at the subject site by the till clay and hardpan-like till encountered directly below the surficial glacial lacustrine sand and gravel in the six deep exploratory borings completed at the subject site for the RAP implementation activities. Additional discussion is provided below in Section 4.2 of this report.

Westjohn and Hoard (2006) constructed a potentiometric surface map of groundwater in the glacial deposits of the region, based on static water levels recorded on 1,559 regional water supply wells. As shown on *Figure 4, Regional Groundwater Flow Direction*, there is a prominent sense of groundwater flow potential to the east for the glacial groundwater.

The City of Mount Pleasant owns and operates a municipal water supply system that supplies potable water to the City. The Mount Pleasant municipal water supply is derived from municipal water supply wells. None of the City's water supply wells is located within one (1) mile of the site. The surrounding township, Charter Township of Union (Union Township) also provides municipal water. The Union Township water supply is derived from seven (7) groundwater wells configured in three (3) separate well fields. The Township's water supply wells are set in a glacial sand and gravel aquifer and are located more than one (1) mile from the site.

As noted in MSG's December 22, 2020 Report on Groundwater Testing Project Number 3, public records indicate that there are 18 domestic water supply wells located within a one mile radius of the site. These wells have reported depths ranging from 19-238 feet bgs and are set in the glacial drift materials. Eleven of the 18 wells are listed as household wells.

4.2 Site Hydrogeology

The locations of the deep exploratory borings completed in April 2022 (SB-19 through SB-21 and MW-200 through MW-202) are shown on Figure 2. The boring logs are included in Appendix B. The logs in Appendix B also include construction details for the groundwater monitoring wells that were installed in borings MW-200, MW-201, and MW-202. As noted on the boring logs, the deep exploratory borings were drilled and sampled to depths of 40-50 feet bgs. The corresponding boring terminus elevations range from 704.2 feet to 719.5 feet. Based on the subsurface information derived from borings SB-19 and SB-20, the elevation of the base of buried refuse at the site is at an approximate elevation of 739.5-740.3 feet.

The subsurface geologic units at the site include a surficial deposit of granular soils (glacial lacustrine sand and gravel) underlain by clay-rich glacial till. Subsurface profiles have been developed to illustrate the approximate configuration of the site geology relative to the area of buried refuse and the Chippewa River. The locations and orientations of the geologic profiles are shown on *Figure 5, Geologic Profile Location Map*. The profiles are shown on *Figure 6, Generalized Geologic Profile A-A'* and *Figure 7, Generalized Geologic Profile B-B'*.

As shown on Figures 6 and 7, the surficial lacustrine sand and gravel deposit extends vertically to approximately elevation 730-735 feet or approximately 5-10 feet below the base of the buried refuse. The underlying clay-rich glacial till was encountered in each of the six deep exploratory borings and extends vertically to elevation 705 feet or deeper. Each of the six deep exploratory borings completed for the RAP implementation was terminated in the till deposit. Numerous photographs of the lacustrine sand and gravel and the glacial till recovered from the rotosonic borings are included in the Photo Log in Appendix A.

As noted on the boring logs in Appendix B and the soil sample test results in Appendix E, the glacial lacustrine sand and gravel deposit at the subject site consists primarily of silty sand, gravelly sand, and sandy gravel, classified as SM, SP and GW, respectively under the Unified Soil Classification System (USCS). The underlying glacial till consists primarily of silty-sandy clay (USCS classification as CL), with lesser amounts of clayey sand (SC) and silty-clayey sand (SC-SM). Seven of the nine analyzed till samples consist of CL soil material (lean clay). One of the till samples consists of SC soil material (clayey sand). One of the analyzed till samples consists of SC-SM soil material (silty, clayey sand) under the USCS.

A sandy silt layer encountered in boring MW-200 in the 21-25.5 feet bgs depth interval represents a transition between the overlying lacustrine sand and the underlying glacial till. As shown on Figure 7, sandy fill soils were encountered from the ground surface to 14.5 feet bgs at the location of boring MW-200, which is located in the grassy area outside of the former office portion of the maintenance garage building. A number of subsurface utilities are located in this area.

The glacial till deposit encountered in the deep exploratory borings included hard to very hard till⁷ and cemented hardpan-like till. These supplemental descriptions of the encountered till are noted on the boring logs. Very hard till was encountered from 8.5-40 feet bgs in boring MW-202, from 33.5-50 feet bgs in boring SB-19, from 40-44.5 feet bgs in boring SB-20, and from 12-25 feet bgs in boring SB-21. The cemented hardpan-like till was encountered in the borings at the following depth intervals:

- Boring MW-200 from 33-39.5 feet bgs and 47-50 feet bgs
- Boring MW-201 from 34.9-42 feet bgs
- Boring SB-20 from 44.5-50 feet bgs
- Boring SB-21 from 25-40 feet bgs

The hardpan-like till observed in the deep exploratory borings is analogous to the above noted near-surface upper clay-rich basal-lodgment till described by Westjohn and Hoard (2006).

Unconfined groundwater was encountered during drilling and soil sampling in April 2022 at depths ranging from 5-10 feet bgs. At the locations of borings MW-200 and MW-201, groundwater was encountered at 9 feet bgs in sandy fill soils and at 10 feet bgs in lacustrine silty sand, respectively. At the location of boring MW-202, groundwater was encountered at 5 feet bgs in lacustrine sandy gravel. At the location of boring SB-21, groundwater was encountered at 5 feet bgs in a silty clay layer located directly above a lacustrine sandy gravel layer at 7 feet bgs. Both MW-202 and SB-21 are located at lower elevations than borings MW-200 and MW-201.

Potable water was used during rotosonic drilling in the buried refuse at the locations of borings SB-19 and SB-20. The depth to encountered groundwater at those two boring locations could not be determined. The potable water from the City of Mount Pleasant municipal water supply system was obtained at the onsite maintenance garage (see Page 1 of the Photo Log in Appendix A).

⁷ Hard corresponds to an estimated unconfined compressive strength of 8,000-16,000 pounds/square foot (PSF). Very hard corresponds to an estimated unconfined compressive strength of greater than 16,000 PSF.

The hydraulic conductivity of the shallow groundwater zone at the site can be approximated from grain size distribution data for the granular glacial lacustrine sand and gravel deposit using the empirical model developed by Hazen. The Hazen equation for soil hydraulic conductivity (K) can be expressed as K (in cm/sec) = $C(D_{10})^2$ where

- C = Dimensionless constant equal to 1
- D_{10} = Grain size (in millimeters) at which 10% of the soil sample mass (by dry weight) is comprised of less than this value

The available D_{10} values for the granular soil samples collected from the screened intervals of the onsite monitoring wells (MW-104, MW-105, MW-109, MW-200, MW-201 and MW-202) range from 0.075 to 0.443, with an average D_{10} value of 0.22. Using the average D_{10} value and the Hazen empirical equation, the estimated K value for the lacustrine sand and gravel at the subject site is 0.0484 cm/sec (137.2 feet/day). This K value is consistent with the range of K values for sand and gravelly sand soils found in the published literature.

Static groundwater levels were measured and recorded for each of the monitoring wells sampled on May 16, 2022 prior to purging and sampling. Static groundwater levels were also measured in monitoring wells MW-107, MW-1-19, MW-2-19, MW-7-20, MW-12-20, MW-16-20, MW-17-20, and MW-X on May 16, 2022. The static groundwater levels and corresponding piezometric surface elevations are provided on Table 1 and are shown graphically on *Figure 8, Groundwater Elevation Contour Map – May 16, 2022*.

The piezometric surface elevations shown on Figure 8 range from 738.04 feet at monitoring well MW-106 to 757.06 feet at monitoring well MW-7-20. The piezometric surface elevation for MW-7-20 is considered anomalously high for groundwater contouring. Monitoring well MW-7-20 was installed by AKT in February 2020 (prior to MSG's involvement with the subject site) and may be located within the area of buried refuse. The anomalously high piezometric surface elevation for MW-7-20 appears to be the result of groundwater mounding.

As shown on Figure 8, the sense of groundwater flow potential (primary groundwater flow direction) for the unconfined glacial lacustrine sand and gravel water-bearing zone at the site is to the west and northwest, generally towards the Chippewa River. It is noted that the Chippewa River bends generally eastward as it flows through the golf course property located directly north of the site beyond the view shown on Figure 8. As such, both the west and northwest shallow groundwater flow directions shown on Figure 8 indicate that the shallow groundwater flow towards the river.

Groundwater flow velocity at the site can be calculated using Darcy's Equation, $V = Ki/n_e$, where:

- V = Groundwater flow velocity in feet per day
- K = Hydraulic conductivity of the water-bearing unit in feet per day
- i = Lateral hydraulic gradient in feet per foot (change in elevation ÷ change in lateral distance)
- n_e = Effective porosity

Using the piezometric surface elevation data for May 16, 2022 shown on Figure 8, the site-specific shallow groundwater flow velocity for the site was calculated along the groundwater flow paths labeled as A, B, and C on Figure 8. The groundwater flow velocity calculations are provided on *Table 4, Groundwater Flow Velocity Calculations – May 16, 2022*. As shown on Table 4, the lateral hydraulic gradient was calculated to range from 0.0063 to 0.0068 ft/foot. Using the lateral gradients, an average hydraulic conductivity of 137.2 feet/day and an estimated effective porosity of 0.3, the calculated site-specific shallow groundwater flow velocity is 2.9-3.1 ft/day (1059-1132 ft/year).

5.0 GROUNDWATER SAMPLE ANALYTICAL RESULTS

The groundwater samples collected by MSG from monitoring wells MW-101 through MW-106, MW-109, MW-200, MW-201, MW-202, MW-10-20, MW-14-20, MW-15-20, and the blind duplicate sample collected from MW-200 on May 16, 2022 were analyzed by ALS for VOCs, SVOCs, PCBs, dissolved phase metals (10 Michigan metals plus aluminum, antimony, beryllium, boron, nickel, and thallium), and PFAS compounds (EGLE October 1, 2019 list). The field blank sample collected during groundwater sampling activities at the location of monitoring well MW-200 was analyzed for the above noted PFAS compounds. The laboratory analytical data report is included in Appendix D.

The May 2022 groundwater sample analytical data have been tabulated and compared to Part 201 Residential GCC on Table 2. The groundwater sample analytical results have also been compared to Part 201 Nonresidential GCC on Table 3. The data is discussed below in terms of parameter groupings. Exceedances of the GCC are depicted graphically on *Figure 9, Groundwater Sample Criteria Exceedances – May 16, 2022*.

PCBs - PCBs were not detected in any of the May 2022 groundwater samples.

SVOCs – SVOCs were not detected in any of the May 2022 groundwater samples.

VOCs – one VOC compound was detected in the groundwater sample from monitoring well MW-202. The reported chlorobenzene concentration of 6.1 micrograms/liter (ug/l) for the groundwater sample from MW-202 is below the residential and nonresidential DW GCC of 100 ug/l, and is also below the GSI GCC of 25 ug/l. No other VOCs were detected in the groundwater sample from MW-202. VOCs were not detected in any of the other May 2022 groundwater samples.

PFAS – as shown on Table 1 and Table 2, PFAS compounds were detected in each of the fourteen groundwater samples collected at the subject site on May 16, 2022. Exceedances of the DW GCC for PFAs compounds are observed for MW-101 (PFOS and PFOA⁸), MW-102 (PFOS and PFOA), MW-106 (PFOA), MW-109 (PFOA), MW-200 and the associated blind duplicate (PFOA), MW-201 (PFOA), MW-202 (PFOS, PFOA, PFHxS, and PFNA⁹), MW-10-20 (PFHxS, PFNA, PFOS and PFOA), MW-14-20 (PFOA), and MW-15-20 (PFOA). Exceedances of the GSI GCC for PFAS compounds are observed at MW-101 (PFOS), MW-102 (PFOS), MW-202 (PFOS), and MW-10-20 (PFOS).

The reported PFAS concentrations for the groundwater samples collected from monitoring wells MW-103, MW-104, and MW-105 are below the Residential and Nonresidential GCC for the drinking water exposure and GSI exposure pathways.

Metals – dissolved phase metals were detected in each of the groundwater samples collected at the site on May 16, 2022. Exceedances of the DW GCC are observed for the groundwater samples from monitoring wells MW-102 (dissolved boron), MW-103 (dissolved arsenic), MW-105 (dissolved arsenic), MW-109 (dissolved aluminum), and MW-202 (dissolved boron). Exceedances of the GSI GCC are observed for the groundwater samples from monitoring wells MW-103 (dissolved arsenic), and MW-105 (dissolved arsenic).

The reported dissolved metals concentrations for the groundwater samples collected on May 16, 2022 from monitoring wells MW-101, MW-104, MW-106, MW-200, MW-201, MW-10-20, MW-14-20, and MW-15-20 are below the Residential and Nonresidential GCC for the DW and GSI exposure pathways.

As shown on Figure 9, there are exceedances of the Part 201 Residential and Nonresidential GCC for the May 16, 2022 groundwater samples collected from monitoring wells located on the west, north and east sides of the landfill area. Most of the GCC exceedances for the GSI pathway occur west of the area of buried refuse at monitoring wells

⁸ Perfluorooctanesulfonic Acid (PFOS) and Perfluorooctanoic Acid (PFOA), respectively

⁹ Perfluorohexanesulfonic Acid (PFHxS) and Perfluorononanoic Acid (PFNA), respectively

MW-101, MW-102, MW-103, and MW-105 located along the Chippewa River, and at MW-202. Each of these monitoring wells is located hydraulically downgradient of the landfill area with respect to the shallow groundwater flow direction. The other monitoring well showing a GSI exceedance (MW-10-20) is located in close proximity to the northeast corner of the landfill area. It is likely that the extent of shallow groundwater with elevated concentrations of metals and/or PFAS extends downgradient from the landfill to the west and northwest to the Chippewa River, and to the north towards the river where it flows through the offsite golf course area.

The May 2022 groundwater samples collected from monitoring wells located east and southeast of the landfill (MW-200 and MW-201) show exceedances of the DW GCC for PFOA, but do not exhibit GSI exceedances. MW-201 is located hydraulically upgradient of the area of buried refuse. MW-200 appears to be in a cross-gradient location. Both MW-200 and MW-201 are located outside of the groundwater flow path of the area of buried refuse, indicating the possibility of an upgradient, offsite source or sources to the east or southeast of the site.

The Michigan PFAS Action Response Team (MPART) is a team of seven state government agencies¹⁰ created in 2017 by executive order of the Governor to identify PFAS sources and address PFAS contamination in Michigan. MPART became an advisory body within EGLE in 2019. MPART maintains a List of PFAS Sites and Areas of Interest and an associated PFAS Geographic Information System (GIS). The MPART GIS shows three PFAS sites in the Mt. Pleasant area including:

1. The subject site
2. The Roosevelt Refinery site (600 W. Pickard Street)
3. The 104 North Kinney Avenue site (104 North Kinney Avenue)

The Roosevelt Refinery was a crude oil refinery that operated from the 1930s to the early 1970s. It is located at 600 W. Pickard Street on the west side of the Chippewa River opposite the subject site. The location of the Roosevelt Refinery on the west side of the Chippewa River makes it an unlikely source of groundwater impacts to the subject site.

The 104 North Kinney Avenue (NKA) site is an operating commercial dry cleaner that is reportedly associated with a plume of tetrachloroethylene-impacted groundwater. According to the EGLE MPART listing, concentrations of tetrachloroethylene (PCE) have been found several blocks downgradient of the NKA site. According to the EGLE MPART listing for the NKA site, nine of seventeen groundwater samples collected in November 2021 at locations surrounding the NKA site had PFOA concentrations above the DW GCC of 8 nanograms/liter (ng/l – equivalent to parts per trillion). The highest reported concentration was 160 ng/l.

The EGLE listing also notes that groundwater contamination associated with the NKA site is found in the 12-15 feet bgs depth range, and that groundwater flows to the northwest toward the Chippewa River. The NKA site is located approximately 0.8 miles southeast of the subject site. Based on its location relative to the location of the subject site and the northwest direction of shallow groundwater flow in the area, the NKA site could represent a possible upgradient offsite source of shallow groundwater contamination relative to the subject site.

6.0 PATHWAY EVALUATION

An exposure pathway is the link between a contaminant source and a receptor. An exposure pathway has five components:

1. A source of contamination
2. A transport mechanism
3. A point of exposure

¹⁰ The seven state agencies are EGLE and the Departments of Health and Human Services, Natural Resources, Agriculture and Rural Development, Transportation, Military and Veteran Affairs, and Licensing and Regulatory Affairs.

4. A route of exposure
5. A receptor population

When the five components are present, the pathway is considered complete.

For the subject site, the contaminant source is the landfill area. For the GSI exposure pathway, the transport mechanism is leaching and groundwater transport. The point of exposure is the water of the Chippewa River. The route of exposure is the shallow groundwater zone within the near surface glacial lacustrine sand and gravel deposit at the site. Receptors include aquatic organisms in the river, other organisms that may ingest the river water (e.g., deer, birds, farm animals, etc.), and possible recreational users. Although the Chippewa River water is not used locally or regionally as a source of potable water supply, it is a tributary to the Tittabawassee River. The Tittabawassee is a tributary to the Saginaw River. The Saginaw River empties into Saginaw Bay near Bay City. The GSI exposure pathway is considered complete for the subject site.

The unconfined shallow groundwater in the near surface glacial lacustrine sand and gravel deposit is the uppermost aquifer at the site. The near surface glacial lacustrine deposit groundwater flows toward the Chippewa River and presumably vents into the river at an elevation of approximately 733 feet along the west side of the site. The cohesive glacial till deposit that underlies the glacial lacustrine sand and gravel deposit across the site extends vertically to elevation 700 or lower. The till deposit acts as an aquitard preventing vertical migration of shallow groundwater into deeper aquifers that may be present and that may be used locally or regionally as sources of potable water. Therefore, the groundwater ingestion as drinking water exposure pathway is considered to be incomplete for the subject site.

The area of buried refuse at the subject site has a compacted clay cap. The clay cap is covered by extensive native grasses and other vegetation. The clay cap and surface vegetation prevent direct contact with the underlying buried refuse. The clay cap also acts as a barrier to vertical migration of landfill gas into ambient air.

The available records provided by the City for the landfill at the subject site indicate that construction of the landfill did not include gas management components, side slope liners, or a perimeter dike. Therefore, lateral migration of subsurface landfill gas, including methane, could be possible. There have been no known occurrences of lateral migration of subsurface gas from the landfill area. Although there are no aboveground structures present within the footprint of the landfill area, there are buildings located in close proximity to the landfill that are used by City personnel for municipal activities.

7.0 CONCLUSIONS

Based on the results of the RAP implementation activities completed for the former Mount Pleasant landfill as described herein, the following conclusions are made:

- The site is underlain by a near surface granular glacial lacustrine deposit that is on the order of 10-25 feet thick, depending on location and elevation within the site. The granular lacustrine deposit is underlain by a relatively thick, low permeability cohesive glacial till deposit that is extensive both laterally and vertically. The till deposit was encountered at depth in each of the six deep exploratory borings completed for the RAP implementation activities. The base of the till deposit was not encountered in any of the deep exploratory borings.
- The uppermost groundwater occurs in the granular lacustrine deposit under unconfined conditions. The underlying till deposit acts as a lower confining layer preventing vertical migration of the shallow groundwater. No lower groundwater zones were encountered in the deep exploratory borings completed for the RAP implementation.
- The site-specific shallow groundwater flow direction is primarily to the west and northwest towards the Chippewa River. The average hydraulic conductivity of the shallow groundwater zone is 0.0484 cm/sec (137.2 feet/day). The shallow groundwater flow velocity is approximately 3 feet/day (1,095 feet/year).

- The results of the May 2022 shallow groundwater monitoring event indicate that PCBs and SVOCs were not detected. One VOC was detected in one shallow groundwater sample at a concentration below the residential and nonresidential GCC. The reported dissolved arsenic, dissolved aluminum, and dissolved boron concentrations of some of the May 2022 shallow groundwater samples exceed the respective GCC for the drinking water exposure pathway. The dissolved arsenic concentrations for two of the shallow groundwater samples exceed the respective GSI GCC. The reported PFAS compound concentrations for the groundwater samples from 10 of the shallow groundwater monitoring wells were above the respective DW GCC. The reported PFOS concentrations for the groundwater samples from 4 of the shallow monitoring wells were above the GSI GCC for PFOS.

8.0 REFERENCES

Apple, B. A., and Reeves, H.W., 2007, Summary of Hydrogeologic Conditions by County for the State of Michigan, U.S. Geological Survey Open-File Report 2007-1236.

Dorr, J.A., and Eschman, D.F., 1970, Geology of Michigan, The University of Michigan Press.

Newcombe, R.B., 1933, Oil and Gas Fields of Michigan, Michigan Department of Conservation Geological Survey Division Publication 38, Geological Series 32.

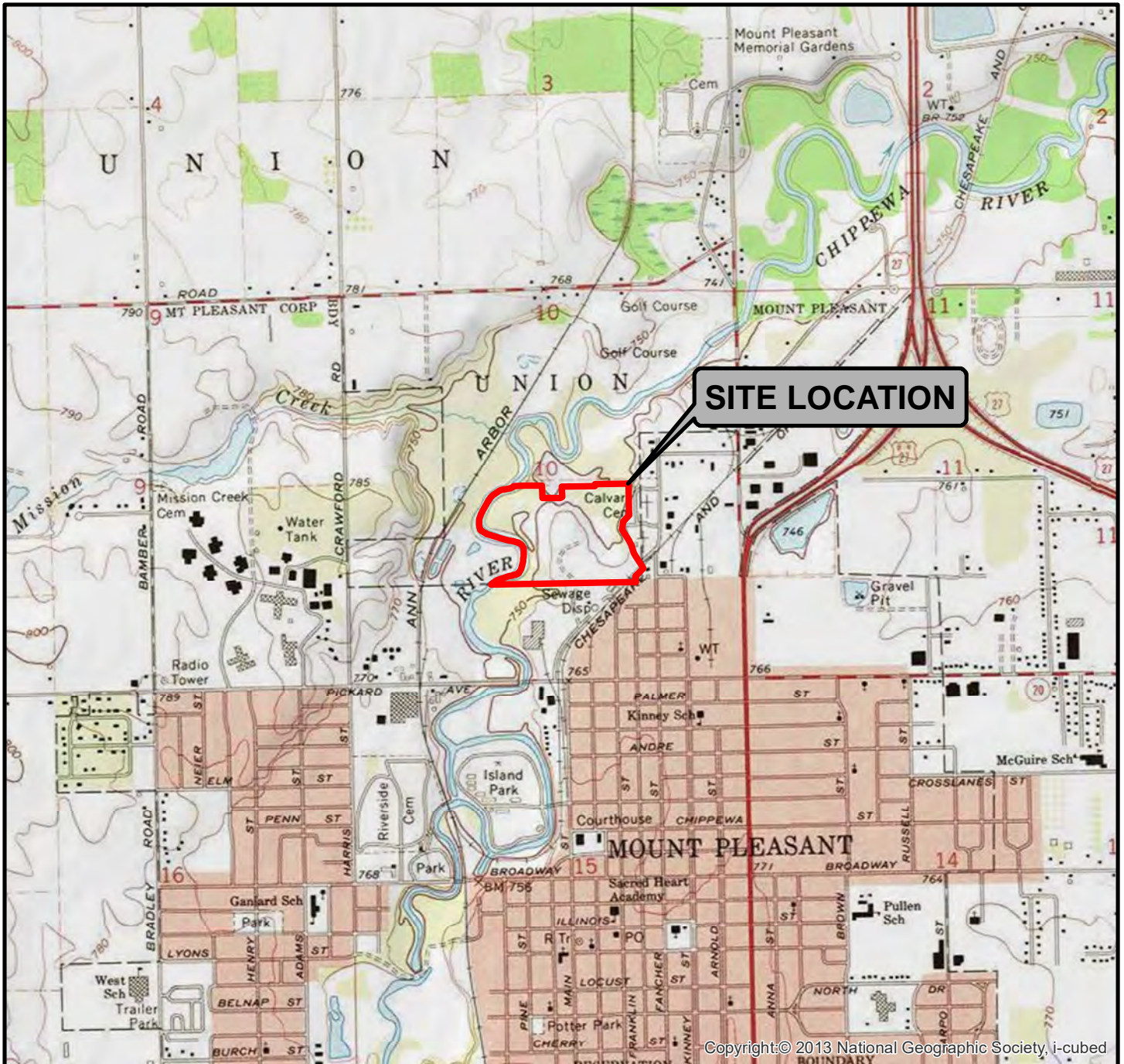
United States Environmental Protection Agency (USEPA), 1996, Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures guidance document (EPA/540/S-95/504, April 1996).

Western Michigan University, 1981, Hydrogeologic Atlas of Michigan.

Westjohn, D.B., and Hoard, C.J., Hydrogeology and Groundwater Quality, Chippewa Township, Isabella County, Michigan, 2002-2005, U.S. Geological Survey Scientific Investigations Report 2006-5193.

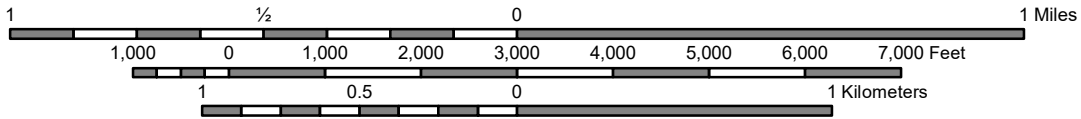
FIGURES



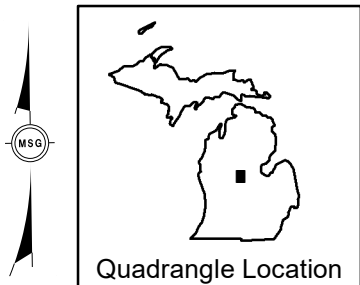


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SCALE 1:24000



Contour Interval 10 Feet
National Geodetic Vertical Datum of 1929

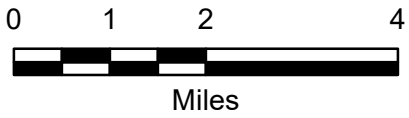
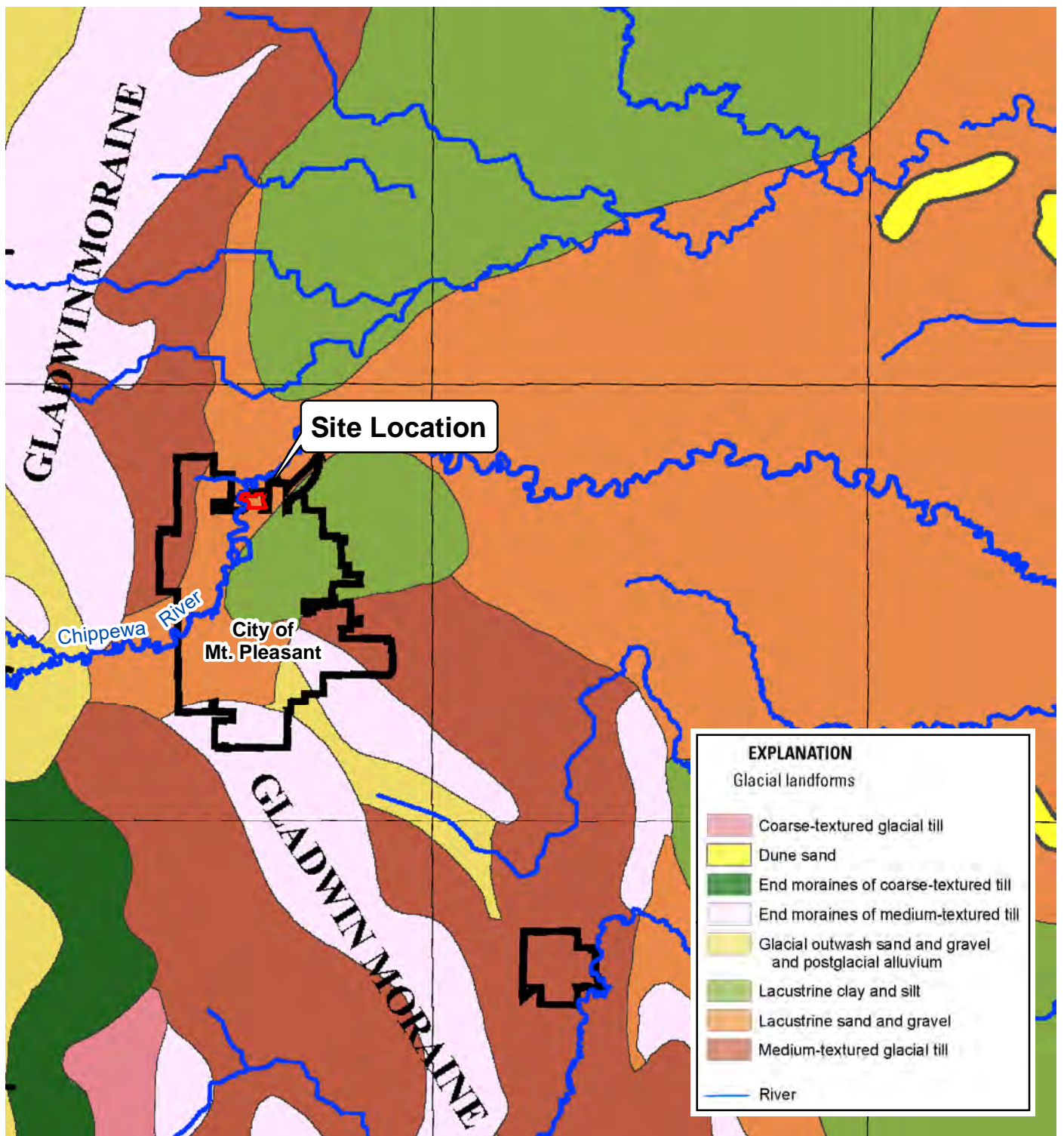


NOTE: Map adapted from National Geographic TOPO! seamless, scanned images of USGS Topographic Maps, Rosebush and Mount Pleasant, MI (7.5 minute series).

FIGURE 1
SITE LOCATION

1301-1303 North Franklin Street
Mount Pleasant, Isabella County, MI

DATE 12/10/2020	DRAWN BY ZTR	DESIGNED BY CJB	PROJECT NO. M3460001
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Notes:
 1. Modified from Westjohn and Hoard, 2006.

FIGURE 3

Regional Geologic Setting

1301-1303 North Franklin Street
 Mount Pleasant, Isabella County, MI

DATE 11/30/2020	DRAWN BY ZTR	DESIGNED BY ZTR	PROJECT NO. M3460001
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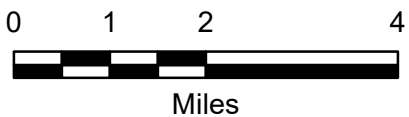
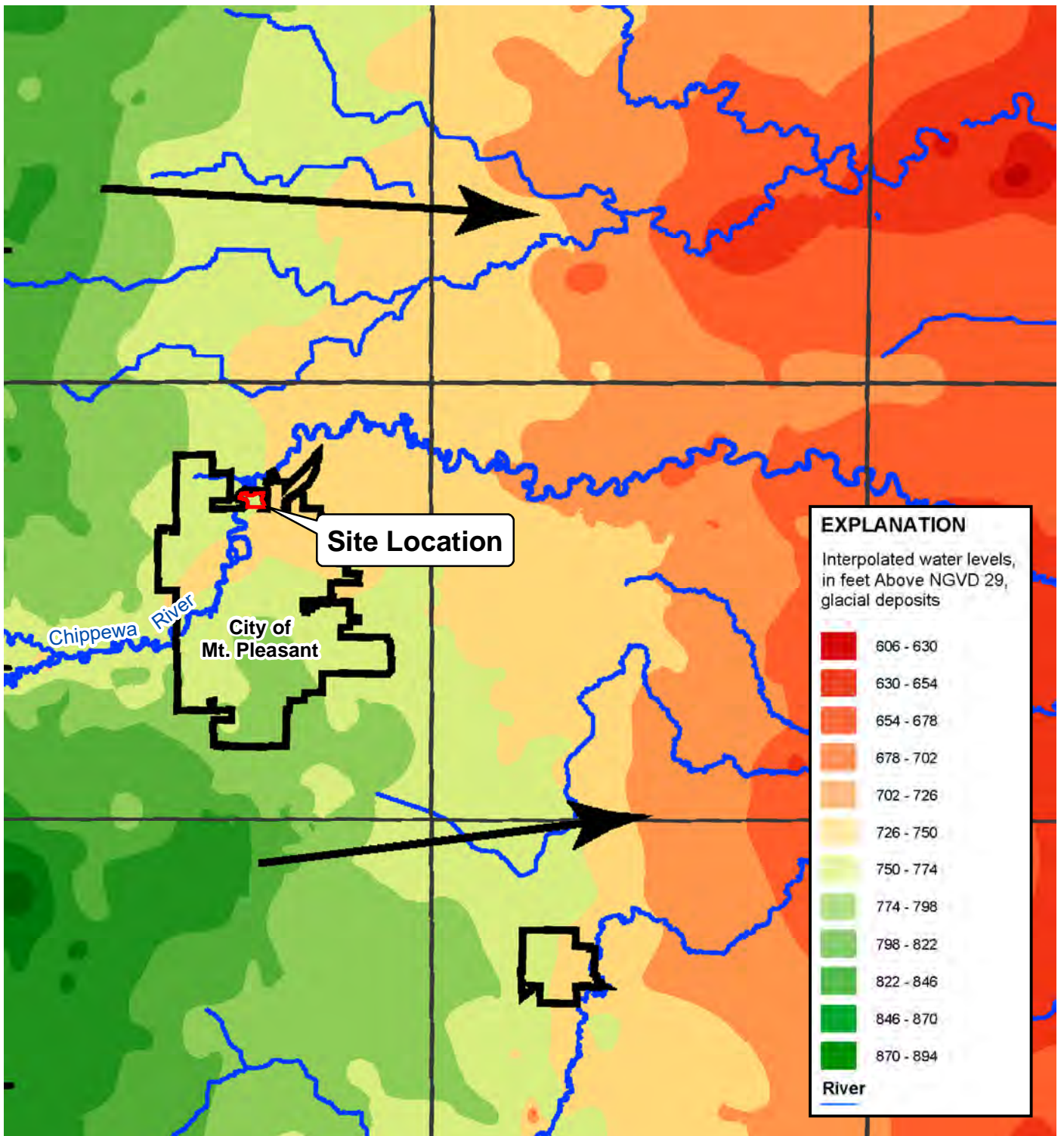


FIGURE 4

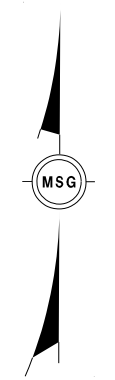
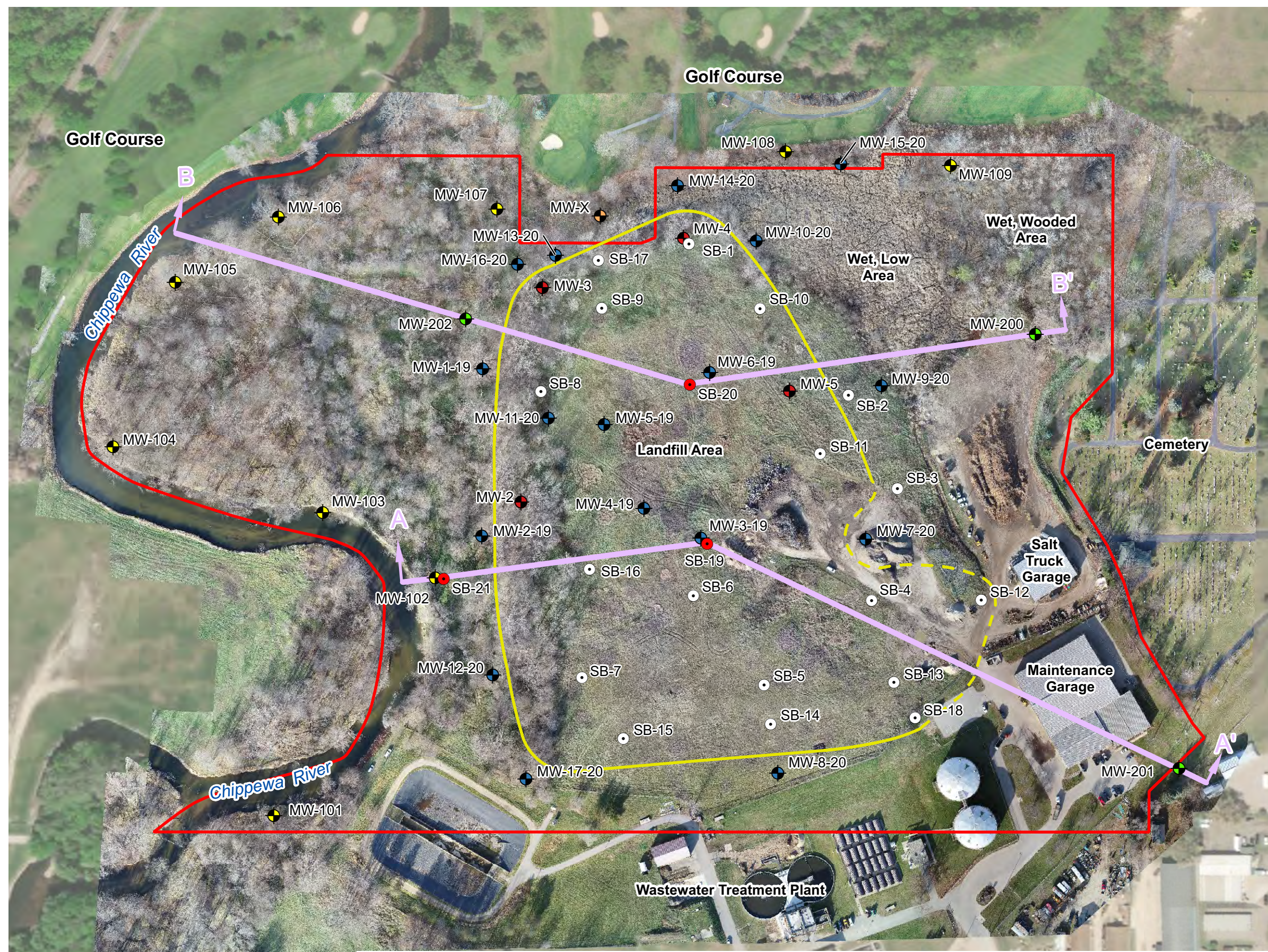
Regional Groundwater Flow Direction

1301-1303 North Franklin Street
 Mount Pleasant, Isabella County, MI

Notes:
 1. Modified from Westjohn and Hoard, 2006.

DATE 11/30/2020	DRAWN BY ZTR	DESIGNED BY ZTR	PROJECT NO. M3460001
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Legend

- Geologic Profile Location and Orientation
- Soil Boring Location - MSG (May 2021)
- Soil Boring Location - MSG (April 2022)
- PVC Monitoring Well - MSG (Nov. 2020)
- PVC Monitoring Well -- MSG (April 2022)
- PVC Monitoring Well - AKT (2019-2020)
- Steel Monitoring Well - Keck (1977)
- Monitoring Well - Undocumented Origin
- Approximate Extent of Buried Refuse
- Site Boundary (Approximate)

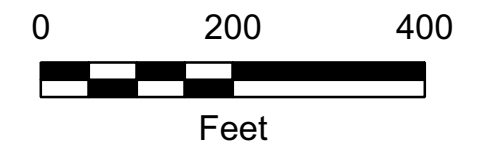
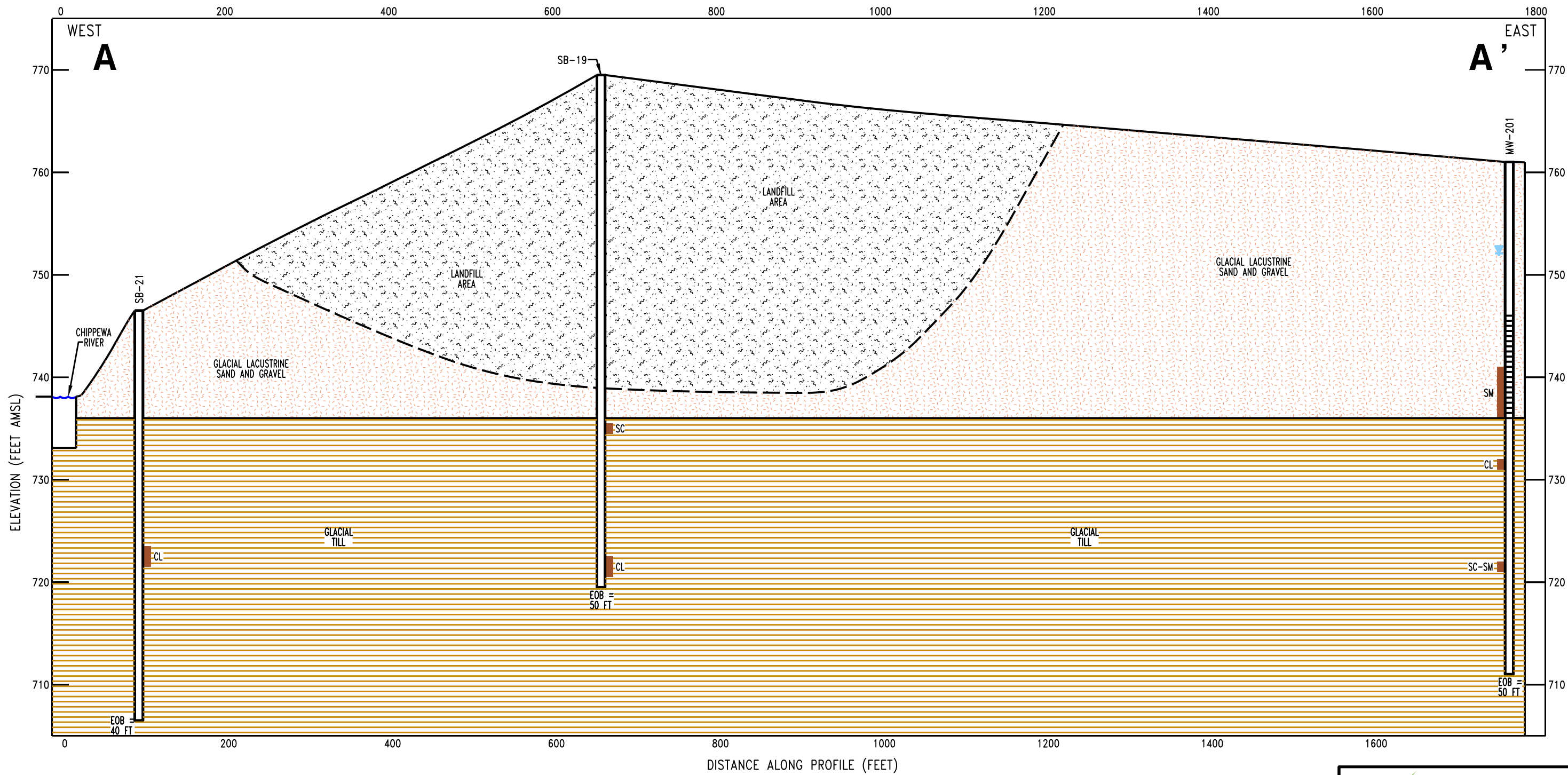


FIGURE 5
 Geologic Profile Location Map

1301-1303 North Franklin Street
 Mount Pleasant, Isabella County, MI


- Notes:**
1. Site boundary adapted from parcel boundaries provided on the Isabella County website and AKTPeerless "Site Map" dated July 26, 2020.
 2. Aerial imagery collected on November 18, 2020.
 3. 2-inch diameter steel monitoring wells are believed to be wells installed by Keck in 1977.
 4. Monitoring well MW-11-20 could not be located in the field.

DATE 8/31/22	DRAWN BY CJB	DESIGNED BY DJA	PROJECT NO. M3460003
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- NOTES:
1. THIS PROFILE IS GENERALIZED. SOIL CONTACTS BETWEEN BORINGS ARE INFERRED. REFER TO THE ORIGINAL SOIL BORING LOGS FOR MORE DETAILED INFORMATION.
 2. SURFACE ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL.
 3. EOB = END OF BORING.
 4. THE LANDFILL AREA HAS A 2-FOOT THICK COMPACTED CLAY CAP (NOT SHOWN).
 5. USCS = UNIFIED SOIL CLASSIFICATION SYSTEM

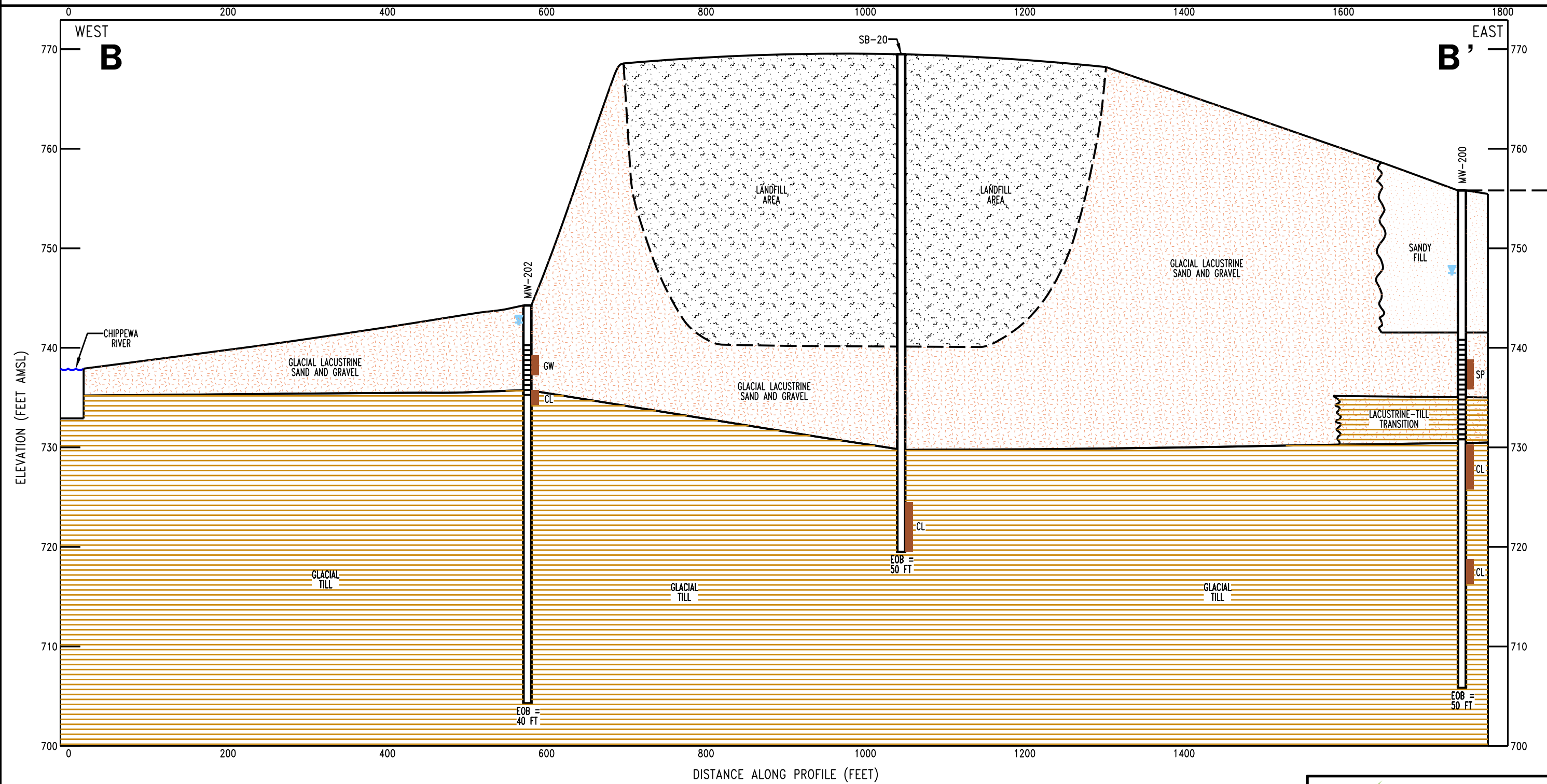


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FIGURE 6
GENERALIZED GEOLOGIC PROFILE A-A'

1301-1303 North Franklin Street
Mount Pleasant, Isabella County, Michigan

DATE 9/8/2022	DRAWN BY CJB	DESIGNED BY DA	PROJECT NO. M3460003
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- NOTES:
1. THIS PROFILE IS GENERALIZED. SOIL CONTACTS BETWEEN BORINGS ARE INFERRED. REFER TO THE ORIGINAL SOIL BORING LOGS FOR MORE DETAILED INFORMATION.
 2. SURFACE ELEVATIONS ARE REFERENCED TO MEAN SEA LEVEL.
 3. EOB = END OF BORING.
 4. THE LANDFILL AREA HAS A 2-FOOT THICK COMPACTED CLAY CAP (NOT SHOWN).
 5. USCS = UNIFIED SOIL CLASSIFICATION SYSTEM

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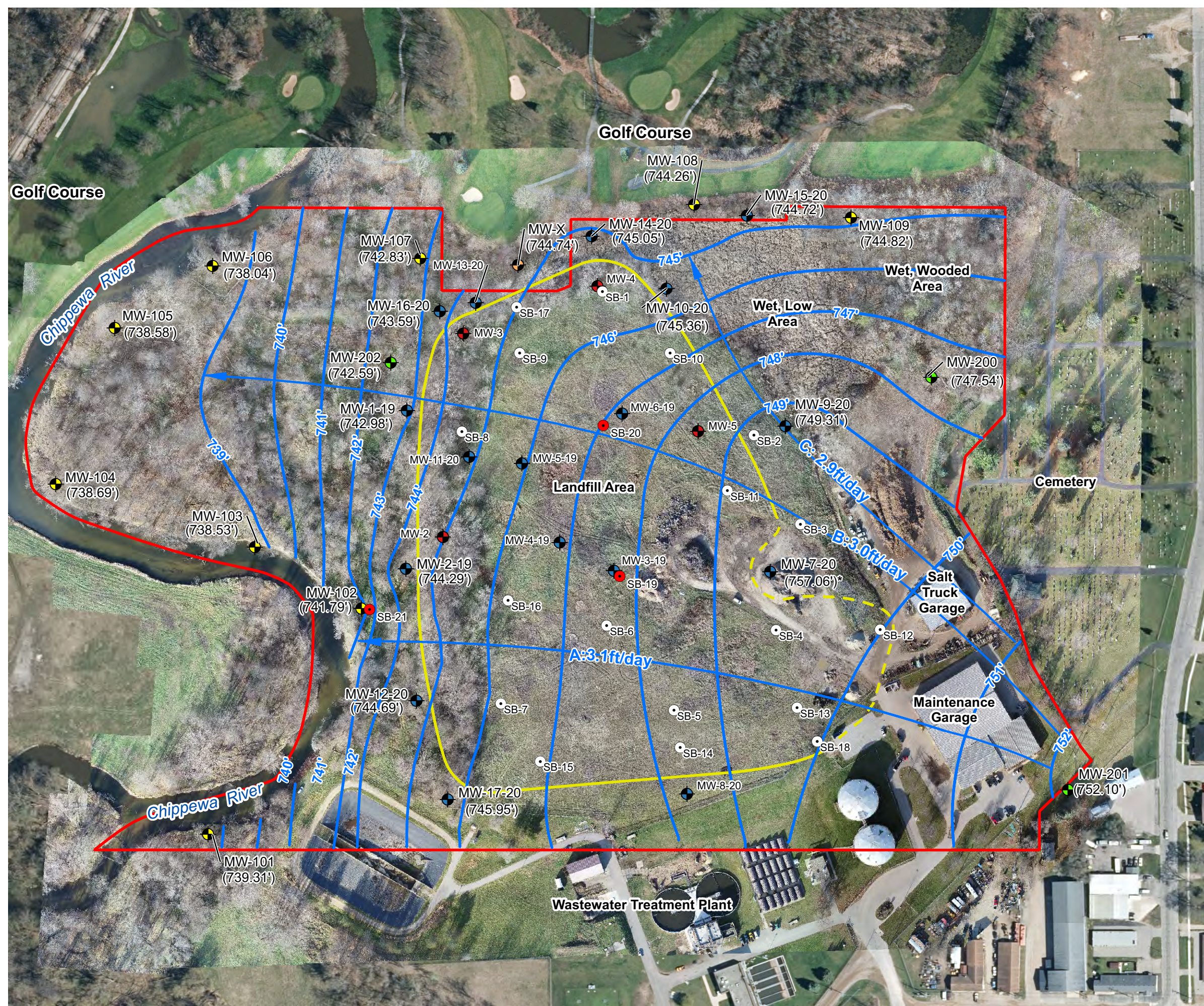
FIGURE 7
 GENERALIZED GEOLOGIC PROFILE B-B'

1301-1303 North Franklin Street
 Mount Pleasant, Isabella County, Michigan

DATE 9/8/2022	DRAWN BY CJB	DESIGNED BY DA	PROJECT NO. M3460003
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Legend

- Soil Boring Location - MSG (May 2021)
- Soil Boring Location - MSG (April 2022)
- ⊕ PVC Monitoring Well - MSG (Nov. 2020)
- ⊕ PVC Monitoring Well -- MSG (April 2022)
- ⊕ PVC Monitoring Well - AKT (2019-2020)
- ⊕ Steel Monitoring Well - Keck (1977)
- ⊕ Monitoring Well - Undocumented Origin
- Groundwater Flow Path and Velocity
- Groundwater Elevation Contour (in feet)
- Approximate Extent of Buried Refuse
- Site Boundary (Approximate)

- Notes:**
1. Site boundary adapted from parcel boundaries provided on the Isabella County website and AKTPeerless "Site Map" dated July 26, 2020.
 2. Site Aerial imagery collected on November 18, 2020 by the Mannik & Smith Group.

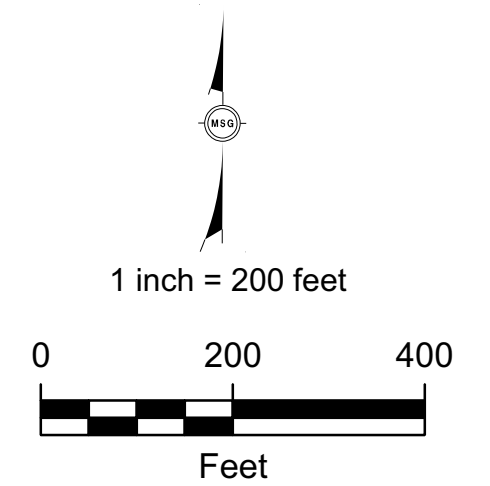
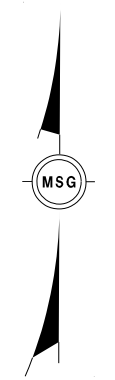
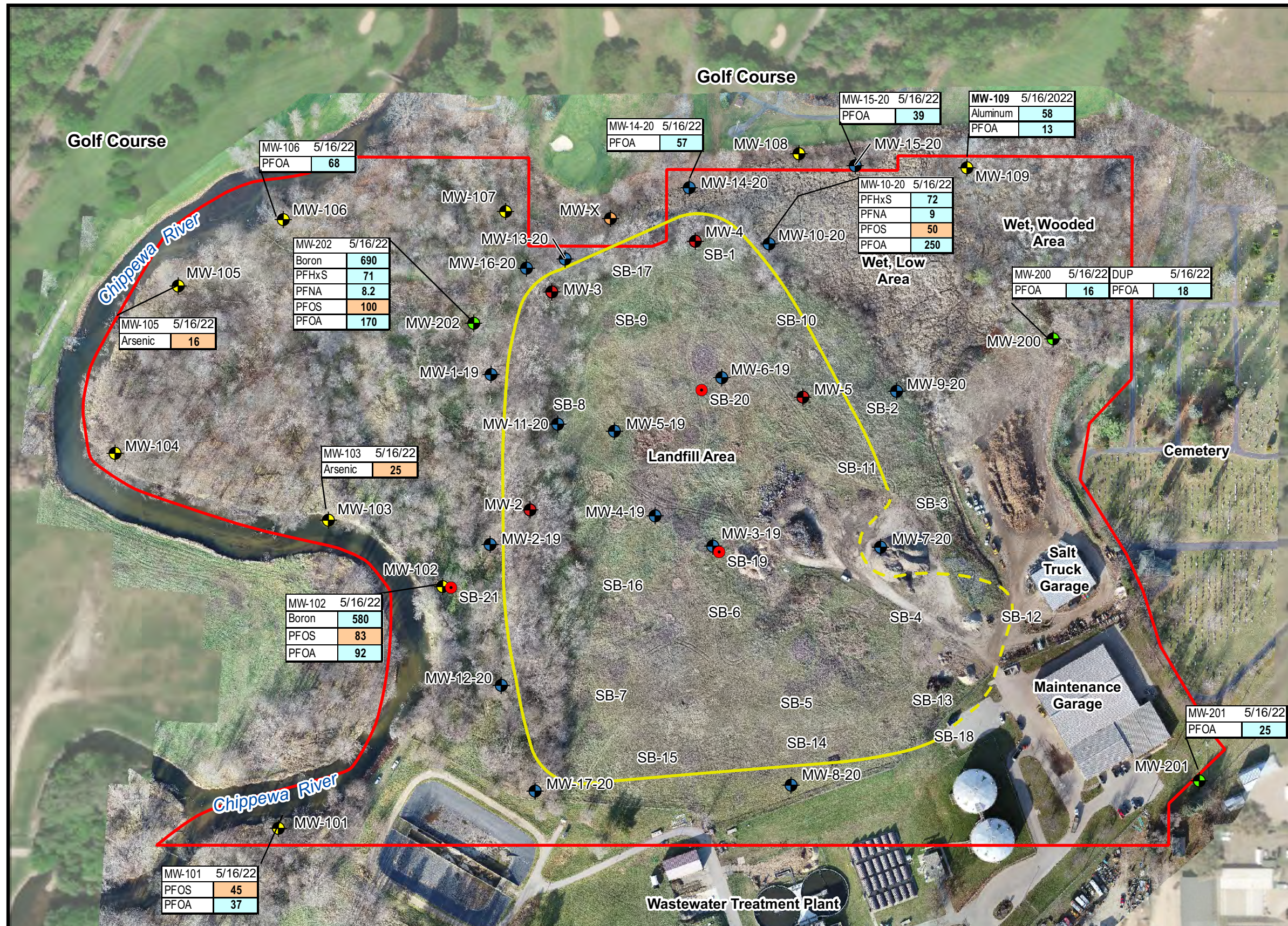


FIGURE 8
 Groundwater Elevation Contour Map - May 16, 2022

1301-1303 North Franklin Street
 Mount Pleasant, Isabella County, MI

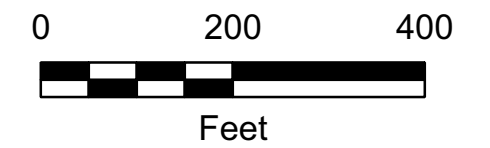
DATE 9/6/2022	DRAWN BY JRO	DESIGNED BY DJA	PROJECT NO. M3460003
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Legend

- Soil Boring Location - MSG (April 2022)
- PVC Monitoring Well - MSG (Nov. 2020)
- PVC Monitoring Well -- MSG (April 2022)
- PVC Monitoring Well - AKT (2019-2020)
- Steel Monitoring Well - Keck (1977)
- Monitoring Well - Undocumented Origin
- Approximate Extent of Buried Refuse
- Site Boundary (Approximate)

Exceeds Generic Drinking Water Criteria (DWC)
 Exceeds Generic DWC and GSIC
 Aluminum, Arsenic and Boron results expressed in µg/L
 PFHxS, PFOS, PFNA, and PFOA results expressed in ng/L



Notes:

1. Site boundary adapted from parcel boundaries provided on the Isabella County website and AKTPeerless "Site Map" dated July 26, 2020.
2. Aerial imagery collected on November 18, 2020.
3. 2-inch diameter steel monitoring wells are believed to be wells installed by Keck in 1977.
4. Monitoring well MW-11-20 could not be located in the field.



FIGURE 9

Groundwater Sample Criteria Exceedances - May 16, 2022

1301-1303 North Franklin Street
 Mount Pleasant, Isabella County, MI

DATE 9/6/2022	DRAWN BY JRO	DESIGNED BY DJA	PROJECT NO. M3460003
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TABLES



Table 1
Monitoring Well Information
Former Mt. Pleasant Landfill
Mt. Pleasant, Michigan

Well ID	Northing (US State Plane 1988)	Eastings (US State Plane 1988)	Top of Casing Elevation (feet above msl)	Ground Surface Elevation (feet above msl)	Screen Length (feet)	Total Depth of Well from Ground Surface (feet)	Date	Depth to Water (from TOC)	Groundwater Elevation (feet)	Comments
MW-101	771233.3	13013986.4	743.07	739.6	4.5	4.5	11/23/2020	5.19	737.88	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	5.40	737.67	
							5/7/2021	5.22	737.85	
							5/16/2022	3.76	739.31	
MW-102	771701.2	13014294.6	748.66	746.3	5	7.0	11/23/2020	8.50	740.16	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	7.95	740.71	
							5/7/2021	8.11	740.55	
							5/16/2022	6.87	741.79	
MW-103	771835.9	13014079.0	740.53	738.6	2	4.5	11/23/2020	2.20	738.33	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	3.32	737.21	
							5/7/2021	3.11	737.42	
							5/16/2022	2.00	738.53	
MW-104	771953.6	13013657.9	744.48	741.2	3	4.5	11/23/2020	7.06	737.42	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	7.36	737.12	
							5/7/2021	7.20	737.28	
							5/16/2022	5.79	738.69	
MW-105	772287.1	13013780.9	743.52	739.4	3	4.0	11/23/2020	6.34	737.18	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	6.57	736.95	
							5/7/2021	6.43	737.09	
							5/16/2022	4.94	738.58	
MW-106	772407.6	13013987.7	744.25	740.5	5	6.0	11/23/2020	7.46	736.79	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	7.73	736.52	
							5/7/2021	7.50	736.75	
							5/16/2022	6.21	738.04	
MW-107	772432.6	13014416.2	747.85	745.9	5	8.0	11/23/2020	7.39	740.46	1-inch diameter PVC well installed by MSG in November 2020
							4/27/2021	5.51	742.34	
							5/16/2022	5.02	742.83	
							11/23/2020	8.34	743.62	
MW-108	772535.6	13014982.4	751.96	750.8	5	8.5	4/27/2021	7.94	744.02	1-inch diameter PVC well installed by MSG in November 2020
							5/7/2021	8.00	743.96	
							5/16/2022	7.70	744.26	
							11/23/2020	4.65	744.39	
MW-109	772508.7	13015306.9	749.04	746.1	3.5	5.0	4/27/2021	4.71	744.33	1-inch diameter PVC well installed by MSG in November 2020
							5/7/2021	4.63	744.41	
							5/16/2022	4.22	744.82	
							5/16/2022	11.50	747.54	
MW-200	772179.7	13015473	759.04	756.0	10	25.0	5/16/2022	11.50	747.54	2-inch diameter PVC well installed by MSG in April 2022
MW-201	771328	13015755	764.12	761.1	10	25.0	5/16/2022	12.02	752.10	2-inch diameter PVC well installed by MSG in April 2022
MW-202	772211.3	13014355	746.85	744.2	5	9.0	5/16/2022	4.26	742.59	2-inch diameter PVC well installed by MSG in April 2022
MW-1-19	772110.0	13014388.0	749.74	745.4	10	7.0	4/27/2021	7.64	742.10	1-inch diameter PVC well installed by AKT in June 2019
							5/16/2022	6.76	742.98	
MW-2-19	771782.6	13014386.0	749.49	745.2	5	7.0	4/27/2021	6.34	743.15	1-inch diameter PVC well installed by AKT in June 2019
							5/16/2022	5.20	744.29	
MW-3-19	771778.7	13014817.0	773.77	771.5	5	12.4	4/27/2021	11.07	762.70	1-inch diameter PVC well installed by AKT in 2019 - no well log - well depth from field measurements
MW-4-19	771837.3	13014705.0	775.91	774.5	5	28.0	4/27/2021	16.60	759.31	1-inch diameter PVC well installed by AKT in June 2019
MW-5-19	772000.9	13014626.0	778.92	775.6	5	28.0	4/27/2021	22.40	756.52	1-inch diameter PVC well installed by AKT in December 2019
MW-6-19	772103.1	13014834.0	773.43	767.9	5	28.0	4/27/2021	14.00	759.43	1-inch diameter PVC well installed by AKT in December 2019
MW-7-20	771776.7	13015740.0	769.72	767.5	5	12.0	4/27/2021	13.51	756.21	1-inch diameter PVC well installed by AKT in February 2020
							5/16/2022	12.66	757.06	
MW-8-20	771318.1	13014967.0	770.60	765.4	5	28.0	4/27/2021	19.14	751.46	1-inch diameter PVC well installed by AKT in February 2020
							4/27/2021	7.47	748.43	
MW-9-20	772077.1	13015171.0	755.90	753.9	5	12.0	5/7/2021	7.88	748.02	1-inch diameter PVC well installed by AKT in February 2020
							5/16/2022	6.59	749.31	
							4/27/2021	5.36	745.29	
							5/7/2021	5.38	745.27	
MW-10-20	772361.2	13014925.0	750.65	746.7	5	12.0	5/16/2022	5.29	745.36	1-inch diameter PVC well installed by AKT in February 2020. This well could not be located.
							4/27/2021	6.50	744.69	
MW-11-20	NF	NF	NF	NF	NF	NF	NF	NF	NF	1-inch diameter PVC well installed by AKT in February 2020. This well could not be located.
							4/27/2021	6.50	744.69	
MW-12-20	771510.2	13014408.0	750.08	746.2	5	7.0	5/16/2022	5.39	744.69	1-inch diameter PVC well installed by AKT in February 2020
							11/23/2020	5.15	744.17	
MW-13-20	772332.5	13014531.0	749.32	745.6	5	7.0	4/27/2021	6.09	743.23	1-inch diameter PVC well installed by AKT in February 2020
							11/23/2020	7.00	744.27	
MW-14-20	772469.6	13014771.0	751.27	746.2	5	7.0	4/27/2021	6.65	744.62	PVC well installed by AKT in April 2020. 2-inch diameter PVC riser pipe visible at the ground surface
							5/7/2021	6.67	744.60	
							5/16/2022	6.22	745.05	
							11/23/2020	5.43	744.30	
MW-15-20	772512.5	13015091.0	749.73	745.5	5	7.0	4/27/2021	5.22	744.51	PVC well installed by AKT in April 2020. 2-inch diameter PVC riser pipe visible at the ground surface
							5/7/2021	5.25	744.48	
							5/16/2022	5.01	744.72	
							11/23/2020	7.22	742.89	
MW-16-20	772314.9	13014456.0	750.11	746.3	5	7.0	4/27/2021	7.07	743.04	1-inch diameter PVC well installed by AKT in April 2020
							5/16/2022	6.52	743.59	
							4/27/2021	8.99	744.25	
							5/16/2022	7.29	745.95	
MW-17-20	771306.4	13014473.0	753.24	752.7	5	7.0	4/27/2021	4.87	744.61	1-inch diameter PVC well of undocumented origin - no well log - well depth from field measurements
							5/16/2022	4.74	744.74	

Notes:
NF = Well could not be located
TOC = Feet from Top of Casing
msl = Mean Sea Level

Table 2
Groundwater Sample Analytical Data - Residential Criteria
 1301-1303 North Franklin Street
 Mount Pleasant, Isabella County, MI

GROUNDWATER: Part 201 Generic Residential Cleanup Criteria December 21, 2020 Units: micrograms/liter (µg/L)	Detected Volatile Organic Compounds (VOCs)		Detected Semi-Volatile Organic Compounds (SVOCs)				Detected Metals (Dissolved)					Detected PFAS Compounds (ng/L)									
	Acetone	Chlorobenzene (l)	Benzaldehyde	Aluminum	Arsenic	Barium	Boron	Copper (B)	Nickel (B)	Pentafluorobutanesulfonic Acid (PFBS)	Pentafluorobutanoic Acid (PFBA)	Pentafluorobenzenesulfonic Acid (PFHxS)	Pentafluorobenzoic Acid (PFHpA)	Pentafluorohexanesulfonic Acid (PFHxS)	Pentafluorohexanoic Acid (PFHxA)	Pentafluorononanoic Acid (PFNA)	Pentafluorooctanesulfonic Acid (PFOS)	Pentafluorooctanoic Acid (PFON)	Pentafluoropentanesulfonic Acid (PFPS)	Pentafluoropentanoic Acid (PFPPa)	
CAS Number	67-64-1	108907	100-52-7	7429-90-5	7440-38-2	7440-39-3	7440-42-8	7440-50-8	7440020	375-73-5	375-22-4	375-92-8	375-85-9	355-46-4	307-24-4	375-95-1	1763-23-1	335-67-1	2706-91-4	2706-90-3	
Drinking Water Criteria	730	100 (A)	NA	50(V)	10 (A)	2,000 (A)	500(E)	1,000 (E)	100 (A)	420	NA	NA	NA	51	400,000	6(A)	16(A)	8(A)	NA	NA	
Groundwater Surface Water Interface Criteria (GSI)	1,700	25	NA	NA	10	670 (G)	7,200(X)	13 (G)	73	NA	NA	NA	NA	NA	NA	NA	12(X)	12,000(X)	NA	NA	
Groundwater Volatilization to Indoor Air Inhalation Criteria	1.0E+09 (D.S)	2.10E+05	NA	NLV	NLV	NLV	NLV	NLV	NA	NA	NA	NA	NA	NA	NA	NA	NLV	ID	NA	NA	
Water Solubility	1.0E+09	4.7E+05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3100	9.50E+09	NA	NA	
Flammability & Explosivity Screening Level	1.5E+07	1.6E+05	NA	ID	ID	ID	ID	ID	ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
SAMPLE ID	SAMPLE DATE																				
MW-101	11/23/2020	<10	<1.0	<1.0	<10	<5.0	75	240	<5.0	ND	<4.8	6.2	<4.8	7.2	45	5.2	<4.8	28	28	6.1	<4.8
MW-101	5/7/2021	<10	<1.0	<1.0	<10	<5.0	92	280	<5.0	ND	<4.8	<4.8	<4.8	24	<4.8	<4.8	<4.8	26	11	<4.8	<4.8
MW-101	5/16/2022	<10	<1.0	<1.0	15	<5.0	97	300	<5.0	ND	6.5	15	<4.8	8.6	51	8.2	<4.8	45	37	<4.8	5.8
MW-102	11/23/2020	<10	<1.0	<1.0	<10	<5.0	170	650	<5.0	ND	14	27	6.5	48	60	46	<5.1	56	120	31	25
MW-102	5/7/2021	25	<1.0	<1.0	11	<5.0	140	730	<5.0	ND	26	20	<4.9	22	35	29	<4.9	53	60	23	12
MW-102	5/16/2022	<20	<1.0	<1.0	<10	5.4	180	580	<5.0	ND	27	31	6.0	32	50	38	<4.8	83	92	31	15
MW-103	11/23/2020	<10	<1.0	<1.0	12	30	38	150	<5.0	ND	6.2	30	<4.5	6.4	<4.5	13	<4.5	<1.8	3.4	<4.5	4.9
MW-103	5/7/2021	<10	<1.0	<1.0	38	33	41	160	<5.0	ND	7.1	36	<4.7	6.6	<4.7	16	<4.7	<1.9	3.8	<4.7	5.0
MW-103	5/16/2022	<10	<1.0	<3.8	<10	25	57	160	<5.0	ND	7.3	40	<4.9	6.9	<4.9	19	<4.9	<1.9	4.8	<4.9	7.2
MW-104	11/23/2020	<10	<1.0	<1.0	<10	<5.0	70	22	<5.0	ND	<4.6	16	<4.6	<4.6	<4.6	<4.6	<4.6	2.5	3.4	<4.6	<4.6
DUP-1 (MW-104)	11/23/2020	<10	<1.0	<1.0	<10	<5.0	53	23	<5.0	ND	<4.6	12	<4.6	<4.6	<4.6	<4.6	<4.6	<1.9	2.3	<4.6	<4.6
MW-104	5/7/2021	<10	<1.0	<1.0	<10	<5.0	76	25	<5.0	ND	<5.1	5.4	<5.1	<5.1	<5.1	<5.1	<5.1	<2.0	<2.0	<5.1	<5.1
MW-104	5/16/2022	<10	<1.0	<4.1	29	<5.0	86	25	<5.0	ND	<4.9	13	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9
MW-105	11/23/2020	11	<1.0	2.2	25	44	190	22	<5.0	ND	7.2	69	<5.0	5.6	<5.0	9.9	<5.0	<2.0	6.5	<5.0	17
MW-105	5/7/2021	<10	<1.0	<1.0	<10	47	160	<20	<5.0	ND	<5.5	27	<5.5	<5.5	<5.5	<5.5	<5.5	<2.2	2.8	<5.5	<5.5
MW-105	5/16/2022	<10	<1.0	<3.9	<10	16	140	28	<5.0	ND	11	65	<4.8	<4.8	<4.8	5.3	<4.8	<4.8	5.8	<4.8	11
MW-106	11/23/2020	<10	<1.0	<1.0	<10	<5.0	54	280	<5.0	ND	11	67	<4.8	13	13	14	<4.8	6.5	26	12	4.8
MW-106	5/7/2021	<10	<1.0	<1.0	38	<5.0	85	380	<5.0	ND	17	96	<4.6	18	26	14	<4.6	14	67	13	5.0
MW-106	5/16/2022	<10	<1.0	<3.7	11	<5.0	74	420	<5.0	ND	35	270	<5.0	25	29	28	<5.0	12	68	18	11.0
MW-107	11/23/2020	<10	<1.0	<1.0	<10	<5.0	79	220	<5.0	ND	11	11	<4.6	10	26	7.1	<4.6	13	31	16	<4.6
MW-108	11/23/2020	<10	<1.0	<1.0	13	<5.0	230	190	<5.0	ND	8.4	11	<4.7	7.4	25	8.4	<4.7	5.5	14	7.0	5.8
MW-108	5/7/2021	<10	<1.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-109	11/23/2020	<10	<1.0	<1.0	<10	<5.0	240	93	<5.0	ND	6.4	11	<4.5	<4.5	11	<4.5	<4.5	3.8	15	<4.5	<4.5
MW-109	5/7/2021	<10	<1.0	<1.0	19	<5.0	150	100	<5.0	ND	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	2.5	6	<5.1	<5.1
MW-109	5/16/2022	<10	<1.0	<3.6	58	<5.0	190	130	<5.0	5.8	30	<4.9	<4.9	6.4	<4.9	<4.9	<4.9	5.8	13	<4.9	<4.9
MW-200	5/16/2022	<10	<1.0	<1.0	32	9.6	300	110	<5.0	ND	6.1	9	<4.6	5	15	<4.6	<4.6	3.2	16	<4.6	<4.6
DUP (MW-200)	5/16/2022	<10	<1.0	<3.8	34	10	290	110	<5.0	5.8	8.1	<4.7	<4.7	15	5.4	<4.7	<4.7	18	5.7	<4.7	<4.7
MW-201	5/16/2022	<10	<1.0	<1.0	<10	<5.0	120	88	<5.0	ND	17	10	<4.9	7.4	19	5.4	<4.9	<4.9	25	5.8	<4.9
MW-202	5/16/2022	<10	6.1	<3.7	15	<5.0	380	690	<5.0	5.6	22	470	7.5	45	71	38	8.2	100	170	19	12
MW-9-20	5/7/2021	<10	<1.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-10-20	5/7/2021	<10	<1.0	<1.0	120	<5.0	340	580	<5.0	ND	15	25	<4.9	28	51	25	5.2	46	100	14	14
DUP-1 (MW-10-20)	5/7/2021	<10	<1.0	<1.0	240	<5.0	340	570	<5.0	ND	14	26	<4.6	29	59	25	5.2	45	99	15	13
MW-10-20	5/16/2022	<10	<1.0	<3.9	46	<5.0	270	460	<5.0	<5.0	13	44	7	51	72	37	9	50	250	20	22
MW-13-20	11/23/2020	NS	NS	<1.0	<10	<5.0	140	280	<5.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-14-20	11/23/2020	NS	NS	<1.0	12	<5.0	120	230	<5.0	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-14-20	5/7/2021	<10	<1.0	<1.0	160	<5.0	97	110	<5.0	ND	8.2	16	<5.2	9.5	26	13	<5.2	12	27	6.2	7.2
MW-14-20	5/16/2022	<10	<1.0	<4.2	29	<5.0	140	110	<5.0	7.2	30	<5.2	16	28	13	<5.2	11	57	6.5	10	
MW-15-20	11/23/2020	NS	NS	<1.0	<10	<5.0	250	160	5.2	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS
MW-15-20	5/7/2021	<10	<1.0	<1.0	210	<5.0	250	130	<5.0	ND	7.6	11	<4.9	6.7	18	8.9	<4.9	6.5	10	<4.9	5.8
MW-15-20	5/16/2022	<10	<1.0	<3.8	19	<5.0	180	94	<5.0	<5.0	9.3	40	<4.7	12	32	13	<4.9	7.1	39	5.5	17
MW-16-20	11/23/2020	NS	NS	<1.0	49	<5.0	540	800	<5.0	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS

Notes:
Bold indicates concentration reported at or above laboratory reporting limit.
Exceeds Generic Drinking Water Criteria (DW)
Exceeds Generic Groundwater Surface Water Interface Criteria (GSI)
Exceeds DW and GSI
 ND = Not Detected at or above laboratory reporting limit
 NS = Not Sampled or Not Analyzed
 NA = No Criteria Established
 ng/L= Nanograms per liter
 ID= Insufficient data to develop criterion
 NLV= Not likely to volatilize under most conditions
 PCBs were not detected in the Nov. 2020, May 2021, or May 2022 groundwater samples analyzed for PCBs.
 The GSI values for Barium, Copper, and Nickel were calculated using the EGLE spreadsheet for calculating GSI cleanup criteria. The values presented are for surface water bodies protected as a drinking water source. A water hardness value of 150 milligrams per liter as CaCo3 was used for the calculations.
 Notes in parentheses and standard abbreviations from EGLE Part 201 Resource Materials Table 1. Groundwater: Residential and Non Residential Part 201 Generic Cleanup Criteria and Screening Levels (December 21, 2020) and R299.49. Footnotes for Generic Cleanup Criteria Tables (December 21, 2020)

Table 3
Groundwater Sample Analytical Data- Nonresidential Criteria
 1301-1303 North Franklin Street
 Mount Pleasant, Isabella County, MI

GROUNDWATER: Part 201 Generic Nonresidential Cleanup Criteria December 21, 2020 Units: micrograms/liter (µg/L)	Detected Volatile Organic Compounds (VOCs)		Detected Semi-Volatile Organic Compounds (SVOCs)		Detected Metals (Dissolved)						Detected PFAS Compounds (ng/L)												
	Acetone	Chlorobenzene (l)	Benzaldehyde		Aluminum	Arsenic	Barium	Boron	Copper (B)	Nickel (B)	Perfluorobutanesulfonic Acid (PFBS)	Perfluorobutanoic Acid (PFBA)	Perfluorohexanesulfonic Acid (PFHxS)	Perfluorohexanoic Acid (PFHxA)	Perfluorooctanesulfonic Acid (PFOS)	Perfluorooctanoic Acid (PFOA)	Perfluorodecane sulfonic Acid (PFDS)	Perfluorodecanoic Acid (PFDA)	Perfluorododecane sulfonic Acid (PFDDoS)	Perfluorododecanoic Acid (PFDDoA)	Perfluorotetrasulfonic Acid (PFTeS)	Perfluorotetrasulfonic Acid (PFTeA)	
CAS Number	67-64-1	108907	100-52-7		7429-90-5	7440-38-2	7440-39-3	7440-42-8	7440-50-8	7440020	375-73-5	375-22-4	375-92-8	375-85-9	355-46-4	307-24-4	375-95-1	1763-23-1	335-67-1	2706-91-4	2706-90-3		
Drinking Water Criteria	2100	100 (A)	NA		50(V)	10 (A)	2,000 (A)	500(F)	1,000 (E)	100 (A)	420	NA	NA	NA	51	400,000	6(A)	16(A)	8(A)	NA	NA		
Groundwater Surface Water Interface Criteria (GSI)	1,700	25	NA		NA	10	670 (G)	7,200(X)	13 (G)	73	NA	NA	NA	NA	NA	NA	NA	12(X)	12,000(X)	NA	NA		
Groundwater Volatilization to Indoor Air Inhalation Criteria	1.0E+09 (D,S)	4.7E+5 (S)	NA		NLV	NLV	NLV	NLV	NLV	NLV	NA	NA	NA	NA	NA	NA	NA	NA	NLV	ID	NA	NA	
Water Solubility	1.0E+09	4.7E+05	NA		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	3100	9,50E+09	NA	NA
Flammability & Explosivity Screening Level	1.5E+07	1.6E+05	NA		ID	ID	ID	ID	ID	ID	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
SAMPLE ID	SAMPLE DATE																						
MW-101	11/23/2020	<10	<1.0	<1.0	<10	<5.0	75	240	<5.0	ND	<4.8	6.2	<4.8	7.2	45	5.2	<4.8	28	28	6.1	<4.8		
MW-101	5/7/2021	<10	<1.0	<1.0	<10	<5.0	92	280	<5.0	ND	<4.8	<4.8	<4.8	<4.8	24	<4.8	<4.8	26	11	<4.8	<4.8		
MW-101	5/16/2022	<10	<1.0	<4.0	15	<5.0	97	300	<5.0	ND	6.5	15	<4.8	8.6	51	8.2	<4.8	45	37	<4.8	5.8		
MW-102	11/23/2020	<10	<1.0	<1.0	<10	<5.0	170	650	<5.0	ND	14	27	6.5	48	60	46	<5.1	56	120	31	25		
MW-102	5/7/2021	25	<1.0	<1.0	11	<5.0	140	730	<5.0	ND	26	20	<4.9	22	35	29	<4.9	53	60	23	12		
MW-102	5/16/2022	<20	<1.0	<4.0	<10	5.4	180	580	<5.0	ND	27	31	6.0	32	50	38	<4.8	83	92	31	15		
MW-103	11/23/2020	<10	<1.0	<1.0	12	30	38	150	<5.0	ND	6.2	30	<4.5	6.4	<4.5	13	<4.5	<1.8	3.4	<4.5	4.9		
MW-103	5/7/2021	<10	<1.0	<1.0	38	33	41	160	<5.0	ND	7.1	36	<4.7	6.6	<4.7	16	<4.7	<1.9	3.8	<4.7	5.0		
MW-103	5/16/2022	<10	<1.0	<3.8	<10	25	57	160	<5.0	ND	7.3	40	<4.9	6.9	<4.9	19	<4.9	<1.9	4.8	<4.9	7.2		
MW-104	11/23/2020	<10	<1.0	<1.0	<10	<5.0	70	22	<5.0	ND	<4.6	16	<4.6	<4.6	<4.6	<4.6	<4.6	<1.9	2.3	<4.6	<4.6		
DUP-1 (MW-104)	11/23/2020	<10	<1.0	<1.0	<10	<5.0	53	23	<5.0	ND	<4.6	12	<4.6	<4.6	<4.6	<4.6	<4.6	<1.9	2.3	<4.6	<4.6		
MW-104	5/7/2021	<10	<1.0	<1.0	<10	<5.0	76	25	<5.0	ND	<5.1	5.4	<5.1	<5.1	<5.1	<5.1	<2.0	<2.0	<5.1	<5.1			
MW-104	5/16/2022	<10	<1.0	<4.1	29	<5.0	86	25	<5.0	ND	<4.9	13.0	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9	<4.9		
MW-105	11/23/2020	11	<1.0	2.2	25	44	190	22	<5.0	ND	7.2	69	<5.0	5.6	<5.0	9.9	<5.0	<2.0	6.5	<5.0	17		
MW-105	5/7/2021	<10	<1.0	<1.0	<10	47	160	<20	<5.0	ND	<5.5	27	<5.5	<5.5	<5.5	<5.5	<2.2	2.8	<5.5	<5.5			
MW-105	5/16/2022	<10	<1.0	<3.9	<10	16	140	28	<5.0	ND	11	65	<4.8	<4.8	<4.8	5.3	<4.8	<4.8	5.8	<4.8	11		
MW-106	11/23/2020	<10	<1.0	<1.0	<10	<5.0	54	280	<5.0	ND	11	67	<4.8	13	13	14	<4.8	6.5	26	12	4.8		
MW-106	5/7/2021	<10	<1.0	<1.0	38	<5.0	85	380	<5.0	ND	17	96	<4.6	18	26	14	<4.6	14	67	13	5.0		
MW-106	5/16/2022	<10	<1.0	<3.7	11	<5.0	74	420	<5.0	ND	35	270	<5.0	25	29	28	<5.0	12	68	18	11.0		
MW-107	11/23/2020	<10	<1.0	<1.0	<10	<5.0	79	220	<5.0	ND	11	11	<4.6	10	26	7.1	<4.6	13	31	16	<4.6		
MW-108	11/23/2020	<10	<1.0	<1.0	13	<5.0	230	190	<5.0	ND	8.4	11	<4.7	7.4	25	8.4	<4.7	5.5	14	7.0	5.8		
MW-108	5/7/2021	<10	<1.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
MW-109	11/23/2020	<10	<1.0	<1.0	<10	<5.0	240	93	<5.0	ND	6.4	11	<4.5	<4.5	11	<4.5	<4.5	3.8	15	<4.5	<4.5		
MW-109	5/7/2021	<10	<1.0	<1.0	19	<5.0	150	100	<5.0	ND	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	<5.1	2.5	6	<5.1	<5.1		
MW-109	5/16/2022	<10	<1.0	<3.6	58	<5.0	190	130	<5.0	ND	5.8	30	<4.9	<4.9	6.4	<4.9	<4.9	5.8	13	<4.9	<4.9		
MW-200	5/16/2022	<10	<1.0	<3.9	32	9.6	300	110	<5.0	ND	6.1	9	<4.6	5	15	<4.6	<4.6	3.2	16	<4.6	<4.6		
DUP (MW-200)	5/16/2022	<10	<1.0	<3.8	34	9.8	290	110	<5.0	ND	5.8	8.1	<4.7	<4.7	15	5.4	<4.7	<4.7	18	5.7	<4.7		
MW-201	5/16/2022	<10	<1.0	<3.8	<10	<5.0	120	88	<5.0	ND	17	10	<4.9	7.4	19	5.4	<4.9	<4.9	25	5.8	<4.9		
MW-202	5/16/2022	<10	6.1	<3.7	15	<5.0	380	690	<5.0	5.6	22	470	7.5	45	71	38	8.2	100	170	19	12		
MW-9-20	5/7/2021	<10	<1.0	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
MW-10-20	5/7/2021	<10	<1.0	<1.0	120	<5.0	340	580	<5.0	ND	15	25	<4.9	28	51	25	5.2	46	100	14	14		
DUP-1 (MW-10-20)	5/7/2021	<10	<1.0	<1.0	240	<5.0	340	570	<5.0	ND	14	26	<4.6	29	59	25	5.2	45	99	15	13		
MW-10-20	5/16/2022	<10	<1.0	<3.9	46	<5.0	270	460	<5.0	ND	13	44	7	51	72	37	9	50	250	20	22		
MW-13-20	11/23/2020	NS	NS	<1.0	<10	<5.0	140	280	<5.0	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
MW-14-20	11/23/2020	NS	NS	<1.0	12	<5.0	120	230	<5.0	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
MW-14-20	5/7/2021	<10	<1.0	<1.0	160	<5.0	97	110	<5.0	ND	8.2	16	<5.2	9.5	26	13	<5.2	12	27	6.2	7.2		
MW-14-20	5/16/2022	<10	<1.0	<4.2	29	<5.0	140	110	<5.0	ND	7.2	30	<5.2	16	28	13	<5.2	11	57	6.5	10		
MW-15-20	11/23/2020	NS	NS	<1.0	<10	<5.0	250	160	5.2	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		
MW-15-20	5/7/2021	<10	<1.0	<1.0	210	<5.0	250	130	<5.0	ND	7.6	11	<4.9	6.7	18	8.9	<4.9	6.5	10	<4.9	5.8		
MW-15-20	5/16/2022	<10	<1.0	<3.8	19	<5.0	180	94	<5.0	ND	9.3	40	<4.7	12	32	13	<7.0	7.1	39	5.5	17		
MW-16-20	11/23/2020	NS	NS	<1.0	49	<5.0	540	800	<5.0	ND	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS	NS		

Notes:

Bold indicates concentration reported at or above laboratory reporting limit.

Exceeds Generic Drinking Water Criteria (DW)

Exceeds Generic Groundwater Surface Water Interface Criteria (GSI)

Exceeds Applicable Groundwater Vapor Intrusion screening levels

Exceeds GSI Final Acute Value (FAV), also exceeds others

NS = Not Sampled or Not Analyzed

NA = No Criteria Established

ng/L= Nanograms per liter

ID= Insufficient data to develop criterion

NLV= Not likely to volatilize under most conditions

PCBs were not detected in the Nov. 2020, May 2021, or May 2022 groundwater samples analyzed for PCBs.

The GSI values for Barium, Copper and Nickel were calculated using the EGLE spreadsheet for calculating GSI cleanup criteria. The values presented are for surface water bodies protected as a drinking water source. A water hardness value of 150 milligrams per liter as CaCO3 was used for the calculations.

Notes in parentheses and standard abbreviations from EGLE Part 201 Resource Materials Table 1. Groundwater: Residential and Non Residential Part 201 Generic Cleanup Criteria and Screening Levels (December 21, 2020) and R299.49 Footnotes for Generic Cleanup Criteria Tables (December 21, 2020)

Dissolved Nickel was detected in the groundwater sample collected from MW-202 on May 16th 2022

Table 4
Groundwater Flow Velocity Calculations - May 16, 2022
Former Mt. Pleasant Landfill - Mt. Pleasant, Michigan

Date	Flow Path	Dh (ft)	DI (ft)	Hydraulic Gradient Dh/ DI	Average Conductivity, K (ft/day)	Estimated Effective Porosity, n	Calculated Groundwater Flow Velocity (ft/day)
May 16, 2022	A	10.0	1460	0.0068	137.2	0.3	3.1
May 16, 2022	B	13.0	1980	0.0066	137.2	0.3	3.0
May 16, 2022	C	7.0	1120	0.0063	137.2	0.3	2.9

Notes:

1. Hydraulic Conductivity (K) based on site-specific grain size distribution test data
2. Dh = Change in groundwater elevation (measured along the groundwater flow paths identified on Figure 8).
3. DI = Lateral distance along flow path (measured along the flow groundwater paths identified on Figure 8).
4. Velocity = (Dh/DI) K / n
5. Static groundwater levels measured by MSG personnel on May 16, 2022

**APPENDIX A
PHOTO LOG**

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Boart Longyear LS 250 Minisonic Drill Rig (4/11/2022).



Rotosonic drilling potable water supply at Mt. Pleasant vehicle maintenance garage (4/11/2022).



Rotosonic drilling at MW-201 (4/11/2022).



Contact of gravelly lacustrine sand (right) and fine grained lacustrine sand (left) at 8 feet bgs at MW-201 (4/11/2022).



Contact of gravelly lacustrine sand (left) and fine grained lacustrine sand (right) at 8 feet bgs at MW-201 (4/11/2022).



Drilling and retrieving soil core at MW-201 (4/11/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Till clay from 25-30 feet bgs at MW-201 (4/11/2022).



Till clay from 25-30 feet bgs at MW-201 (4/11/2022).



Till clay from 25-30 feet bgs at MW-201 (4/11/2022).



Soil cores from 0-30 feet bgs at MW-201 (4/11/2022). Zero feet bgs is at top right. 30 feet bgs is at bottom left.



Hardpan-like till clay at 35 feet bgs at MW-201 (4/11/2022).



Hardpan-like till clay at 40 feet bgs at MW-201 (4/11/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Hardpan-like till clay at 40 feet bgs at MW-201 (4/11/2022).



Hardpan-like till clay at 40 feet bgs at MW-201 (4/11/2022).



25-30 feet bgs (top) and 35-40 feet bgs (bottom) till clay soil cores from MW-201 (4/11/2022).



Till clay from 42-50 feet bgs at MW-201 (4/11/2022).



30-35 feet bgs (top) and 40-45 feet bgs (bottom) till clay soil cores from MW-201 (4/11/2022).



MW-200 location prior to drilling (4/12/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Lacustrine sand from 15.5-20 feet bgs at MW-200
(4/12/2022).



Rotosonic drilling and soil core retrieval at MW-200
(4/12/2022).



Till clay from 25.5-30 feet bgs at MW-200 (4/12/2022).



Soil core retrieval at MW-200 (4/12/2022).



Hardpan-like till clay from 33-35 feet bgs at MW-200
(4/12/2022).



Hardpan-like till clay from 35-39.5 feet bgs at MW-200
(4/12/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Hardpan-like till clay from 35-39.5 feet bgs at MW-200 (4/12/2022).



Hardpan-like till clay from 35-39.5 feet bgs at MW-200 (4/12/2022).



Till clay from 40-45 feet bgs at MW-200 (4/12/2022).



Hardpan-like till clay from 47-50 feet bgs at MW-200 (4/12/2022).



SB-20 boring location prior to drilling (4/12/2022).



Clay cap (right) and top of refuse (left) at 1.5-3 feet bgs at SB-20 (4/12/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Refuse from 5-10 feet bgs at SB-20 (4/12/2022).



Base of refuse and top of lacustrine sand at 29-30 feet bgs at SB-20 (4/12/2022).



Lacustrine sand at 38 feet bgs at SB-20(4/12/2022).



Very hard till clay from 40-44.5 feet bgs at SB-20 (4/12/2022).



Hardpan-like till clay from 45-50 feet bgs at SB-20 (4/12/2022).



Hardpan-like till clay from 45-50 feet bgs at SB-20 (4/12/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Setting up the rotasonic drill rig at the SB-19 boring location (4/12/2022).



Clay cap (right) and top of refuse (left) from 1.5-2.5 feet bgs at SB-19 (4/12/2022).



Refuse and wood from 5-10 feet bgs at SB-19 (4/12/2022).



Fill sand and underlying refuse from 17-20 feet bgs at SB-19 (4/12/2022).



Refuse from 10-15 feet bgs at SB-19 (4/12/2022).



Lacustrine gravelly sand from 30-32 feet bgs at SB-19 (4/12/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Lacustrine gravelly sand/very hard till clay contact at 33.5 feet bgs at SB-19 (4/12/2022).



Very hard till clay from 35-40 feet bgs at SB-19 (4/12/2022).



Very hard till clayey sand-sandy clay from 35-40 feet bgs at SB-19 (4/12/2022).



Very hard till clay from 40-50 feet bgs at SB-19 (4/12/2022).



Very hard till clay from 40-50 feet bgs at SB-19 (4/12/2022).



Very hard till clay from 40-50 feet bgs at SB-19 (4/12/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Very hard till clay from 40-50 feet bgs at SB-19 (4/12/2022).



Tracking through woods to MW-202 location (4/12/2022).



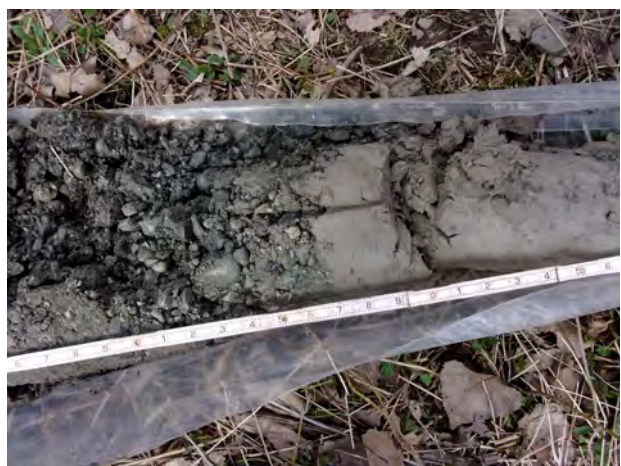
Tracking through woods to MW-202 location (4/12/2022).



Drilling at MW-202 location (4/12/2022).



Lacustrine sandy gravel from 5-7.7 feet bgs at MW-202 (4/12/2022).



Contact of lacustrine sandy gravel (left) and clayey silt (right) at 7.7 feet bgs at MW-202 (4/12/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Very hard till clay from 8.5-10 feet bgs at MW-202 (4/12/2022).



Very hard till clay from 10-15 feet bgs at MW-202 (4/12/2022).



Very hard till clay at 10 feet bgs at MW-202 (4/12/2022).



MW-202 soil cores from 0-30 feet bgs (4/12/2022). Zero feet bgs at top left. 30 feet bgs at lower right.



Very hard till clay from 35-40 feet bgs at MW-202 (4/12/2022).



MW-202 soil cores from 20-40 feet bgs (4/12/2022). 20 feet bgs at top left. 40 feet bgs at lower right.

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Wooded area around MW-202 (4/13/2022).



Wooded area around MW-202 (4/13/2022).



Wooded area around MW-202 (4/13/2022).



Tracking to SB-21 boring location (4/13/2022)



Drilling at SB-21 (4/13/2022).



Lacustrine sandy gravel at 10 feet bgs at SB-21 (4/13/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Retrieving soil core at boring SB-21 (4/13/2022).



Very hard till clay from 15-20 feet bgs at SB-21 (4/13/2022).



Very hard till clay from 15-20 feet bgs at SB-21 (4/13/2022).



Very hard till clay from 15-20 feet bgs at SB-21 (4/13/2022).



Very hard till clay from 20-25 feet bgs at SB-21 (4/13/2022).



Hardpan-like till clay from 25-30 feet bgs at SB-21 (4/13/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Very hard till clay from 20-25 feet bgs at SB-21 (4/13/2022).



Hardpan-like till clay from 25-30 feet bgs at SB-21 (4/13/2022).



Hardpan-like till clay from 30-35 feet bgs at SB-21 (4/13/2022).



Hardpan-like till clay from 30-35 feet bgs at SB-21 (4/13/2022).



Till clay from 35-40 feet bgs (bottom), 25-30 feet bgs (middle), and 15-20 feet bgs (top) at SB-21 (4/13/2022).



Containerized soil cores containing refuse from boring SB-20 (4/14/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Containerized cores containing refuse from boring SB-19 (4/14/2022).



Monitoring well MW-202 (4/14/2022).



Monitoring well MW-200 (4/14/2022).



Monitoring well MW-201 (4/14/2022).



Lacustrine gravelly sand soil sample from 17-20 feet bgs at MW-200 (4/16/2022).



Lacustrine silty sand soil sample from 20-24 feet bgs at MW-201 (4/16/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Lacustrine sandy gravel soil sample from 5-7 feet bgs at MW-202 (4/16/2022).



Lacustrine sandy gravel soil sample from 5-7 feet bgs at MW-202 (4/16/2022).



Till clay soil sample from 25.5-30 feet bgs at MW-200 (4/16/2022).



Till clay soil sample from 25.5-30 feet bgs at MW-200 (4/16/2022).



Till clay soil sample from 25.5-30 feet bgs at MW-200 (4/16/2022).



Till clay soil sample from 37-39.5 feet bgs at MW-200 (4/16/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Till clay soil sample from 37-39.5 feet bgs at MW-200
(4/16/2022).



Till clay soil sample from 29-30 feet bgs at
MW-201 (4/16/2022).



Hardpan-like till soil sample (silty-clayey sand) from 39-40
feet bgs at MW-201 (4/16/2022).



Till clay soil sample from 8.5-10 feet bgs at MW-202
(4/16/2022).



Till clay soil sample from 8.5-10 feet bgs at MW-202
(4/16/2022).



Till clay soil sample from 8.5-10 feet bgs at MW-202
(4/16/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Very hard till soil sample (clayey sand) from 34-35 feet bgs at SB-19 (4/16/2022).



Very hard till soil sample (clayey sand) from 34-35 feet bgs at SB-19 (4/16/2022).



Till clay soil sample from 47-49 feet bgs at SB-19 (4/16/2022).



Till clay soil sample from 47-49 feet bgs at SB-19 (4/16/2022).



Till clay soil sample from 45-50 feet bgs at SB-20 (4/16/2022).



Till clay soil sample from 45-50 feet bgs at SB-20 (4/16/2022).

Response Activity Plan Implementation
Former Mt. Pleasant Landfill
April 2022



Till clay soil sample from 45-50 feet bgs at SB-20
(4/16/2022).



Till clay soil sample from 23-25 feet bgs at SB-21
(4/16/2022).



Till clay soil sample from 23-25 feet bgs at SB-21
(4/16/2022).



Till clay soil sample from 23-25 feet bgs at SB-21
(4/16/2022).

APPENDIX B
BORING AND MONITORING WELL LOGS



The Mannik & Smith Group, Inc.
 2365 Haggerty Road South, Canton, MI 48188
 ph: (734) 397-3100 fax: (734) 397-3131
 www.manniksmithgroup.com

CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill RAP Implementation

PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI

DATE STARTED 4/12/22 **COMPLETED** 4/12/22 **BORING DIAMETER:** 6 inches

DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 772,179.7 N; 13,015,473.0 E (USSP MI South)

DRILLING METHOD Rotosonic **TOP OF CASING ELEV.:** 759.04 feet NAD83

LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** 9 FEET BGS

NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

ENV BORING/WELL LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:54 - W:\PROJECTS\PROJECTS K-O\M3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
0									Surface Elev. = 756 NAD83	
5.0	SC 1	5.0	[Cross-hatched pattern]	5.5	Brown to Dark Brown SAND and Clayey Sand, trace-little Gravel and Wood, moist (FILL)	750.5				
10.0	SC 2	5.0	[Cross-hatched pattern]	14.5	Brown to Dark Brown SAND and Clayey Sand, little-some Wood, little Gravel, moist (FILL)					
				15.0	Wet Concrete Rubble From 9-9.5 Ft. bgs					
15.0	SC 3	7.5	[Dotted pattern]	15.0	Gray Silty fine SAND, trace Gravel, wet (Lacustrine Sand)	741.5				
				15.5	Gray Gravelly SAND, trace-little Silt, wet (Lacustrine Sand)	741.0				
				15.5-16.7	Oxidized Orange-Brown From 15.5-16.7 Ft. bgs					
20.0				21.0	Gray Sandy SILT, trace Clay, wet (Lacustrine-Till transition)	735.0		Soil Sample MW-200, 17-20 (SP)		
25.0	SC 4	9.5	[Diagonal hatched pattern]	25.5	Gray Silty CLAY, trace Sand, moist (Till Clay)	730.5		Soil Sample MW-200, 25.5-30 (CL)		



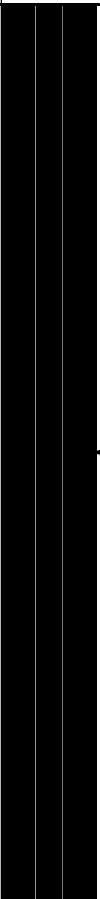

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PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 772,179.7 N; 13,015,473.0 E (USSP MI South)
DRILLING METHOD Rotosonic **TOP OF CASING ELEV.:** 759.04 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** 9 FEET BGS
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

ENV BORING/WELL LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:54 - W:\PROJECTS\PROJECTS K-O\M3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
30					Gray Silty CLAY, trace Sand, moist (Till Clay) (continued)					
33.0				33.0		723.0				
35	SC 5	9.0			Gray Silty-Sandy CLAY, trace Gravel, dry-moist (Hardpan-like till)					
40					Till Clay from 39.5-47 ft bgs				Soil Sample MW-200, 37-39.5 (CL)	
45	SC 6	9.1			Hardpan-like till from 47-50 ft bgs					← Bentonite Chips
50				50.0	Bottom of borehole at 50.0 feet.	706.0				



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PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/11/22 **COMPLETED** 4/12/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 771,328.0 N; 13,015,755.0 E (USSP MI South)
DRILLING METHOD Rotosonic **TOP OF CASING ELEV.:** 764.12 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** 10 FEET BGS
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
0					TOPSOIL				Surface Elev. = 761.1 NAD83	Above-Ground Protective Cover
1.5				1.5		759.6				Concrete Pad
5.0	SC 1	5.0		5.0	Brown Silty SAND, trace-little Gravel, moist (Lacustrine Sand)					Sand for Drainage
8.0				8.0		753.1				Bentonite Chips
10.0	SC 2	5.0		10.0	Tan Silty Fine SAND, moist (Lacustrine Sand)					
10.0				10.0		751.1				2" Diameter PVC Riser
15.0				15.0	Brown Silty SAND, occasional Gravelly pockets, wet (Lacustrine Sand)					Filter Sand
18.0	SC 3	10.0		18.0		743.1				
20.0				20.0	Light Grayish-Brown Silty Fine SAND, trace Gravel, wet (Lacustrine Sand)					2" Diameter 10-Slot PVC Screen
24.5				24.5		736.6			Soil Sample MW-201, 20-24 (SM)	
25.0	SC 4	10.0		25.0	Gray Silty CLAY, trace Sand, trace Gravel, moist (Till Clay)					
30.0				30.0					Soil Sample MW-201, 29-30 (CL)	Bentonite Chips


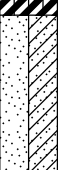

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PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/11/22 **COMPLETED** 4/12/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 771,328.0 N; 13,015,755.0 E (USSP MI South)
DRILLING METHOD Rotosonic **TOP OF CASING ELEV.:** 764.12 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** 10 FEET BGS
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

ENV BORING/WELL LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:54 - W:\PROJECTS\PROJECTS K-O\M3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
30					Gray Silty CLAY, trace Sand, trace Gravel, moist (Till Clay) <i>(continued)</i>					
35	SC 5	10.0			Hardpan-like till from 34.9-38.5 ft bgs					
38.5						722.6				
40					Gray Silty-Clayey SAND, trace Gravel, dry (Hardpan-like till)			⊗	Soil Sample MW-201, 39-40 (SC-SM)	← Bentonite Chips
42.0						719.1				
45	SC 6	10.0			Gray Silty CLAY, some Sand, trace-little Gravel, moist (Till Clay)					
50					Bottom of borehole at 50.0 feet.	711.1				



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PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/13/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 772,211.3 N; 13,014,355.0 E (USSP MI South)
DRILLING METHOD Rotosonic **TOP OF CASING ELEV.:** 746.85 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** 5 FEET BGS
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

ENV BORING/WELL LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:54 - W:\PROJECTS\PROJECTS K-O\M3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
0					TOPSOIL	743.2			Surface Elev. = 744.2 NAD83	
1.0				Dark Brown Organic Sandy CLAY, moist						
2.0	SC 1	2.0								
4.0						740.2				
5.0					Brown Silty Fine SAND, trace Gravel, moist	739.2				
5.0					Gray Sandy GRAVEL, wet (Lacustrine Gravel)			Soil Sample MW-202, 5-7 (GW)		
7.7	SC 2	4.8				736.5				
8.5					Gray Clayey SILT, moist	735.7				
10					Gray Sandy CLAY, some Silt, trace-little Gravel, moist (Very Hard Till Clay)			Soil Sample MW-202, 8.5-10 (CL)		
15	SC 3	8.0								
20										
25	SC 4	9.0								
30										


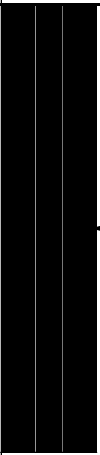
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PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/13/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 772,211.3 N; 13,014,355.0 E (USSP MI South)
DRILLING METHOD Rotosonic **TOP OF CASING ELEV.:** 746.85 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** 5 FEET BGS
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

ENV BORING/WELL LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:54 - W:\PROJECTS\PROJECTS K-O\M3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV.2.GPJ





DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS	WELL DIAGRAM
30										
35	SC 5	10.0			Gray Sandy CLAY, some Silt, trace-little Gravel, moist (Very Hard Till Clay) <i>(continued)</i>					 ← Bentonite Chips
40				40.0	Bottom of borehole at 40.0 feet.	704.2				



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CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 772,079.6 N; 13,014,794.0 E (USSP MI South)
DRILLING METHOD Rotosonic **GROUND SURFACE ELEV.:** 769.5 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** Not Encountered
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

ENV BORING LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:55 - W:\PROJECTS\PROJECTS K-O\IM3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
0									
	SC 1	3.0		2.0	Brown Silty CLAY, trace-little Sand, trace Gravel, moist (Clay Cap)	767.5			
5	SC 2	4.0			Brown, Gray and Black SAND, Clay, Gravel, Wood, Refuse (FILL)				
10									
15	SC 3	7.5							
20									
25	SC 4	5.0							
30				30.0		739.5			



The Mannik & Smith Group, Inc.
 2365 Haggerty Road South, Canton, MI 48188
 ph: (734) 397-3100 fax: (734) 397-3131
 www.manniksmithgroup.com

CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 772,079.6 N; 13,014,794.0 E (USSP MI South)
DRILLING METHOD Rotosonic **GROUND SURFACE ELEV.:** 769.5 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** Not Encountered
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

ENV BORING LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:55 - W:\PROJECTS\PROJECTS K-O\IM3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ






DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
30									
33.5				33.5	Gray, Gravelly SAND, moist (Lacustrine Sand)	736.0			
35	SC 5	10.0			Gray Clayey Sand-Sandy Clay, some Silt, trace Gravel, moist (Very Hard Till Clay)			X	Soil Sample SB-19, 34-35 (SC)
45	SC 6	8.5							
50				50.0		719.5		X	Soil Sample SB-19, 47-49 (CL)
					Bottom of borehole at 50.0 feet.				



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CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 771,767.6 N; 13,014,829.0 E (USSP MI South)
DRILLING METHOD Rotosonic **GROUND SURFACE ELEV.:** 769.5 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** Not Encountered
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

ENV BORING LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:55 - W:\PROJECTS\PROJECTS K-O\IM3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
0									
	SC 1	2.8		2.0	Brown Silty CLAY, tarce-little Sand, trace Gravel, moist (Clay Cap)	767.5			
5	SC 2	4.0			Brown, Gray and Black SAND, Clay, Gravel, Wood, Refuse (FILL)				
10									
15	SC 3	8.3							
20									
25	SC 4	7.5							
				29.2		740.3			
30				30.0	Gray Gravelly SAND (Lacustrine Sand)	739.5			

(Continued Next Page)



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CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/12/22 **COMPLETED** 4/12/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 771,767.6 N; 13,014,829.0 E (USSP MI South)
DRILLING METHOD Rotosonic **GROUND SURFACE ELEV.:** 769.5 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** Not Encountered
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

ENV BORING LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:55 - W:\PROJECTS\PROJECTS K-O\IM3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
30									
35	SC 5	8.2		37.0	Brown Silty Fine SAND, moist (Lacustrine Sand)	732.5			
40				40.0	Brown Silty Fine SAND with Silt lenses, moist (Lacustrine Sand)	729.5			
45	SC 6	10.0		44.5	Gray Silty CLAY, some Sand, little Gravel, moist (Very Hard Till Clay)	725.0			
50				50.0	Gray Sandy CLAY, some Silt, trace Gravel, dry-moist (Hardpan-like Till)	719.5			Soil Sample SB-20, 45-50 (CL)
					Bottom of borehole at 50.0 feet.				



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CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/13/22 **COMPLETED** 4/13/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 771,699.5 N; 13,014,311.0 E (USSP MI South)
DRILLING METHOD Rotosonic **GROUND SURFACE ELEV.:** 746.5 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** 5 FEET BGS
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
0				0.5	TOPSOIL	746.0			
				1.0	Light Brown Clayey SILT, moist	745.5			
				1.7	Brown Silty SAND, moist	744.8			
	SC 1	3.0		3.0	Brown Clayey SAND, trace Gravel and Wood, moist	743.5			
				3.0	Light Brown Silty CLAY, trace Sand, moist				
5					▽ Becomes wet at 5 Ft. bgs				
	SC 2	3.0		7.0	Gray Sandy GRAVEL, wet (Lacustrine Gravel)	739.5			
10					12.0	Gray Sandy CLAY, some Silt, trace Gravel, moist (Very Hard Till Clay)	734.5		
15	SC 3	9.5							
20									
25	SC 4	10.0			Becomes Hardpan-like till at 25 Ft. bgs			Soil Sample SB-21, 23-25 (CL)	
30				30.0		716.5			

(Continued Next Page)



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CLIENT City of Mt. Pleasant, MI **PROJECT NAME** Former Mt Pleasant Landfill RAP Implementation
PROJECT NUMBER M3460003 **PROJECT LOCATION** Mt. Pleasant, MI
DATE STARTED 4/13/22 **COMPLETED** 4/13/22 **BORING DIAMETER:** 6 inches
DRILLING CONTRACTOR Cascade Drilling **SURVEY COORDINATES:** 771,699.5 N; 13,014,311.0 E (USSP MI South)
DRILLING METHOD Rotosonic **GROUND SURFACE ELEV.:** 746.5 feet NAD83
LOGGED BY DJA **CHECKED BY** _____ **GROUND WATER ENCOUNTERED DURING DRILLING:** 5 FEET BGS
NOTES _____ **WATER LEVEL AFTER DRILLING:** N/A

ENV BORING LOG (PID) - GINT STD US LAB.GDT - 9/6/22 09:55 - W:\PROJECTS\PROJECTS K-O\IM3460003\ADMIN\DRILLING\BORING LOGS\M3460002 BORING LOGS REV2.GPJ

DEPTH (FEET)	SAMPLE TYPE NUMBER	RECOVERY (FEET)	GRAPHIC LOG	DEPTH (FEET)	MATERIAL DESCRIPTION	ELEVATION (NAD83)	PID (ppm)	LABORATORY SAMPLE	REMARKS
30									
35	SC 5	10.0			Gray Sandy CLAY, some Silt, trace Gravel, moist (Hardpan-like till)				
40				40.0	Bottom of borehole at 40.0 feet.	706.5			

APPENDIX C
FIELD SAMPLING FORMS

LOW FLOW GROUND WATER SAMPLING FORM



TECHNICAL SKILL.
CREATIVE SPIRIT.

www.MannikSmithGroup.com

DATE: 5/16/22

SAMPLE LOCATION: MW-102

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

PERSONNEL: LMP, JOG

SITE ADDRESS: 1303 N. FRANKLIN

OBSERVERS: _____ SITE CONDITIONS: _____

DEPTH OF WELL: _____

DEPTH TO WATER LEVEL: 6.87

SCREEN LENGTH: _____

WELL DIAMETER: 1"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<small><0.3 feet once stabilized</small>)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU) ²	DO (mg/L) ¹	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1431	6.87	53.2	7.39	75	2.07	516	9.22		200	
1434	↓	50.4	7.24	34	2.33	89.3	5.42			
1437		49.7	7.24	-4	2.39	41.0	3.79			
1440		48.5	7.22	-31	2.43	33.1	2.69			
1443		48.1	7.21	-44	2.45	22.4	2.38			
1446		48.1	7.20	-48	2.46	18.3	2.24			
1449										
1452										
1455										
1458	↙									
1501										

SAMPLE ID: MW-102

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1446

Notes: Began Purging @ 1428
SWL obtained but couldn't fit tubing & WLM in PVC

¹ - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized

² - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM



TECHNICAL SKILL.
CREATIVE SPIRIT.

SAMPLE LOCATION: MW-103

DATE: 5/16/22

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

PERSONNEL: LMP, JOC

SITE ADDRESS: 1303 N. FRANKLIN

OBSERVERS: _____ SITE CONDITIONS: _____

DEPTH OF WELL: _____

DEPTH TO WATER LEVEL: 22' 2.00'

SCREEN LENGTH: _____

WELL DIAMETER: 1"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<small><0.3 feet once stabilized</small>)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU) ²	DO (mg/L) ¹	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1233	2.02'	62.0	7.14	-4	1.59	175	13.20		200	
1236	2.10'	57.1	7.28	-10	1.15	522	6.92			
1239	2.11'	56.4	7.42	1	1.08	53.8	6.05			
1242	2.11'	54.4	7.35	-8	1.24	44.3	4.83			
1245	2.11'	54.3	7.31	-13	1.33	47.7	3.14			
1248	2.11'	54.2	7.28	-16	1.51	48.4	2.33			
1251										
1254										
1257										
1300										

SAMPLE ID: MW-103

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1249

Notes: Began Pumping @ 12:30
H₂O meter interfering w/ tubing, so will leave WL constant
after ^{final} pumping measurement

¹ - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized
² - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM



DATE: 5/16/2022

PERSONNEL: DA/PH

OBSERVERS: _____

SAMPLE LOCATION: MW-200

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

SITE CONDITIONS: _____

DEPTH OF WELL: _____

DEPTH TO WATER LEVEL: 11.50' TOC

SCREEN LENGTH: _____

WELL DIAMETER: 2"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<small><0.3 feet once stabilized</small>)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU) ²	DO (mg/L) ¹	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1536	11.70	59.6	8.13	-147	2.80	155	8.31		~200	
1539	11.68	58.3	7.62	-159	2.16	143	3.30			
1542	11.69	57.6	7.29	-129	1.90	123	2.67			
1545	11.68	57.4	7.19	-117	1.84	123	2.47			
1548	11.68	57.3	7.14	-112	1.80	103	2.32			
1551	11.68	57.4	7.12	-110	1.78	81.3	2.33			

SAMPLE ID: MW-200

SAMPLE DATE: 5-16-2022

SAMPLE TIME: 1555

Notes: DUP + FIELD BLANK COLLECTED AT MW-200

¹ - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized
² - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM



TECHNICAL SKILL.
CREATIVE SPIRIT.

DATE: 5/16/22

SAMPLE LOCATION: MW-201

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

SITE ADDRESS: 1303 N. FRANKLIN

PERSONNEL: JNG PDH

SITE CONDITIONS: _____

OBSERVERS: _____

DEPTH OF WELL: _____

DEPTH TO WATER LEVEL: 12.02

SCREEN LENGTH: _____

WELL DIAMETER: 2"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<small><0.3 feet once stabilized</small>)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU) ²	DO (mg/L) ¹	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1601	57.6 12.12	57.6	7.18	-192	1.61	26.1	9.16	4.1		
1624	12.15	53.3	7.32	-288	1.46	9.2	3.36	4.5		
1627	12.15	52.7	7.24	-345	1.45	5.6	2.67	4.5		
1630	12.15	52.6	7.24	-360	1.45	3.3	2.55	4.6		
1633	12.15	52.5	7.30	-385	1.44	1.4	2.44	4.7		
1636	12.15	52.1	7.33	-400	1.44	1.2	2.39	4.8		
1639	12.15	52.1	7.36	-428	1.44	0.4	2.36	4.9		

SAMPLE ID: MW 201

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1645

Notes: _____
Sample @ 1645

¹ - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized
² - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM



DATE: 5/16/22

SAMPLE LOCATION: MW-202

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

PERSONNEL: LMP, JOG

SITE ADDRESS: 1303 N. FRANKLIN

OBSERVERS: _____ SITE CONDITIONS: 72°/sunny

DEPTH OF WELL: _____

DEPTH TO WATER LEVEL: 4.26'

SCREEN LENGTH: _____

WELL DIAMETER: 2"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU) ²	DO (mg/L) ¹	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1126	4.30	54.5	7.03	215	2.42	383	8.07		200	
1129	4.30	51.7	6.91	161	2.53	171	7.56			
1132	4.28	50.9	6.88	9	2.65	97.5	5.13			
1135	4.29	50.7	6.89	-29	2.68	73.6	3.65			
1138	4.29	50.7	6.89	-45	2.69	49.6	2.77			
1141	4.29	50.5	6.90	-51	2.71	39.7	2.89			
1144										
1147										
1150										

SAMPLE ID: MW-202

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1145

Notes: Began Purging @ 1723

¹ - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized
² - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM



DATE: 5/16/22

SAMPLE LOCATION: MW-10-20

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

PERSONNEL: UMP, JOG

SITE ADDRESS: 1303 N. FRANKLIN

OBSERVERS: _____ SITE CONDITIONS: 70°/sunny

DEPTH OF WELL: _____

DEPTH TO WATER LEVEL: 5.29'

SCREEN LENGTH: _____

WELL DIAMETER: 1"

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, HORIBA

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU) ²	DO (mg/L) ¹	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1532	5.71'	54.5	7.30	-28	1.43	297	8.94		2.00	
1535	5.68'	51.1	7.31	-46	1.98	208	5.14			
1538	5.67'	50.1	7.35	-68	2.14	138	2.78			
1541	5.67'	49.7	7.34	-78	2.15	80.5	2.13			
1544	5.68'	49.5	7.33	-83	2.16	51.4	1.94			
1547	5.69'	49.1	7.32	-87	2.17	38.6	1.84			
1550	5.69'	48.9	7.32	-89	2.17	31.6	1.75			
1553	5.69'	48.8	7.31	-92	2.18	28.7	1.71			
1556										
1559										
1602										

SAMPLE ID: MW-10-20

SAMPLE DATE: 5/16/22

SAMPLE TIME: 1553

Notes: Began Purging @ 1530

¹ - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized
² - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

LOW FLOW GROUND WATER SAMPLING FORM



TECHNICAL SKILL.
CREATIVE SPIRIT.

SAMPLE LOCATION: MW-14-20

DATE: 5/16/22

PROJECT #: M3460003

SITE NAME: MT. PLEASANT LANDFILL

PERSONNEL: DA/HP

SITE ADDRESS: 1303 N. FRANKLIN

OBSERVERS: _____ SITE CONDITIONS: _____

DEPTH OF WELL: _____

DEPTH TO WATER LEVEL: 6.22 6.22

SCREEN LENGTH: _____

WELL DIAMETER: _____

TUBING TYPE: HDPE

CASING TYPE: PVC

MONITORING EQUIPMENT: HDPE TUBING, PERISTALTIC PUMP, NORA BA

TIME	WATER LEVEL (<0.3 feet once stabilized)	TEMP. (°F/°C)	Ph	ORP (mV)	COND. (mS/cm)	TURB. (NTU) ²	DO (mg/L) ¹	VOLUME PURGED (Gallons)	PUMP RATE (ml/min)	NOTES
		+/- 3%	+/- 0.1	+/- 10 mV	+/- 3%	+/- 10%	+/- 10%			
1035	6.78	55.7	7.07	-49	1.82	196	2.66		220	
1038	6.69	56.1	7.14	-44	1.80	180	2.01			
1041	6.69	55.3	7.15	-105	1.83	179	5.00			
1044	6.70	54.5	7.13	-108	1.84	195	4.04			
1047	6.70	54.6	7.13	-109	1.84	193	3.79			
1050										
1053										
1056										

SAMPLE ID: MW-14-20

SAMPLE DATE: 5-16-22

SAMPLE TIME: 1055

Notes: _____

¹ - 10% for values greater than 0.5 mg/L, if three DO values are less than 0.5 mg/L, consider the values as stabilized
² - 10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized

APPENDIX D
LABORATORY ANALYTICAL REPORT (GROUNDWATER)



01-Jun-2022

Dave Adler
The Mannik & Smith Group, Inc.
2365 Haggerty Road South
Suite 100
Canton, MI 48188

Re: **Former Mount Pleasant Landfill**

Work Order: **22051511**

Dear Dave,

ALS Environmental received 16 samples on 17-May-2022 11:50 PM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 143.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in cursive script that reads "Julienn C. Williams".

Electronically approved by: Julienn Williams

Julienn Williams
Project Manager

Report of Laboratory Analysis

Certificate No: MI: 0022

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Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Work Order: 22051511

Work Order Sample Summary

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
22051511-01	MW-101	Groundwater		5/16/2022 15:00	5/17/2022 23:50	<input type="checkbox"/>
22051511-02	MW-102	Groundwater		5/16/2022 14:46	5/17/2022 23:50	<input type="checkbox"/>
22051511-03	MW-103	Groundwater		5/16/2022 12:49	5/17/2022 23:50	<input type="checkbox"/>
22051511-04	MW-104	Groundwater		5/16/2022 13:02	5/17/2022 23:50	<input type="checkbox"/>
22051511-05	MW-105	Groundwater		5/16/2022 13:42	5/17/2022 23:50	<input type="checkbox"/>
22051511-06	MW-106	Groundwater		5/16/2022 14:10	5/17/2022 23:50	<input type="checkbox"/>
22051511-07	MW-200	Groundwater		5/16/2022 15:55	5/17/2022 23:50	<input type="checkbox"/>
22051511-08	MW-201	Groundwater		5/16/2022 16:45	5/17/2022 23:50	<input type="checkbox"/>
22051511-09	MW-202	Groundwater		5/16/2022 11:45	5/17/2022 23:50	<input type="checkbox"/>
22051511-10	MW-10-20	Groundwater		5/16/2022 15:53	5/17/2022 23:50	<input type="checkbox"/>
22051511-11	MW-14-20	Groundwater		5/16/2022 10:55	5/17/2022 23:50	<input type="checkbox"/>
22051511-12	MW-15-20	Groundwater		5/16/2022 10:25	5/17/2022 23:50	<input type="checkbox"/>
22051511-13	Field Blank	Groundwater		5/16/2022 15:45	5/17/2022 23:50	<input type="checkbox"/>
22051511-14	DUP	Groundwater		5/16/2022	5/17/2022 23:50	<input type="checkbox"/>
22051511-15	Trip Blank	Water		5/16/2022	5/17/2022 23:50	<input type="checkbox"/>
22051511-16	MW-109	Groundwater		5/16/2022	5/17/2022 23:50	<input type="checkbox"/>

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**QUALIFIERS,
ACRONYMS, UNITS**

<u>Qualifier</u>	<u>Description</u>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
n	Analyte accreditation is not offered
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<u>Acronym</u>	<u>Description</u>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<u>Units Reported</u>	<u>Description</u>
µg/L	Micrograms per Liter
mg/L	Milligrams per Liter
ng/L	Nanograms per Liter

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Case Narrative

The attached "Sample Receipt Checklist" documents the date of receipt, status of custody seals, container integrity, preservation, and temperature compliance.

Samples were analyzed according to the analytical methodology previously transmitted in the "Work Order Acknowledgement". Methodologies are also documented in the "Analytical Result" section for each sample. Quality control results are listed in the "QC Report" section. A copy of the laboratory's scope of accreditation is available upon request.

Sample association for the reported quality control is located at the end of each batch summary. If applicable, results are appropriately qualified in the Analytical Result and QC Report sections. The "Qualifiers" section documents the various qualifiers, units, and acronyms utilized in reporting.

Any flags on MS/MSD samples not addressed in this narrative are unrelated to samples in this report.

With the following exceptions, all sample analyses achieved analytical criteria.

Batch 196707, Method E537 Mod, Sample MW-15-20 (22051511-12E): EIS01: 13C2-PFHxDA_IS failed low.

Batch 196606, Method E537 Mod, Sample MW-102 (22051511-02E): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS, 13C2-6_2-FTS_IS

Batch 196606, Method E537 Mod, Sample MW-105 (22051511-05E): One or more surrogate recoveries were above the upper control limits. The sample was non-detect, therefore, no qualification is needed. 13C2-FtS 4:2

Batch 196707, Method E537 Mod, Sample MW-201 (22051511-08E): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d3-N-MeFOSAA_IS

Batch 196707, Method E537 Mod, Sample MW-201 (22051511-08E): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d3-N-MeFOSAA

Batch 196707, Method E537 Mod, Sample MW-202 (22051511-09E): The extracted internal

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Case Narrative

standard response was outside recovery criteria with low bias; sample results may exhibit bias. d7-N-MeFOSE_IS

Batch 196707, Method E537 Mod, Sample MW-202 (22051511-09E): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS, 13C2-6_2-FTS_IS

Batch 196707, Method E537 Mod, Sample MW-10-20 (22051511-10E): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d5-N-EtFOSAA_IS, 13C-FOSA_IS, d7-N-MeFOSE_IS

Batch 196707, Method E537 Mod, Sample MW-10-20 (22051511-10E): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS

Batch 196707, Method E537 Mod, Sample MW-14-20 (22051511-11E): The extracted internal standard response was outside recovery criteria with high bias; sample results may exhibit bias. 13C-4_2-FTS_IS

Batch 196707, Method E537 Mod, Sample MW-15-20 (22051511-12E): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: d3-N-MeFOSAA (target passes in CCV)

Batch 196707, Method E537 Mod, Sample MW-15-20 (22051511-12E): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d3-N-MeFOSAA_IS, d5-N-EtFOSAA_IS, d5-NEtFOSA_IS, d9-EtFOSE_IS, d7-N-MeFOSE_IS, 13C-PFTeDA_IS

Batch 196707, Method E537 Mod, Sample Field Blank (22051511-13A): The Continuing Calibration Verification did not meet method acceptance criteria for the following analytes, results are to be considered estimated: d3-N-MeFOSAA (target passes in CCV)

Batch 196707, Method E537 Mod, Sample Field Blank (22051511-13A): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d5-N-EtFOSAA_IS, 13C-FOSA_IS, d7-N-MeFOSE_IS

Batch 196707, Method E537 Mod, Sample DUP (22051511-14E): The Continuing Calibration Verification did not meet acceptance criteria with high bias, however, the sample results were non-detect for the following analytes: 11Cl-Pf3OUdS, FTS 10:2

Batch 196707, Method E537 Mod, Sample DUP (22051511-14E): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit

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Case Narrative

bias. d3-N-MeFOSAA_IS, 13C-PFUnDA_IS, d5-N-EtFOSAA_IS, 13C-FOSA_IS, 13C-PFDoA_IS, d7-N-MeFOSE_IS

Batch 196707, Method E537 Mod, Sample DUP (22051511-14E): One or more surrogate recoveries were below the lower control limits. The sample results may be biased low. d3-N-MeFOSAA

Batch 196707, Method E537 Mod, Sample MW-109 (22051511-16E): The extracted internal standard response was outside recovery criteria with low bias; sample results may exhibit bias. d3-N-MeFOSAA_IS, d5-N-EtFOSAA_IS, 13C-FOSA_IS, 13C-PFDoA_IS, d7-N-MeFOSE_IS, 13C-PFTeDA_IS

Batch 196624, Method SW846 8270D, Sample SLCSDW1-196624: The RPD between the LCS and LCSD was outside of the control limit. The sample results should be considered estimated for this analyte: 2,4-Dinitrophenol

Batch 196747, Method SW6020B, Sample 22051511-01DMS: The MS recovery was above the upper control limit. The corresponding result in the parent sample may be biased high for this analyte: Al, Zn

Batch 196747, Method SW6020B, Sample 22051511-01DMSD: The RPD between the MS and MSD was outside of the control limit. The corresponding result should be considered estimated for this compound: Al, Zn

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-101
Collection Date: 5/16/2022 03:00 PM

Work Order: 22051511
Lab ID: 22051511-01
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 05:26 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 05:26 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 05:26 AM
<i>Surr: Decachlorobiphenyl</i>	102		42-153	%REC	1	5/21/2022 05:26 AM
<i>Surr: Tetrachloro-m-xylene</i>	88.9		48-127	%REC	1	5/21/2022 05:26 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:29 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/23/22 17:14	Analyst: STP
Aluminum	0.015		0.010	mg/L	1	5/23/2022 07:10 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Barium	0.097		0.0050	mg/L	1	5/23/2022 07:10 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:10 PM
Boron	0.30		0.020	mg/L	1	5/23/2022 07:10 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:10 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:10 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:10 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/20/22 18:04	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorobutanesulfonic Acid (PFBS)	6.5		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorobutanoic Acid (PFBA)	15		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.8	ng/L	1	5/27/2022 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
 Project: Former Mount Pleasant Landfill
 Sample ID: MW-101
 Collection Date: 5/16/2022 03:00 PM

Work Order: 22051511
 Lab ID: 22051511-01
 Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorododecanoic Acid (PFDoA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluoroheptanoic Acid (PFHpA)	8.6		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorohexanesulfonic Acid (PFHxS)	51		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorohexanoic Acid (PFHxA)	8.2		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorononanesulfonic Acid (PFNS)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorononanoic Acid (PFNA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorooctanesulfonamide (PFOSA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorooctanesulfonic Acid (PFOS)	45		1.9	ng/L	1	5/27/2022 03:30 PM
Perfluorooctanoic Acid (PFOA)	37		1.9	ng/L	1	5/27/2022 03:30 PM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluoropentanoic Acid (PFPeA)	5.8		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluorotridecanoic Acid (PFTriA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Perfluoroundecanoic Acid (PFUnA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/27/2022 03:30 PM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.8	ng/L	1	5/27/2022 03:30 PM
11Cl-Pf3OUdS	ND		4.8	ng/L	1	5/27/2022 03:30 PM
9Cl-PF3ONS	ND		4.8	ng/L	1	5/27/2022 03:30 PM
Surr: 13C2-FtS 4:2	108		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C2-FtS 6:2	96.0		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C2-FtS 8:2	74.6		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C2-PFDA	62.9		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C2-PFDoA	53.3		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C2-PFHxA	82.2		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C2-PFTeA	82.0		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C2-PFUnA	67.2		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C3-HFPO-DA	54.2		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C3-PFBS	76.2		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C4-PFBA	70.9		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C4-PFHpA	58.1		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C4-PFOA	66.5		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C4-PFOS	71.9		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C5-PFNA	73.6		50-150	%REC	1	5/27/2022 03:30 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-101

Lab ID: 22051511-01

Collection Date: 5/16/2022 03:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	73.7		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 13C8-FOSA	69.6		50-150	%REC	1	5/27/2022 03:30 PM
Surr: 18O2-PFHxS	67.8		50-150	%REC	1	5/27/2022 03:30 PM
Surr: d5-N-EtFOSAA	59.6		50-150	%REC	1	5/27/2022 03:30 PM
Surr: d3-N-MeFOSAA	63.8		50-150	%REC	1	5/27/2022 03:30 PM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: EE

1,1'-Biphenyl	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4,5-Trichlorophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4,6-Trichlorophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4-Dichlorophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4-Dimethylphenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4-Dinitrophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2,4-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 07:41 PM
2,6-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Chloronaphthalene	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Chlorophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Methylnaphthalene	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Methylphenol	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Nitroaniline	ND		20	µg/L	1	5/20/2022 07:41 PM
2-Nitrophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
3&4-Methylphenol	ND		20	µg/L	1	5/20/2022 07:41 PM
3,3'-Dichlorobenzidine	ND		20	µg/L	1	5/20/2022 07:41 PM
3-Nitroaniline	ND		20	µg/L	1	5/20/2022 07:41 PM
4,6-Dinitro-2-methylphenol	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Bromophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Chloro-3-methylphenol	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Chloroaniline	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Chlorophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Nitroaniline	ND		20	µg/L	1	5/20/2022 07:41 PM
4-Nitrophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
Acenaphthene	ND		20	µg/L	1	5/20/2022 07:41 PM
Acenaphthylene	ND		20	µg/L	1	5/20/2022 07:41 PM
Acetophenone	ND		4.0	µg/L	1	5/20/2022 07:41 PM
Anthracene	ND		20	µg/L	1	5/20/2022 07:41 PM
Atrazine	ND		4.0	µg/L	1	5/20/2022 07:41 PM
Benzaldehyde	ND		4.0	µg/L	1	5/20/2022 07:41 PM
Benzo(a)anthracene	ND		20	µg/L	1	5/20/2022 07:41 PM
Benzo(a)pyrene	ND		20	µg/L	1	5/20/2022 07:41 PM
Benzo(b)fluoranthene	ND		20	µg/L	1	5/20/2022 07:41 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-101

Lab ID: 22051511-01

Collection Date: 5/16/2022 03:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		20	µg/L	1	5/20/2022 07:41 PM
Benzo(k)fluoranthene	ND		20	µg/L	1	5/20/2022 07:41 PM
Bis(2-chloroethoxy)methane	ND		20	µg/L	1	5/20/2022 07:41 PM
Bis(2-chloroethyl)ether	ND		20	µg/L	1	5/20/2022 07:41 PM
Bis(2-chloroisopropyl)ether	ND		20	µg/L	1	5/20/2022 07:41 PM
Bis(2-ethylhexyl)phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Butyl benzyl phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Caprolactam	ND		40	µg/L	1	5/20/2022 07:41 PM
Carbazole	ND		20	µg/L	1	5/20/2022 07:41 PM
Chrysene	ND		20	µg/L	1	5/20/2022 07:41 PM
Dibenzo(a,h)anthracene	ND		20	µg/L	1	5/20/2022 07:41 PM
Dibenzofuran	ND		20	µg/L	1	5/20/2022 07:41 PM
Diethyl phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Dimethyl phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Di-n-butyl phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Di-n-octyl phthalate	ND		20	µg/L	1	5/20/2022 07:41 PM
Fluoranthene	ND		20	µg/L	1	5/20/2022 07:41 PM
Fluorene	ND		20	µg/L	1	5/20/2022 07:41 PM
Hexachlorobenzene	ND		20	µg/L	1	5/20/2022 07:41 PM
Hexachlorobutadiene	ND		20	µg/L	1	5/20/2022 07:41 PM
Hexachlorocyclopentadiene	ND		20	µg/L	1	5/20/2022 07:41 PM
Hexachloroethane	ND		20	µg/L	1	5/20/2022 07:41 PM
Indeno(1,2,3-cd)pyrene	ND		20	µg/L	1	5/20/2022 07:41 PM
Isophorone	ND		20	µg/L	1	5/20/2022 07:41 PM
Naphthalene	ND		20	µg/L	1	5/20/2022 07:41 PM
Nitrobenzene	ND		20	µg/L	1	5/20/2022 07:41 PM
N-Nitrosodi-n-propylamine	ND		20	µg/L	1	5/20/2022 07:41 PM
N-Nitrosodiphenylamine	ND		20	µg/L	1	5/20/2022 07:41 PM
Pentachlorophenol	ND		20	µg/L	1	5/20/2022 07:41 PM
Phenanthrene	ND		20	µg/L	1	5/20/2022 07:41 PM
Phenol	ND		20	µg/L	1	5/20/2022 07:41 PM
Pyrene	ND		20	µg/L	1	5/20/2022 07:41 PM
Surr: 2,4,6-Tribromophenol	68.5		27-83	%REC	1	5/20/2022 07:41 PM
Surr: 2-Fluorobiphenyl	61.3		26-79	%REC	1	5/20/2022 07:41 PM
Surr: 2-Fluorophenol	41.4		13-56	%REC	1	5/20/2022 07:41 PM
Surr: 4-Terphenyl-d14	80.4		43-106	%REC	1	5/20/2022 07:41 PM
Surr: Nitrobenzene-d5	62.0		29-80	%REC	1	5/20/2022 07:41 PM
Surr: Phenol-d6	29.2		10-35	%REC	1	5/20/2022 07:41 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-101

Lab ID: 22051511-01

Collection Date: 5/16/2022 03:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 12:06 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 12:06 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Acetone	ND		10	µg/L	1	5/20/2022 12:06 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 12:06 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 12:06 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 12:06 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 12:06 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-101

Lab ID: 22051511-01

Collection Date: 5/16/2022 03:00 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 12:06 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 12:06 AM
Surr: 1,2-Dichloroethane-d4	102		75-120	%REC	1	5/20/2022 12:06 AM
Surr: 4-Bromofluorobenzene	87.2		80-110	%REC	1	5/20/2022 12:06 AM
Surr: Dibromofluoromethane	107		85-115	%REC	1	5/20/2022 12:06 AM
Surr: Toluene-d8	100		85-110	%REC	1	5/20/2022 12:06 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-102

Lab ID: 22051511-02

Collection Date: 5/16/2022 02:46 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 05:39 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 05:39 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 05:39 AM
<i>Surr: Decachlorobiphenyl</i>	73.3		42-153	%REC	1	5/21/2022 05:39 AM
<i>Surr: Tetrachloro-m-xylene</i>	85.3		48-127	%REC	1	5/21/2022 05:39 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:31 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/23/22 17:14	Analyst: STP
Aluminum	ND		0.010	mg/L	1	5/23/2022 07:15 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Arsenic	0.0054		0.0050	mg/L	1	5/23/2022 07:15 PM
Barium	0.18		0.0050	mg/L	1	5/23/2022 07:15 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:15 PM
Boron	0.58		0.020	mg/L	1	5/23/2022 07:15 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:15 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:15 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 04:55 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/20/22 18:04	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorobutanesulfonic Acid (PFBS)	27		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorobutanoic Acid (PFBA)	31		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.8	ng/L	1	5/25/2022 04:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-102

Lab ID: 22051511-02

Collection Date: 5/16/2022 02:46 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluoroheptanesulfonic Acid (PFHpS)	6.0		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluoroheptanoic Acid (PFHpA)	32		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorohexanesulfonic Acid (PFHxS)	50		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorohexanoic Acid (PFHxA)	38		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorononanoic Acid (PFNA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorooctanesulfonic Acid (PFOS)	83		1.9	ng/L	1	5/25/2022 04:56 AM
Perfluorooctanoic Acid (PFOA)	92		1.9	ng/L	1	5/25/2022 04:56 AM
Perfluoropentanesulfonic Acid (PFPeS)	31		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluoropentanoic Acid (PFPeA)	15		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/25/2022 04:56 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.8	ng/L	1	5/25/2022 04:56 AM
11Cl-Pf3OUdS	ND		4.8	ng/L	1	5/25/2022 04:56 AM
9Cl-PF3ONS	ND		4.8	ng/L	1	5/25/2022 04:56 AM
Surr: 13C2-FtS 4:2	284	S	50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C2-FtS 6:2	264	S	50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C2-FtS 8:2	139		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C2-PFDA	77.8		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C2-PFDoA	74.0		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C2-PFHxA	76.1		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C2-PFTeA	91.4		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C2-PFUnA	68.3		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C3-HFPO-DA	62.2		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C3-PFBS	68.7		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C4-PFBA	72.6		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C4-PFHpA	75.5		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C4-PFOA	86.1		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C4-PFOS	70.8		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C5-PFNA	77.1		50-150	%REC	1	5/25/2022 04:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-102

Lab ID: 22051511-02

Collection Date: 5/16/2022 02:46 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	69.4		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 13C8-FOSA	62.0		50-150	%REC	1	5/25/2022 04:56 AM
Surr: 18O2-PFHxS	59.4		50-150	%REC	1	5/25/2022 04:56 AM
Surr: d5-N-EtFOSAA	84.6		50-150	%REC	1	5/25/2022 04:56 AM
Surr: d3-N-MeFOSAA	84.1		50-150	%REC	1	5/25/2022 04:56 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: EE

1,1'-Biphenyl	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4,5-Trichlorophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4,6-Trichlorophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4-Dichlorophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4-Dimethylphenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4-Dinitrophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2,4-Dinitrotoluene	ND		21	µg/L	1	5/20/2022 08:02 PM
2,6-Dinitrotoluene	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Chloronaphthalene	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Chlorophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Methylnaphthalene	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Methylphenol	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Nitroaniline	ND		21	µg/L	1	5/20/2022 08:02 PM
2-Nitrophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
3&4-Methylphenol	ND		21	µg/L	1	5/20/2022 08:02 PM
3,3'-Dichlorobenzidine	ND		21	µg/L	1	5/20/2022 08:02 PM
3-Nitroaniline	ND		21	µg/L	1	5/20/2022 08:02 PM
4,6-Dinitro-2-methylphenol	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Bromophenyl phenyl ether	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Chloro-3-methylphenol	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Chloroaniline	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Chlorophenyl phenyl ether	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Nitroaniline	ND		21	µg/L	1	5/20/2022 08:02 PM
4-Nitrophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
Acenaphthene	ND		21	µg/L	1	5/20/2022 08:02 PM
Acenaphthylene	ND		21	µg/L	1	5/20/2022 08:02 PM
Acetophenone	ND		4.1	µg/L	1	5/20/2022 08:02 PM
Anthracene	ND		21	µg/L	1	5/20/2022 08:02 PM
Atrazine	ND		4.1	µg/L	1	5/20/2022 08:02 PM
Benzaldehyde	ND		4.1	µg/L	1	5/20/2022 08:02 PM
Benzo(a)anthracene	ND		21	µg/L	1	5/20/2022 08:02 PM
Benzo(a)pyrene	ND		21	µg/L	1	5/20/2022 08:02 PM
Benzo(b)fluoranthene	ND		21	µg/L	1	5/20/2022 08:02 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-102

Lab ID: 22051511-02

Collection Date: 5/16/2022 02:46 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		21	µg/L	1	5/20/2022 08:02 PM
Benzo(k)fluoranthene	ND		21	µg/L	1	5/20/2022 08:02 PM
Bis(2-chloroethoxy)methane	ND		21	µg/L	1	5/20/2022 08:02 PM
Bis(2-chloroethyl)ether	ND		21	µg/L	1	5/20/2022 08:02 PM
Bis(2-chloroisopropyl)ether	ND		21	µg/L	1	5/20/2022 08:02 PM
Bis(2-ethylhexyl)phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Butyl benzyl phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Caprolactam	ND		41	µg/L	1	5/20/2022 08:02 PM
Carbazole	ND		21	µg/L	1	5/20/2022 08:02 PM
Chrysene	ND		21	µg/L	1	5/20/2022 08:02 PM
Dibenzo(a,h)anthracene	ND		21	µg/L	1	5/20/2022 08:02 PM
Dibenzofuran	ND		21	µg/L	1	5/20/2022 08:02 PM
Diethyl phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Dimethyl phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Di-n-butyl phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Di-n-octyl phthalate	ND		21	µg/L	1	5/20/2022 08:02 PM
Fluoranthene	ND		21	µg/L	1	5/20/2022 08:02 PM
Fluorene	ND		21	µg/L	1	5/20/2022 08:02 PM
Hexachlorobenzene	ND		21	µg/L	1	5/20/2022 08:02 PM
Hexachlorobutadiene	ND		21	µg/L	1	5/20/2022 08:02 PM
Hexachlorocyclopentadiene	ND		21	µg/L	1	5/20/2022 08:02 PM
Hexachloroethane	ND		21	µg/L	1	5/20/2022 08:02 PM
Indeno(1,2,3-cd)pyrene	ND		21	µg/L	1	5/20/2022 08:02 PM
Isophorone	ND		21	µg/L	1	5/20/2022 08:02 PM
Naphthalene	ND		21	µg/L	1	5/20/2022 08:02 PM
Nitrobenzene	ND		21	µg/L	1	5/20/2022 08:02 PM
N-Nitrosodi-n-propylamine	ND		21	µg/L	1	5/20/2022 08:02 PM
N-Nitrosodiphenylamine	ND		21	µg/L	1	5/20/2022 08:02 PM
Pentachlorophenol	ND		21	µg/L	1	5/20/2022 08:02 PM
Phenanthrene	ND		21	µg/L	1	5/20/2022 08:02 PM
Phenol	ND		21	µg/L	1	5/20/2022 08:02 PM
Pyrene	ND		21	µg/L	1	5/20/2022 08:02 PM
Surr: 2,4,6-Tribromophenol	73.4		27-83	%REC	1	5/20/2022 08:02 PM
Surr: 2-Fluorobiphenyl	62.8		26-79	%REC	1	5/20/2022 08:02 PM
Surr: 2-Fluorophenol	41.7		13-56	%REC	1	5/20/2022 08:02 PM
Surr: 4-Terphenyl-d14	85.7		43-106	%REC	1	5/20/2022 08:02 PM
Surr: Nitrobenzene-d5	64.0		29-80	%REC	1	5/20/2022 08:02 PM
Surr: Phenol-d6	27.4		10-35	%REC	1	5/20/2022 08:02 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-102

Lab ID: 22051511-02

Collection Date: 5/16/2022 02:46 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 12:24 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 12:24 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Acetone	ND		10	µg/L	1	5/20/2022 12:24 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 12:24 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 12:24 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 12:24 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 12:24 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: MW-102

Collection Date: 5/16/2022 02:46 PM

Work Order: 22051511

Lab ID: 22051511-02

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 12:24 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 12:24 AM
Surr: 1,2-Dichloroethane-d4	106		75-120	%REC	1	5/20/2022 12:24 AM
Surr: 4-Bromofluorobenzene	95.6		80-110	%REC	1	5/20/2022 12:24 AM
Surr: Dibromofluoromethane	101		85-115	%REC	1	5/20/2022 12:24 AM
Surr: Toluene-d8	103		85-110	%REC	1	5/20/2022 12:24 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-103
Collection Date: 5/16/2022 12:49 PM

Work Order: 22051511
Lab ID: 22051511-03
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 05:52 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 05:52 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 05:52 AM
<i>Surr: Decachlorobiphenyl</i>	111		42-153	%REC	1	5/21/2022 05:52 AM
<i>Surr: Tetrachloro-m-xylene</i>	92.1		48-127	%REC	1	5/21/2022 05:52 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:33 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/23/22 17:14	Analyst: STP
Aluminum	ND		0.010	mg/L	1	5/23/2022 07:20 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Arsenic	0.025		0.0050	mg/L	1	5/23/2022 07:20 PM
Barium	0.057		0.0050	mg/L	1	5/23/2022 07:20 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:20 PM
Boron	0.16		0.020	mg/L	1	5/23/2022 07:20 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:20 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:20 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:20 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/20/22 18:04	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorobutanesulfonic Acid (PFBS)	7.3		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorobutanoic Acid (PFBA)	40		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/25/2022 05:04 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-103
Collection Date: 5/16/2022 12:49 PM

Work Order: 22051511
Lab ID: 22051511-03
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluoroheptanoic Acid (PFHpA)	6.9		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorohexanoic Acid (PFHxA)	19		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		1.9	ng/L	1	5/25/2022 05:04 AM
Perfluorooctanoic Acid (PFOA)	4.8		1.9	ng/L	1	5/25/2022 05:04 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluoropentanoic Acid (PFPeA)	7.2		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 05:04 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/25/2022 05:04 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/25/2022 05:04 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/25/2022 05:04 AM
Surr: 13C2-FtS 4:2	124		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C2-FtS 6:2	89.3		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C2-FtS 8:2	115		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C2-PFDA	71.3		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C2-PFDoA	64.4		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C2-PFHxA	65.5		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C2-PFTeA	76.5		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C2-PFUnA	95.3		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C3-HFPO-DA	58.6		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C3-PFBS	77.0		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C4-PFBA	81.2		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C4-PFHpA	102		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C4-PFOA	98.0		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C4-PFOS	70.1		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C5-PFNA	96.2		50-150	%REC	1	5/25/2022 05:04 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-103
Collection Date: 5/16/2022 12:49 PM

Work Order: 22051511
Lab ID: 22051511-03
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	73.9		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 13C8-FOSA	87.8		50-150	%REC	1	5/25/2022 05:04 AM
Surr: 18O2-PFHxS	84.7		50-150	%REC	1	5/25/2022 05:04 AM
Surr: d5-N-EtFOSAA	123		50-150	%REC	1	5/25/2022 05:04 AM
Surr: d3-N-MeFOSAA	68.1		50-150	%REC	1	5/25/2022 05:04 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: EE

1,1'-Biphenyl	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 08:23 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 08:23 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 08:23 PM
3,3'-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 08:23 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 08:23 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 08:23 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 08:23 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 08:23 PM
Acetophenone	ND		3.8	µg/L	1	5/20/2022 08:23 PM
Anthracene	ND		19	µg/L	1	5/20/2022 08:23 PM
Atrazine	ND		3.8	µg/L	1	5/20/2022 08:23 PM
Benzaldehyde	ND		3.8	µg/L	1	5/20/2022 08:23 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 08:23 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 08:23 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 08:23 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-103

Lab ID: 22051511-03

Collection Date: 5/16/2022 12:49 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 08:23 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 08:23 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 08:23 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 08:23 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 08:23 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Caprolactam	ND		38	µg/L	1	5/20/2022 08:23 PM
Carbazole	ND		19	µg/L	1	5/20/2022 08:23 PM
Chrysene	ND		19	µg/L	1	5/20/2022 08:23 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 08:23 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 08:23 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 08:23 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 08:23 PM
Fluorene	ND		19	µg/L	1	5/20/2022 08:23 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 08:23 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 08:23 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 08:23 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 08:23 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 08:23 PM
Isophorone	ND		19	µg/L	1	5/20/2022 08:23 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 08:23 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 08:23 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 08:23 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 08:23 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 08:23 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 08:23 PM
Phenol	ND		19	µg/L	1	5/20/2022 08:23 PM
Pyrene	ND		19	µg/L	1	5/20/2022 08:23 PM
Surr: 2,4,6-Tribromophenol	71.4		27-83	%REC	1	5/20/2022 08:23 PM
Surr: 2-Fluorobiphenyl	64.3		26-79	%REC	1	5/20/2022 08:23 PM
Surr: 2-Fluorophenol	42.6		13-56	%REC	1	5/20/2022 08:23 PM
Surr: 4-Terphenyl-d14	77.2		43-106	%REC	1	5/20/2022 08:23 PM
Surr: Nitrobenzene-d5	62.4		29-80	%REC	1	5/20/2022 08:23 PM
Surr: Phenol-d6	28.3		10-35	%REC	1	5/20/2022 08:23 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-103

Lab ID: 22051511-03

Collection Date: 5/16/2022 12:49 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 12:43 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 12:43 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Acetone	ND		10	µg/L	1	5/20/2022 12:43 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 12:43 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 12:43 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 12:43 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 12:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: MW-103

Collection Date: 5/16/2022 12:49 PM

Work Order: 22051511

Lab ID: 22051511-03

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 12:43 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 12:43 AM
Surr: 1,2-Dichloroethane-d4	98.2		75-120	%REC	1	5/20/2022 12:43 AM
Surr: 4-Bromofluorobenzene	98.0		80-110	%REC	1	5/20/2022 12:43 AM
Surr: Dibromofluoromethane	105		85-115	%REC	1	5/20/2022 12:43 AM
Surr: Toluene-d8	107		85-110	%REC	1	5/20/2022 12:43 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-104
Collection Date: 5/16/2022 01:02 PM

Work Order: 22051511
Lab ID: 22051511-04
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 06:04 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 06:04 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 06:04 AM
<i>Surr: Decachlorobiphenyl</i>	99.1		42-153	%REC	1	5/21/2022 06:04 AM
<i>Surr: Tetrachloro-m-xylene</i>	91.4		48-127	%REC	1	5/21/2022 06:04 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:34 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/23/22 17:14	Analyst: STP
Aluminum	0.029		0.010	mg/L	1	5/23/2022 07:22 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Barium	0.086		0.0050	mg/L	1	5/23/2022 07:22 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:22 PM
Boron	0.025		0.020	mg/L	1	5/23/2022 07:22 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:22 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:22 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 04:57 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/20/22 18:04	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorobutanesulfonic Acid (PFBS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorobutanoic Acid (PFBA)	13		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-104

Lab ID: 22051511-04

Collection Date: 5/16/2022 01:02 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/25/2022 05:13 AM
Perfluorooctanoic Acid (PFOA)	ND		2.0	ng/L	1	5/25/2022 05:13 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 05:13 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/25/2022 05:13 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/25/2022 05:13 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/25/2022 05:13 AM
Surr: 13C2-FtS 4:2	112		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C2-FtS 6:2	108		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C2-FtS 8:2	115		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C2-PFDA	86.9		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C2-PFDoA	81.4		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C2-PFHxA	87.9		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C2-PFTeA	88.7		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C2-PFUnA	96.5		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C3-HFPO-DA	81.3		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C3-PFBS	84.5		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C4-PFBA	95.8		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C4-PFHpA	94.4		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C4-PFOA	96.6		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C4-PFOS	85.8		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C5-PFNA	117		50-150	%REC	1	5/25/2022 05:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-104
Collection Date: 5/16/2022 01:02 PM

Work Order: 22051511
Lab ID: 22051511-04
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	91.5		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 13C8-FOSA	121		50-150	%REC	1	5/25/2022 05:13 AM
Surr: 18O2-PFHxS	109		50-150	%REC	1	5/25/2022 05:13 AM
Surr: d5-N-EtFOSAA	129		50-150	%REC	1	5/25/2022 05:13 AM
Surr: d3-N-MeFOSAA	92.0		50-150	%REC	1	5/25/2022 05:13 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D Prep: SW3510 5/20/22 14:40

Analyst: **EE**

1,1'-Biphenyl	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4,5-Trichlorophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4,6-Trichlorophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4-Dichlorophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4-Dimethylphenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4-Dinitrophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2,4-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 08:43 PM
2,6-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Chloronaphthalene	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Chlorophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Methylnaphthalene	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Methylphenol	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Nitroaniline	ND		20	µg/L	1	5/20/2022 08:43 PM
2-Nitrophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
3&4-Methylphenol	ND		20	µg/L	1	5/20/2022 08:43 PM
3,3'-Dichlorobenzidine	ND		20	µg/L	1	5/20/2022 08:43 PM
3-Nitroaniline	ND		20	µg/L	1	5/20/2022 08:43 PM
4,6-Dinitro-2-methylphenol	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Bromophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Chloro-3-methylphenol	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Chloroaniline	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Chlorophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Nitroaniline	ND		20	µg/L	1	5/20/2022 08:43 PM
4-Nitrophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
Acenaphthene	ND		20	µg/L	1	5/20/2022 08:43 PM
Acenaphthylene	ND		20	µg/L	1	5/20/2022 08:43 PM
Acetophenone	ND		4.1	µg/L	1	5/20/2022 08:43 PM
Anthracene	ND		20	µg/L	1	5/20/2022 08:43 PM
Atrazine	ND		4.1	µg/L	1	5/20/2022 08:43 PM
Benzaldehyde	ND		4.1	µg/L	1	5/20/2022 08:43 PM
Benzo(a)anthracene	ND		20	µg/L	1	5/20/2022 08:43 PM
Benzo(a)pyrene	ND		20	µg/L	1	5/20/2022 08:43 PM
Benzo(b)fluoranthene	ND		20	µg/L	1	5/20/2022 08:43 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-104

Lab ID: 22051511-04

Collection Date: 5/16/2022 01:02 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		20	µg/L	1	5/20/2022 08:43 PM
Benzo(k)fluoranthene	ND		20	µg/L	1	5/20/2022 08:43 PM
Bis(2-chloroethoxy)methane	ND		20	µg/L	1	5/20/2022 08:43 PM
Bis(2-chloroethyl)ether	ND		20	µg/L	1	5/20/2022 08:43 PM
Bis(2-chloroisopropyl)ether	ND		20	µg/L	1	5/20/2022 08:43 PM
Bis(2-ethylhexyl)phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Butyl benzyl phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Caprolactam	ND		41	µg/L	1	5/20/2022 08:43 PM
Carbazole	ND		20	µg/L	1	5/20/2022 08:43 PM
Chrysene	ND		20	µg/L	1	5/20/2022 08:43 PM
Dibenzo(a,h)anthracene	ND		20	µg/L	1	5/20/2022 08:43 PM
Dibenzofuran	ND		20	µg/L	1	5/20/2022 08:43 PM
Diethyl phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Dimethyl phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Di-n-butyl phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Di-n-octyl phthalate	ND		20	µg/L	1	5/20/2022 08:43 PM
Fluoranthene	ND		20	µg/L	1	5/20/2022 08:43 PM
Fluorene	ND		20	µg/L	1	5/20/2022 08:43 PM
Hexachlorobenzene	ND		20	µg/L	1	5/20/2022 08:43 PM
Hexachlorobutadiene	ND		20	µg/L	1	5/20/2022 08:43 PM
Hexachlorocyclopentadiene	ND		20	µg/L	1	5/20/2022 08:43 PM
Hexachloroethane	ND		20	µg/L	1	5/20/2022 08:43 PM
Indeno(1,2,3-cd)pyrene	ND		20	µg/L	1	5/20/2022 08:43 PM
Isophorone	ND		20	µg/L	1	5/20/2022 08:43 PM
Naphthalene	ND		20	µg/L	1	5/20/2022 08:43 PM
Nitrobenzene	ND		20	µg/L	1	5/20/2022 08:43 PM
N-Nitrosodi-n-propylamine	ND		20	µg/L	1	5/20/2022 08:43 PM
N-Nitrosodiphenylamine	ND		20	µg/L	1	5/20/2022 08:43 PM
Pentachlorophenol	ND		20	µg/L	1	5/20/2022 08:43 PM
Phenanthrene	ND		20	µg/L	1	5/20/2022 08:43 PM
Phenol	ND		20	µg/L	1	5/20/2022 08:43 PM
Pyrene	ND		20	µg/L	1	5/20/2022 08:43 PM
Surr: 2,4,6-Tribromophenol	63.4		27-83	%REC	1	5/20/2022 08:43 PM
Surr: 2-Fluorobiphenyl	61.9		26-79	%REC	1	5/20/2022 08:43 PM
Surr: 2-Fluorophenol	38.7		13-56	%REC	1	5/20/2022 08:43 PM
Surr: 4-Terphenyl-d14	75.3		43-106	%REC	1	5/20/2022 08:43 PM
Surr: Nitrobenzene-d5	60.6		29-80	%REC	1	5/20/2022 08:43 PM
Surr: Phenol-d6	25.6		10-35	%REC	1	5/20/2022 08:43 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-104

Lab ID: 22051511-04

Collection Date: 5/16/2022 01:02 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 01:01 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 01:01 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Acetone	ND		10	µg/L	1	5/20/2022 01:01 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 01:01 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 01:01 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 01:01 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 01:01 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: MW-104

Collection Date: 5/16/2022 01:02 PM

Work Order: 22051511

Lab ID: 22051511-04

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 01:01 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 01:01 AM
Surr: 1,2-Dichloroethane-d4	100		75-120	%REC	1	5/20/2022 01:01 AM
Surr: 4-Bromofluorobenzene	90.6		80-110	%REC	1	5/20/2022 01:01 AM
Surr: Dibromofluoromethane	102		85-115	%REC	1	5/20/2022 01:01 AM
Surr: Toluene-d8	97.2		85-110	%REC	1	5/20/2022 01:01 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-105
Collection Date: 5/16/2022 01:42 PM

Work Order: 22051511
Lab ID: 22051511-05
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 06:17 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 06:17 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 06:17 AM
<i>Surr: Decachlorobiphenyl</i>	89.3		42-153	%REC	1	5/21/2022 06:17 AM
<i>Surr: Tetrachloro-m-xylene</i>	89.0		48-127	%REC	1	5/21/2022 06:17 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:36 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/23/22 17:14	Analyst: STP
Aluminum	ND		0.010	mg/L	1	5/23/2022 07:23 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Arsenic	0.016		0.0050	mg/L	1	5/23/2022 07:23 PM
Barium	0.14		0.0050	mg/L	1	5/23/2022 07:23 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:23 PM
Boron	0.028		0.020	mg/L	1	5/23/2022 07:23 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:23 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:23 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:23 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/20/22 18:04	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorobutanesulfonic Acid (PFBS)	11		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorobutanoic Acid (PFBA)	65		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.8	ng/L	1	5/25/2022 05:21 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-105

Lab ID: 22051511-05

Collection Date: 5/16/2022 01:42 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorohexanoic Acid (PFHxA)	5.3		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorononanoic Acid (PFNA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		1.9	ng/L	1	5/25/2022 05:21 AM
Perfluorooctanoic Acid (PFOA)	5.8		1.9	ng/L	1	5/25/2022 05:21 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluoropentanoic Acid (PFPeA)	11		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/25/2022 05:21 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.8	ng/L	1	5/25/2022 05:21 AM
11Cl-Pf3OUdS	ND		4.8	ng/L	1	5/25/2022 05:21 AM
9Cl-PF3ONS	ND		4.8	ng/L	1	5/25/2022 05:21 AM
Surr: 13C2-FtS 4:2	171	S	50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C2-FtS 6:2	130		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C2-FtS 8:2	113		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C2-PFDA	90.1		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C2-PFDoA	89.6		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C2-PFHxA	104		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C2-PFTeA	92.0		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C2-PFUnA	91.1		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C3-HFPO-DA	97.1		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C3-PFBS	87.8		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C4-PFBA	104		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C4-PFHpA	87.6		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C4-PFOA	92.6		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C4-PFOS	91.3		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C5-PFNA	110		50-150	%REC	1	5/25/2022 05:21 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-105
Collection Date: 5/16/2022 01:42 PM

Work Order: 22051511
Lab ID: 22051511-05
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	97.0		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 13C8-FOSA	98.1		50-150	%REC	1	5/25/2022 05:21 AM
Surr: 18O2-PFHxS	93.7		50-150	%REC	1	5/25/2022 05:21 AM
Surr: d5-N-EtFOSAA	118		50-150	%REC	1	5/25/2022 05:21 AM
Surr: d3-N-MeFOSAA	95.2		50-150	%REC	1	5/25/2022 05:21 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: EE

1,1'-Biphenyl	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 09:04 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:04 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 09:04 PM
3,3'-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 09:04 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:04 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:04 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 09:04 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 09:04 PM
Acetophenone	ND		3.9	µg/L	1	5/20/2022 09:04 PM
Anthracene	ND		19	µg/L	1	5/20/2022 09:04 PM
Atrazine	ND		3.9	µg/L	1	5/20/2022 09:04 PM
Benzaldehyde	ND		3.9	µg/L	1	5/20/2022 09:04 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 09:04 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 09:04 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 09:04 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-105

Lab ID: 22051511-05

Collection Date: 5/16/2022 01:42 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 09:04 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 09:04 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 09:04 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 09:04 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 09:04 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Caprolactam	ND		39	µg/L	1	5/20/2022 09:04 PM
Carbazole	ND		19	µg/L	1	5/20/2022 09:04 PM
Chrysene	ND		19	µg/L	1	5/20/2022 09:04 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 09:04 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 09:04 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 09:04 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 09:04 PM
Fluorene	ND		19	µg/L	1	5/20/2022 09:04 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 09:04 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 09:04 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 09:04 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 09:04 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 09:04 PM
Isophorone	ND		19	µg/L	1	5/20/2022 09:04 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 09:04 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 09:04 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 09:04 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 09:04 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 09:04 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 09:04 PM
Phenol	ND		19	µg/L	1	5/20/2022 09:04 PM
Pyrene	ND		19	µg/L	1	5/20/2022 09:04 PM
Surr: 2,4,6-Tribromophenol	70.6		27-83	%REC	1	5/20/2022 09:04 PM
Surr: 2-Fluorobiphenyl	64.3		26-79	%REC	1	5/20/2022 09:04 PM
Surr: 2-Fluorophenol	39.6		13-56	%REC	1	5/20/2022 09:04 PM
Surr: 4-Terphenyl-d14	79.5		43-106	%REC	1	5/20/2022 09:04 PM
Surr: Nitrobenzene-d5	64.9		29-80	%REC	1	5/20/2022 09:04 PM
Surr: Phenol-d6	27.0		10-35	%REC	1	5/20/2022 09:04 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-105

Lab ID: 22051511-05

Collection Date: 5/16/2022 01:42 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 01:19 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 01:19 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Acetone	ND		10	µg/L	1	5/20/2022 01:19 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 01:19 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 01:19 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 01:19 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 01:19 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: MW-105

Collection Date: 5/16/2022 01:42 PM

Work Order: 22051511

Lab ID: 22051511-05

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 01:19 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 01:19 AM
Surr: 1,2-Dichloroethane-d4	99.4		75-120	%REC	1	5/20/2022 01:19 AM
Surr: 4-Bromofluorobenzene	89.4		80-110	%REC	1	5/20/2022 01:19 AM
Surr: Dibromofluoromethane	98.6		85-115	%REC	1	5/20/2022 01:19 AM
Surr: Toluene-d8	104		85-110	%REC	1	5/20/2022 01:19 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-106
Collection Date: 5/16/2022 02:10 PM

Work Order: 22051511
Lab ID: 22051511-06
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 06:30 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 06:30 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 06:30 AM
<i>Surr: Decachlorobiphenyl</i>	106		42-153	%REC	1	5/21/2022 06:30 AM
<i>Surr: Tetrachloro-m-xylene</i>	91.8		48-127	%REC	1	5/21/2022 06:30 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:38 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/23/22 17:14	Analyst: STP
Aluminum	0.011		0.010	mg/L	1	5/23/2022 07:25 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Barium	0.074		0.0050	mg/L	1	5/23/2022 07:25 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:25 PM
Boron	0.42		0.020	mg/L	1	5/23/2022 07:25 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:25 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:25 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 04:58 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/20/22 18:04	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorobutanesulfonic Acid (PFBS)	35		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorobutanoic Acid (PFBA)	270		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.0	ng/L	1	5/25/2022 05:29 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-106
Collection Date: 5/16/2022 02:10 PM

Work Order: 22051511
Lab ID: 22051511-06
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorododecanoic Acid (PFDoA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluoroheptanoic Acid (PFHpA)	25		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorohexanesulfonic Acid (PFHxS)	29		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorohexanoic Acid (PFHxA)	28		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorononanesulfonic Acid (PFNS)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorononanoic Acid (PFNA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorooctanesulfonamide (PFOSA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorooctanesulfonic Acid (PFOS)	12		2.0	ng/L	1	5/25/2022 05:29 AM
Perfluorooctanoic Acid (PFOA)	68		2.0	ng/L	1	5/25/2022 05:29 AM
Perfluoropentanesulfonic Acid (PFPeS)	18		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluoropentanoic Acid (PFPeA)	11		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluorotridecanoic Acid (PFTriA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Perfluoroundecanoic Acid (PFUnA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		5.0	ng/L	1	5/25/2022 05:29 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.0	ng/L	1	5/25/2022 05:29 AM
11Cl-Pf3OUdS	ND		5.0	ng/L	1	5/25/2022 05:29 AM
9Cl-PF3ONS	ND		5.0	ng/L	1	5/25/2022 05:29 AM
Surr: 13C2-FtS 4:2	181	S	50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C2-FtS 6:2	138		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C2-FtS 8:2	121		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C2-PFDA	88.3		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C2-PFDoA	81.5		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C2-PFHxA	97.4		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C2-PFTeA	98.1		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C2-PFUnA	90.5		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C3-HFPO-DA	96.1		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C3-PFBS	85.7		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C4-PFBA	95.3		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C4-PFHpA	83.5		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C4-PFOA	85.8		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C4-PFOS	87.4		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C5-PFNA	102		50-150	%REC	1	5/25/2022 05:29 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-106
Collection Date: 5/16/2022 02:10 PM

Work Order: 22051511
Lab ID: 22051511-06
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	92.2		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 13C8-FOSA	96.5		50-150	%REC	1	5/25/2022 05:29 AM
Surr: 18O2-PFHxS	79.0		50-150	%REC	1	5/25/2022 05:29 AM
Surr: d5-N-EtFOSAA	108		50-150	%REC	1	5/25/2022 05:29 AM
Surr: d3-N-MeFOSAA	95.8		50-150	%REC	1	5/25/2022 05:29 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: EE

1,1'-Biphenyl	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 09:25 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:25 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 09:25 PM
3,3'-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 09:25 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:25 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 09:25 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 09:25 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 09:25 PM
Acetophenone	ND		3.7	µg/L	1	5/20/2022 09:25 PM
Anthracene	ND		19	µg/L	1	5/20/2022 09:25 PM
Atrazine	ND		3.7	µg/L	1	5/20/2022 09:25 PM
Benzaldehyde	ND		3.7	µg/L	1	5/20/2022 09:25 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 09:25 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 09:25 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 09:25 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-106

Lab ID: 22051511-06

Collection Date: 5/16/2022 02:10 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 09:25 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 09:25 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 09:25 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 09:25 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 09:25 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Caprolactam	ND		37	µg/L	1	5/20/2022 09:25 PM
Carbazole	ND		19	µg/L	1	5/20/2022 09:25 PM
Chrysene	ND		19	µg/L	1	5/20/2022 09:25 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 09:25 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 09:25 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 09:25 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 09:25 PM
Fluorene	ND		19	µg/L	1	5/20/2022 09:25 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 09:25 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 09:25 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 09:25 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 09:25 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 09:25 PM
Isophorone	ND		19	µg/L	1	5/20/2022 09:25 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 09:25 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 09:25 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 09:25 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 09:25 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 09:25 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 09:25 PM
Phenol	ND		19	µg/L	1	5/20/2022 09:25 PM
Pyrene	ND		19	µg/L	1	5/20/2022 09:25 PM
Surr: 2,4,6-Tribromophenol	68.1		27-83	%REC	1	5/20/2022 09:25 PM
Surr: 2-Fluorobiphenyl	63.4		26-79	%REC	1	5/20/2022 09:25 PM
Surr: 2-Fluorophenol	42.2		13-56	%REC	1	5/20/2022 09:25 PM
Surr: 4-Terphenyl-d14	83.0		43-106	%REC	1	5/20/2022 09:25 PM
Surr: Nitrobenzene-d5	63.2		29-80	%REC	1	5/20/2022 09:25 PM
Surr: Phenol-d6	27.8		10-35	%REC	1	5/20/2022 09:25 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-106

Lab ID: 22051511-06

Collection Date: 5/16/2022 02:10 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 01:38 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 01:38 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Acetone	ND		10	µg/L	1	5/20/2022 01:38 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 01:38 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 01:38 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 01:38 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 01:38 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-106

Lab ID: 22051511-06

Collection Date: 5/16/2022 02:10 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 01:38 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 01:38 AM
Surr: 1,2-Dichloroethane-d4	95.1		75-120	%REC	1	5/20/2022 01:38 AM
Surr: 4-Bromofluorobenzene	90.6		80-110	%REC	1	5/20/2022 01:38 AM
Surr: Dibromofluoromethane	100		85-115	%REC	1	5/20/2022 01:38 AM
Surr: Toluene-d8	100		85-110	%REC	1	5/20/2022 01:38 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-200
Collection Date: 5/16/2022 03:55 PM

Work Order: 22051511
Lab ID: 22051511-07
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 06:43 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 06:43 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 06:43 AM
<i>Surr: Decachlorobiphenyl</i>	93.1		42-153	%REC	1	5/21/2022 06:43 AM
<i>Surr: Tetrachloro-m-xylene</i>	90.1		48-127	%REC	1	5/21/2022 06:43 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:40 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/23/22 17:14	Analyst: STP
Aluminum	0.032		0.010	mg/L	1	5/23/2022 07:27 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Arsenic	0.0096		0.0050	mg/L	1	5/23/2022 07:27 PM
Barium	0.30		0.0050	mg/L	1	5/23/2022 07:27 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:27 PM
Boron	0.11		0.020	mg/L	1	5/23/2022 07:27 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:27 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:27 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 05:00 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/20/22 18:04	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorobutanesulfonic Acid (PFBS)	6.1		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorobutanoic Acid (PFBA)	9.0		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.6	ng/L	1	5/25/2022 05:37 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-200
Collection Date: 5/16/2022 03:55 PM

Work Order: 22051511
Lab ID: 22051511-07
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluoroheptanoic Acid (PFHpA)	5.0		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorohexanesulfonic Acid (PFHxS)	15		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorononanoic Acid (PFNA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorooctanesulfonic Acid (PFOS)	3.2		1.9	ng/L	1	5/25/2022 05:37 AM
Perfluorooctanoic Acid (PFOA)	16		1.9	ng/L	1	5/25/2022 05:37 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.6	ng/L	1	5/25/2022 05:37 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.6	ng/L	1	5/25/2022 05:37 AM
11Cl-Pf3OUdS	ND		4.6	ng/L	1	5/25/2022 05:37 AM
9Cl-PF3ONS	ND		4.6	ng/L	1	5/25/2022 05:37 AM
Surr: 13C2-FtS 4:2	99.2		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C2-FtS 6:2	109		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C2-FtS 8:2	125		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C2-PFDA	85.6		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C2-PFDoA	73.5		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C2-PFHxA	95.3		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C2-PFTeA	88.7		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C2-PFUnA	80.6		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C3-HFPO-DA	95.1		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C3-PFBS	84.5		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C4-PFBA	92.3		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C4-PFHpA	78.6		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C4-PFOA	82.1		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C4-PFOS	86.3		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C5-PFNA	94.9		50-150	%REC	1	5/25/2022 05:37 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-200
Collection Date: 5/16/2022 03:55 PM

Work Order: 22051511
Lab ID: 22051511-07
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	86.5		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 13C8-FOSA	76.6		50-150	%REC	1	5/25/2022 05:37 AM
Surr: 18O2-PFHxS	81.2		50-150	%REC	1	5/25/2022 05:37 AM
Surr: d5-N-EtFOSAA	99.8		50-150	%REC	1	5/25/2022 05:37 AM
Surr: d3-N-MeFOSAA	87.6		50-150	%REC	1	5/25/2022 05:37 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D Prep: SW3510 5/20/22 14:40

Analyst: **EE**

1,1'-Biphenyl	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4,5-Trichlorophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4,6-Trichlorophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4-Dichlorophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4-Dimethylphenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4-Dinitrophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2,4-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 09:45 PM
2,6-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Chloronaphthalene	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Chlorophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Methylnaphthalene	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Methylphenol	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Nitroaniline	ND		20	µg/L	1	5/20/2022 09:45 PM
2-Nitrophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
3&4-Methylphenol	ND		20	µg/L	1	5/20/2022 09:45 PM
3,3'-Dichlorobenzidine	ND		20	µg/L	1	5/20/2022 09:45 PM
3-Nitroaniline	ND		20	µg/L	1	5/20/2022 09:45 PM
4,6-Dinitro-2-methylphenol	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Bromophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Chloro-3-methylphenol	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Chloroaniline	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Chlorophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Nitroaniline	ND		20	µg/L	1	5/20/2022 09:45 PM
4-Nitrophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
Acenaphthene	ND		20	µg/L	1	5/20/2022 09:45 PM
Acenaphthylene	ND		20	µg/L	1	5/20/2022 09:45 PM
Acetophenone	ND		3.9	µg/L	1	5/20/2022 09:45 PM
Anthracene	ND		20	µg/L	1	5/20/2022 09:45 PM
Atrazine	ND		3.9	µg/L	1	5/20/2022 09:45 PM
Benzaldehyde	ND		3.9	µg/L	1	5/20/2022 09:45 PM
Benzo(a)anthracene	ND		20	µg/L	1	5/20/2022 09:45 PM
Benzo(a)pyrene	ND		20	µg/L	1	5/20/2022 09:45 PM
Benzo(b)fluoranthene	ND		20	µg/L	1	5/20/2022 09:45 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-200

Lab ID: 22051511-07

Collection Date: 5/16/2022 03:55 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		20	µg/L	1	5/20/2022 09:45 PM
Benzo(k)fluoranthene	ND		20	µg/L	1	5/20/2022 09:45 PM
Bis(2-chloroethoxy)methane	ND		20	µg/L	1	5/20/2022 09:45 PM
Bis(2-chloroethyl)ether	ND		20	µg/L	1	5/20/2022 09:45 PM
Bis(2-chloroisopropyl)ether	ND		20	µg/L	1	5/20/2022 09:45 PM
Bis(2-ethylhexyl)phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Butyl benzyl phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Caprolactam	ND		39	µg/L	1	5/20/2022 09:45 PM
Carbazole	ND		20	µg/L	1	5/20/2022 09:45 PM
Chrysene	ND		20	µg/L	1	5/20/2022 09:45 PM
Dibenzo(a,h)anthracene	ND		20	µg/L	1	5/20/2022 09:45 PM
Dibenzofuran	ND		20	µg/L	1	5/20/2022 09:45 PM
Diethyl phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Dimethyl phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Di-n-butyl phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Di-n-octyl phthalate	ND		20	µg/L	1	5/20/2022 09:45 PM
Fluoranthene	ND		20	µg/L	1	5/20/2022 09:45 PM
Fluorene	ND		20	µg/L	1	5/20/2022 09:45 PM
Hexachlorobenzene	ND		20	µg/L	1	5/20/2022 09:45 PM
Hexachlorobutadiene	ND		20	µg/L	1	5/20/2022 09:45 PM
Hexachlorocyclopentadiene	ND		20	µg/L	1	5/20/2022 09:45 PM
Hexachloroethane	ND		20	µg/L	1	5/20/2022 09:45 PM
Indeno(1,2,3-cd)pyrene	ND		20	µg/L	1	5/20/2022 09:45 PM
Isophorone	ND		20	µg/L	1	5/20/2022 09:45 PM
Naphthalene	ND		20	µg/L	1	5/20/2022 09:45 PM
Nitrobenzene	ND		20	µg/L	1	5/20/2022 09:45 PM
N-Nitrosodi-n-propylamine	ND		20	µg/L	1	5/20/2022 09:45 PM
N-Nitrosodiphenylamine	ND		20	µg/L	1	5/20/2022 09:45 PM
Pentachlorophenol	ND		20	µg/L	1	5/20/2022 09:45 PM
Phenanthrene	ND		20	µg/L	1	5/20/2022 09:45 PM
Phenol	ND		20	µg/L	1	5/20/2022 09:45 PM
Pyrene	ND		20	µg/L	1	5/20/2022 09:45 PM
Surr: 2,4,6-Tribromophenol	62.8		27-83	%REC	1	5/20/2022 09:45 PM
Surr: 2-Fluorobiphenyl	61.1		26-79	%REC	1	5/20/2022 09:45 PM
Surr: 2-Fluorophenol	43.7		13-56	%REC	1	5/20/2022 09:45 PM
Surr: 4-Terphenyl-d14	71.8		43-106	%REC	1	5/20/2022 09:45 PM
Surr: Nitrobenzene-d5	61.4		29-80	%REC	1	5/20/2022 09:45 PM
Surr: Phenol-d6	28.7		10-35	%REC	1	5/20/2022 09:45 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-200

Lab ID: 22051511-07

Collection Date: 5/16/2022 03:55 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 01:56 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 01:56 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Acetone	ND		10	µg/L	1	5/20/2022 01:56 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 01:56 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 01:56 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 01:56 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 01:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: MW-200

Collection Date: 5/16/2022 03:55 PM

Work Order: 22051511

Lab ID: 22051511-07

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 01:56 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 01:56 AM
Surr: 1,2-Dichloroethane-d4	100		75-120	%REC	1	5/20/2022 01:56 AM
Surr: 4-Bromofluorobenzene	88.8		80-110	%REC	1	5/20/2022 01:56 AM
Surr: Dibromofluoromethane	104		85-115	%REC	1	5/20/2022 01:56 AM
Surr: Toluene-d8	97.2		85-110	%REC	1	5/20/2022 01:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-201

Lab ID: 22051511-08

Collection Date: 5/16/2022 04:45 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A	Prep: SW3511	5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 06:56 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 06:56 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 06:56 AM
<i>Surr: Decachlorobiphenyl</i>	112		42-153	%REC	1	5/21/2022 06:56 AM
<i>Surr: Tetrachloro-m-xylene</i>	96.4		48-127	%REC	1	5/21/2022 06:56 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A	Prep: SW7470	5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:42 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B	Prep: SW3015A	5/23/22 17:14	Analyst: STP
Aluminum	ND		0.010	mg/L	1	5/23/2022 07:28 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Barium	0.12		0.0050	mg/L	1	5/23/2022 07:28 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:28 PM
Boron	0.088		0.020	mg/L	1	5/23/2022 07:28 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:28 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:28 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:28 PM
PFAS BY EPA 537 MODIFIED			E537 MOD	Prep: E537 Mod	5/23/22 17:15	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorobutanesulfonic Acid (PFBS)	17		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorobutanoic Acid (PFBA)	10		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/25/2022 08:15 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-201
Collection Date: 5/16/2022 04:45 PM

Work Order: 22051511
Lab ID: 22051511-08
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluoroheptanoic Acid (PFHpA)	7.4		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorohexanesulfonic Acid (PFHxS)	19		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorohexanoic Acid (PFHxA)	5.4		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/25/2022 08:15 AM
Perfluorooctanoic Acid (PFOA)	25		2.0	ng/L	1	5/25/2022 08:15 AM
Perfluoropentanesulfonic Acid (PFPeS)	5.8		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 08:15 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/25/2022 08:15 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/25/2022 08:15 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/25/2022 08:15 AM
Surr: 13C2-FtS 4:2	91.9		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C2-FtS 6:2	83.2		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C2-FtS 8:2	70.6		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C2-PFDA	61.0		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C2-PFDoA	55.6		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C2-PFHxA	68.5		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C2-PFTeA	73.8		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C2-PFUnA	87.0		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C3-HFPO-DA	71.3		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C3-PFBS	93.8		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C4-PFBA	91.1		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C4-PFHpA	105		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C4-PFOA	94.0		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C4-PFOS	75.6		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C5-PFNA	86.4		50-150	%REC	1	5/25/2022 08:15 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-201
Collection Date: 5/16/2022 04:45 PM

Work Order: 22051511
Lab ID: 22051511-08
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	83.3		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 13C8-FOSA	80.6		50-150	%REC	1	5/25/2022 08:15 AM
Surr: 18O2-PFHxS	93.5		50-150	%REC	1	5/25/2022 08:15 AM
Surr: d5-N-EtFOSAA	81.1		50-150	%REC	1	5/25/2022 08:15 AM
Surr: d3-N-MeFOSAA	47.2	S	50-150	%REC	1	5/25/2022 08:15 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: EE

1,1'-Biphenyl	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 10:06 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:06 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 10:06 PM
3,3'-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 10:06 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:06 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:06 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 10:06 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 10:06 PM
Acetophenone	ND		3.8	µg/L	1	5/20/2022 10:06 PM
Anthracene	ND		19	µg/L	1	5/20/2022 10:06 PM
Atrazine	ND		3.8	µg/L	1	5/20/2022 10:06 PM
Benzaldehyde	ND		3.8	µg/L	1	5/20/2022 10:06 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 10:06 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 10:06 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 10:06 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-201

Lab ID: 22051511-08

Collection Date: 5/16/2022 04:45 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 10:06 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 10:06 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 10:06 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 10:06 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 10:06 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Caprolactam	ND		38	µg/L	1	5/20/2022 10:06 PM
Carbazole	ND		19	µg/L	1	5/20/2022 10:06 PM
Chrysene	ND		19	µg/L	1	5/20/2022 10:06 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 10:06 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 10:06 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 10:06 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 10:06 PM
Fluorene	ND		19	µg/L	1	5/20/2022 10:06 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 10:06 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 10:06 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 10:06 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 10:06 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 10:06 PM
Isophorone	ND		19	µg/L	1	5/20/2022 10:06 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 10:06 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 10:06 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 10:06 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 10:06 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 10:06 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 10:06 PM
Phenol	ND		19	µg/L	1	5/20/2022 10:06 PM
Pyrene	ND		19	µg/L	1	5/20/2022 10:06 PM
Surr: 2,4,6-Tribromophenol	68.7		27-83	%REC	1	5/20/2022 10:06 PM
Surr: 2-Fluorobiphenyl	67.6		26-79	%REC	1	5/20/2022 10:06 PM
Surr: 2-Fluorophenol	46.8		13-56	%REC	1	5/20/2022 10:06 PM
Surr: 4-Terphenyl-d14	79.6		43-106	%REC	1	5/20/2022 10:06 PM
Surr: Nitrobenzene-d5	67.2		29-80	%REC	1	5/20/2022 10:06 PM
Surr: Phenol-d6	30.9		10-35	%REC	1	5/20/2022 10:06 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **HJ**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-201

Lab ID: 22051511-08

Collection Date: 5/16/2022 04:45 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 02:41 PM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 02:41 PM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Acetone	ND		10	µg/L	1	5/20/2022 02:41 PM
Benzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Bromoform	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Chloroform	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 02:41 PM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 02:41 PM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 02:41 PM
Styrene	ND		1.0	µg/L	1	5/20/2022 02:41 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-201

Lab ID: 22051511-08

Collection Date: 5/16/2022 04:45 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Toluene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 02:41 PM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 02:41 PM
Surr: 1,2-Dichloroethane-d4	104		75-120	%REC	1	5/20/2022 02:41 PM
Surr: 4-Bromofluorobenzene	93.2		80-110	%REC	1	5/20/2022 02:41 PM
Surr: Dibromofluoromethane	99.4		85-115	%REC	1	5/20/2022 02:41 PM
Surr: Toluene-d8	98.6		85-110	%REC	1	5/20/2022 02:41 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-202
Collection Date: 5/16/2022 11:45 AM

Work Order: 22051511
Lab ID: 22051511-09
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 07:08 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 07:08 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 07:08 AM
<i>Surr: Decachlorobiphenyl</i>	59.0		42-153	%REC	1	5/21/2022 07:08 AM
<i>Surr: Tetrachloro-m-xylene</i>	84.5		48-127	%REC	1	5/21/2022 07:08 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:43 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/23/22 17:14	Analyst: STP
Aluminum	0.015		0.010	mg/L	1	5/23/2022 07:30 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Barium	0.38		0.0050	mg/L	1	5/23/2022 07:30 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:30 PM
Boron	0.69		0.020	mg/L	1	5/23/2022 07:30 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:30 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Nickel	0.0056		0.0050	mg/L	1	5/23/2022 07:30 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:30 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:30 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/23/22 17:15	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorobutanesulfonic Acid (PFBS)	22		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorobutanoic Acid (PFBA)	470		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.1	ng/L	1	5/25/2022 08:23 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-202
Collection Date: 5/16/2022 11:45 AM

Work Order: 22051511
Lab ID: 22051511-09
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorododecanoic Acid (PFDoA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluoroheptanesulfonic Acid (PFHpS)	7.5		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluoroheptanoic Acid (PFHpA)	45		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorohexanesulfonic Acid (PFHxS)	71		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorohexanoic Acid (PFHxA)	38		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorononanesulfonic Acid (PFNS)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorononanoic Acid (PFNA)	8.2		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorooctanesulfonamide (PFOSA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorooctanesulfonic Acid (PFOS)	100		2.0	ng/L	1	5/25/2022 08:23 AM
Perfluorooctanoic Acid (PFOA)	170		2.0	ng/L	1	5/25/2022 08:23 AM
Perfluoropentanesulfonic Acid (PFPeS)	19		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluoropentanoic Acid (PFPeA)	12		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluorotridecanoic Acid (PFTriA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Perfluoroundecanoic Acid (PFUnA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/25/2022 08:23 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.1	ng/L	1	5/25/2022 08:23 AM
11Cl-Pf3OUdS	ND		5.1	ng/L	1	5/25/2022 08:23 AM
9Cl-PF3ONS	ND		5.1	ng/L	1	5/25/2022 08:23 AM
Surr: 13C2-FtS 4:2	325	S	50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C2-FtS 6:2	357	S	50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C2-FtS 8:2	133		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C2-PFDA	80.9		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C2-PFDoA	74.2		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C2-PFHxA	78.6		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C2-PFTeA	86.0		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C2-PFUnA	77.9		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C3-HFPO-DA	72.6		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C3-PFBS	71.7		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C4-PFBA	83.3		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C4-PFHpA	74.2		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C4-PFOA	90.0		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C4-PFOS	79.1		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C5-PFNA	108		50-150	%REC	1	5/25/2022 08:23 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-202

Lab ID: 22051511-09

Collection Date: 5/16/2022 11:45 AM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	74.1		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 13C8-FOSA	72.6		50-150	%REC	1	5/25/2022 08:23 AM
Surr: 18O2-PFHxS	78.7		50-150	%REC	1	5/25/2022 08:23 AM
Surr: d5-N-EtFOSAA	71.1		50-150	%REC	1	5/25/2022 08:23 AM
Surr: d3-N-MeFOSAA	63.0		50-150	%REC	1	5/25/2022 08:23 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: **EE**

1,1'-Biphenyl	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 10:26 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:26 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 10:26 PM
3,3'-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 10:26 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:26 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 10:26 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 10:26 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 10:26 PM
Acetophenone	ND		3.7	µg/L	1	5/20/2022 10:26 PM
Anthracene	ND		19	µg/L	1	5/20/2022 10:26 PM
Atrazine	ND		3.7	µg/L	1	5/20/2022 10:26 PM
Benzaldehyde	ND		3.7	µg/L	1	5/20/2022 10:26 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 10:26 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 10:26 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 10:26 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-202

Lab ID: 22051511-09

Collection Date: 5/16/2022 11:45 AM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 10:26 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 10:26 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 10:26 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 10:26 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 10:26 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Caprolactam	ND		37	µg/L	1	5/20/2022 10:26 PM
Carbazole	ND		19	µg/L	1	5/20/2022 10:26 PM
Chrysene	ND		19	µg/L	1	5/20/2022 10:26 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 10:26 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 10:26 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 10:26 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 10:26 PM
Fluorene	ND		19	µg/L	1	5/20/2022 10:26 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 10:26 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 10:26 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 10:26 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 10:26 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 10:26 PM
Isophorone	ND		19	µg/L	1	5/20/2022 10:26 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 10:26 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 10:26 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 10:26 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 10:26 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 10:26 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 10:26 PM
Phenol	ND		19	µg/L	1	5/20/2022 10:26 PM
Pyrene	ND		19	µg/L	1	5/20/2022 10:26 PM
Surr: 2,4,6-Tribromophenol	71.7		27-83	%REC	1	5/20/2022 10:26 PM
Surr: 2-Fluorobiphenyl	61.4		26-79	%REC	1	5/20/2022 10:26 PM
Surr: 2-Fluorophenol	36.4		13-56	%REC	1	5/20/2022 10:26 PM
Surr: 4-Terphenyl-d14	82.1		43-106	%REC	1	5/20/2022 10:26 PM
Surr: Nitrobenzene-d5	57.4		29-80	%REC	1	5/20/2022 10:26 PM
Surr: Phenol-d6	24.2		10-35	%REC	1	5/20/2022 10:26 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-202

Lab ID: 22051511-09

Collection Date: 5/16/2022 11:45 AM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 02:33 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 02:33 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Acetone	ND		10	µg/L	1	5/20/2022 02:33 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Chlorobenzene	6.1		1.0	µg/L	1	5/20/2022 02:33 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 02:33 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 02:33 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 02:33 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 02:33 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: MW-202

Collection Date: 5/16/2022 11:45 AM

Work Order: 22051511

Lab ID: 22051511-09

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 02:33 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 02:33 AM
Surr: 1,2-Dichloroethane-d4	99.0		75-120	%REC	1	5/20/2022 02:33 AM
Surr: 4-Bromofluorobenzene	89.5		80-110	%REC	1	5/20/2022 02:33 AM
Surr: Dibromofluoromethane	102		85-115	%REC	1	5/20/2022 02:33 AM
Surr: Toluene-d8	99.4		85-110	%REC	1	5/20/2022 02:33 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-10-20

Lab ID: 22051511-10

Collection Date: 5/16/2022 03:53 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 07:47 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 07:47 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 07:47 AM
<i>Surr: Decachlorobiphenyl</i>	68.1		42-153	%REC	1	5/21/2022 07:47 AM
<i>Surr: Tetrachloro-m-xylene</i>	86.5		48-127	%REC	1	5/21/2022 07:47 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:45 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/23/22 17:14	Analyst: STP
Aluminum	0.046		0.010	mg/L	1	5/23/2022 07:32 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Barium	0.27		0.0050	mg/L	1	5/23/2022 07:32 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:32 PM
Boron	0.46		0.020	mg/L	1	5/23/2022 07:32 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:32 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:32 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 05:02 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/23/22 17:15	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorobutanesulfonic Acid (PFBS)	13		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorobutanoic Acid (PFBA)	44		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.1	ng/L	1	5/25/2022 08:32 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-10-20
Collection Date: 5/16/2022 03:53 PM

Work Order: 22051511
Lab ID: 22051511-10
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorododecanoic Acid (PFDoA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluoroheptanesulfonic Acid (PFHpS)	7.0		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluoroheptanoic Acid (PFHpA)	51		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorohexanesulfonic Acid (PFHxS)	72		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorohexanoic Acid (PFHxA)	37		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorononanesulfonic Acid (PFNS)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorononanoic Acid (PFNA)	9.0		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorooctanesulfonamide (PFOSA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorooctanesulfonic Acid (PFOS)	50		2.0	ng/L	1	5/25/2022 08:32 AM
Perfluorooctanoic Acid (PFOA)	250		2.0	ng/L	1	5/25/2022 08:32 AM
Perfluoropentanesulfonic Acid (PFPeS)	20		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluoropentanoic Acid (PFPeA)	22		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluorotridecanoic Acid (PFTriA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Perfluoroundecanoic Acid (PFUnA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/25/2022 08:32 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.1	ng/L	1	5/25/2022 08:32 AM
11Cl-Pf3OUdS	ND		5.1	ng/L	1	5/25/2022 08:32 AM
9Cl-PF3ONS	ND		5.1	ng/L	1	5/25/2022 08:32 AM
Surr: 13C2-FtS 4:2	285	S	50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C2-FtS 6:2	198	S	50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C2-FtS 8:2	86.9		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C2-PFDA	74.5		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C2-PFDoA	74.3		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C2-PFHxA	104		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C2-PFTeA	78.9		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C2-PFUnA	73.8		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C3-HFPO-DA	97.6		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C3-PFBS	90.0		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C4-PFBA	103		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C4-PFHpA	89.3		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C4-PFOA	94.4		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C4-PFOS	84.6		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C5-PFNA	92.9		50-150	%REC	1	5/25/2022 08:32 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-10-20

Lab ID: 22051511-10

Collection Date: 5/16/2022 03:53 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	92.9		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 13C8-FOSA	74.0		50-150	%REC	1	5/25/2022 08:32 AM
Surr: 18O2-PFHxS	87.9		50-150	%REC	1	5/25/2022 08:32 AM
Surr: d5-N-EtFOSAA	63.8		50-150	%REC	1	5/25/2022 08:32 AM
Surr: d3-N-MeFOSAA	60.0		50-150	%REC	1	5/25/2022 08:32 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: **EE**

1,1'-Biphenyl	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4,5-Trichlorophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4,6-Trichlorophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4-Dichlorophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4-Dimethylphenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4-Dinitrophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2,4-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 10:47 PM
2,6-Dinitrotoluene	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Chloronaphthalene	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Chlorophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Methylnaphthalene	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Methylphenol	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Nitroaniline	ND		20	µg/L	1	5/20/2022 10:47 PM
2-Nitrophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
3&4-Methylphenol	ND		20	µg/L	1	5/20/2022 10:47 PM
3,3'-Dichlorobenzidine	ND		20	µg/L	1	5/20/2022 10:47 PM
3-Nitroaniline	ND		20	µg/L	1	5/20/2022 10:47 PM
4,6-Dinitro-2-methylphenol	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Bromophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Chloro-3-methylphenol	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Chloroaniline	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Chlorophenyl phenyl ether	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Nitroaniline	ND		20	µg/L	1	5/20/2022 10:47 PM
4-Nitrophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
Acenaphthene	ND		20	µg/L	1	5/20/2022 10:47 PM
Acenaphthylene	ND		20	µg/L	1	5/20/2022 10:47 PM
Acetophenone	ND		3.9	µg/L	1	5/20/2022 10:47 PM
Anthracene	ND		20	µg/L	1	5/20/2022 10:47 PM
Atrazine	ND		3.9	µg/L	1	5/20/2022 10:47 PM
Benzaldehyde	ND		3.9	µg/L	1	5/20/2022 10:47 PM
Benzo(a)anthracene	ND		20	µg/L	1	5/20/2022 10:47 PM
Benzo(a)pyrene	ND		20	µg/L	1	5/20/2022 10:47 PM
Benzo(b)fluoranthene	ND		20	µg/L	1	5/20/2022 10:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-10-20

Lab ID: 22051511-10

Collection Date: 5/16/2022 03:53 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		20	µg/L	1	5/20/2022 10:47 PM
Benzo(k)fluoranthene	ND		20	µg/L	1	5/20/2022 10:47 PM
Bis(2-chloroethoxy)methane	ND		20	µg/L	1	5/20/2022 10:47 PM
Bis(2-chloroethyl)ether	ND		20	µg/L	1	5/20/2022 10:47 PM
Bis(2-chloroisopropyl)ether	ND		20	µg/L	1	5/20/2022 10:47 PM
Bis(2-ethylhexyl)phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Butyl benzyl phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Caprolactam	ND		39	µg/L	1	5/20/2022 10:47 PM
Carbazole	ND		20	µg/L	1	5/20/2022 10:47 PM
Chrysene	ND		20	µg/L	1	5/20/2022 10:47 PM
Dibenzo(a,h)anthracene	ND		20	µg/L	1	5/20/2022 10:47 PM
Dibenzofuran	ND		20	µg/L	1	5/20/2022 10:47 PM
Diethyl phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Dimethyl phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Di-n-butyl phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Di-n-octyl phthalate	ND		20	µg/L	1	5/20/2022 10:47 PM
Fluoranthene	ND		20	µg/L	1	5/20/2022 10:47 PM
Fluorene	ND		20	µg/L	1	5/20/2022 10:47 PM
Hexachlorobenzene	ND		20	µg/L	1	5/20/2022 10:47 PM
Hexachlorobutadiene	ND		20	µg/L	1	5/20/2022 10:47 PM
Hexachlorocyclopentadiene	ND		20	µg/L	1	5/20/2022 10:47 PM
Hexachloroethane	ND		20	µg/L	1	5/20/2022 10:47 PM
Indeno(1,2,3-cd)pyrene	ND		20	µg/L	1	5/20/2022 10:47 PM
Isophorone	ND		20	µg/L	1	5/20/2022 10:47 PM
Naphthalene	ND		20	µg/L	1	5/20/2022 10:47 PM
Nitrobenzene	ND		20	µg/L	1	5/20/2022 10:47 PM
N-Nitrosodi-n-propylamine	ND		20	µg/L	1	5/20/2022 10:47 PM
N-Nitrosodiphenylamine	ND		20	µg/L	1	5/20/2022 10:47 PM
Pentachlorophenol	ND		20	µg/L	1	5/20/2022 10:47 PM
Phenanthrene	ND		20	µg/L	1	5/20/2022 10:47 PM
Phenol	ND		20	µg/L	1	5/20/2022 10:47 PM
Pyrene	ND		20	µg/L	1	5/20/2022 10:47 PM
Surr: 2,4,6-Tribromophenol	75.5		27-83	%REC	1	5/20/2022 10:47 PM
Surr: 2-Fluorobiphenyl	73.2		26-79	%REC	1	5/20/2022 10:47 PM
Surr: 2-Fluorophenol	46.2		13-56	%REC	1	5/20/2022 10:47 PM
Surr: 4-Terphenyl-d14	86.2		43-106	%REC	1	5/20/2022 10:47 PM
Surr: Nitrobenzene-d5	72.0		29-80	%REC	1	5/20/2022 10:47 PM
Surr: Phenol-d6	30.6		10-35	%REC	1	5/20/2022 10:47 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-10-20

Lab ID: 22051511-10

Collection Date: 5/16/2022 03:53 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 02:51 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 02:51 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Acetone	ND		10	µg/L	1	5/20/2022 02:51 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 02:51 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 02:51 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 02:51 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 02:51 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.**Project:** Former Mount Pleasant Landfill**Work Order:** 22051511**Sample ID:** MW-10-20**Lab ID:** 22051511-10**Collection Date:** 5/16/2022 03:53 PM**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 02:51 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 02:51 AM
Surr: 1,2-Dichloroethane-d4	98.4		75-120	%REC	1	5/20/2022 02:51 AM
Surr: 4-Bromofluorobenzene	87.4		80-110	%REC	1	5/20/2022 02:51 AM
Surr: Dibromofluoromethane	104		85-115	%REC	1	5/20/2022 02:51 AM
Surr: Toluene-d8	96.6		85-110	%REC	1	5/20/2022 02:51 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-14-20
Collection Date: 5/16/2022 10:55 AM

Work Order: 22051511
Lab ID: 22051511-11
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A	Prep: SW3511 5/20/22 16:59		Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 08:00 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 08:00 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 08:00 AM
<i>Surr: Decachlorobiphenyl</i>	83.1		42-153	%REC	1	5/21/2022 08:00 AM
<i>Surr: Tetrachloro-m-xylene</i>	83.6		48-127	%REC	1	5/21/2022 08:00 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A	Prep: SW7470 5/19/22 11:03		Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:52 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B	Prep: SW3015A 5/23/22 17:14		Analyst: STP
Aluminum	0.029		0.010	mg/L	1	5/23/2022 07:34 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Barium	0.14		0.0050	mg/L	1	5/23/2022 07:34 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:34 PM
Boron	0.11		0.020	mg/L	1	5/23/2022 07:34 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:34 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:34 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 05:03 PM
PFAS BY EPA 537 MODIFIED			E537 MOD	Prep: E537 Mod 5/23/22 17:15		Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorobutanesulfonic Acid (PFBS)	7.2		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorobutanoic Acid (PFBA)	30		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		5.2	ng/L	1	5/25/2022 08:40 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-14-20
Collection Date: 5/16/2022 10:55 AM

Work Order: 22051511
Lab ID: 22051511-11
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorododecanoic Acid (PFDoA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluoroheptanoic Acid (PFHpA)	16		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorohexanesulfonic Acid (PFHxS)	28		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorohexanoic Acid (PFHxA)	13		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorononanesulfonic Acid (PFNS)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorononanoic Acid (PFNA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorooctanesulfonamide (PFOSA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorooctanesulfonic Acid (PFOS)	11		2.1	ng/L	1	5/25/2022 08:40 AM
Perfluorooctanoic Acid (PFOA)	57		2.1	ng/L	1	5/25/2022 08:40 AM
Perfluoropentanesulfonic Acid (PFPeS)	6.5		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluoropentanoic Acid (PFPeA)	10		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluorotridecanoic Acid (PFTriA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Perfluoroundecanoic Acid (PFUnA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		5.2	ng/L	1	5/25/2022 08:40 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		5.2	ng/L	1	5/25/2022 08:40 AM
11Cl-Pf3OUdS	ND		5.2	ng/L	1	5/25/2022 08:40 AM
9Cl-PF3ONS	ND		5.2	ng/L	1	5/25/2022 08:40 AM
Surr: 13C2-FtS 4:2	325	S	50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C2-FtS 6:2	195	S	50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C2-FtS 8:2	98.9		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C2-PFDA	88.6		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C2-PFDoA	83.5		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C2-PFHxA	119		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C2-PFTeA	90.7		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C2-PFUnA	90.6		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C3-HFPO-DA	108		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C3-PFBS	102		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C4-PFBA	118		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C4-PFHpA	101		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C4-PFOA	102		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C4-PFOS	99.8		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C5-PFNA	111		50-150	%REC	1	5/25/2022 08:40 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-14-20

Lab ID: 22051511-11

Collection Date: 5/16/2022 10:55 AM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	106		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 13C8-FOSA	97.4		50-150	%REC	1	5/25/2022 08:40 AM
Surr: 18O2-PFHxS	112		50-150	%REC	1	5/25/2022 08:40 AM
Surr: d5-N-EtFOSAA	91.9		50-150	%REC	1	5/25/2022 08:40 AM
Surr: d3-N-MeFOSAA	70.9		50-150	%REC	1	5/25/2022 08:40 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: **EE**

1,1'-Biphenyl	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4,5-Trichlorophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4,6-Trichlorophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4-Dichlorophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4-Dimethylphenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4-Dinitrophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2,4-Dinitrotoluene	ND		21	µg/L	1	5/20/2022 11:08 PM
2,6-Dinitrotoluene	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Chloronaphthalene	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Chlorophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Methylnaphthalene	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Methylphenol	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Nitroaniline	ND		21	µg/L	1	5/20/2022 11:08 PM
2-Nitrophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
3&4-Methylphenol	ND		21	µg/L	1	5/20/2022 11:08 PM
3,3'-Dichlorobenzidine	ND		21	µg/L	1	5/20/2022 11:08 PM
3-Nitroaniline	ND		21	µg/L	1	5/20/2022 11:08 PM
4,6-Dinitro-2-methylphenol	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Bromophenyl phenyl ether	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Chloro-3-methylphenol	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Chloroaniline	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Chlorophenyl phenyl ether	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Nitroaniline	ND		21	µg/L	1	5/20/2022 11:08 PM
4-Nitrophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
Acenaphthene	ND		21	µg/L	1	5/20/2022 11:08 PM
Acenaphthylene	ND		21	µg/L	1	5/20/2022 11:08 PM
Acetophenone	ND		4.2	µg/L	1	5/20/2022 11:08 PM
Anthracene	ND		21	µg/L	1	5/20/2022 11:08 PM
Atrazine	ND		4.2	µg/L	1	5/20/2022 11:08 PM
Benzaldehyde	ND		4.2	µg/L	1	5/20/2022 11:08 PM
Benzo(a)anthracene	ND		21	µg/L	1	5/20/2022 11:08 PM
Benzo(a)pyrene	ND		21	µg/L	1	5/20/2022 11:08 PM
Benzo(b)fluoranthene	ND		21	µg/L	1	5/20/2022 11:08 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-14-20

Lab ID: 22051511-11

Collection Date: 5/16/2022 10:55 AM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		21	µg/L	1	5/20/2022 11:08 PM
Benzo(k)fluoranthene	ND		21	µg/L	1	5/20/2022 11:08 PM
Bis(2-chloroethoxy)methane	ND		21	µg/L	1	5/20/2022 11:08 PM
Bis(2-chloroethyl)ether	ND		21	µg/L	1	5/20/2022 11:08 PM
Bis(2-chloroisopropyl)ether	ND		21	µg/L	1	5/20/2022 11:08 PM
Bis(2-ethylhexyl)phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Butyl benzyl phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Caprolactam	ND		42	µg/L	1	5/20/2022 11:08 PM
Carbazole	ND		21	µg/L	1	5/20/2022 11:08 PM
Chrysene	ND		21	µg/L	1	5/20/2022 11:08 PM
Dibenzo(a,h)anthracene	ND		21	µg/L	1	5/20/2022 11:08 PM
Dibenzofuran	ND		21	µg/L	1	5/20/2022 11:08 PM
Diethyl phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Dimethyl phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Di-n-butyl phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Di-n-octyl phthalate	ND		21	µg/L	1	5/20/2022 11:08 PM
Fluoranthene	ND		21	µg/L	1	5/20/2022 11:08 PM
Fluorene	ND		21	µg/L	1	5/20/2022 11:08 PM
Hexachlorobenzene	ND		21	µg/L	1	5/20/2022 11:08 PM
Hexachlorobutadiene	ND		21	µg/L	1	5/20/2022 11:08 PM
Hexachlorocyclopentadiene	ND		21	µg/L	1	5/20/2022 11:08 PM
Hexachloroethane	ND		21	µg/L	1	5/20/2022 11:08 PM
Indeno(1,2,3-cd)pyrene	ND		21	µg/L	1	5/20/2022 11:08 PM
Isophorone	ND		21	µg/L	1	5/20/2022 11:08 PM
Naphthalene	ND		21	µg/L	1	5/20/2022 11:08 PM
Nitrobenzene	ND		21	µg/L	1	5/20/2022 11:08 PM
N-Nitrosodi-n-propylamine	ND		21	µg/L	1	5/20/2022 11:08 PM
N-Nitrosodiphenylamine	ND		21	µg/L	1	5/20/2022 11:08 PM
Pentachlorophenol	ND		21	µg/L	1	5/20/2022 11:08 PM
Phenanthrene	ND		21	µg/L	1	5/20/2022 11:08 PM
Phenol	ND		21	µg/L	1	5/20/2022 11:08 PM
Pyrene	ND		21	µg/L	1	5/20/2022 11:08 PM
Surr: 2,4,6-Tribromophenol	77.7		27-83	%REC	1	5/20/2022 11:08 PM
Surr: 2-Fluorobiphenyl	71.8		26-79	%REC	1	5/20/2022 11:08 PM
Surr: 2-Fluorophenol	42.7		13-56	%REC	1	5/20/2022 11:08 PM
Surr: 4-Terphenyl-d14	89.0		43-106	%REC	1	5/20/2022 11:08 PM
Surr: Nitrobenzene-d5	67.4		29-80	%REC	1	5/20/2022 11:08 PM
Surr: Phenol-d6	28.7		10-35	%REC	1	5/20/2022 11:08 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-14-20

Lab ID: 22051511-11

Collection Date: 5/16/2022 10:55 AM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 03:10 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 03:10 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Acetone	ND		10	µg/L	1	5/20/2022 03:10 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 03:10 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 03:10 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 03:10 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 03:10 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: MW-14-20

Collection Date: 5/16/2022 10:55 AM

Work Order: 22051511

Lab ID: 22051511-11

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 03:10 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 03:10 AM
Surr: 1,2-Dichloroethane-d4	101		75-120	%REC	1	5/20/2022 03:10 AM
Surr: 4-Bromofluorobenzene	91.7		80-110	%REC	1	5/20/2022 03:10 AM
Surr: Dibromofluoromethane	105		85-115	%REC	1	5/20/2022 03:10 AM
Surr: Toluene-d8	100		85-110	%REC	1	5/20/2022 03:10 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-15-20

Lab ID: 22051511-12

Collection Date: 5/16/2022 10:25 AM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A	Prep: SW3511 5/20/22 16:59		Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 08:12 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 08:12 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 08:12 AM
<i>Surr: Decachlorobiphenyl</i>	98.1		42-153	%REC	1	5/21/2022 08:12 AM
<i>Surr: Tetrachloro-m-xylene</i>	91.7		48-127	%REC	1	5/21/2022 08:12 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A	Prep: SW7470 5/19/22 11:03		Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:54 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B	Prep: SW3015A 5/23/22 17:14		Analyst: STP
Aluminum	0.019		0.010	mg/L	1	5/23/2022 07:35 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Barium	0.18		0.0050	mg/L	1	5/23/2022 07:35 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:35 PM
Boron	0.094		0.020	mg/L	1	5/23/2022 07:35 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:35 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:35 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:35 PM
PFAS BY EPA 537 MODIFIED			E537 MOD	Prep: E537 Mod 5/23/22 17:15		Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorobutanesulfonic Acid (PFBS)	9.3		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorobutanoic Acid (PFBA)	40		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.7	ng/L	1	5/25/2022 08:48 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-15-20

Lab ID: 22051511-12

Collection Date: 5/16/2022 10:25 AM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluoroheptanoic Acid (PFHpA)	12		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorohexanesulfonic Acid (PFHxS)	32		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorohexanoic Acid (PFHxA)	13		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorononanoic Acid (PFNA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorooctanesulfonic Acid (PFOS)	7.1		1.9	ng/L	1	5/25/2022 08:48 AM
Perfluorooctanoic Acid (PFOA)	39		1.9	ng/L	1	5/25/2022 08:48 AM
Perfluoropentanesulfonic Acid (PFPeS)	5.5		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluoropentanoic Acid (PFPeA)	17		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.7	ng/L	1	5/25/2022 08:48 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.7	ng/L	1	5/25/2022 08:48 AM
11Cl-Pf3OUdS	ND		4.7	ng/L	1	5/25/2022 08:48 AM
9Cl-PF3ONS	ND		4.7	ng/L	1	5/25/2022 08:48 AM
Surr: 13C2-FtS 4:2	206	S	50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C2-FtS 6:2	134		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C2-FtS 8:2	86.0		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C2-PFDA	84.3		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C2-PFDoA	76.7		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C2-PFHxA	114		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C2-PFTeA	70.3		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C2-PFUnA	91.2		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C3-HFPO-DA	99.6		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C3-PFBS	103		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C4-PFBA	128		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C4-PFHpA	103		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C4-PFOA	106		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C4-PFOS	97.2		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C5-PFNA	126		50-150	%REC	1	5/25/2022 08:48 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-15-20
Collection Date: 5/16/2022 10:25 AM

Work Order: 22051511
Lab ID: 22051511-12
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	113		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 13C8-FOSA	101		50-150	%REC	1	5/25/2022 08:48 AM
Surr: 18O2-PFHxS	130		50-150	%REC	1	5/25/2022 08:48 AM
Surr: d5-N-EtFOSAA	87.0		50-150	%REC	1	5/25/2022 08:48 AM
Surr: d3-N-MeFOSAA	61.5		50-150	%REC	1	5/25/2022 08:48 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D Prep: SW3510 5/20/22 14:40

Analyst: **EE**

1,1'-Biphenyl	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 11:28 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:28 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 11:28 PM
3,3'-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 11:28 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:28 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:28 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 11:28 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 11:28 PM
Acetophenone	ND		3.8	µg/L	1	5/20/2022 11:28 PM
Anthracene	ND		19	µg/L	1	5/20/2022 11:28 PM
Atrazine	ND		3.8	µg/L	1	5/20/2022 11:28 PM
Benzaldehyde	ND		3.8	µg/L	1	5/20/2022 11:28 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 11:28 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 11:28 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 11:28 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-15-20

Lab ID: 22051511-12

Collection Date: 5/16/2022 10:25 AM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 11:28 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 11:28 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 11:28 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 11:28 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 11:28 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Caprolactam	ND		38	µg/L	1	5/20/2022 11:28 PM
Carbazole	ND		19	µg/L	1	5/20/2022 11:28 PM
Chrysene	ND		19	µg/L	1	5/20/2022 11:28 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 11:28 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 11:28 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 11:28 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 11:28 PM
Fluorene	ND		19	µg/L	1	5/20/2022 11:28 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 11:28 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 11:28 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 11:28 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 11:28 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 11:28 PM
Isophorone	ND		19	µg/L	1	5/20/2022 11:28 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 11:28 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 11:28 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 11:28 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 11:28 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 11:28 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 11:28 PM
Phenol	ND		19	µg/L	1	5/20/2022 11:28 PM
Pyrene	ND		19	µg/L	1	5/20/2022 11:28 PM
Surr: 2,4,6-Tribromophenol	73.0		27-83	%REC	1	5/20/2022 11:28 PM
Surr: 2-Fluorobiphenyl	73.0		26-79	%REC	1	5/20/2022 11:28 PM
Surr: 2-Fluorophenol	45.2		13-56	%REC	1	5/20/2022 11:28 PM
Surr: 4-Terphenyl-d14	88.1		43-106	%REC	1	5/20/2022 11:28 PM
Surr: Nitrobenzene-d5	69.6		29-80	%REC	1	5/20/2022 11:28 PM
Surr: Phenol-d6	30.2		10-35	%REC	1	5/20/2022 11:28 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-15-20

Lab ID: 22051511-12

Collection Date: 5/16/2022 10:25 AM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 03:28 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 03:28 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Acetone	ND		10	µg/L	1	5/20/2022 03:28 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 03:28 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 03:28 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 03:28 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 03:28 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: MW-15-20

Collection Date: 5/16/2022 10:25 AM

Work Order: 22051511

Lab ID: 22051511-12

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 03:28 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 03:28 AM
Surr: 1,2-Dichloroethane-d4	99.5		75-120	%REC	1	5/20/2022 03:28 AM
Surr: 4-Bromofluorobenzene	94.2		80-110	%REC	1	5/20/2022 03:28 AM
Surr: Dibromofluoromethane	103		85-115	%REC	1	5/20/2022 03:28 AM
Surr: Toluene-d8	101		85-110	%REC	1	5/20/2022 03:28 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: Field Blank

Lab ID: 22051511-13

Collection Date: 5/16/2022 03:45 PM

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/23/22 17:15	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorobutanesulfonic Acid (PFBS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorobutanoic Acid (PFBA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorohexanesulfonic Acid (PFHxS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		2.0	ng/L	1	5/25/2022 08:56 AM
Perfluorooctanoic Acid (PFOA)	ND		2.0	ng/L	1	5/25/2022 08:56 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 08:56 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/25/2022 08:56 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/25/2022 08:56 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/25/2022 08:56 AM
Surr: 13C2-FtS 4:2	94.9		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C2-FtS 6:2	96.8		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C2-FtS 8:2	98.2		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C2-PFDA	96.7		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C2-PFDoA	95.8		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C2-PFHxA	108		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C2-PFTeA	99.3		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C2-PFUnA	92.6		50-150	%REC	1	5/25/2022 08:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.**Project:** Former Mount Pleasant Landfill**Sample ID:** Field Blank**Collection Date:** 5/16/2022 03:45 PM**Work Order:** 22051511**Lab ID:** 22051511-13**Matrix:** GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C3-HFPO-DA	100		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C3-PFBS	102		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C4-PFBA	108		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C4-PFHpA	89.5		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C4-PFOA	93.7		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C4-PFOS	103		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C5-PFNA	89.0		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C5-PFPeA	95.1		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 13C8-FOSA	73.9		50-150	%REC	1	5/25/2022 08:56 AM
Surr: 18O2-PFHxS	84.1		50-150	%REC	1	5/25/2022 08:56 AM
Surr: d5-N-EtFOSAA	70.2		50-150	%REC	1	5/25/2022 08:56 AM
Surr: d3-N-MeFOSAA	74.4		50-150	%REC	1	5/25/2022 08:56 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: DUP

Lab ID: 22051511-14

Collection Date: 5/16/2022

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 08:25 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 08:25 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 08:25 AM
<i>Surr: Decachlorobiphenyl</i>	97.0		42-153	%REC	1	5/21/2022 08:25 AM
<i>Surr: Tetrachloro-m-xylene</i>	92.2		48-127	%REC	1	5/21/2022 08:25 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 12:56 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/23/22 17:14	Analyst: STP
Aluminum	0.034		0.010	mg/L	1	5/23/2022 07:40 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Arsenic	0.0098		0.0050	mg/L	1	5/23/2022 07:40 PM
Barium	0.29		0.0050	mg/L	1	5/23/2022 07:40 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:40 PM
Boron	0.11		0.020	mg/L	1	5/23/2022 07:40 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:40 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:40 PM
Zinc	ND		0.010	mg/L	1	5/25/2022 05:05 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/23/22 17:15	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorobutanesulfonic Acid (PFBS)	5.8		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorobutanoic Acid (PFBA)	8.1		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.7	ng/L	1	5/25/2022 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: DUP

Lab ID: 22051511-14

Collection Date: 5/16/2022

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorohexanesulfonic Acid (PFHxS)	15		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorohexanoic Acid (PFHxA)	5.4		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorononanoic Acid (PFNA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorooctanesulfonic Acid (PFOS)	ND		1.9	ng/L	1	5/25/2022 09:05 AM
Perfluorooctanoic Acid (PFOA)	18		1.9	ng/L	1	5/25/2022 09:05 AM
Perfluoropentanesulfonic Acid (PFPeS)	5.7		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.7	ng/L	1	5/25/2022 09:05 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.7	ng/L	1	5/25/2022 09:05 AM
11Cl-Pf3OUdS	ND		4.7	ng/L	1	5/25/2022 09:05 AM
9Cl-PF3ONS	ND		4.7	ng/L	1	5/25/2022 09:05 AM
Surr: 13C2-FtS 4:2	80.4		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C2-FtS 6:2	73.5		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C2-FtS 8:2	91.3		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C2-PFDA	68.5		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C2-PFDoA	55.2		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C2-PFHxA	71.6		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C2-PFTeA	74.7		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C2-PFUnA	62.8		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C3-HFPO-DA	73.6		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C3-PFBS	90.7		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C4-PFBA	82.9		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C4-PFHpA	89.3		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C4-PFOA	81.2		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C4-PFOS	67.0		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C5-PFNA	65.7		50-150	%REC	1	5/25/2022 09:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: DUP

Lab ID: 22051511-14

Collection Date: 5/16/2022

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	85.1		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 13C8-FOSA	56.5		50-150	%REC	1	5/25/2022 09:05 AM
Surr: 18O2-PFHxS	68.1		50-150	%REC	1	5/25/2022 09:05 AM
Surr: d5-N-EtFOSAA	53.6		50-150	%REC	1	5/25/2022 09:05 AM
Surr: d3-N-MeFOSAA	47.0	S	50-150	%REC	1	5/25/2022 09:05 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: **EE**

1,1'-Biphenyl	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4,5-Trichlorophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4,6-Trichlorophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4-Dichlorophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4-Dimethylphenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4-Dinitrophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2,4-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 11:49 PM
2,6-Dinitrotoluene	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Chloronaphthalene	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Chlorophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Methylnaphthalene	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Methylphenol	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:49 PM
2-Nitrophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
3&4-Methylphenol	ND		19	µg/L	1	5/20/2022 11:49 PM
3,3'-Dichlorobenzidine	ND		19	µg/L	1	5/20/2022 11:49 PM
3-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:49 PM
4,6-Dinitro-2-methylphenol	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Bromophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Chloro-3-methylphenol	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Chloroaniline	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Chlorophenyl phenyl ether	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Nitroaniline	ND		19	µg/L	1	5/20/2022 11:49 PM
4-Nitrophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
Acenaphthene	ND		19	µg/L	1	5/20/2022 11:49 PM
Acenaphthylene	ND		19	µg/L	1	5/20/2022 11:49 PM
Acetophenone	ND		3.8	µg/L	1	5/20/2022 11:49 PM
Anthracene	ND		19	µg/L	1	5/20/2022 11:49 PM
Atrazine	ND		3.8	µg/L	1	5/20/2022 11:49 PM
Benzaldehyde	ND		3.8	µg/L	1	5/20/2022 11:49 PM
Benzo(a)anthracene	ND		19	µg/L	1	5/20/2022 11:49 PM
Benzo(a)pyrene	ND		19	µg/L	1	5/20/2022 11:49 PM
Benzo(b)fluoranthene	ND		19	µg/L	1	5/20/2022 11:49 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: DUP
Collection Date: 5/16/2022

Work Order: 22051511
Lab ID: 22051511-14
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		19	µg/L	1	5/20/2022 11:49 PM
Benzo(k)fluoranthene	ND		19	µg/L	1	5/20/2022 11:49 PM
Bis(2-chloroethoxy)methane	ND		19	µg/L	1	5/20/2022 11:49 PM
Bis(2-chloroethyl)ether	ND		19	µg/L	1	5/20/2022 11:49 PM
Bis(2-chloroisopropyl)ether	ND		19	µg/L	1	5/20/2022 11:49 PM
Bis(2-ethylhexyl)phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Butyl benzyl phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Caprolactam	ND		38	µg/L	1	5/20/2022 11:49 PM
Carbazole	ND		19	µg/L	1	5/20/2022 11:49 PM
Chrysene	ND		19	µg/L	1	5/20/2022 11:49 PM
Dibenzo(a,h)anthracene	ND		19	µg/L	1	5/20/2022 11:49 PM
Dibenzofuran	ND		19	µg/L	1	5/20/2022 11:49 PM
Diethyl phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Dimethyl phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Di-n-butyl phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Di-n-octyl phthalate	ND		19	µg/L	1	5/20/2022 11:49 PM
Fluoranthene	ND		19	µg/L	1	5/20/2022 11:49 PM
Fluorene	ND		19	µg/L	1	5/20/2022 11:49 PM
Hexachlorobenzene	ND		19	µg/L	1	5/20/2022 11:49 PM
Hexachlorobutadiene	ND		19	µg/L	1	5/20/2022 11:49 PM
Hexachlorocyclopentadiene	ND		19	µg/L	1	5/20/2022 11:49 PM
Hexachloroethane	ND		19	µg/L	1	5/20/2022 11:49 PM
Indeno(1,2,3-cd)pyrene	ND		19	µg/L	1	5/20/2022 11:49 PM
Isophorone	ND		19	µg/L	1	5/20/2022 11:49 PM
Naphthalene	ND		19	µg/L	1	5/20/2022 11:49 PM
Nitrobenzene	ND		19	µg/L	1	5/20/2022 11:49 PM
N-Nitrosodi-n-propylamine	ND		19	µg/L	1	5/20/2022 11:49 PM
N-Nitrosodiphenylamine	ND		19	µg/L	1	5/20/2022 11:49 PM
Pentachlorophenol	ND		19	µg/L	1	5/20/2022 11:49 PM
Phenanthrene	ND		19	µg/L	1	5/20/2022 11:49 PM
Phenol	ND		19	µg/L	1	5/20/2022 11:49 PM
Pyrene	ND		19	µg/L	1	5/20/2022 11:49 PM
Surr: 2,4,6-Tribromophenol	76.7		27-83	%REC	1	5/20/2022 11:49 PM
Surr: 2-Fluorobiphenyl	77.3		26-79	%REC	1	5/20/2022 11:49 PM
Surr: 2-Fluorophenol	47.1		13-56	%REC	1	5/20/2022 11:49 PM
Surr: 4-Terphenyl-d14	86.9		43-106	%REC	1	5/20/2022 11:49 PM
Surr: Nitrobenzene-d5	74.9		29-80	%REC	1	5/20/2022 11:49 PM
Surr: Phenol-d6	32.2		10-35	%REC	1	5/20/2022 11:49 PM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: DUP
Collection Date: 5/16/2022

Work Order: 22051511
Lab ID: 22051511-14
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 03:47 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 03:47 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Acetone	ND		10	µg/L	1	5/20/2022 03:47 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 03:47 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 03:47 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 03:47 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 03:47 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: DUP

Collection Date: 5/16/2022

Work Order: 22051511

Lab ID: 22051511-14

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 03:47 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 03:47 AM
Surr: 1,2-Dichloroethane-d4	98.8		75-120	%REC	1	5/20/2022 03:47 AM
Surr: 4-Bromofluorobenzene	90.6		80-110	%REC	1	5/20/2022 03:47 AM
Surr: Dibromofluoromethane	101		85-115	%REC	1	5/20/2022 03:47 AM
Surr: Toluene-d8	101		85-110	%REC	1	5/20/2022 03:47 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: Trip Blank

Lab ID: 22051511-15

Collection Date: 5/16/2022

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
VOLATILE ORGANIC COMPOUNDS			SW8260C			Analyst: MF
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
2-Butanone	ND		5.0	µg/L	1	5/19/2022 11:47 PM
2-Hexanone	ND		5.0	µg/L	1	5/19/2022 11:47 PM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Acetone	ND		10	µg/L	1	5/19/2022 11:47 PM
Benzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Bromodichloromethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Bromoform	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Bromomethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Carbon disulfide	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Carbon tetrachloride	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Chlorobenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Chloroethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Chloroform	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Chloromethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Cyclohexane	ND		2.0	µg/L	1	5/19/2022 11:47 PM
Dibromochloromethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Ethylbenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Isopropylbenzene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Methyl acetate	ND		2.0	µg/L	1	5/19/2022 11:47 PM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Methylcyclohexane	ND		1.0	µg/L	1	5/19/2022 11:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: Trip Blank

Lab ID: 22051511-15

Collection Date: 5/16/2022

Matrix: WATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Methylene chloride	ND		5.0	µg/L	1	5/19/2022 11:47 PM
Styrene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Tetrachloroethene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Toluene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Trichloroethene	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Vinyl chloride	ND		1.0	µg/L	1	5/19/2022 11:47 PM
Xylenes, Total	ND		3.0	µg/L	1	5/19/2022 11:47 PM
Surr: 1,2-Dichloroethane-d4	98.1		75-120	%REC	1	5/19/2022 11:47 PM
Surr: 4-Bromofluorobenzene	89.2		80-110	%REC	1	5/19/2022 11:47 PM
Surr: Dibromofluoromethane	101		85-115	%REC	1	5/19/2022 11:47 PM
Surr: Toluene-d8	99.4		85-110	%REC	1	5/19/2022 11:47 PM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill
Sample ID: MW-109
Collection Date: 5/16/2022

Work Order: 22051511
Lab ID: 22051511-16
Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
PCBS			SW8082A		Prep: SW3511 5/20/22 16:59	Analyst: RM
Aroclor 1016	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1221	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1232	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1242	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1248	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1254	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1260	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1262	ND		0.20	µg/L	1	5/21/2022 03:31 AM
Aroclor 1268	ND		0.20	µg/L	1	5/21/2022 03:31 AM
PCBs, Total	ND		0.20	µg/L	1	5/21/2022 03:31 AM
<i>Surr: Decachlorobiphenyl</i>	71.1		42-153	%REC	1	5/21/2022 03:31 AM
<i>Surr: Tetrachloro-m-xylene</i>	86.7		48-127	%REC	1	5/21/2022 03:31 AM
MERCURY BY CVAA (DISSOLVED)			SW7470A		Prep: SW7470 5/19/22 11:03	Analyst: EJC
Mercury	ND		0.00020	mg/L	1	5/19/2022 01:01 PM
METALS BY ICP-MS (DISSOLVED)			SW6020B		Prep: SW3015A 5/29/22 18:37	Analyst: STP
Aluminum	0.058		0.010	mg/L	1	5/31/2022 03:50 PM
Antimony	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Arsenic	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Barium	0.19		0.0050	mg/L	1	5/23/2022 07:47 PM
Beryllium	ND		0.0020	mg/L	1	5/23/2022 07:47 PM
Boron	0.13		0.020	mg/L	1	5/23/2022 07:47 PM
Cadmium	ND		0.0020	mg/L	1	5/23/2022 07:47 PM
Chromium	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Copper	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Lead	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Nickel	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Selenium	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Silver	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Thallium	ND		0.0050	mg/L	1	5/23/2022 07:47 PM
Zinc	ND		0.010	mg/L	1	5/23/2022 07:47 PM
PFAS BY EPA 537 MODIFIED			E537 MOD		Prep: E537 Mod 5/23/22 17:15	Analyst: ENS
Fluorotelomer Sulphonic Acid 4:2 (FtS 4:2)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Fluorotelomer Sulphonic Acid 6:2 (FtS 6:2)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Fluorotelomer Sulphonic Acid 8:2 (FtS 8:2)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorobutanesulfonic Acid (PFBS)	5.8		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorobutanoic Acid (PFBA)	30		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorodecanesulfonic Acid (PFDS)	ND		4.9	ng/L	1	5/25/2022 09:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-109

Lab ID: 22051511-16

Collection Date: 5/16/2022

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Perfluorodecanoic Acid (PFDA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorododecanoic Acid (PFDoA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluoroheptanesulfonic Acid (PFHpS)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluoroheptanoic Acid (PFHpA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorohexanesulfonic Acid (PFHxS)	6.4		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorohexanoic Acid (PFHxA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorononanesulfonic Acid (PFNS)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorononanoic Acid (PFNA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorooctanesulfonamide (PFOSA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorooctanesulfonic Acid (PFOS)	5.8		2.0	ng/L	1	5/25/2022 09:13 AM
Perfluorooctanoic Acid (PFOA)	13		2.0	ng/L	1	5/25/2022 09:13 AM
Perfluoropentanesulfonic Acid (PFPeS)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluoropentanoic Acid (PFPeA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorotetradecanoic Acid (PFTeA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluorotridecanoic Acid (PFTriA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Perfluoroundecanoic Acid (PFUnA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
N-Ethylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 09:13 AM
N-Methylperfluorooctanesulfonamidoacetic Acid	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Hexafluoropropylene oxide dimer acid (HFPO-DA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
4,8-Dioxa-3H-perfluorononanoic Acid (DONA)	ND		4.9	ng/L	1	5/25/2022 09:13 AM
11Cl-Pf3OUdS	ND		4.9	ng/L	1	5/25/2022 09:13 AM
9Cl-PF3ONS	ND		4.9	ng/L	1	5/25/2022 09:13 AM
Surr: 13C2-FtS 4:2	107		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C2-FtS 6:2	92.7		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C2-FtS 8:2	86.7		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C2-PFDA	71.5		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C2-PFDoA	54.9		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C2-PFHxA	83.5		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C2-PFTeA	67.3		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C2-PFUnA	85.7		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C3-HFPO-DA	72.0		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C3-PFBS	102		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C4-PFBA	112		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C4-PFHpA	114		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C4-PFOA	104		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C4-PFOS	79.1		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C5-PFNA	101		50-150	%REC	1	5/25/2022 09:13 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-109

Lab ID: 22051511-16

Collection Date: 5/16/2022

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Surr: 13C5-PFPeA	101		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 13C8-FOSA	62.5		50-150	%REC	1	5/25/2022 09:13 AM
Surr: 18O2-PFHxS	105		50-150	%REC	1	5/25/2022 09:13 AM
Surr: d5-N-EtFOSAA	72.4		50-150	%REC	1	5/25/2022 09:13 AM
Surr: d3-N-MeFOSAA	51.1		50-150	%REC	1	5/25/2022 09:13 AM

SEMI-VOLATILE ORGANIC COMPOUNDS

SW846 8270D

Prep: SW3510 5/20/22 14:40

Analyst: EE

1,1'-Biphenyl	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4,5-Trichlorophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4,6-Trichlorophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4-Dichlorophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4-Dimethylphenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4-Dinitrophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2,4-Dinitrotoluene	ND		18	µg/L	1	5/21/2022 12:09 AM
2,6-Dinitrotoluene	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Chloronaphthalene	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Chlorophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Methylnaphthalene	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Methylphenol	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Nitroaniline	ND		18	µg/L	1	5/21/2022 12:09 AM
2-Nitrophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
3&4-Methylphenol	ND		18	µg/L	1	5/21/2022 12:09 AM
3,3'-Dichlorobenzidine	ND		18	µg/L	1	5/21/2022 12:09 AM
3-Nitroaniline	ND		18	µg/L	1	5/21/2022 12:09 AM
4,6-Dinitro-2-methylphenol	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Bromophenyl phenyl ether	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Chloro-3-methylphenol	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Chloroaniline	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Chlorophenyl phenyl ether	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Nitroaniline	ND		18	µg/L	1	5/21/2022 12:09 AM
4-Nitrophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
Acenaphthene	ND		18	µg/L	1	5/21/2022 12:09 AM
Acenaphthylene	ND		18	µg/L	1	5/21/2022 12:09 AM
Acetophenone	ND		3.6	µg/L	1	5/21/2022 12:09 AM
Anthracene	ND		18	µg/L	1	5/21/2022 12:09 AM
Atrazine	ND		3.6	µg/L	1	5/21/2022 12:09 AM
Benzaldehyde	ND		3.6	µg/L	1	5/21/2022 12:09 AM
Benzo(a)anthracene	ND		18	µg/L	1	5/21/2022 12:09 AM
Benzo(a)pyrene	ND		18	µg/L	1	5/21/2022 12:09 AM
Benzo(b)fluoranthene	ND		18	µg/L	1	5/21/2022 12:09 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-109

Lab ID: 22051511-16

Collection Date: 5/16/2022

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Benzo(g,h,i)perylene	ND		18	µg/L	1	5/21/2022 12:09 AM
Benzo(k)fluoranthene	ND		18	µg/L	1	5/21/2022 12:09 AM
Bis(2-chloroethoxy)methane	ND		18	µg/L	1	5/21/2022 12:09 AM
Bis(2-chloroethyl)ether	ND		18	µg/L	1	5/21/2022 12:09 AM
Bis(2-chloroisopropyl)ether	ND		18	µg/L	1	5/21/2022 12:09 AM
Bis(2-ethylhexyl)phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Butyl benzyl phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Caprolactam	ND		36	µg/L	1	5/21/2022 12:09 AM
Carbazole	ND		18	µg/L	1	5/21/2022 12:09 AM
Chrysene	ND		18	µg/L	1	5/21/2022 12:09 AM
Dibenzo(a,h)anthracene	ND		18	µg/L	1	5/21/2022 12:09 AM
Dibenzofuran	ND		18	µg/L	1	5/21/2022 12:09 AM
Diethyl phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Dimethyl phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Di-n-butyl phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Di-n-octyl phthalate	ND		18	µg/L	1	5/21/2022 12:09 AM
Fluoranthene	ND		18	µg/L	1	5/21/2022 12:09 AM
Fluorene	ND		18	µg/L	1	5/21/2022 12:09 AM
Hexachlorobenzene	ND		18	µg/L	1	5/21/2022 12:09 AM
Hexachlorobutadiene	ND		18	µg/L	1	5/21/2022 12:09 AM
Hexachlorocyclopentadiene	ND		18	µg/L	1	5/21/2022 12:09 AM
Hexachloroethane	ND		18	µg/L	1	5/21/2022 12:09 AM
Indeno(1,2,3-cd)pyrene	ND		18	µg/L	1	5/21/2022 12:09 AM
Isophorone	ND		18	µg/L	1	5/21/2022 12:09 AM
Naphthalene	ND		18	µg/L	1	5/21/2022 12:09 AM
Nitrobenzene	ND		18	µg/L	1	5/21/2022 12:09 AM
N-Nitrosodi-n-propylamine	ND		18	µg/L	1	5/21/2022 12:09 AM
N-Nitrosodiphenylamine	ND		18	µg/L	1	5/21/2022 12:09 AM
Pentachlorophenol	ND		18	µg/L	1	5/21/2022 12:09 AM
Phenanthrene	ND		18	µg/L	1	5/21/2022 12:09 AM
Phenol	ND		18	µg/L	1	5/21/2022 12:09 AM
Pyrene	ND		18	µg/L	1	5/21/2022 12:09 AM
Surr: 2,4,6-Tribromophenol	70.1		27-83	%REC	1	5/21/2022 12:09 AM
Surr: 2-Fluorobiphenyl	75.0		26-79	%REC	1	5/21/2022 12:09 AM
Surr: 2-Fluorophenol	41.8		13-56	%REC	1	5/21/2022 12:09 AM
Surr: 4-Terphenyl-d14	85.8		43-106	%REC	1	5/21/2022 12:09 AM
Surr: Nitrobenzene-d5	71.5		29-80	%REC	1	5/21/2022 12:09 AM
Surr: Phenol-d6	28.0		10-35	%REC	1	5/21/2022 12:09 AM

VOLATILE ORGANIC COMPOUNDS

SW8260C

Analyst: **MF**

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Work Order: 22051511

Sample ID: MW-109

Lab ID: 22051511-16

Collection Date: 5/16/2022

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
1,1,1-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,1,2,2-Tetrachloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,1,2-Trichloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,1,2-Trichlorotrifluoroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,1-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,1-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2,4-Trichlorobenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2-Dibromo-3-chloropropane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2-Dibromoethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2-Dichloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,2-Dichloropropane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,3-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
1,4-Dichlorobenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
2-Butanone	ND		5.0	µg/L	1	5/20/2022 04:05 AM
2-Hexanone	ND		5.0	µg/L	1	5/20/2022 04:05 AM
4-Methyl-2-pentanone	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Acetone	ND		10	µg/L	1	5/20/2022 04:05 AM
Benzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Bromodichloromethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Bromoform	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Bromomethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Carbon disulfide	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Carbon tetrachloride	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Chlorobenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Chloroethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Chloroform	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Chloromethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
cis-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
cis-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Cyclohexane	ND		2.0	µg/L	1	5/20/2022 04:05 AM
Dibromochloromethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Dichlorodifluoromethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Ethylbenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Isopropylbenzene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Methyl acetate	ND		2.0	µg/L	1	5/20/2022 04:05 AM
Methyl tert-butyl ether	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Methylcyclohexane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Methylene chloride	ND		5.0	µg/L	1	5/20/2022 04:05 AM
Styrene	ND		1.0	µg/L	1	5/20/2022 04:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

ALS Group, USA

Date: 01-Jun-2022

Client: The Mannik & Smith Group, Inc.

Project: Former Mount Pleasant Landfill

Sample ID: MW-109

Collection Date: 5/16/2022

Work Order: 22051511

Lab ID: 22051511-16

Matrix: GROUNDWATER

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
Tetrachloroethene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Toluene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
trans-1,2-Dichloroethene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
trans-1,3-Dichloropropene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Trichloroethene	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Trichlorofluoromethane	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Vinyl chloride	ND		1.0	µg/L	1	5/20/2022 04:05 AM
Xylenes, Total	ND		3.0	µg/L	1	5/20/2022 04:05 AM
Surr: 1,2-Dichloroethane-d4	98.2		75-120	%REC	1	5/20/2022 04:05 AM
Surr: 4-Bromofluorobenzene	83.2		80-110	%REC	1	5/20/2022 04:05 AM
Surr: Dibromofluoromethane	102		85-115	%REC	1	5/20/2022 04:05 AM
Surr: Toluene-d8	95.4		85-110	%REC	1	5/20/2022 04:05 AM

Note: See Qualifiers page for a list of qualifiers and their definitions.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196634** Instrument ID **GC14** Method: **SW8082A**

MBLK		Sample ID: PBLKW1-196634-196634				Units: µg/L		Analysis Date: 5/21/2022 02:40 AM			
Client ID:		Run ID: GC14_220520A				SeqNo: 8445303		Prep Date: 5/20/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aroclor 1016	ND	0.20									
Aroclor 1221	ND	0.20									
Aroclor 1232	ND	0.20									
Aroclor 1242	ND	0.20									
Aroclor 1248	ND	0.20									
Aroclor 1254	ND	0.20									
Aroclor 1260	ND	0.20									
Aroclor 1262	ND	0.20									
Aroclor 1268	ND	0.20									
PCBs, Total	ND	0.20									
<i>Surr: Decachlorobiphenyl</i>	<i>0.2057</i>	<i>0</i>	<i>0.208</i>	<i>0</i>	<i>98.9</i>	<i>42-153</i>	<i>0</i>				
<i>Surr: Tetrachloro-m-xylene</i>	<i>0.168</i>	<i>0</i>	<i>0.208</i>	<i>0</i>	<i>80.8</i>	<i>48-127</i>	<i>0</i>				

LCS		Sample ID: PLCSW1-196634-196634				Units: µg/L		Analysis Date: 5/21/2022 03:05 AM			
Client ID:		Run ID: GC14_220520A				SeqNo: 8445305		Prep Date: 5/20/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aroclor 1016	4.099	0.20	4.17	0	98.3	71-130	0				
Aroclor 1260	2.956	0.20	4.17	0	70.9	54-135	0				
<i>Surr: Decachlorobiphenyl</i>	<i>0.1543</i>	<i>0</i>	<i>0.208</i>	<i>0</i>	<i>74.2</i>	<i>42-153</i>	<i>0</i>				
<i>Surr: Tetrachloro-m-xylene</i>	<i>0.1947</i>	<i>0</i>	<i>0.208</i>	<i>0</i>	<i>93.6</i>	<i>48-127</i>	<i>0</i>				

LCSD		Sample ID: PLCSDW1-196634-196634				Units: µg/L		Analysis Date: 5/21/2022 03:18 AM			
Client ID:		Run ID: GC14_220520A				SeqNo: 8445306		Prep Date: 5/20/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aroclor 1016	4.11	0.20	4.17	0	98.6	71-130	4.099	0.282	20		
Aroclor 1260	3.132	0.20	4.17	0	75.1	54-135	2.956	5.79	20		
<i>Surr: Decachlorobiphenyl</i>	<i>0.1875</i>	<i>0</i>	<i>0.208</i>	<i>0</i>	<i>90.1</i>	<i>42-153</i>	<i>0.1543</i>	<i>19.4</i>	<i>20</i>		
<i>Surr: Tetrachloro-m-xylene</i>	<i>0.1895</i>	<i>0</i>	<i>0.208</i>	<i>0</i>	<i>91.1</i>	<i>48-127</i>	<i>0.1947</i>	<i>2.69</i>	<i>20</i>		

The following samples were analyzed in this batch:

22051511-01B	22051511-02B	22051511-03B
22051511-04B	22051511-05B	22051511-06B
22051511-07B	22051511-08B	22051511-09B
22051511-10B	22051511-11B	22051511-12B
22051511-14B	22051511-16B	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196557 Instrument ID HG4 Method: SW7470A

MBLK		Sample ID: MBLK-196557-196557				Units: mg/L		Analysis Date: 5/19/2022 12:11 PM		
Client ID:		Run ID: HG4_220519A		SeqNo: 8435553		Prep Date: 5/19/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury ND 0.00020

LCS		Sample ID: LCS-196557-196557				Units: mg/L		Analysis Date: 5/19/2022 12:13 PM		
Client ID:		Run ID: HG4_220519A		SeqNo: 8435554		Prep Date: 5/19/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.002295 0.00020 0.002 0 115 80-120 0

MS		Sample ID: 22051511-14DMS				Units: mg/L		Analysis Date: 5/19/2022 12:58 PM		
Client ID: DUP		Run ID: HG4_220519A		SeqNo: 8435579		Prep Date: 5/19/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.00219 0.00020 0.002 0.0000465 107 75-125 0

MSD		Sample ID: 22051511-14DMSD				Units: mg/L		Analysis Date: 5/19/2022 12:59 PM		
Client ID: DUP		Run ID: HG4_220519A		SeqNo: 8435580		Prep Date: 5/19/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Mercury 0.00222 0.00020 0.002 0.0000465 109 75-125 0.00219 1.36 20

The following samples were analyzed in this batch:

22051511-01D	22051511-02D	22051511-03D
22051511-04D	22051511-05D	22051511-06D
22051511-07D	22051511-08D	22051511-09D
22051511-10D	22051511-11D	22051511-12D
22051511-14D	22051511-16D	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196747 Instrument ID ICPMS3 Method: SW6020B

MBLK		Sample ID: MBLK-196747-196747				Units: mg/L		Analysis Date: 5/23/2022 06:54 PM		
Client ID:		Run ID: ICPMS3_220523A		SeqNo: 8447286		Prep Date: 5/23/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	0.002204	0.0050								J
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	0.02586	0.010								

LCS		Sample ID: LCS-196747-196747				Units: mg/L		Analysis Date: 5/23/2022 06:55 PM		
Client ID:		Run ID: ICPMS3_220523A		SeqNo: 8447288		Prep Date: 5/23/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.1013	0.010	0.1	0	101	80-120	0			
Antimony	0.09687	0.0050	0.1	0	96.9	80-120	0			
Arsenic	0.09878	0.0050	0.1	0	98.8	80-120	0			
Barium	0.1001	0.0050	0.1	0	100	80-120	0			
Beryllium	0.09945	0.0020	0.1	0	99.4	80-120	0			
Boron	0.5116	0.020	0.5	0	102	80-120	0			
Cadmium	0.09773	0.0020	0.1	0	97.7	80-120	0			
Chromium	0.1026	0.0050	0.1	0	103	80-120	0			
Copper	0.1057	0.0050	0.1	0	106	80-120	0			
Lead	0.09594	0.0050	0.1	0	95.9	80-120	0			
Nickel	0.1042	0.0050	0.1	0	104	80-120	0			
Selenium	0.09634	0.0050	0.1	0	96.3	80-120	0			
Silver	0.08183	0.0050	0.1	0	81.8	80-120	0			
Thallium	0.097	0.0050	0.1	0	97	80-120	0			
Zinc	0.1176	0.010	0.1	0	118	80-120	0			B

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196747 Instrument ID ICPMS3 Method: SW6020B

MS				Sample ID: 22051511-01DMS			Units: mg/L		Analysis Date: 5/23/2022 07:12 PM		
Client ID: MW-101		Run ID: ICPMS3_220523A		SeqNo: 8447299		Prep Date: 5/23/2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	0.1496	0.010	0.1	0.01547	134	75-125	0			S	
Antimony	0.09946	0.0050	0.1	0.0001936	99.3	75-125	0				
Arsenic	0.1054	0.0050	0.1	0.004369	101	75-125	0				
Barium	0.1957	0.0050	0.1	0.09689	98.9	75-125	0				
Beryllium	0.1026	0.0020	0.1	0.0000077	103	75-125	0				
Boron	0.8189	0.020	0.5	0.2965	104	75-125	0				
Cadmium	0.09819	0.0020	0.1	0	98.2	75-125	0				
Chromium	0.1045	0.0050	0.1	0.0008184	104	75-125	0				
Copper	0.1013	0.0050	0.1	0.0004356	101	75-125	0				
Lead	0.09861	0.0050	0.1	-0.001705	100	75-125	0				
Nickel	0.1016	0.0050	0.1	0.002687	98.9	75-125	0				
Selenium	0.09838	0.0050	0.1	0.0003124	98.1	75-125	0				
Silver	0.07876	0.0050	0.1	0.0000044	78.8	75-125	0				
Thallium	0.0994	0.0050	0.1	-0.0000099	99.4	75-125	0				
Zinc	0.3072	0.010	0.1	0.00695	300	75-125	0			BS	

MSD				Sample ID: 22051511-01DMSD			Units: mg/L		Analysis Date: 5/23/2022 07:13 PM		
Client ID: MW-101		Run ID: ICPMS3_220523A		SeqNo: 8447300		Prep Date: 5/23/2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	0.1147	0.010	0.1	0.01547	99.2	75-125	0.1496	26.4	20	R	
Antimony	0.0971	0.0050	0.1	0.0001936	96.9	75-125	0.09946	2.39	20		
Arsenic	0.1036	0.0050	0.1	0.004369	99.2	75-125	0.1054	1.77	20		
Barium	0.1949	0.0050	0.1	0.09689	98	75-125	0.1957	0.451	20		
Beryllium	0.1	0.0020	0.1	0.0000077	100	75-125	0.1026	2.51	20		
Boron	0.8104	0.020	0.5	0.2965	103	75-125	0.8189	1.05	20		
Cadmium	0.09753	0.0020	0.1	0	97.5	75-125	0.09819	0.67	20		
Chromium	0.1014	0.0050	0.1	0.0008184	101	75-125	0.1045	3.01	20		
Copper	0.1001	0.0050	0.1	0.0004356	99.6	75-125	0.1013	1.21	20		
Lead	0.09688	0.0050	0.1	-0.001705	98.6	75-125	0.09861	1.77	20		
Nickel	0.1003	0.0050	0.1	0.002687	97.6	75-125	0.1016	1.28	20		
Selenium	0.09595	0.0050	0.1	0.0003124	95.6	75-125	0.09838	2.5	20		
Silver	0.07698	0.0050	0.1	0.0000044	77	75-125	0.07876	2.29	20		
Thallium	0.09849	0.0050	0.1	-0.0000099	98.5	75-125	0.0994	0.926	20		
Zinc	0.1114	0.010	0.1	0.00695	104	75-125	0.3072	93.5	20	BR	

The following samples were analyzed in this batch:

22051511-01D	22051511-02D	22051511-03D
22051511-04D	22051511-05D	22051511-06D
22051511-07D	22051511-08D	22051511-09D
22051511-10D	22051511-11D	22051511-12D
22051511-14D		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196748 Instrument ID ICPMS3 Method: SW6020B

MBLK		Sample ID: MBLK-196748-196748				Units: mg/L		Analysis Date: 5/23/2022 07:44 PM		
Client ID:		Run ID: ICPMS3_220523A			SeqNo: 8447320		Prep Date: 5/23/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	0.002898	0.0050								J
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	0.01099	0.010								

LCS		Sample ID: LCS-196748-196748				Units: mg/L		Analysis Date: 5/23/2022 07:45 PM		
Client ID:		Run ID: ICPMS3_220523A			SeqNo: 8447321		Prep Date: 5/23/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Antimony	0.09741	0.0050	0.1	0	97.4	80-120	0			
Arsenic	0.09556	0.0050	0.1	0	95.6	80-120	0			
Barium	0.103	0.0050	0.1	0	103	80-120	0			
Beryllium	0.0854	0.0020	0.1	0	85.4	80-120	0			
Boron	0.4301	0.020	0.5	0	86	80-120	0			
Cadmium	0.09751	0.0020	0.1	0	97.5	80-120	0			
Chromium	0.09906	0.0050	0.1	0	99.1	80-120	0			
Copper	0.09985	0.0050	0.1	0	99.8	80-120	0			
Lead	0.09759	0.0050	0.1	0	97.6	80-120	0			
Nickel	0.09808	0.0050	0.1	0	98.1	80-120	0			
Selenium	0.09474	0.0050	0.1	0	94.7	80-120	0			
Thallium	0.09862	0.0050	0.1	0	98.6	80-120	0			

LCS		Sample ID: LCS-196748-196748				Units: mg/L		Analysis Date: 5/24/2022 01:30 PM		
Client ID:		Run ID: ICPMS3_220524A			SeqNo: 8450391		Prep Date: 5/23/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Silver	0.08265	0.0050	0.1	0	82.7	80-120	0			
Zinc	0.1515	0.010	0.1	0	152	80-120	0			BS

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196748 Instrument ID ICPMS3 Method: SW6020B

MS				Sample ID: 22051619-01DMS			Units: mg/L		Analysis Date: 5/23/2022 08:08 PM		
Client ID:		Run ID: ICPMS3_220523A			SeqNo: 8447337		Prep Date: 5/23/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Antimony	0.09952	0.0050	0.1	0.0001243	99.4	75-125	0				
Arsenic	0.09918	0.0050	0.1	0.00022	99	75-125	0				
Barium	0.1071	0.0050	0.1	0.006629	100	75-125	0				
Beryllium	0.1028	0.0020	0.1	0.0000385	103	75-125	0				
Boron	0.5347	0.020	0.5	0.01715	104	75-125	0				
Cadmium	0.09892	0.0020	0.1	0.0000627	98.9	75-125	0				
Chromium	0.1012	0.0050	0.1	0.0006479	101	75-125	0				
Copper	0.105	0.0050	0.1	0.003431	102	75-125	0				
Lead	0.09815	0.0050	0.1	-0.001822	100	75-125	0				
Nickel	0.1013	0.0050	0.1	0.0006347	101	75-125	0				
Selenium	0.09717	0.0050	0.1	0.0002321	96.9	75-125	0				
Silver	0.08028	0.0050	0.1	0	80.3	75-125	0				
Thallium	0.09935	0.0050	0.1	-0.000011	99.4	75-125	0				
Zinc	0.1036	0.010	0.1	0.001426	102	75-125	0			B	

MSD				Sample ID: 22051619-01DMSD			Units: mg/L		Analysis Date: 5/23/2022 08:10 PM		
Client ID:		Run ID: ICPMS3_220523A			SeqNo: 8447338		Prep Date: 5/23/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Antimony	0.1009	0.0050	0.1	0.0001243	101	75-125	0.09952	1.39	20		
Arsenic	0.1016	0.0050	0.1	0.00022	101	75-125	0.09918	2.45	20		
Barium	0.1094	0.0050	0.1	0.006629	103	75-125	0.1071	2.11	20		
Beryllium	0.1032	0.0020	0.1	0.0000385	103	75-125	0.1028	0.36	20		
Boron	0.5448	0.020	0.5	0.01715	106	75-125	0.5347	1.87	20		
Cadmium	0.09995	0.0020	0.1	0.0000627	99.9	75-125	0.09892	1.04	20		
Chromium	0.1036	0.0050	0.1	0.0006479	103	75-125	0.1012	2.28	20		
Copper	0.1073	0.0050	0.1	0.003431	104	75-125	0.105	2.09	20		
Lead	0.09979	0.0050	0.1	-0.001822	102	75-125	0.09815	1.66	20		
Nickel	0.1042	0.0050	0.1	0.0006347	104	75-125	0.1013	2.78	20		
Selenium	0.09535	0.0050	0.1	0.0002321	95.1	75-125	0.09717	1.89	20		
Silver	0.08128	0.0050	0.1	0	81.3	75-125	0.08028	1.24	20		
Thallium	0.1005	0.0050	0.1	-0.000011	100	75-125	0.09935	1.11	20		
Zinc	0.1055	0.010	0.1	0.001426	104	75-125	0.1036	1.75	20	B	

The following samples were analyzed in this batch: 22051511-16D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196876 Instrument ID ICPMS3 Method: SW6020B

MBLK		Sample ID: MBLK-196876-196876				Units: mg/L		Analysis Date: 5/25/2022 03:22 PM		
Client ID:		Run ID: ICPMS3_220525A		SeqNo: 8455596		Prep Date: 5/25/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	ND	0.010								
Antimony	ND	0.0050								
Arsenic	ND	0.0050								
Barium	ND	0.0050								
Beryllium	ND	0.0020								
Boron	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0050								
Copper	ND	0.0050								
Lead	ND	0.0050								
Nickel	ND	0.0050								
Selenium	ND	0.0050								
Silver	ND	0.0050								
Thallium	ND	0.0050								
Zinc	ND	0.010								

LCS		Sample ID: LCS-196876-196876				Units: mg/L		Analysis Date: 5/25/2022 03:24 PM		
Client ID:		Run ID: ICPMS3_220525A		SeqNo: 8455599		Prep Date: 5/25/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	0.09965	0.010	0.1	0	99.6	80-120	0			
Antimony	0.1001	0.0050	0.1	0	100	80-120	0			
Arsenic	0.09536	0.0050	0.1	0	95.4	80-120	0			
Barium	0.09923	0.0050	0.1	0	99.2	80-120	0			
Beryllium	0.1008	0.0020	0.1	0	101	80-120	0			
Boron	0.5255	0.020	0.5	0	105	80-120	0			
Cadmium	0.09979	0.0020	0.1	0	99.8	80-120	0			
Chromium	0.101	0.0050	0.1	0	101	80-120	0			
Copper	0.1065	0.0050	0.1	0	107	80-120	0			
Lead	0.09802	0.0050	0.1	0	98	80-120	0			
Nickel	0.1035	0.0050	0.1	0	104	80-120	0			
Selenium	0.09328	0.0050	0.1	0	93.3	80-120	0			
Silver	0.09466	0.0050	0.1	0	94.7	80-120	0			
Thallium	0.09612	0.0050	0.1	0	96.1	80-120	0			
Zinc	0.1063	0.010	0.1	0	106	80-120	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196876 Instrument ID ICPMS3 Method: SW6020B

MS				Sample ID: 22051619-03DMS			Units: mg/L		Analysis Date: 5/25/2022 05:16 PM		
Client ID:		Run ID: ICPMS3_220525A			SeqNo: 8458411		Prep Date: 5/25/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	0.3377	0.010	0.1	0.2359	102	75-125	0				
Antimony	0.1052	0.0050	0.1	0.0000891	105	75-125	0				
Arsenic	0.0944	0.0050	0.1	0.0002442	94.2	75-125	0				
Barium	0.1159	0.0050	0.1	0.0148	101	75-125	0				
Beryllium	0.1016	0.0020	0.1	0.0000363	102	75-125	0				
Boron	0.5462	0.020	0.5	0.01397	106	75-125	0				
Cadmium	0.1046	0.0020	0.1	0.0000682	105	75-125	0				
Chromium	0.09977	0.0050	0.1	0.001273	98.5	75-125	0				
Copper	0.1062	0.0050	0.1	0.00145	105	75-125	0				
Lead	0.09816	0.0050	0.1	0.0002233	97.9	75-125	0				
Nickel	0.1021	0.0050	0.1	0.0006545	101	75-125	0				
Selenium	0.09335	0.0050	0.1	0.0000979	93.3	75-125	0				
Silver	0.09725	0.0050	0.1	0.0000033	97.2	75-125	0				
Thallium	0.09541	0.0050	0.1	0.0000088	95.4	75-125	0				
Zinc	0.1045	0.010	0.1	0.001261	103	75-125	0				

MSD				Sample ID: 22051619-03DMSD			Units: mg/L		Analysis Date: 5/25/2022 05:18 PM		
Client ID:		Run ID: ICPMS3_220525A			SeqNo: 8458412		Prep Date: 5/25/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	0.3542	0.010	0.1	0.2359	118	75-125	0.3377	4.78	20		
Antimony	0.104	0.0050	0.1	0.0000891	104	75-125	0.1052	1.14	20		
Arsenic	0.09267	0.0050	0.1	0.0002442	92.4	75-125	0.0944	1.85	20		
Barium	0.1149	0.0050	0.1	0.0148	100	75-125	0.1159	0.845	20		
Beryllium	0.1002	0.0020	0.1	0.0000363	100	75-125	0.1016	1.35	20		
Boron	0.5453	0.020	0.5	0.01397	106	75-125	0.5462	0.148	20		
Cadmium	0.1038	0.0020	0.1	0.0000682	104	75-125	0.1046	0.806	20		
Chromium	0.09907	0.0050	0.1	0.001273	97.8	75-125	0.09977	0.698	20		
Copper	0.1039	0.0050	0.1	0.00145	102	75-125	0.1062	2.13	20		
Lead	0.09721	0.0050	0.1	0.0002233	97	75-125	0.09816	0.966	20		
Nickel	0.1001	0.0050	0.1	0.0006545	99.4	75-125	0.1021	1.99	20		
Selenium	0.09347	0.0050	0.1	0.0000979	93.4	75-125	0.09335	0.13	20		
Silver	0.09611	0.0050	0.1	0.0000033	96.1	75-125	0.09725	1.18	20		
Thallium	0.09397	0.0050	0.1	0.0000088	94	75-125	0.09541	1.52	20		
Zinc	0.1089	0.010	0.1	0.001261	108	75-125	0.1045	4.11	20		

The following samples were analyzed in this batch:

22051511-02D	22051511-04D	22051511-06D
22051511-07D	22051511-10D	22051511-11D
22051511-14D		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **197094** Instrument ID **ICPMS3** Method: **SW6020B**

MBLK				Sample ID: MBLK-197094-197094			Units: mg/L		Analysis Date: 5/31/2022 03:47 PM		
Client ID:		Run ID: ICPMS3_220531A		SeqNo: 8471604		Prep Date: 5/29/2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	ND	0.010									
Antimony	ND	0.0050									
Arsenic	ND	0.0050									
Barium	ND	0.0050									
Beryllium	ND	0.0020									
Cadmium	ND	0.0020									
Chromium	ND	0.0050									
Copper	ND	0.0050									
Lead	ND	0.0050									
Nickel	ND	0.0050									
Selenium	ND	0.0050									
Silver	ND	0.0050									
Thallium	ND	0.0050									
Zinc	ND	0.010									

MBLK				Sample ID: MBLK-197094-197094			Units: mg/L		Analysis Date: 6/1/2022 12:20 PM		
Client ID:		Run ID: ICPMS3_220601A		SeqNo: 8474214		Prep Date: 5/29/2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Boron	ND	0.020									

LCS				Sample ID: LCS-197094-197094			Units: mg/L		Analysis Date: 5/31/2022 03:48 PM		
Client ID:		Run ID: ICPMS3_220531A		SeqNo: 8471605		Prep Date: 5/29/2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Aluminum	0.1029	0.010	0.1	0	103	80-120	0				
Antimony	0.09689	0.0050	0.1	0	96.9	80-120	0				
Arsenic	0.09534	0.0050	0.1	0	95.3	80-120	0				
Barium	0.09894	0.0050	0.1	0	98.9	80-120	0				
Beryllium	0.09581	0.0020	0.1	0	95.8	80-120	0				
Cadmium	0.0992	0.0020	0.1	0	99.2	80-120	0				
Chromium	0.1019	0.0050	0.1	0	102	80-120	0				
Copper	0.1075	0.0050	0.1	0	108	80-120	0				
Lead	0.09724	0.0050	0.1	0	97.2	80-120	0				
Nickel	0.1026	0.0050	0.1	0	103	80-120	0				
Selenium	0.08974	0.0050	0.1	0	89.7	80-120	0				
Silver	0.09505	0.0050	0.1	0	95	80-120	0				
Thallium	0.09462	0.0050	0.1	0	94.6	80-120	0				
Zinc	0.1016	0.010	0.1	0	102	80-120	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 197094 Instrument ID ICPMS3 Method: SW6020B

LCS				Sample ID: LCS-197094-197094			Units: mg/L		Analysis Date: 6/1/2022 12:22 PM		
Client ID:		Run ID: ICPMS3_220601A			SeqNo: 8474215		Prep Date: 5/29/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Boron	0.5048	0.020	0.5	0	101	80-120	0			
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MS				Sample ID: 22051853-09DMS			Units: mg/L		Analysis Date: 5/31/2022 05:38 PM		
Client ID:		Run ID: ICPMS3_220531A			SeqNo: 8472567		Prep Date: 5/29/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Aluminum	3.168	0.010	0.1	2.153	1010	75-125	0			SEO
Antimony	0.09893	0.0050	0.1	0.0000319	98.9	75-125	0			
Arsenic	0.09945	0.0050	0.1	0.001066	98.4	75-125	0			
Barium	0.2846	0.0050	0.1	0.1854	99.2	75-125	0			
Beryllium	0.09961	0.0020	0.1	0.0001166	99.5	75-125	0			
Cadmium	0.09942	0.0020	0.1	0.000033	99.4	75-125	0			
Chromium	0.104	0.0050	0.1	0.003516	100	75-125	0			
Copper	0.1128	0.0050	0.1	0.008994	104	75-125	0			
Lead	0.101	0.0050	0.1	0.001884	99.2	75-125	0			
Nickel	0.104	0.0050	0.1	0.002879	101	75-125	0			
Selenium	0.09213	0.0050	0.1	0.0000924	92	75-125	0			
Silver	0.09291	0.0050	0.1	0.0000132	92.9	75-125	0			
Thallium	0.09726	0.0050	0.1	0.0000088	97.3	75-125	0			
Zinc	0.1137	0.010	0.1	0.01402	99.7	75-125	0			

MS				Sample ID: 22051853-09DMS			Units: mg/L		Analysis Date: 6/1/2022 12:25 PM		
Client ID:		Run ID: ICPMS3_220601A			SeqNo: 8474217		Prep Date: 5/29/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Boron	0.5844	0.020	0.5	0.07552	102	75-125	0			
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Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 197094 Instrument ID ICPMS3 Method: SW6020B

MSD		Sample ID: 22051853-09DMSD				Units: mg/L		Analysis Date: 5/31/2022 05:40 PM		
Client ID:		Run ID: ICPMS3_220531A			SeqNo: 8472568		Prep Date: 5/29/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Aluminum	3.157	0.010	0.1	2.153	1000	75-125	3.168	0.352	20	SEO
Antimony	0.09732	0.0050	0.1	0.0000319	97.3	75-125	0.09893	1.64	20	
Arsenic	0.09934	0.0050	0.1	0.001066	98.3	75-125	0.09945	0.11	20	
Barium	0.2862	0.0050	0.1	0.1854	101	75-125	0.2846	0.555	20	
Beryllium	0.1012	0.0020	0.1	0.0001166	101	75-125	0.09961	1.61	20	
Cadmium	0.09833	0.0020	0.1	0.000033	98.3	75-125	0.09942	1.11	20	
Chromium	0.1047	0.0050	0.1	0.003516	101	75-125	0.104	0.656	20	
Copper	0.1123	0.0050	0.1	0.008994	103	75-125	0.1128	0.428	20	
Lead	0.0999	0.0050	0.1	0.001884	98	75-125	0.101	1.14	20	
Nickel	0.1027	0.0050	0.1	0.002879	99.9	75-125	0.104	1.18	20	
Selenium	0.09594	0.0050	0.1	0.0000924	95.9	75-125	0.09213	4.05	20	
Silver	0.09221	0.0050	0.1	0.0000132	92.2	75-125	0.09291	0.759	20	
Thallium	0.09764	0.0050	0.1	0.0000088	97.6	75-125	0.09726	0.389	20	
Zinc	0.1153	0.010	0.1	0.01402	101	75-125	0.1137	1.38	20	

MSD		Sample ID: 22051853-09DMSD				Units: mg/L		Analysis Date: 6/1/2022 12:27 PM		
Client ID:		Run ID: ICPMS3_220601A			SeqNo: 8474218		Prep Date: 5/29/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	0.5812	0.020	0.5	0.07552	101	75-125	0.5844	0.549	20	

The following samples were analyzed in this batch:

22051511-16D

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196606 Instrument ID LCMS1 Method: E537 Mod

MBLK		Sample ID: MBLK-196606-196606				Units: ng/L		Analysis Date: 5/24/2022 11:52 AM		
Client ID:		Run ID: LCMS1_220523C		SeqNo: 8450642		Prep Date: 5/20/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS)	ND	5.0								
Fluorotelomer Sulphonic Acid 6:2 (FtS)	ND	5.0								
Fluorotelomer Sulphonic Acid 8:2 (FtS)	ND	5.0								
Perfluorobutanesulfonic Acid (PFBS)	ND	5.0								
Perfluorobutanoic Acid (PFBA)	ND	5.0								
Perfluorodecanesulfonic Acid (PFDS)	ND	5.0								
Perfluorodecanoic Acid (PFDA)	ND	5.0								
Perfluorododecanoic Acid (PFDoA)	ND	5.0								
Perfluoroheptanesulfonic Acid (PFHpS)	ND	5.0								
Perfluoroheptanoic Acid (PFHpA)	ND	5.0								
Perfluorohexanesulfonic Acid (PFHxS)	ND	5.0								
Perfluorohexanoic Acid (PFHxA)	ND	5.0								
Perfluorononanesulfonic Acid (PFNS)	ND	5.0								
Perfluorononanoic Acid (PFNA)	ND	5.0								
Perfluorooctanesulfonamide (PFOSA)	ND	5.0								
Perfluorooctanesulfonic Acid (PFOS)	ND	2.0								
Perfluorooctanoic Acid (PFOA)	ND	2.0								
Perfluoropentanesulfonic Acid (PFPeS)	ND	5.0								
Perfluoropentanoic Acid (PFPeA)	ND	5.0								
Perfluorotetradecanoic Acid (PFTeA)	ND	5.0								
Perfluorotridecanoic Acid (PFTriA)	ND	5.0								
Perfluoroundecanoic Acid (PFUnA)	ND	5.0								
N-Ethylperfluorooctanesulfonamidoace	ND	5.0								
N-Methylperfluorooctanesulfonamidoa	0.6528	5.0								J
Hexafluoropropylene oxide dimer acid	ND	5.0								
4,8-Dioxa-3H-perfluorononanoic Acid (	ND	5.0								
11Cl-Pf3OUdS	ND	5.0								
9Cl-PF3ONS	ND	5.0								
Surr: 13C2-FtS 4:2	123.3	0	149.4	0	82.5	50-150	0			
Surr: 13C2-FtS 6:2	150.7	0	152	0	99.2	50-150	0			
Surr: 13C2-FtS 8:2	144.3	0	153.3	0	94.2	50-150	0			
Surr: 13C2-PFDA	138.9	0	160	0	86.8	50-150	0			
Surr: 13C2-PFDoA	141.8	0	160	0	88.6	50-150	0			
Surr: 13C2-PFHxA	133.1	0	160	0	83.2	50-150	0			
Surr: 13C2-PFTeA	144.7	0	160	0	90.5	50-150	0			
Surr: 13C2-PFUnA	143.5	0	160	0	89.7	50-150	0			
Surr: 13C3-HFPO-DA	131.4	0	160	0	82.1	50-150	0			
Surr: 13C3-PFBS	136.1	0	148.8	0	91.4	50-150	0			
Surr: 13C4-PFBA	142.1	0	160	0	88.8	50-150	0			
Surr: 13C4-PFHpA	143.9	0	160	0	90	50-150	0			
Surr: 13C4-PFOA	134.9	0	160	0	84.3	50-150	0			
Surr: 13C4-PFOS	134.2	0	152.8	0	87.8	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196606	Instrument ID LCMS1	Method: E537 Mod						
<i>Surr: 13C5-PFNA</i>	156.2	0	160	0	97.6	50-150	0	
<i>Surr: 13C5-PFPeA</i>	147.3	0	160	0	92.1	50-150	0	
<i>Surr: 18O2-PFHxS</i>	156.1	0	151.2	0	103	50-150	0	
<i>Surr: d5-N-EtFOSAA</i>	150.8	0	160	0	94.2	50-150	0	
<i>Surr: d3-N-MeFOSAA</i>	140.4	0	160	0	87.8	50-150	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196606 Instrument ID LCMS1 Method: E537 Mod

LCS		Sample ID: LCS-196606-196606				Units: ng/L		Analysis Date: 5/24/2022 07:17 AM		
Client ID:		Run ID: LCMS1_220523C		SeqNo: 8450612		Prep Date: 5/20/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS)	37.6	5.0	29.9	0	126	63-143	0			
Fluorotelomer Sulphonic Acid 6:2 (FtS)	40.82	5.0	30.3	0	135	63-162	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS)	28.09	5.0	30.7	0	91.5	61-165	0			
Perfluorobutanesulfonic Acid (PFBS)	36	5.0	28.3	0	127	72-130	0			
Perfluorobutanoic Acid (PFBA)	39.86	5.0	32	0	125	73-129	0			
Perfluorodecanesulfonic Acid (PFDS)	38.9	5.0	30.8	0	126	53-142	0			
Perfluorodecanoic Acid (PFDA)	37.05	5.0	32	0	116	71-129	0			
Perfluorododecanoic Acid (PFDoA)	32.35	5.0	32	0	101	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS)	36.48	5.0	30.5	0	120	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	40.93	5.0	32	0	128	72-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	35.38	5.0	29.1	0	122	68-131	0			
Perfluorohexanoic Acid (PFHxA)	34.2	5.0	32	0	107	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	32.62	5.0	30.7	0	106	69-127	0			
Perfluorononanoic Acid (PFNA)	29.36	5.0	32	0	91.8	69-130	0			
Perfluorooctanesulfonamide (PFOSA)	35.51	5.0	32	0	111	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	30.46	2.0	29.7	0	103	65-140	0			
Perfluorooctanoic Acid (PFOA)	34.79	2.0	32	0	109	71-133	0			
Perfluoropentanesulfonic Acid (PFPeS)	37.51	5.0	30	0	125	71-127	0			
Perfluoropentanoic Acid (PFPeA)	38.23	5.0	32	0	119	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	37.75	5.0	32	0	118	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	40.34	5.0	32	0	126	65-144	0			
Perfluoroundecanoic Acid (PFUnA)	30.34	5.0	32	0	94.8	69-133	0			
N-Ethylperfluorooctanesulfonamidoace	42.07	5.0	32	0	131	61-135	0			
N-Methylperfluorooctanesulfonamidoa	36.06	5.0	32	0	113	65-136	0			
Hexafluoropropylene oxide dimer acid	38.55	5.0	32	0	120	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	29.44	5.0	30.1	0	97.8	70-130	0			
9Cl-PF3ONS	37.6	5.0	29.8	0	126	70-130	0			
Surr: 13C2-FtS 4:2	107.6	0	149.4	0	72	50-150	0			
Surr: 13C2-FtS 6:2	103.6	0	152	0	68.2	50-150	0			
Surr: 13C2-FtS 8:2	131.8	0	153.3	0	86	50-150	0			
Surr: 13C2-PFDA	128.2	0	160	0	80.1	50-150	0			
Surr: 13C2-PFDoA	112.4	0	160	0	70.2	50-150	0			
Surr: 13C2-PFHxA	144.1	0	160	0	90.1	50-150	0			
Surr: 13C2-PFTeA	129.2	0	160	0	80.8	50-150	0			
Surr: 13C2-PFUnA	166.5	0	160	0	104	50-150	0			
Surr: 13C3-HFPO-DA	114.7	0	160	0	71.7	50-150	0			
Surr: 13C3-PFBS	119.9	0	148.8	0	80.6	50-150	0			
Surr: 13C4-PFBA	135.7	0	160	0	84.8	50-150	0			
Surr: 13C4-PFHpA	129.3	0	160	0	80.8	50-150	0			
Surr: 13C4-PFOA	156.3	0	160	0	97.7	50-150	0			
Surr: 13C4-PFOS	121.5	0	152.8	0	79.5	50-150	0			
Surr: 13C5-PFNA	140.2	0	160	0	87.6	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196606	Instrument ID LCMS1	Method: E537 Mod						
<i>Surr: 13C5-PFPeA</i>	122.5	0	160	0	76.5	50-150	0	
<i>Surr: 13C8-FOSA</i>	103.6	0	160	0	64.7	50-150	0	
<i>Surr: 18O2-PFHxS</i>	114.6	0	151.2	0	75.8	50-150	0	
<i>Surr: d5-N-EtFOSAA</i>	125.6	0	160	0	78.5	50-150	0	
<i>Surr: d3-N-MeFOSAA</i>	100.9	0	160	0	63	50-150	0	

LCS	Sample ID: LCS-196606-196606	Units: ng/L		Analysis Date: 5/25/2022 03:09 AM						
Client ID:	Run ID: LCMS1_220524B	SeqNo: 8454692	Prep Date: 5/20/2022	DF: 1						
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
11Cl-Pf3OUdS	30.76	5.0	30.1	0	102	70-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196606 Instrument ID LCMS1 Method: E537 Mod

MS				Sample ID: 22051501-01AMS			Units: ng/L		Analysis Date: 5/24/2022 09:22 AM		
Client ID:		Run ID: LCMS1_220523C		SeqNo: 8450626		Prep Date: 5/20/2022		DF: 1			
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Fluorotelomer Sulphonic Acid 4:2 (FtS)	32.99	5.1	30.46	0.03274	108	63-143		0			
Fluorotelomer Sulphonic Acid 6:2 (FtS)	36.59	5.1	30.87	1.201	115	63-162		0			
Fluorotelomer Sulphonic Acid 8:2 (FtS)	46.77	5.1	31.28	1.483	145	61-165		0			
Perfluorobutanesulfonic Acid (PFBS)	38.49	5.1	28.83	2.252	126	72-130		0			
Perfluorobutanoic Acid (PFBA)	52.29	5.1	32.6	3.306	150	73-129		0		S	
Perfluorodecanesulfonic Acid (PFDS)	34.52	5.1	31.38	0	110	53-142		0			
Perfluorodecanoic Acid (PFDA)	38.11	5.1	32.6	-0.7071	119	71-129		0			
Perfluorododecanoic Acid (PFDoA)	34.89	5.1	32.6	0.1015	107	72-134		0			
Perfluoroheptanesulfonic Acid (PFHpS)	42.26	5.1	31.07	1.526	131	69-134		0			
Perfluoroheptanoic Acid (PFHpA)	42.68	5.1	32.6	3.509	120	72-130		0			
Perfluorohexanesulfonic Acid (PFHxS)	35.8	5.1	29.65	1.192	117	68-131		0			
Perfluorohexanoic Acid (PFHxA)	41.19	5.1	32.6	5.798	109	72-129		0			
Perfluorononanesulfonic Acid (PFNS)	32.11	5.1	31.28	0	103	69-127		0			
Perfluorononanoic Acid (PFNA)	35.21	5.1	32.6	0.5402	106	69-130		0			
Perfluorooctanesulfonamide (PFOSA)	39.33	5.1	32.6	0.3012	120	67-137		0			
Perfluorooctanesulfonic Acid (PFOS)	36.07	2.0	30.26	2.874	110	65-140		0			
Perfluorooctanoic Acid (PFOA)	48.6	2.0	32.6	8.112	124	71-133		0			
Perfluoropentanesulfonic Acid (PFPeS)	40.42	5.1	30.56	0.1899	132	71-127		0		S	
Perfluoropentanoic Acid (PFPeA)	46.35	5.1	32.6	6.786	121	72-129		0			
Perfluorotetradecanoic Acid (PFTeA)	37.43	5.1	32.6	0.2259	114	71-132		0			
Perfluorotridecanoic Acid (PFTriA)	31.08	5.1	32.6	0.1179	95	65-144		0			
Perfluoroundecanoic Acid (PFUnA)	38.26	5.1	32.6	-0.7399	120	69-133		0			
N-Ethylperfluorooctanesulfonamidoace	36.05	5.1	32.6	0.1244	110	61-135		0			
N-Methylperfluorooctanesulfonamidoa	42.81	5.1	32.6	0.6155	129	65-136		0			
Hexafluoropropylene oxide dimer acid	39.15	5.1	32.6	0.1637	120	70-130		0			
4,8-Dioxa-3H-perfluorononanoic Acid (	37.69	5.1	30.66	0.03274	123	70-130		0		
11Cl-Pf3OUdS	31.12	5.1	30.66	0.02292	101	70-130		0			
9Cl-PF3ONS	31.12	5.1	30.36	0.03274	102	70-130		0			
Surr: 13C2-FtS 4:2	145.3	0	152.2	0	95.4	50-150		0			
Surr: 13C2-FtS 6:2	150.8	0	154.8	0	97.4	50-150		0			
Surr: 13C2-FtS 8:2	183.3	0	156.2	0	117	50-150		0			
Surr: 13C2-PFDA	153.6	0	163	0	94.2	50-150		0			
Surr: 13C2-PFDoA	133.6	0	163	0	81.9	50-150		0			
Surr: 13C2-PFHxA	147.2	0	163	0	90.3	50-150		0			
Surr: 13C2-PFTeA	149	0	163	0	91.4	50-150		0			
Surr: 13C2-PFUnA	140.1	0	163	0	85.9	50-150		0			
Surr: 13C3-HFPO-DA	150.7	0	163	0	92.4	50-150		0			
Surr: 13C3-PFBS	124.9	0	151.6	0	82.4	50-150		0			
Surr: 13C4-PFBA	135.8	0	163	0	83.3	50-150		0			
Surr: 13C4-PFHpA	124.6	0	163	0	76.5	50-150		0			
Surr: 13C4-PFOA	132.7	0	163	0	81.4	50-150		0			
Surr: 13C4-PFOS	139	0	155.7	0	89.3	50-150		0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196606	Instrument ID LCMS1	Method: E537 Mod						
<i>Surr: 13C5-PFNA</i>	132.9	0	163	0	81.5	50-150	0	
<i>Surr: 13C5-PFPeA</i>	133.5	0	163	0	81.9	50-150	0	
<i>Surr: 13C8-FOSA</i>	119.3	0	163	0	73.2	50-150	0	
<i>Surr: 18O2-PFHxS</i>	117.2	0	154	0	76.1	50-150	0	
<i>Surr: d5-N-EtFOSAA</i>	144.5	0	163	0	88.7	50-150	0	
<i>Surr: d3-N-MeFOSAA</i>	151.4	0	163	0	92.9	50-150	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196606 Instrument ID LCMS1 Method: E537 Mod

MSD		Sample ID: 22051501-01AMSD				Units: ng/L		Analysis Date: 5/24/2022 09:30 AM		
Client ID:		Run ID: LCMS1_220523C			SeqNo: 8450627		Prep Date: 5/20/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS)	35.93	5.1	30.32	0.03274	118	63-143	32.99	8.53	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS)	36.62	5.1	30.72	1.201	115	63-162	36.59	0.0751	30	
Fluorotelomer Sulphonic Acid 8:2 (FtS)	41.04	5.1	31.13	1.483	127	61-165	46.77	13.1	30	
Perfluorobutanesulfonic Acid (PFBS)	34.97	5.1	28.69	2.252	114	72-130	38.49	9.59	30	
Perfluorobutanoic Acid (PFBA)	44.11	5.1	32.45	3.306	126	73-129	52.29	17	30	
Perfluorodecanesulfonic Acid (PFDS)	34.79	5.1	31.23	0	111	53-142	34.52	0.782	30	
Perfluorodecanoic Acid (PFDA)	37.16	5.1	32.45	-0.7071	117	71-129	38.11	2.52	30	
Perfluorododecanoic Acid (PFDoA)	31.39	5.1	32.45	0.1015	96.4	72-134	34.89	10.6	30	
Perfluoroheptanesulfonic Acid (PFHpS)	33.96	5.1	30.92	1.526	105	69-134	42.26	21.8	30	
Perfluoroheptanoic Acid (PFHpA)	43.12	5.1	32.45	3.509	122	72-130	42.68	1.03	30	
Perfluorohexanesulfonic Acid (PFHxS)	35.29	5.1	29.5	1.192	116	68-131	35.8	1.44	30	
Perfluorohexanoic Acid (PFHxA)	38.79	5.1	32.45	5.798	102	72-129	41.19	6.01	30	
Perfluorononanesulfonic Acid (PFNS)	37.18	5.1	31.13	0	119	69-127	32.11	14.6	30	
Perfluorononanoic Acid (PFNA)	34.08	5.1	32.45	0.5402	103	69-130	35.21	3.27	30	
Perfluorooctanesulfonamide (PFOSA)	39.94	5.1	32.45	0.3012	122	67-137	39.33	1.53	30	
Perfluorooctanesulfonic Acid (PFOS)	34.06	2.0	30.11	2.874	104	65-140	36.07	5.74	30	
Perfluorooctanoic Acid (PFOA)	44.66	2.0	32.45	8.112	113	71-133	48.6	8.44	30	
Perfluoropentanesulfonic Acid (PFPeS)	28.75	5.1	30.42	0.1899	93.9	71-127	40.42	33.7	30	R
Perfluoropentanoic Acid (PFPeA)	44.37	5.1	32.45	6.786	116	72-129	46.35	4.38	30	
Perfluorotetradecanoic Acid (PFTeA)	33.63	5.1	32.45	0.2259	103	71-132	37.43	10.7	30	
Perfluorotridecanoic Acid (PFTriA)	34.82	5.1	32.45	0.1179	107	65-144	31.08	11.3	30	
Perfluoroundecanoic Acid (PFUnA)	36.31	5.1	32.45	-0.7399	114	69-133	38.26	5.22	30	
N-Ethylperfluorooctanesulfonamidoa	37	5.1	32.45	0.1244	114	61-135	36.05	2.59	30	
N-Methylperfluorooctanesulfonamidoa	37.81	5.1	32.45	0.6155	115	65-136	42.81	12.4	30	
Hexafluoropropylene oxide dimer acid	35.54	5.1	32.45	0.1637	109	70-130	39.15	9.65	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	31.51	5.1	30.52	0.03274	103	70-130	37.69	17.9	30	
11Cl-Pf3OUdS	29.44	5.1	30.52	0.02292	96.4	70-130	31.12	5.57	30	
9Cl-PF3ONS	30.8	5.1	30.21	0.03274	102	70-130	31.12	1.03	30	
Surr: 13C2-FtS 4:2	125.9	0	151.5	0	83.1	50-150	145.3	14.3	30	
Surr: 13C2-FtS 6:2	150.1	0	154.1	0	97.4	50-150	150.8	0.467	30	
Surr: 13C2-FtS 8:2	194.9	0	155.4	0	125	50-150	183.3	6.14	30	
Surr: 13C2-PFDA	139.8	0	162.2	0	86.2	50-150	153.6	9.39	30	
Surr: 13C2-PFDoA	124.7	0	162.2	0	76.9	50-150	133.6	6.85	30	
Surr: 13C2-PFHxA	118.4	0	162.2	0	73	50-150	147.2	21.7	30	
Surr: 13C2-PFTeA	124	0	162.2	0	76.5	50-150	149	18.3	30	
Surr: 13C2-PFUnA	132.1	0	162.2	0	81.4	50-150	140.1	5.84	30	
Surr: 13C3-HFPO-DA	122.6	0	162.2	0	75.6	50-150	150.7	20.6	30	
Surr: 13C3-PFBS	111.2	0	150.9	0	73.7	50-150	124.9	11.6	30	
Surr: 13C4-PFBA	124.6	0	162.2	0	76.8	50-150	135.8	8.65	30	
Surr: 13C4-PFHpA	110	0	162.2	0	67.8	50-150	124.6	12.5	30	
Surr: 13C4-PFOA	116.9	0	162.2	0	72.1	50-150	132.7	12.6	30	
Surr: 13C4-PFOS	123.5	0	154.9	0	79.7	50-150	139	11.8	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196606	Instrument ID LCMS1	Method: E537 Mod								
<i>Surr: 13C5-PFNA</i>	129.3	0	162.2	0	79.7	50-150	132.9	2.71	30	
<i>Surr: 13C5-PFPeA</i>	126.7	0	162.2	0	78.1	50-150	133.5	5.17	30	
<i>Surr: 13C8-FOSA</i>	110.2	0	162.2	0	67.9	50-150	119.3	7.92	30	
<i>Surr: 18O2-PFHxS</i>	118.4	0	153.3	0	77.2	50-150	117.2	1	30	
<i>Surr: d5-N-EtFOSAA</i>	133.1	0	162.2	0	82	50-150	144.5	8.25	30	
<i>Surr: d3-N-MeFOSAA</i>	159.4	0	162.2	0	98.3	50-150	151.4	5.14	30	

The following samples were analyzed in this batch:

22051511-01E	22051511-02E	22051511-03E
22051511-04E	22051511-05E	22051511-06E
22051511-07E		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196707 Instrument ID LCMS1 Method: E537 Mod

MS		Sample ID: 22051271-01B MS				Units: ng/L		Analysis Date: 5/25/2022 06:19 AM		
Client ID:		Run ID: LCMS1_220524B		SeqNo: 8454713		Prep Date: 5/23/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS)	41.58	4.7	28.03	0	148	63-143	0			S
Fluorotelomer Sulphonic Acid 6:2 (FtS)	38.96	4.7	28.4	4.299	122	63-162	0			
Fluorotelomer Sulphonic Acid 8:2 (FtS)	29.79	4.7	28.78	0	104	61-165	0			
Perfluorobutanesulfonic Acid (PFBS)	31.51	4.7	26.53	0	119	72-130	0			
Perfluorobutanoic Acid (PFBA)	39.95	4.7	30	0	133	73-129	0			S
Perfluorodecanesulfonic Acid (PFDS)	29.6	4.7	28.87	0	103	53-142	0			
Perfluorodecanoic Acid (PFDA)	36.36	4.7	30	0	121	71-129	0			
Perfluorododecanoic Acid (PFDoA)	32.82	4.7	30	0	109	72-134	0			
Perfluoroheptanesulfonic Acid (PFHpS)	26.22	4.7	28.59	0	91.7	69-134	0			
Perfluoroheptanoic Acid (PFHpA)	34.86	4.7	30	0	116	72-130	0			
Perfluorohexanesulfonic Acid (PFHxS)	31.89	4.7	27.28	0	117	68-131	0			
Perfluorohexanoic Acid (PFHxA)	33.46	4.7	30	0	112	72-129	0			
Perfluorononanesulfonic Acid (PFNS)	40.59	4.7	28.78	0	141	69-127	0			S
Perfluorononanoic Acid (PFNA)	31.84	4.7	30	0	106	69-130	0			
Perfluorooctanesulfonamide (PFOSA)	39.55	4.7	30	0	132	67-137	0			
Perfluorooctanesulfonic Acid (PFOS)	30.73	1.9	27.84	1.158	106	65-140	0			
Perfluorooctanoic Acid (PFOA)	40.78	1.9	30	0	136	71-133	0			S
Perfluoropentanesulfonic Acid (PFPeS)	26.87	4.7	28.12	0	95.6	71-127	0			
Perfluoropentanoic Acid (PFPeA)	37.31	4.7	30	0	124	72-129	0			
Perfluorotetradecanoic Acid (PFTeA)	34.08	4.7	30	0	114	71-132	0			
Perfluorotridecanoic Acid (PFTriA)	43.24	4.7	30	0	144	65-144	0			S
Perfluoroundecanoic Acid (PFUnA)	32.9	4.7	30	0	110	69-133	0			
N-Ethylperfluorooctanesulfonamidoa	32.4	4.7	30	1.66	102	61-135	0			
N-Methylperfluorooctanesulfonamidoa	46.48	4.7	30	0	155	65-136	0			S
Hexafluoropropylene oxide dimer acid	36.89	4.7	30	0	123	70-130	0			
4,8-Dioxa-3H-perfluorononanoic Acid (	23.98	4.7	28.22	0	85	70-130	0			
11Cl-Pf3OUdS	28.31	4.7	28.22	0	100	70-130	0			
9Cl-PF3ONS	42.95	4.7	27.93	0	154	70-130	0			S
Surr: 13C2-FtS 4:2	122.1	0	140.1	0	87.2	50-150	0			
Surr: 13C2-FtS 6:2	124.6	0	142.5	0	87.5	50-150	0			
Surr: 13C2-FtS 8:2	111.8	0	143.7	0	77.8	50-150	0			
Surr: 13C2-PFDA	107.5	0	150	0	71.7	50-150	0			
Surr: 13C2-PFDoA	95.53	0	150	0	63.7	50-150	0			
Surr: 13C2-PFHxA	124.2	0	150	0	82.8	50-150	0			
Surr: 13C2-PFTeA	57.36	0	150	0	38.2	50-150	0			S
Surr: 13C2-PFUnA	128.2	0	150	0	85.5	50-150	0			
Surr: 13C3-HFPO-DA	119.7	0	150	0	79.8	50-150	0			
Surr: 13C3-PFBS	119.6	0	139.5	0	85.7	50-150	0			
Surr: 13C4-PFBA	136.4	0	150	0	91	50-150	0			
Surr: 13C4-PFHpA	135.3	0	150	0	90.2	50-150	0			
Surr: 13C4-PFOA	137.3	0	150	0	91.5	50-150	0			
Surr: 13C4-PFOS	115.7	0	143.2	0	80.8	50-150	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196707	Instrument ID LCMS1	Method: E537 Mod						
<i>Surr: 13C5-PFNA</i>	<i>164.4</i>	<i>0</i>	<i>150</i>	<i>0</i>	<i>110</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C5-PFPeA</i>	<i>129.5</i>	<i>0</i>	<i>150</i>	<i>0</i>	<i>86.4</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 13C8-FOSA</i>	<i>169.8</i>	<i>0</i>	<i>150</i>	<i>0</i>	<i>113</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: 18O2-PFHxS</i>	<i>146.5</i>	<i>0</i>	<i>141.7</i>	<i>0</i>	<i>103</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d5-N-EtFOSAA</i>	<i>157.4</i>	<i>0</i>	<i>150</i>	<i>0</i>	<i>105</i>	<i>50-150</i>	<i>0</i>	
<i>Surr: d3-N-MeFOSAA</i>	<i>103.9</i>	<i>0</i>	<i>150</i>	<i>0</i>	<i>69.3</i>	<i>50-150</i>	<i>0</i>	

MS		Sample ID: 22051271-01B MS			Units: ng/L		Analysis Date: 5/25/2022 12:40 PM			
Client ID:		Run ID: LCMS1_220524B			SeqNo: 8454756		Prep Date: 5/23/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid (PFHpS)	23.96	4.7	28.59	0	83.8	69-134	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196707 Instrument ID LCMS1 Method: E537 Mod

DUP		Sample ID: 22051087-02A DUP				Units: ng/L		Analysis Date: 5/25/2022 06:27 AM		
Client ID:		Run ID: LCMS1_220524B			SeqNo: 8454714		Prep Date: 5/23/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Fluorotelomer Sulphonic Acid 4:2 (FtS)	ND	5.0	0	0	0	0-0	0	0	30	
Fluorotelomer Sulphonic Acid 6:2 (FtS)	2.3	5.0	0	0	0	0-0	0	0	30	J
Fluorotelomer Sulphonic Acid 8:2 (FtS)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorobutanesulfonic Acid (PFBS)	2.439	5.0	0	0	0	0-0	1.907	0	30	J
Perfluorobutanoic Acid (PFBA)	7.067	5.0	0	0	0	0-0	7.444	5.19	30	
Perfluorodecanesulfonic Acid (PFDS)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorodecanoic Acid (PFDA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorododecanoic Acid (PFDoA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluoroheptanesulfonic Acid (PFHpS)	2.579	5.0	0	0	0	0-0	0	0	30	J
Perfluoroheptanoic Acid (PFHpA)	3.51	5.0	0	0	0	0-0	3.632	0	30	J
Perfluorohexanesulfonic Acid (PFHxS)	2.747	5.0	0	0	0	0-0	1.914	0	30	J
Perfluorohexanoic Acid (PFHxA)	7.041	5.0	0	0	0	0-0	7.469	5.89	30	
Perfluorononanesulfonic Acid (PFNS)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorononanoic Acid (PFNA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonamide (PFOSA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorooctanesulfonic Acid (PFOS)	1.21	2.0	0	0	0	0-0	2.006	0	30	J
Perfluorooctanoic Acid (PFOA)	12.23	2.0	0	0	0	0-0	11.28	8.03	30	
Perfluoropentanesulfonic Acid (PFPeS)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluoropentanoic Acid (PFPeA)	10.85	5.0	0	0	0	0-0	10.02	7.96	30	
Perfluorotetradecanoic Acid (PFTeA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluorotridecanoic Acid (PFTriA)	ND	5.0	0	0	0	0-0	0	0	30	
Perfluoroundecanoic Acid (PFUnA)	ND	5.0	0	0	0	0-0	0	0	30	
N-Ethylperfluorooctanesulfonamidoace	ND	5.0	0	0	0	0-0	0	0	30	
N-Methylperfluorooctanesulfonamidoa	ND	5.0	0	0	0	0-0	0	0	30	
Hexafluoropropylene oxide dimer acid	ND	5.0	0	0	0	0-0	0	0	30	
4,8-Dioxa-3H-perfluorononanoic Acid (	ND	5.0	0	0	0	0-0	0	0	30	
11Cl-Pf3OUdS	ND	5.0	0	0	0	0-0	0	0	30	
9Cl-PF3ONS	ND	5.0	0	0	0	0-0	0	0	30	
Surr: 13C2-FtS 4:2	112.1	0	148.3	0	75.6	50-150	150.8	29.4	30	
Surr: 13C2-FtS 6:2	109.1	0	150.9	0	72.3	50-150	141.3	25.7	30	
Surr: 13C2-FtS 8:2	112.2	0	152.1	0	73.7	50-150	229.4	68.6	30	R
Surr: 13C2-PFDA	101.1	0	158.8	0	63.7	50-150	115.7	13.4	30	
Surr: 13C2-PFDoA	95.99	0	158.8	0	60.4	50-150	94.53	1.54	30	
Surr: 13C2-PFHxA	100.2	0	158.8	0	63.1	50-150	95.01	5.32	30	
Surr: 13C2-PFTeA	105	0	158.8	0	66.1	50-150	122.4	15.3	30	
Surr: 13C2-PFUnA	149.5	0	158.8	0	94.1	50-150	118.7	23	30	
Surr: 13C3-HFPO-DA	90.93	0	158.8	0	57.3	50-150	97.28	6.75	30	
Surr: 13C3-PFBS	109.6	0	147.7	0	74.2	50-150	93.66	15.7	30	
Surr: 13C4-PFBA	125.2	0	158.8	0	78.8	50-150	99.01	23.3	30	
Surr: 13C4-PFHpA	143.2	0	158.8	0	90.2	50-150	103.3	32.3	30	R
Surr: 13C4-PFOA	148.9	0	158.8	0	93.8	50-150	97.45	41.8	30	R
Surr: 13C4-PFOS	113.8	0	151.7	0	75	50-150	91.73	21.4	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196707	Instrument ID LCMS1	Method: E537 Mod								
<i>Surr: 13C5-PFNA</i>	132.5	0	158.8	0	83.5	50-150	105.8	22.4	30	
<i>Surr: 13C5-PFPeA</i>	108.4	0	158.8	0	68.2	50-150	102.8	5.26	30	
<i>Surr: 13C8-FOSA</i>	128.8	0	158.8	0	81.1	50-150	99.84	25.4	30	
<i>Surr: 18O2-PFHxS</i>	130.4	0	150.1	0	86.9	50-150	80.01	47.9	30	R
<i>Surr: d5-N-EtFOSAA</i>	152	0	158.8	0	95.7	50-150	123.9	20.4	30	
<i>Surr: d3-N-MeFOSAA</i>	84.71	0	158.8	0	53.3	50-150	135.3	46	30	R

DUP		Sample ID: 22051087-02A DUP				Units: ng/L		Analysis Date: 5/25/2022 12:48 PM		
Client ID:		Run ID: LCMS1_220524B		SeqNo: 8454757		Prep Date: 5/23/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Perfluoroheptanesulfonic Acid (PFHpS)	1.693	5.0	0	0	0	0-0	0	0	30	J

The following samples were analyzed in this batch:

22051511-08E	22051511-09E	22051511-10E
22051511-11E	22051511-12E	22051511-13A
22051511-14E	22051511-16E	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196624** Instrument ID **SVMS8** Method: **SW846 8270D**

MBLK		Sample ID: SBLKW1-196624-196624			Units: µg/L		Analysis Date: 5/20/2022 03:54 PM			
Client ID:		Run ID: SVMS8_220520A			SeqNo: 8444873		Prep Date: 5/20/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	ND	5.0								
2,4,5-Trichlorophenol	ND	5.0								
2,4,6-Trichlorophenol	ND	5.0								
2,4-Dichlorophenol	ND	5.0								
2,4-Dimethylphenol	ND	5.0								
2,4-Dinitrophenol	ND	5.0								
2,4-Dinitrotoluene	ND	5.0								
2,6-Dinitrotoluene	ND	5.0								
2-Chloronaphthalene	ND	5.0								
2-Chlorophenol	ND	5.0								
2-Methylnaphthalene	ND	5.0								
2-Methylphenol	ND	5.0								
2-Nitroaniline	ND	5.0								
2-Nitrophenol	ND	5.0								
3&4-Methylphenol	ND	5.0								
3,3'-Dichlorobenzidine	ND	5.0								
3-Nitroaniline	ND	5.0								
4,6-Dinitro-2-methylphenol	ND	5.0								
4-Bromophenyl phenyl ether	ND	5.0								
4-Chloro-3-methylphenol	ND	5.0								
4-Chloroaniline	ND	5.0								
4-Chlorophenyl phenyl ether	ND	5.0								
4-Nitroaniline	ND	5.0								
4-Nitrophenol	ND	5.0								
Acenaphthene	ND	5.0								
Acenaphthylene	ND	5.0								
Acetophenone	ND	1.0								
Anthracene	ND	5.0								
Atrazine	ND	1.0								
Benzaldehyde	ND	1.0								
Benzo(a)anthracene	ND	5.0								
Benzo(a)pyrene	ND	5.0								
Benzo(b)fluoranthene	ND	5.0								
Benzo(g,h,i)perylene	ND	5.0								
Benzo(k)fluoranthene	ND	5.0								
Bis(2-chloroethoxy)methane	ND	5.0								
Bis(2-chloroethyl)ether	ND	5.0								
Bis(2-chloroisopropyl)ether	ND	5.0								
Bis(2-ethylhexyl)phthalate	ND	5.0								
Butyl benzyl phthalate	ND	5.0								
Caprolactam	ND	10								
Carbazole	ND	5.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196624	Instrument ID SVMS8	Method: SW846 8270D					
Chrysene	ND	5.0					
Dibenzo(a,h)anthracene	ND	5.0					
Dibenzofuran	ND	5.0					
Diethyl phthalate	ND	5.0					
Dimethyl phthalate	ND	5.0					
Di-n-butyl phthalate	ND	5.0					
Di-n-octyl phthalate	ND	5.0					
Fluoranthene	ND	5.0					
Fluorene	ND	5.0					
Hexachlorobenzene	ND	5.0					
Hexachlorobutadiene	ND	5.0					
Hexachlorocyclopentadiene	ND	5.0					
Hexachloroethane	ND	5.0					
Indeno(1,2,3-cd)pyrene	ND	5.0					
Isophorone	ND	5.0					
Naphthalene	ND	5.0					
Nitrobenzene	ND	5.0					
N-Nitrosodi-n-propylamine	ND	5.0					
N-Nitrosodiphenylamine	ND	5.0					
Pentachlorophenol	ND	5.0					
Phenanthrene	ND	5.0					
Phenol	ND	5.0					
Pyrene	ND	5.0					
<i>Surr: 2,4,6-Tribromophenol</i>	<i>34.59</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>69.2</i>	<i>27-83</i>	<i>0</i>
<i>Surr: 2-Fluorobiphenyl</i>	<i>36.13</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>72.3</i>	<i>26-79</i>	<i>0</i>
<i>Surr: 2-Fluorophenol</i>	<i>24.84</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>49.7</i>	<i>13-56</i>	<i>0</i>
<i>Surr: 4-Terphenyl-d14</i>	<i>43.12</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>86.2</i>	<i>43-106</i>	<i>0</i>
<i>Surr: Nitrobenzene-d5</i>	<i>35.35</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>70.7</i>	<i>29-80</i>	<i>0</i>
<i>Surr: Phenol-d6</i>	<i>17.35</i>	<i>0</i>	<i>50</i>	<i>0</i>	<i>34.7</i>	<i>10-35</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **196624** Instrument ID **SVMS8** Method: **SW846 8270D**

LCS		Sample ID: SLCSW1-196624-196624				Units: µg/L		Analysis Date: 5/20/2022 04:15 PM		
Client ID:		Run ID: SVMS8_220520A			SeqNo: 8444874		Prep Date: 5/20/2022		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	14.05	5.0	20	0	70.2	40-85	0			
2,4,5-Trichlorophenol	14.72	5.0	20	0	73.6	47-84	0			
2,4,6-Trichlorophenol	14.77	5.0	20	0	73.8	45-83	0			
2,4-Dichlorophenol	14.3	5.0	20	0	71.5	39-84	0			
2,4-Dimethylphenol	13.88	5.0	20	0	69.4	34-79	0			
2,4-Dinitrophenol	11.64	5.0	20	0	58.2	11-117	0			
2,4-Dinitrotoluene	14.78	5.0	20	0	73.9	54-93	0			
2,6-Dinitrotoluene	15.05	5.0	20	0	75.2	51-90	0			
2-Chloronaphthalene	14.74	5.0	20	0	73.7	37-84	0			
2-Chlorophenol	14.12	5.0	20	0	70.6	38-83	0			
2-Methylnaphthalene	13.99	5.0	20	0	70	33-85	0			
2-Methylphenol	13.06	5.0	20	0	65.3	29-76	0			
2-Nitroaniline	15.25	5.0	20	0	76.2	45-94	0			
2-Nitrophenol	14.26	5.0	20	0	71.3	41-84	0			
3&4-Methylphenol	12.01	5.0	20	0	60	24-70	0			
3,3'-Dichlorobenzidine	14.34	5.0	20	0	71.7	39-96	0			
3-Nitroaniline	15.14	5.0	20	0	75.7	50-93	0			
4,6-Dinitro-2-methylphenol	14.31	5.0	20	0	71.6	23-116	0			
4-Bromophenyl phenyl ether	15.3	5.0	20	0	76.5	51-93	0			
4-Chloro-3-methylphenol	14.35	5.0	20	0	71.8	41-86	0			
4-Chloroaniline	14.69	5.0	20	0	73.4	44-92	0			
4-Chlorophenyl phenyl ether	14.48	5.0	20	0	72.4	49-89	0			
4-Nitroaniline	15.04	5.0	20	0	75.2	47-98	0			
4-Nitrophenol	7.85	5.0	20	0	39.2	10-43	0			
Acenaphthene	14.44	5.0	20	0	72.2	42-85	0			
Acenaphthylene	14.84	5.0	20	0	74.2	42-88	0			
Acetophenone	14.64	1.0	20	0	73.2	39-91	0			
Anthracene	15.15	5.0	20	0	75.8	55-93	0			
Atrazine	14.98	1.0	20	0	74.9	52-100	0			
Benzaldehyde	15.82	1.0	20	0	79.1	42-110	0			
Benzo(a)anthracene	15.9	5.0	20	0	79.5	56-91	0			
Benzo(a)pyrene	15.46	5.0	20	0	77.3	55-96	0			
Benzo(b)fluoranthene	15.82	5.0	20	0	79.1	55-99	0			
Benzo(g,h,i)perylene	15.29	5.0	20	0	76.4	44-102	0			
Benzo(k)fluoranthene	16.8	5.0	20	0	84	57-96	0			
Bis(2-chloroethoxy)methane	14.45	5.0	20	0	72.2	39-88	0			
Bis(2-chloroethyl)ether	14.43	5.0	20	0	72.2	36-91	0			
Bis(2-chloroisopropyl)ether	14.29	5.0	20	0	71.4	33-83	0			
Bis(2-ethylhexyl)phthalate	15.06	5.0	20	0	75.3	39-113	0			
Butyl benzyl phthalate	14.61	5.0	20	0	73	49-97	0			
Carbazole	15.15	5.0	20	0	75.8	59-92	0			
Chrysene	16.53	5.0	20	0	82.6	55-92	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196624	Instrument ID SVMS8	Method: SW846 8270D						
Dibenzo(a,h)anthracene	14.81	5.0	20	0	74	47-100	0	
Dibenzofuran	14.74	5.0	20	0	73.7	44-89	0	
Diethyl phthalate	14.41	5.0	20	0	72	54-95	0	
Dimethyl phthalate	14.81	5.0	20	0	74	51-92	0	
Di-n-butyl phthalate	14.87	5.0	20	0	74.4	57-98	0	
Di-n-octyl phthalate	14.31	5.0	20	0	71.6	36-117	0	
Fluoranthene	15.06	5.0	20	0	75.3	59-93	0	
Fluorene	14.64	5.0	20	0	73.2	47-91	0	
Hexachlorobenzene	14.8	5.0	20	0	74	53-89	0	
Hexachlorobutadiene	12.9	5.0	20	0	64.5	11-83	0	
Hexachlorocyclopentadiene	8.98	5.0	20	0	44.9	14-75	0	
Hexachloroethane	12.78	5.0	20	0	63.9	10-85	0	
Indeno(1,2,3-cd)pyrene	13.97	5.0	20	0	69.8	46-102	0	
Isophorone	14.72	5.0	20	0	73.6	42-90	0	
Naphthalene	13.83	5.0	20	0	69.2	26-78	0	
Nitrobenzene	15.01	5.0	20	0	75	38-86	0	
N-Nitrosodi-n-propylamine	14.82	5.0	20	0	74.1	39-95	0	
N-Nitrosodiphenylamine	15.2	5.0	20	0	76	47-94	0	
Pentachlorophenol	14.21	5.0	20	0	71	37-94	0	
Phenanthrene	15.27	5.0	20	0	76.4	51-90	0	
Phenol	7.26	5.0	20	0	36.3	10-40	0	
Pyrene	16.7	5.0	20	0	83.5	48-98	0	
<i>Surr: 2,4,6-Tribromophenol</i>	37.87	0	50	0	75.7	27-83	0	
<i>Surr: 2-Fluorobiphenyl</i>	36.45	0	50	0	72.9	26-79	0	
<i>Surr: 2-Fluorophenol</i>	23.49	0	50	0	47	13-56	0	
<i>Surr: 4-Terphenyl-d14</i>	42.21	0	50	0	84.4	43-106	0	
<i>Surr: Nitrobenzene-d5</i>	36.13	0	50	0	72.3	29-80	0	
<i>Surr: Phenol-d6</i>	15.56	0	50	0	31.1	10-35	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196624 Instrument ID SVMS8 Method: SW846 8270D

LCSD		Sample ID: SLCS DW1-196624-196624				Units: µg/L		Analysis Date: 5/20/2022 04:35 PM		
Client ID:		Run ID: SVMS8_220520A		SeqNo: 8444875		Prep Date: 5/20/2022		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1'-Biphenyl	11.55	5.0	20	0	57.8	40-85	14.05	19.5	30	
2,4,5-Trichlorophenol	12.55	5.0	20	0	62.8	47-84	14.72	15.9	30	
2,4,6-Trichlorophenol	12.04	5.0	20	0	60.2	45-83	14.77	20.4	30	
2,4-Dichlorophenol	11.36	5.0	20	0	56.8	39-84	14.3	22.9	30	
2,4-Dimethylphenol	11.63	5.0	20	0	58.2	34-79	13.88	17.6	30	
2,4-Dinitrophenol	7.65	5.0	20	0	38.2	11-117	11.64	41.4	30	R
2,4-Dinitrotoluene	13.3	5.0	20	0	66.5	54-93	14.78	10.5	30	
2,6-Dinitrotoluene	13.02	5.0	20	0	65.1	51-90	15.05	14.5	30	
2-Chloronaphthalene	11.74	5.0	20	0	58.7	37-84	14.74	22.7	30	
2-Chlorophenol	11.52	5.0	20	0	57.6	38-83	14.12	20.3	30	
2-Methylnaphthalene	11.17	5.0	20	0	55.8	33-85	13.99	22.4	30	
2-Methylphenol	11.38	5.0	20	0	56.9	29-76	13.06	13.7	30	
2-Nitroaniline	13.33	5.0	20	0	66.6	45-94	15.25	13.4	30	
2-Nitrophenol	10.9	5.0	20	0	54.5	41-84	14.26	26.7	30	
3&4-Methylphenol	10.45	5.0	20	0	52.2	24-70	12.01	13.9	30	
3,3'-Dichlorobenzidine	12.51	5.0	20	0	62.6	39-96	14.34	13.6	30	
3-Nitroaniline	14.27	5.0	20	0	71.4	50-93	15.14	5.92	30	
4,6-Dinitro-2-methylphenol	11.28	5.0	20	0	56.4	23-116	14.31	23.7	30	
4-Bromophenyl phenyl ether	13.39	5.0	20	0	67	51-93	15.3	13.3	30	
4-Chloro-3-methylphenol	12.37	5.0	20	0	61.8	41-86	14.35	14.8	30	
4-Chloroaniline	12.49	5.0	20	0	62.4	44-92	14.69	16.2	30	
4-Chlorophenyl phenyl ether	12.4	5.0	20	0	62	49-89	14.48	15.5	30	
4-Nitroaniline	13.44	5.0	20	0	67.2	47-98	15.04	11.2	30	
4-Nitrophenol	6.84	5.0	20	0	34.2	10-43	7.85	13.8	30	
Acenaphthene	11.96	5.0	20	0	59.8	42-85	14.44	18.8	30	
Acenaphthylene	12.35	5.0	20	0	61.8	42-88	14.84	18.3	30	
Acetophenone	11.91	1.0	20	0	59.6	39-91	14.64	20.6	30	
Anthracene	13.4	5.0	20	0	67	55-93	15.15	12.3	30	
Atrazine	13.43	1.0	20	0	67.2	52-100	14.98	10.9	30	
Benzaldehyde	12.57	1.0	20	0	62.8	42-110	15.82	22.9	30	
Benzo(a)anthracene	14.08	5.0	20	0	70.4	56-91	15.9	12.1	30	
Benzo(a)pyrene	13.46	5.0	20	0	67.3	55-96	15.46	13.8	30	
Benzo(b)fluoranthene	14.46	5.0	20	0	72.3	55-99	15.82	8.98	30	
Benzo(g,h,i)perylene	12.99	5.0	20	0	65	44-102	15.29	16.3	30	
Benzo(k)fluoranthene	14.4	5.0	20	0	72	57-96	16.8	15.4	30	
Bis(2-chloroethoxy)methane	11.71	5.0	20	0	58.6	39-88	14.45	20.9	30	
Bis(2-chloroethyl)ether	11.53	5.0	20	0	57.6	36-91	14.43	22.3	30	
Bis(2-chloroisopropyl)ether	11.39	5.0	20	0	57	33-83	14.29	22.6	30	
Bis(2-ethylhexyl)phthalate	13.33	5.0	20	0	66.6	39-113	15.06	12.2	30	
Butyl benzyl phthalate	13.17	5.0	20	0	65.8	49-97	14.61	10.4	30	
Carbazole	13.54	5.0	20	0	67.7	59-92	15.15	11.2	30	
Chrysene	14.3	5.0	20	0	71.5	55-92	16.53	14.5	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: 196624	Instrument ID SVMS8	Method: SW846 8270D								
Dibenzo(a,h)anthracene	12.56	5.0	20	0	62.8	47-100	14.81	16.4	30	
Dibenzofuran	12.4	5.0	20	0	62	44-89	14.74	17.2	30	
Diethyl phthalate	12.96	5.0	20	0	64.8	54-95	14.41	10.6	30	
Dimethyl phthalate	12.87	5.0	20	0	64.4	51-92	14.81	14	30	
Di-n-butyl phthalate	13.05	5.0	20	0	65.2	57-98	14.87	13	30	
Di-n-octyl phthalate	12.64	5.0	20	0	63.2	36-117	14.31	12.4	30	
Fluoranthene	13.29	5.0	20	0	66.4	59-93	15.06	12.5	30	
Fluorene	12.45	5.0	20	0	62.2	47-91	14.64	16.2	30	
Hexachlorobenzene	13.21	5.0	20	0	66	53-89	14.8	11.4	30	
Hexachlorobutadiene	10.6	5.0	20	0	53	11-83	12.9	19.6	30	
Hexachlorocyclopentadiene	7.62	5.0	20	0	38.1	14-75	8.98	16.4	30	
Hexachloroethane	10.66	5.0	20	0	53.3	10-85	12.78	18.1	30	
Indeno(1,2,3-cd)pyrene	11.91	5.0	20	0	59.6	46-102	13.97	15.9	30	
Isophorone	12.2	5.0	20	0	61	42-90	14.72	18.7	30	
Naphthalene	11.07	5.0	20	0	55.4	26-78	13.83	22.2	30	
Nitrobenzene	12	5.0	20	0	60	38-86	15.01	22.3	30	
N-Nitrosodi-n-propylamine	11.94	5.0	20	0	59.7	39-95	14.82	21.5	30	
N-Nitrosodiphenylamine	13.36	5.0	20	0	66.8	47-94	15.2	12.9	30	
Pentachlorophenol	12.5	5.0	20	0	62.5	37-94	14.21	12.8	30	
Phenanthrene	13.62	5.0	20	0	68.1	51-90	15.27	11.4	30	
Phenol	6.32	5.0	20	0	31.6	10-40	7.26	13.8	30	
Pyrene	15.07	5.0	20	0	75.4	48-98	16.7	10.3	30	
<i>Surr: 2,4,6-Tribromophenol</i>	32.26	0	50	0	64.5	27-83	37.87	16	40	
<i>Surr: 2-Fluorobiphenyl</i>	28.54	0	50	0	57.1	26-79	36.45	24.3	40	
<i>Surr: 2-Fluorophenol</i>	20.12	0	50	0	40.2	13-56	23.49	15.5	40	
<i>Surr: 4-Terphenyl-d14</i>	38.32	0	50	0	76.6	43-106	42.21	9.66	40	
<i>Surr: Nitrobenzene-d5</i>	28.61	0	50	0	57.2	29-80	36.13	23.2	40	
<i>Surr: Phenol-d6</i>	14.12	0	50	0	28.2	10-35	15.56	9.7	40	

The following samples were analyzed in this batch:

22051511-01C	22051511-02C	22051511-03C
22051511-04C	22051511-05C	22051511-06C
22051511-07C	22051511-08C	22051511-09C
22051511-10C	22051511-11C	22051511-12C
22051511-14C	22051511-16C	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

MBLK		Sample ID: 8V-BLKW2-220519-R344771a				Units: µg/L		Analysis Date: 5/19/2022 11:11 PM		
Client ID:		Run ID: VMS8_220519B		SeqNo: 8439351		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	1.0								
Acetone	ND	10								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
Methyl acetate	ND	2.0								
Methyl tert-butyl ether	ND	1.0								
Methylcyclohexane	ND	1.0								
Methylene chloride	ND	5.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	1.0								
Toluene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R344771a	Instrument ID VMS8	Method: SW8260C					
trans-1,2-Dichloroethene	ND	1.0					
trans-1,3-Dichloropropene	ND	1.0					
Trichloroethene	ND	1.0					
Trichlorofluoromethane	ND	1.0					
Vinyl chloride	ND	1.0					
Xylenes, Total	ND	3.0					
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>19.56</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97.8</i>	<i>75-120</i>	<i>0</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>18.58</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>92.9</i>	<i>80-110</i>	<i>0</i>
<i>Surr: Dibromofluoromethane</i>	<i>20.29</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>101</i>	<i>85-115</i>	<i>0</i>
<i>Surr: Toluene-d8</i>	<i>20.95</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>105</i>	<i>85-110</i>	<i>0</i>

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

LCS		Sample ID: 8V-LCSW2-220519-R344771a				Units: µg/L		Analysis Date: 5/19/2022 10:15 PM		
Client ID:		Run ID: VMS8_220519B		SeqNo: 8439349		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.39	1.0	20	0	102	75-130	0			
1,1,1,2-Tetrachloroethane	22.92	1.0	20	0	115	75-130	0			
1,1,2-Trichloroethane	20.76	1.0	20	0	104	75-125	0			
1,1,2-Trichlorotrifluoroethane	20.9	1.0	20	0	104	50-150	0			
1,1-Dichloroethane	19.55	1.0	20	0	97.8	68-142	0			
1,1-Dichloroethene	20.24	1.0	20	0	101	70-145	0			
1,2,4-Trichlorobenzene	20.69	1.0	20	0	103	70-135	0			
1,2-Dibromo-3-chloropropane	22.84	1.0	20	0	114	60-130	0			
1,2-Dibromoethane	21.99	1.0	20	0	110	67-155	0			
1,2-Dichlorobenzene	20.84	1.0	20	0	104	70-130	0			
1,2-Dichloroethane	19.66	1.0	20	0	98.3	78-125	0			
1,2-Dichloropropane	19.17	1.0	20	0	95.8	75-125	0			
1,3-Dichlorobenzene	20.15	1.0	20	0	101	75-130	0			
1,4-Dichlorobenzene	19.93	1.0	20	0	99.6	75-130	0			
2-Butanone	23.81	5.0	20	0	119	55-150	0			
2-Hexanone	24.62	5.0	20	0	123	60-135	0			
4-Methyl-2-pentanone	32.06	1.0	20	0	160	77-178	0			
Acetone	23.16	10	20	0	116	60-160	0			
Benzene	19.64	1.0	20	0	98.2	70-130	0			
Bromodichloromethane	19.08	1.0	20	0	95.4	75-125	0			
Bromoform	18.04	1.0	20	0	90.2	60-125	0			
Bromomethane	20.42	1.0	20	0	102	30-185	0			
Carbon disulfide	21.36	1.0	20	0	107	60-165	0			
Carbon tetrachloride	19.03	1.0	20	0	95.2	65-140	0			
Chlorobenzene	20.87	1.0	20	0	104	80-120	0			
Chloroethane	14.58	1.0	20	0	72.9	31-172	0			
Chloroform	19.48	1.0	20	0	97.4	66-135	0			
Chloromethane	14.92	1.0	20	0	74.6	46-148	0			
cis-1,2-Dichloroethene	19.9	1.0	20	0	99.5	75-134	0			
cis-1,3-Dichloropropene	17.34	1.0	20	0	86.7	70-130	0			
Cyclohexane	19.97	2.0	20	0	99.8	50-150	0			
Dibromochloromethane	19.26	1.0	20	0	96.3	60-115	0			
Dichlorodifluoromethane	20.55	1.0	20	0	103	10-180	0			
Ethylbenzene	20.85	1.0	20	0	104	76-123	0			
Isopropylbenzene	21.3	1.0	20	0	106	80-127	0			
Methyl tert-butyl ether	22.28	1.0	20	0	111	68-129	0			
Methylcyclohexane	20.35	1.0	20	0	102	50-150	0			
Methylene chloride	20.24	5.0	20	0	101	72-125	0			
Styrene	21.55	1.0	20	0	108	79-117	0			
Tetrachloroethene	20.08	1.0	20	0	100	68-166	0			
Toluene	19.66	1.0	20	0	98.3	76-125	0			
trans-1,2-Dichloroethene	21.4	1.0	20	0	107	80-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R344771a	Instrument ID VMS8	Method: SW8260C						
trans-1,3-Dichloropropene	17.52	1.0	20	0	87.6	56-132	0	
Trichloroethene	18.47	1.0	20	0	92.4	77-125	0	
Trichlorofluoromethane	17.56	1.0	20	0	87.8	60-140	0	
Vinyl chloride	19.92	1.0	20	0	99.6	50-136	0	
Xylenes, Total	64.29	3.0	60	0	107	76-127	0	
<i>Surr: 1,2-Dichloroethane-d4</i>	20.15	0	20	0	101	75-120	0	
<i>Surr: 4-Bromofluorobenzene</i>	20.46	0	20	0	102	80-110	0	
<i>Surr: Dibromofluoromethane</i>	20.28	0	20	0	101	85-115	0	
<i>Surr: Toluene-d8</i>	19.1	0	20	0	95.5	85-110	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

MS				Sample ID: 22051511-01A MS		Units: µg/L		Analysis Date: 5/20/2022 06:51 AM		
Client ID: MW-101		Run ID: VMS8_220519B		SeqNo: 8439376		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.84	1.0	20	0	104	75-130	0			
1,1,2,2-Tetrachloroethane	21.69	1.0	20	0	108	75-130	0			
1,1,2-Trichloroethane	21.48	1.0	20	0	107	75-125	0			
1,1,2-Trichlorotrifluoroethane	19.37	1.0	20	0	96.8	50-150	0			
1,1-Dichloroethane	20.02	1.0	20	0	100	68-142	0			
1,1-Dichloroethene	19.78	1.0	20	0	98.9	70-145	0			
1,2,4-Trichlorobenzene	18.93	1.0	20	0	94.6	70-135	0			
1,2-Dibromo-3-chloropropane	20.49	1.0	20	0	102	60-130	0			
1,2-Dibromoethane	22.31	1.0	20	0	112	67-155	0			
1,2-Dichlorobenzene	20.26	1.0	20	0	101	70-130	0			
1,2-Dichloroethane	20.05	1.0	20	0	100	78-125	0			
1,2-Dichloropropane	19.11	1.0	20	0	95.6	75-125	0			
1,3-Dichlorobenzene	18.68	1.0	20	0	93.4	75-130	0			
1,4-Dichlorobenzene	19.02	1.0	20	0	95.1	75-130	0			
2-Butanone	24.15	5.0	20	0	121	55-150	0			
2-Hexanone	22.98	5.0	20	0	115	60-135	0			
4-Methyl-2-pentanone	32.74	1.0	20	0	164	77-178	0			
Acetone	25.83	10	20	1.76	120	60-160	0			
Benzene	19.33	1.0	20	0	96.6	70-130	0			
Bromodichloromethane	18.89	1.0	20	0	94.4	75-125	0			
Bromoform	17.14	1.0	20	0	85.7	60-125	0			
Bromomethane	29.53	1.0	20	0	148	30-185	0			
Carbon disulfide	20.82	1.0	20	0	104	60-165	0			
Carbon tetrachloride	19.08	1.0	20	0	95.4	65-140	0			
Chlorobenzene	19.62	1.0	20	0	98.1	80-120	0			
Chloroethane	22.89	1.0	20	0	114	31-172	0			
Chloroform	19.97	1.0	20	0	99.8	66-135	0			
Chloromethane	13.97	1.0	20	0	69.8	46-148	0			
cis-1,2-Dichloroethene	19.37	1.0	20	0	96.8	75-134	0			
cis-1,3-Dichloropropene	15.21	1.0	20	0	76	70-130	0			
Cyclohexane	20.09	2.0	20	0	100	50-150	0			
Dibromochloromethane	18.89	1.0	20	0	94.4	60-115	0			
Dichlorodifluoromethane	20.09	1.0	20	0	100	10-180	0			
Ethylbenzene	20.1	1.0	20	0	100	76-123	0			
Isopropylbenzene	20.6	1.0	20	0	103	80-127	0			
Methyl tert-butyl ether	21.98	1.0	20	0	110	68-129	0			
Methylcyclohexane	18.76	1.0	20	0	93.8	50-150	0			
Methylene chloride	19.87	5.0	20	0	99.4	72-125	0			
Styrene	20.14	1.0	20	0	101	79-117	0			
Tetrachloroethene	21.39	1.0	20	0	107	68-166	0			
Toluene	19.58	1.0	20	0	97.9	76-125	0			
trans-1,2-Dichloroethene	21.43	1.0	20	0	107	80-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R344771a	Instrument ID VMS8	Method: SW8260C						
trans-1,3-Dichloropropene	15.33	1.0	20	0	76.6	56-132	0	
Trichloroethene	18.53	1.0	20	0	92.6	77-125	0	
Trichlorofluoromethane	18.29	1.0	20	0	91.4	60-140	0	
Vinyl chloride	21.87	1.0	20	0	109	50-136	0	
Xylenes, Total	61.63	3.0	60	0	103	76-127	0	
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>20.45</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>102</i>	<i>75-120</i>	<i>0</i>	
<i>Surr: 4-Bromofluorobenzene</i>	<i>19.81</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>99</i>	<i>80-110</i>	<i>0</i>	
<i>Surr: Dibromofluoromethane</i>	<i>20.46</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>102</i>	<i>85-115</i>	<i>0</i>	
<i>Surr: Toluene-d8</i>	<i>20.03</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>100</i>	<i>85-110</i>	<i>0</i>	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344771a** Instrument ID **VMS8** Method: **SW8260C**

DUP		Sample ID: 22051511-02A DUP				Units: µg/L		Analysis Date: 5/20/2022 06:32 AM		
Client ID: MW-102		Run ID: VMS8_220519B		SeqNo: 8439375		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0	0	0	0		0	0	30	
1,1,1,2-Tetrachloroethane	ND	1.0	0	0	0		0	0	30	
1,1,2-Trichloroethane	ND	1.0	0	0	0		0	0	30	
1,1,2-Trichlorotrifluoroethane	ND	1.0	0	0	0		0	0	30	
1,1-Dichloroethane	ND	1.0	0	0	0		0	0	30	
1,1-Dichloroethene	ND	1.0	0	0	0		0	0	30	
1,2,4-Trichlorobenzene	ND	1.0	0	0	0		0	0	30	
1,2-Dibromo-3-chloropropane	ND	1.0	0	0	0		0	0	30	
1,2-Dibromoethane	ND	1.0	0	0	0		0	0	30	
1,2-Dichlorobenzene	ND	1.0	0	0	0		0	0	30	
1,2-Dichloroethane	ND	1.0	0	0	0		0	0	30	
1,2-Dichloropropane	ND	1.0	0	0	0		0	0	30	
1,3-Dichlorobenzene	ND	1.0	0	0	0		0	0	30	
1,4-Dichlorobenzene	ND	1.0	0	0	0		0	0	30	
2-Butanone	ND	5.0	0	0	0		0	0	30	
2-Hexanone	ND	5.0	0	0	0		0	0	30	
4-Methyl-2-pentanone	ND	1.0	0	0	0		0	0	30	
Acetone	ND	10	0	0	0		1.29	0	30	
Benzene	ND	1.0	0	0	0		0	0	30	
Bromodichloromethane	ND	1.0	0	0	0		0	0	30	
Bromoform	ND	1.0	0	0	0		0	0	30	
Bromomethane	ND	1.0	0	0	0		0	0	30	
Carbon disulfide	ND	1.0	0	0	0		0	0	30	
Carbon tetrachloride	ND	1.0	0	0	0		0	0	30	
Chlorobenzene	0.79	1.0	0	0	0		0.63	0	30	J
Chloroethane	ND	1.0	0	0	0		0	0	30	
Chloroform	ND	1.0	0	0	0		0	0	30	
Chloromethane	ND	1.0	0	0	0		0	0	30	
cis-1,2-Dichloroethene	ND	1.0	0	0	0		0	0	30	
cis-1,3-Dichloropropene	ND	1.0	0	0	0		0	0	30	
Cyclohexane	ND	2.0	0	0	0		0	0	30	
Dibromochloromethane	ND	1.0	0	0	0		0	0	30	
Dichlorodifluoromethane	ND	1.0	0	0	0		0	0	30	
Ethylbenzene	ND	1.0	0	0	0		0	0	30	
Isopropylbenzene	ND	1.0	0	0	0		0	0	30	
Methyl acetate	ND	2.0	0	0	0		0	0	30	
Methyl tert-butyl ether	ND	1.0	0	0	0		0	0	30	
Methylcyclohexane	ND	1.0	0	0	0		0	0	30	
Methylene chloride	ND	5.0	0	0	0		0	0	30	
Styrene	ND	1.0	0	0	0		0	0	30	
Tetrachloroethene	ND	1.0	0	0	0		0	0	30	
Toluene	ND	1.0	0	0	0		0	0	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R344771a	Instrument ID VMS8	Method: SW8260C							
trans-1,2-Dichloroethene	ND	1.0	0	0	0	0	0	30	
trans-1,3-Dichloropropene	ND	1.0	0	0	0	0	0	30	
Trichloroethene	ND	1.0	0	0	0	0	0	30	
Trichlorofluoromethane	ND	1.0	0	0	0	0	0	30	
Vinyl chloride	ND	1.0	0	0	0	0	0	30	
Xylenes, Total	ND	3.0	0	0	0	0	0	30	
<i>Surr: 1,2-Dichloroethane-d4</i>	<i>19.48</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97.4</i>	<i>75-120</i>	<i>21.21</i>	<i>8.5</i>	<i>30</i>
<i>Surr: 4-Bromofluorobenzene</i>	<i>18.1</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>90.5</i>	<i>80-110</i>	<i>19.11</i>	<i>5.43</i>	<i>30</i>
<i>Surr: Dibromofluoromethane</i>	<i>20.15</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>101</i>	<i>85-115</i>	<i>20.27</i>	<i>0.594</i>	<i>30</i>
<i>Surr: Toluene-d8</i>	<i>19.52</i>	<i>0</i>	<i>20</i>	<i>0</i>	<i>97.6</i>	<i>85-110</i>	<i>20.6</i>	<i>5.38</i>	<i>30</i>

The following samples were analyzed in this batch:

22051511-01A	22051511-02A	22051511-03A
22051511-04A	22051511-05A	22051511-06A
22051511-07A	22051511-08A	22051511-09A
22051511-10A	22051511-11A	22051511-12A
22051511-14A	22051511-15A	22051511-16A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

MBLK		Sample ID: 10V-BLKW1-220520-R344778a				Units: µg/L		Analysis Date: 5/20/2022 12:09 PM		
Client ID:		Run ID: VMS10_220520A		SeqNo: 8440296		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
1,1,2-Trichlorotrifluoroethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	1.0								
1,2-Dibromoethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,2-Dichloroethane	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
2-Butanone	ND	5.0								
2-Hexanone	ND	5.0								
4-Methyl-2-pentanone	ND	1.0								
Acetone	ND	10								
Benzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	1.0								
Carbon disulfide	ND	1.0								
Carbon tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	1.0								
Chloroform	ND	1.0								
Chloromethane	ND	1.0								
cis-1,2-Dichloroethene	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
Cyclohexane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
Ethylbenzene	ND	1.0								
Isopropylbenzene	ND	1.0								
Methyl acetate	ND	2.0								
Methyl tert-butyl ether	ND	1.0								
Methylcyclohexane	ND	1.0								
Methylene chloride	ND	5.0								
Styrene	ND	1.0								
Tetrachloroethene	ND	1.0								
Toluene	ND	1.0								

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

trans-1,2-Dichloroethene ND 1.0

trans-1,3-Dichloropropene ND 1.0

Trichloroethene ND 1.0

Trichlorofluoromethane ND 1.0

Vinyl chloride ND 1.0

Xylenes, Total ND 3.0

Surr: 1,2-Dichloroethane-d4 21.1 0 20 0 106 75-120 0

Surr: 4-Bromofluorobenzene 18.91 0 20 0 94.6 80-110 0

Surr: Dibromofluoromethane 19.7 0 20 0 98.5 85-115 0

Surr: Toluene-d8 20.06 0 20 0 100 85-110 0

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

LCS				Sample ID: 10V-LCSW1-220520-R344778a		Units: µg/L		Analysis Date: 5/20/2022 12:26 PM		
Client ID:		Run ID: VMS10_220520A		SeqNo: 8440297		Prep Date:		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	20.9	1.0	20	0	104	75-130	0			
1,1,2,2-Tetrachloroethane	24.93	1.0	20	0	125	75-130	0			
1,1,2-Trichloroethane	21.44	1.0	20	0	107	75-125	0			
1,1,2-Trichlorotrifluoroethane	21.92	1.0	20	0	110	50-150	0			
1,1-Dichloroethane	22.83	1.0	20	0	114	68-142	0			
1,1-Dichloroethene	24.22	1.0	20	0	121	70-145	0			
1,2,4-Trichlorobenzene	21.16	1.0	20	0	106	70-135	0			
1,2-Dibromo-3-chloropropane	20.31	1.0	20	0	102	60-130	0			
1,2-Dibromoethane	23.58	1.0	20	0	118	67-155	0			
1,2-Dichlorobenzene	21.57	1.0	20	0	108	70-130	0			
1,2-Dichloroethane	22.96	1.0	20	0	115	78-125	0			
1,2-Dichloropropane	21.43	1.0	20	0	107	75-125	0			
1,3-Dichlorobenzene	21.77	1.0	20	0	109	75-130	0			
1,4-Dichlorobenzene	21.76	1.0	20	0	109	75-130	0			
2-Butanone	23.95	5.0	20	0	120	55-150	0			
2-Hexanone	24.39	5.0	20	0	122	60-135	0			
4-Methyl-2-pentanone	31.87	1.0	20	0	159	77-178	0			
Acetone	30.15	10	20	0	151	60-160	0			
Benzene	22.07	1.0	20	0	110	70-130	0			
Bromodichloromethane	20.87	1.0	20	0	104	75-125	0			
Bromoform	18.43	1.0	20	0	92.2	60-125	0			
Bromomethane	23.71	1.0	20	0	119	30-185	0			
Carbon disulfide	22.17	1.0	20	0	111	60-165	0			
Carbon tetrachloride	19.75	1.0	20	0	98.8	65-140	0			
Chlorobenzene	21.34	1.0	20	0	107	80-120	0			
Chloroethane	21.18	1.0	20	0	106	31-172	0			
Chloroform	22.16	1.0	20	0	111	66-135	0			
Chloromethane	14.85	1.0	20	0	74.2	46-148	0			
cis-1,2-Dichloroethene	22.56	1.0	20	0	113	75-134	0			
cis-1,3-Dichloropropene	21.96	1.0	20	0	110	70-130	0			
Cyclohexane	20.08	2.0	20	0	100	50-150	0			
Dibromochloromethane	18.93	1.0	20	0	94.6	60-115	0			
Dichlorodifluoromethane	19.32	1.0	20	0	96.6	10-180	0			
Ethylbenzene	21.21	1.0	20	0	106	76-123	0			
Isopropylbenzene	21.72	1.0	20	0	109	80-127	0			
Methyl tert-butyl ether	23.26	1.0	20	0	116	68-129	0			
Methylcyclohexane	19.52	1.0	20	0	97.6	50-150	0			
Methylene chloride	22.02	5.0	20	0	110	72-125	0			
Styrene	21.22	1.0	20	0	106	79-117	0			
Tetrachloroethene	21.38	1.0	20	0	107	68-166	0			
Toluene	21.24	1.0	20	0	106	76-125	0			
trans-1,2-Dichloroethene	22.87	1.0	20	0	114	80-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R344778a	Instrument ID VMS10	Method: SW8260C						
trans-1,3-Dichloropropene	17.91	1.0	20	0	89.6	56-132	0	
Trichloroethene	20.47	1.0	20	0	102	77-125	0	
Trichlorofluoromethane	19.68	1.0	20	0	98.4	60-140	0	
Vinyl chloride	19.51	1.0	20	0	97.6	50-136	0	
Xylenes, Total	64.75	3.0	60	0	108	76-127	0	
<i>Surr: 1,2-Dichloroethane-d4</i>	21.03	0	20	0	105	75-120	0	
<i>Surr: 4-Bromofluorobenzene</i>	19.66	0	20	0	98.3	80-110	0	
<i>Surr: Dibromofluoromethane</i>	20.67	0	20	0	103	85-115	0	
<i>Surr: Toluene-d8</i>	19.95	0	20	0	99.8	85-110	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
Work Order: 22051511
Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

MS				Sample ID: 22051315-04A MS		Units: µg/L		Analysis Date: 5/20/2022 06:53 PM		
Client ID:		Run ID: VMS10_220520A		SeqNo: 8442341		Prep Date:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	216.2	10	200	0	108	75-130	0			
1,1,1,2-Tetrachloroethane	225.3	10	200	0	113	75-130	0			
1,1,2-Trichloroethane	202.8	10	200	0	101	75-125	0			
1,1,2-Trichlorotrifluoroethane	247.8	10	200	0	124	50-150	0			
1,1-Dichloroethane	219.8	10	200	0	110	68-142	0			
1,1-Dichloroethene	259.7	10	200	0	130	70-145	0			
1,2,4-Trichlorobenzene	187.2	10	200	0	93.6	70-135	0			
1,2-Dibromo-3-chloropropane	191.6	10	200	0	95.8	60-130	0			
1,2-Dibromoethane	218.7	10	200	0	109	67-155	0			
1,2-Dichlorobenzene	198	10	200	0	99	70-130	0			
1,2-Dichloroethane	211.1	10	200	0	106	78-125	0			
1,2-Dichloropropane	200.2	10	200	0	100	75-125	0			
1,3-Dichlorobenzene	204.8	10	200	0	102	75-130	0			
1,4-Dichlorobenzene	202.3	10	200	0	101	75-130	0			
2-Butanone	225.6	50	200	0	113	55-150	0			
2-Hexanone	229.2	50	200	0	115	60-135	0			
4-Methyl-2-pentanone	302.4	10	200	0	151	77-178	0			
Acetone	285.8	100	200	32.9	126	60-160	0			
Benzene	211.5	10	200	0	106	70-130	0			
Bromodichloromethane	198.2	10	200	0	99.1	75-125	0			
Bromoform	185.4	10	200	0	92.7	60-125	0			
Bromomethane	429.2	10	200	0	215	30-185	0			S
Carbon disulfide	238.3	10	200	0	119	60-165	0			
Carbon tetrachloride	206.5	10	200	0	103	65-140	0			
Chlorobenzene	206.5	10	200	0	103	80-120	0			
Chloroethane	254.7	10	200	0	127	31-172	0			
Chloroform	208.3	10	200	0	104	66-135	0			
Chloromethane	287.4	10	200	6.3	141	46-148	0			
cis-1,2-Dichloroethene	222.5	10	200	0	111	75-134	0			
cis-1,3-Dichloropropene	209.8	10	200	0	105	70-130	0			
Cyclohexane	218	20	200	0	109	50-150	0			
Dibromochloromethane	185	10	200	0	92.5	60-115	0			
Dichlorodifluoromethane	225.9	10	200	0	113	10-180	0			
Ethylbenzene	211.4	10	200	1.4	105	76-123	0			
Isopropylbenzene	216.3	10	200	0	108	80-127	0			
Methyl tert-butyl ether	222.4	10	200	0	111	68-129	0			
Methylcyclohexane	208.4	10	200	0	104	50-150	0			
Methylene chloride	213.7	50	200	0	107	72-125	0			
Styrene	202.3	10	200	0	101	79-117	0			
Tetrachloroethene	221.9	10	200	0	111	68-166	0			
Toluene	207.7	10	200	0	104	76-125	0			
trans-1,2-Dichloroethene	219.7	10	200	0	110	80-140	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R344778a	Instrument ID VMS10	Method: SW8260C						
trans-1,3-Dichloropropene	173.5	10	200	0	86.8	56-132	0	
Trichloroethene	199.9	10	200	0	100	77-125	0	
Trichlorofluoromethane	225.8	10	200	0	113	60-140	0	
Vinyl chloride	235.1	10	200	0	118	50-136	0	
Xylenes, Total	641.8	30	600	0	107	76-127	0	
<i>Surr: 1,2-Dichloroethane-d4</i>	203.5	0	200	0	102	75-120	0	
<i>Surr: 4-Bromofluorobenzene</i>	203.6	0	200	0	102	80-110	0	
<i>Surr: Dibromofluoromethane</i>	199.4	0	200	0	99.7	85-115	0	
<i>Surr: Toluene-d8</i>	203.1	0	200	0	102	85-110	0	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.
 Work Order: 22051511
 Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: **R344778a** Instrument ID **VMS10** Method: **SW8260C**

MSD				Sample ID: 22051315-04A MSD		Units: µg/L		Analysis Date: 5/20/2022 07:10 PM		
Client ID:		Run ID: VMS10_220520A		SeqNo: 8442342		Prep Date:		DF: 10		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
1,1,1-Trichloroethane	204.8	10	200	0	102	75-130	216.2	5.42	30	
1,1,2,2-Tetrachloroethane	218.9	10	200	0	109	75-130	225.3	2.88	30	
1,1,2-Trichloroethane	191.6	10	200	0	95.8	75-125	202.8	5.68	30	
1,1,2-Trichlorotrifluoroethane	226.7	10	200	0	113	50-150	247.8	8.89	30	
1,1-Dichloroethane	207.5	10	200	0	104	68-142	219.8	5.76	30	
1,1-Dichloroethene	242.3	10	200	0	121	70-145	259.7	6.93	30	
1,2,4-Trichlorobenzene	183.5	10	200	0	91.8	70-135	187.2	2	30	
1,2-Dibromo-3-chloropropane	183.9	10	200	0	92	60-130	191.6	4.1	30	
1,2-Dibromoethane	207.9	10	200	0	104	67-155	218.7	5.06	30	
1,2-Dichlorobenzene	194.7	10	200	0	97.4	70-130	198	1.68	30	
1,2-Dichloroethane	201.9	10	200	0	101	78-125	211.1	4.46	30	
1,2-Dichloropropane	189.1	10	200	0	94.6	75-125	200.2	5.7	30	
1,3-Dichlorobenzene	198.1	10	200	0	99	75-130	204.8	3.33	30	
1,4-Dichlorobenzene	192.8	10	200	0	96.4	75-130	202.3	4.81	30	
2-Butanone	215.5	50	200	0	108	55-150	225.6	4.58	30	
2-Hexanone	218.2	50	200	0	109	60-135	229.2	4.92	30	
4-Methyl-2-pentanone	291.4	10	200	0	146	77-178	302.4	3.7	30	
Acetone	278.5	100	200	32.9	123	60-160	285.8	2.59	30	
Benzene	201.7	10	200	0	101	70-130	211.5	4.74	30	
Bromodichloromethane	191.7	10	200	0	95.8	75-125	198.2	3.33	30	
Bromoform	174.2	10	200	0	87.1	60-125	185.4	6.23	30	
Bromomethane	483.3	10	200	0	242	30-185	429.2	11.9	30	S
Carbon disulfide	275	10	200	0	138	60-165	238.3	14.3	30	
Carbon tetrachloride	204.4	10	200	0	102	65-140	206.5	1.02	30	
Chlorobenzene	193.4	10	200	0	96.7	80-120	206.5	6.55	30	
Chloroethane	241.2	10	200	0	121	31-172	254.7	5.44	30	
Chloroform	197.8	10	200	0	98.9	66-135	208.3	5.17	30	
Chloromethane	278.1	10	200	6.3	136	46-148	287.4	3.29	30	
cis-1,2-Dichloroethene	210.7	10	200	0	105	75-134	222.5	5.45	30	
cis-1,3-Dichloropropene	199.6	10	200	0	99.8	70-130	209.8	4.98	30	
Cyclohexane	209.4	20	200	0	105	50-150	218	4.02	30	
Dibromochloromethane	185.4	10	200	0	92.7	60-115	185	0.216	30	
Dichlorodifluoromethane	216.2	10	200	0	108	10-180	225.9	4.39	30	
Ethylbenzene	197.3	10	200	1.4	98	76-123	211.4	6.9	30	
Isopropylbenzene	203.1	10	200	0	102	80-127	216.3	6.29	30	
Methyl tert-butyl ether	210.4	10	200	0	105	68-129	222.4	5.55	30	
Methylcyclohexane	200.5	10	200	0	100	50-150	208.4	3.86	30	
Methylene chloride	203.1	50	200	0	102	72-125	213.7	5.09	30	
Styrene	190.5	10	200	0	95.2	79-117	202.3	6.01	30	
Tetrachloroethene	206.5	10	200	0	103	68-166	221.9	7.19	30	
Toluene	196	10	200	0	98	76-125	207.7	5.8	30	
trans-1,2-Dichloroethene	209.4	10	200	0	105	80-140	219.7	4.8	30	

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: The Mannik & Smith Group, Inc.

Work Order: 22051511

Project: Former Mount Pleasant Landfill

QC BATCH REPORT

Batch ID: R344778a	Instrument ID VMS10	Method: SW8260C								
trans-1,3-Dichloropropene	167.3	10	200	0	83.6	56-132	173.5	3.64	30	
Trichloroethene	186.8	10	200	0	93.4	77-125	199.9	6.78	30	
Trichlorofluoromethane	207.4	10	200	0	104	60-140	225.8	8.49	30	
Vinyl chloride	213.8	10	200	0	107	50-136	235.1	9.49	30	
Xylenes, Total	598.9	30	600	0	99.8	76-127	641.8	6.92	30	
<i>Surr: 1,2-Dichloroethane-d4</i>	201.3	0	200	0	101	75-120	203.5	1.09	30	
<i>Surr: 4-Bromofluorobenzene</i>	197.3	0	200	0	98.6	80-110	203.6	3.14	30	
<i>Surr: Dibromofluoromethane</i>	196.9	0	200	0	98.4	85-115	199.4	1.26	30	
<i>Surr: Toluene-d8</i>	198.2	0	200	0	99.1	85-110	203.1	2.44	30	

The following samples were analyzed in this batch:

22051511-08A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Fort Collins, CO
970 490 1511
Cincinnati, OH
22051511
MANNIK & SMITH: The Mannik & Smith Group, Inc.
Project: Former Mount Pleasant Landfill

Houston, TX
+1 281 530 5656
Middletown, PA
+1 717 944 5541

Spring City, PA
+1 610 948 4903
Salt Lake City, UT
+1 801 266 7700
South Charleston, WV
+1 304 356 3168
York, PA
+1 717 505 5280

Page 1 of 2
COC ID: 057206



ALS Work Order #: _____

ALS Project Manager: _____

Parameter/Method Request for Analysis

Project Name: MT. PLEASANT LANDFILL

Project Number: M3460003

Bill To Company: MANNIK & SMITH

Invoice Attn: D. ADLER

Address: 2365 HALEGARY RD. SOUTH CANTON, MI 48188

City/State/Zip: _____

Phone: 734 790 5164

Fax: _____

e-Mail Address: DADLER@MANNIKSMITHGROUP.COM

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-101	5-16-22	1500	GROUND WATER		10	X	X	X	X	X	X	X	X	X	X	
2	MW-102		1446				X	X	X	X	X	X	X	X	X	X	
3	MW-103		1249				X	X	X	X	X	X	X	X	X	X	
4	MW-104		1302				X	X	X	X	X	X	X	X	X	X	
5	MW-105		1342				X	X	X	X	X	X	X	X	X	X	
6	MW-106		1410				X	X	X	X	X	X	X	X	X	X	
7	MW-200		1555				X	X	X	X	X	X	X	X	X	X	
8	MW-201		1645				X	X	X	X	X	X	X	X	X	X	
9	MW-202		1145				X	X	X	X	X	X	X	X	X	X	
10	MW-10-20	5-16-22	1553	GROUND WATER		10	X	X	X	X	X	X	X	X	X	X	

Turnaround Time in Business Days (BD): 10 BD 5 BD 3 BD 2 BD 1 BD

Shipment Method: STANDARD

Results Due Date: _____

Sampler(s) Please Print & Sign: D. ADLER

Relinquished by: _____ Date: 5/17/22 Time: 7:47

Relinquished by: _____ Date: 5/17/22 Time: 2:50

Logged by (Laboratory): _____ Date: 5/18/22 Time: 09:57

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

QC Package: (Check One Box Below)
 Level II Std QC
 Level III Std QC/Raw Date
 Level IV SW846/CLP
 Other

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
 2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
 3. The Chain of Custody is a legal document. All information must be completed accurately.

Copyright 2011 by ALS Environmental.

ALS Project Manager: **057205**

ALS Work Order #: _____

Parameter/Method Request for Analysis

Project Information

Name: _____

Number: _____

Company Name: **MANNIK & SMITH - CANTON**

Send Report To: **D. ADLER**

Address: **734 790 5164**

City/State/Zip: _____

Phone: _____

Fax: _____

e-Mail Address: **DADLER@M**

No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	MW-14-20	5-16-22	1055	GROUND WATER		10	X	X	X	X	X	X	X	X	X	X	
2	MW-15-20	5-16-22	1025	GROUND WATER		10	X	X	X	X	X	X	X	X	X	X	
3	FIELD BLANK	5-16-22	1545	LAB WATER		2	X	X	X	X	X	X	X	X	X	X	
4	DUP	5-16-22		GROUND WATER		10	X	X	X	X	X	X	X	X	X	X	
5	TRIP BLANK																
6	MW-109	5/16/22		GW		10	X	X	X	X	X	X	X	X	X	X	
7																	
8																	
9																	
10																	

Invoice Attn: _____

Address: _____

City/State/Zip: _____

Phone: _____

Fax: _____

e-Mail Address: _____

Company Name: **MANNIK & SMITH - CANTON**

Send Report To: **D. ADLER**

Address: _____

City/State/Zip: _____

Phone: _____

Fax: _____

e-Mail Address: _____

Matrix: _____

Pres.: _____

Bottles: _____

Turnaround Time in Business Days (BD): **STANDARD**

Results Due Date: _____

Received by: _____

Received by (Laboratory): _____

Checked by (Laboratory): _____

QC Packages: (Check One Box Below)

Level II Std OC

Level III Std OC/Raw Date

Level IV SW846/CLP

Other

Relinquished by: _____

Time: 1447

Date: 5/17/22

Relinquished by: _____

Time: 2230

Date: 5/17/22

Relinquished by: _____

Time: 0957

Date: 5/18/22

Preservative Key: 1-HCl 2-HNO₃ 3-H₂SO₄ 4-NaOH 5-Na₂S₂O₃ 6-NaHSO₄ 7-Other 8-4°C 9-5035

Notes: _____

QC Packages: (Check One Box Below)

Level II Std OC

Level III Std OC/Raw Date

Level IV SW846/CLP

Other

Note: 1. Any changes must be made in writing once samples and COC Form have been submitted to ALS Environmental.
2. Unless otherwise agreed in a formal contract, services provided by ALS Environmental are expressly limited to the terms and conditions stated on the reverse.
3. The Chain of Custody is a legal document. All information must be completed accurately.

Sample Receipt Checklist

Client Name: **MANNIK&SMITH**

Date/Time Received: **17-May-22 23:50**

Work Order: **22051511**

Received by: **LYS**

Checklist completed by **Lydia Sweet**

18-May-22

Reviewed by:

eSignature

Date

eSignature

Date

Matrices: Water

Carrier name: Courier

Shipping container/cooler in good condition? Yes No Not Present

Custody seals intact on shipping container/cooler? Yes No Not Present

Custody seals intact on sample bottles? Yes No Not Present

Chain of custody present? Yes No

Chain of custody signed when relinquished and received? Yes No

Chain of custody agrees with sample labels? Yes No

Samples in proper container/bottle? Yes No

Sample containers intact? Yes No

Sufficient sample volume for indicated test? Yes No

All samples received within holding time? Yes No

Container/Temp Blank temperature in compliance? Yes No

Sample(s) received on ice? Yes No

Temperature(s)/Thermometer(s):

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage:

Water - VOA vials have zero headspace? Yes No No VOA vials submitted

Water - pH acceptable upon receipt? Yes No N/A

pH adjusted? Yes No N/A

pH adjusted by:

Login Notes:

Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction:



PERFLUOROALKYL AND POLYFLUOROALKYL SUBSTANCES (PFAS) MINIMUM LABORATORY ANALYTE LIST





Below is the minimum laboratory PFAS analyte list for analysis of deer, drinking water, groundwater, surface water, soil, wastewater effluent, and landfill leachate samples collected by Michigan's Departments of Environment, Great Lakes, and Energy, Health and Human Services, Agriculture and Rural Development, and Natural Resources.

This minimum analyte list was developed based on the potential for these chemicals to be found in Michigan, the availability of the chemical standards used for testing, and the ability of available laboratories to test for these PFAS. This list includes PFAS that can be tested for in drinking water using United States Environmental Protection Agency (USEPA) Methods 537 Rev.1.1 or 537.1, which are the only methods that should be used when analyzing drinking water samples. Other testing methodology may be used to test for PFAS in other media (not drinking water). This list is not exhaustive of PFAS in Michigan's environment.

A fish icon (🐟) precedes those compounds that are also currently being tested for in fish tissue.

Analyte Name	Acronym	Fluorinated Carbon Chain Length	Molecular Formula	CAS Number	USEPA Method 537 Rev. 1.1	USEPA Method 537.1
🐟 Perfluorotetradecanoic acid	PFTeA	C ₁₄	C ₁₃ F ₂₇ COOH	376-06-7	X	X
🐟 Perfluorotridecanoic acid	PFTriA	C ₁₃	C ₁₂ F ₂₅ COOH	72629-94-8	X	X
🐟 Perfluorododecanoic acid	PFDoA	C ₁₂	C ₁₁ F ₂₃ COOH	307-55-1	X	X
🐟 Perfluoroundecanoic acid	PFUnA	C ₁₁	C ₁₀ F ₂₁ COOH	2058-94-8	X	X
🐟 Perfluorodecanoic acid	PFDA	C ₁₀	C ₉ F ₁₉ COOH	335-76-2	X	X
🐟 Perfluorononanoic acid	PFNA	C ₉	C ₈ F ₁₇ COOH	375-95-1	X	X
🐟 Perfluorooctanoic acid	PFOA	C ₈	C ₇ F ₁₅ COOH	335-67-1	X	X
🐟 Perfluoroheptanoic acid	PFHpA	C ₇	C ₆ F ₁₃ COOH	375-85-9	X	X
🐟 Perfluorohexanoic acid	PFHxA	C ₆	C ₅ F ₁₁ COOH	307-24-4	X	X
🐟 Perfluoropentanoic acid	PFPeA	C ₅	C ₄ F ₉ COOH	2706-90-3		
🐟 Perfluorobutanoic acid	PFBA	C ₄	C ₃ F ₇ COOH	375-22-4		
🐟 Perfluorodecanesulfonic acid	PFDS	C ₁₀	C ₁₀ F ₂₁ SO ₃ H	335-77-3		

EGLE Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS) Minimum Laboratory Analyte List

Analyte Name	Acronym	Fluorinated Carbon Chain Length	Molecular Formula	CAS Number	USEPA Method 537 Rev. 1.1	USEPA Method 537.1
Perfluorononanesulfonic acid	PFNS	C ₉	C ₉ F ₁₉ SO ₃ H	68259-12-1		
 Perfluorooctanesulfonic acid	PFOS	C ₈	C ₈ F ₁₇ SO ₃ H	1763-23-1	X	X
Perfluoroheptanesulfonic acid	PFHpS	C ₇	C ₇ F ₁₅ SO ₃ H	375-92-8		
 Perfluorohexanesulfonic acid	PFHxS	C ₆	C ₆ F ₁₃ SO ₃ H	355-46-4	X	X
Perfluoropentanesulfonic acid	PFPeS	C ₅	C ₅ F ₁₁ SO ₃ H	2706-91-4		
 Perfluorobutanesulfonic acid	PFBS	C ₄	C ₄ F ₉ SO ₃ H	375-73-5	X	X
 Perfluorooctanesulfonamide	PFOSA	C ₈	C ₈ F ₁₇ SO ₂ NH ₂	754-91-6		
Fluorotelomer sulphonic acid 8:2	FtS 8:2	C ₈	C ₈ F ₁₇ CH ₂ CH ₂ SO ₃	39108-34-4		
Fluorotelomer sulphonic acid 6:2	FtS 6:2	C ₆	C ₆ F ₁₃ CH ₂ CH ₂ SO ₃	27619-97-2		
Fluorotelomer sulphonic acid 4:2	FtS 4:2	C ₄	C ₄ F ₉ CH ₂ CH ₂ SO ₃	757124-72-4		
2-(N-Ethylperfluorooctanesulfonamido) acetic acid	N-EtFOSAA	C ₈	C ₈ F ₁₇ SO ₂ N(C ₂ H ₅)CH ₂ COOH	2991-50-6	X	X
2-(N-Methylperfluorooctanesulfonamido) acetic acid	N-MeFOSAA	C ₈	C ₈ F ₁₇ SO ₂ N(CH ₃)CH ₂ COOH	2355-31-9	X	X
Hexafluoropropylene oxide dimer acid	HFPO-DA	C ₆	C ₆ HF ₁₁ O ₃	13252-13-6		X
11-chloroeicosafluoro-3-oxaundecane-1-sulfonic acid	11Cl-PF3OUdS	C ₁₀	C ₁₀ HF ₂₀ ClSO ₄	763051-92-9		X
9-chlorohexadecafluoro-3-oxanone-1-sulfonic acid	9Cl-PF3ONS	C ₈	C ₈ HF ₁₆ ClSO ₄	756426-58-1		X
4,8-dioxa-3H-perfluorononanoic acid	ADONA	C ₇	C ₇ H ₂ F ₁₂ O ₄	919005-14-4		X

APPENDIX E
SOIL SAMPLE TEST DATA



The Mannik & Smith Group, Inc.
 2365 Haggerty Road South, Canton, MI 48188
 ph: (734) 397-3100 fax: (734) 397-3131
 www.manniksmithgroup.com

SUMMARY OF LABORATORY RESULTS



CLIENT City of Mt. Pleasant, MI

PROJECT NAME Former Mt Pleasant Landfill

PROJECT NUMBER M3460003

PROJECT LOCATION Mt. Pleasant, MI

Boring No. / Sample No.	Depth	Liquid Limit	Plastic Limit	Plasticity Index	Maximum Size (mm)	%<#200 Sieve	Classification	Water Content (%)	Bulk Density (pcf)	Saturation (%)	Specific Gravity
MW-200 / 17-20	17.0	NP	NP	NP	25	4	SP				
MW-200 / 25.5-30	25.5	31	14	17	4.75	95	CL				
MW-200 / 37-39.5	37.0	23	11	12	9.525	63	CL				
MW-201 / 20-24	20.0	NP	NP	NP	19	16	SM				
MW-201 / 29-30	29.0	33	16	17	4.75	99	CL				
MW-201 / 39-40	39.0	17	10	7	9.525	49	SC-SM				
MW-202 / 5-7	5.0	NP	NP	NP	25	2	GW				
MW-202 / 8.5-10	8.5	20	10	10	4.75	55	CL				
SB-19 / 34-35	34.0	17	9	8	4.75	49	SC				
SB-19 / 47-49	47.0	19	10	9	9.525	56	CL				
SB-20 / 45-50	45.0	19	10	9	9.525	55	CL				
SB-21 / 23-25	23.0	20	10	10	19	55	CL				

LAB SUMMARY - GINT STD US LAB.GDT - 7/15/22 08:17 - W:\PROJECTS\PROJECTS K-OM3460003\ADMIN\LAB\M3460002 BORING LOGS REV2.GPJ



The Mannik & Smith Group, Inc.
 2365 Haggerty Road South, Canton, MI 48188
 ph: (734) 397-3100 fax: (734) 397-3131
 www.manniksmithgroup.com

GRAIN SIZE DISTRIBUTION

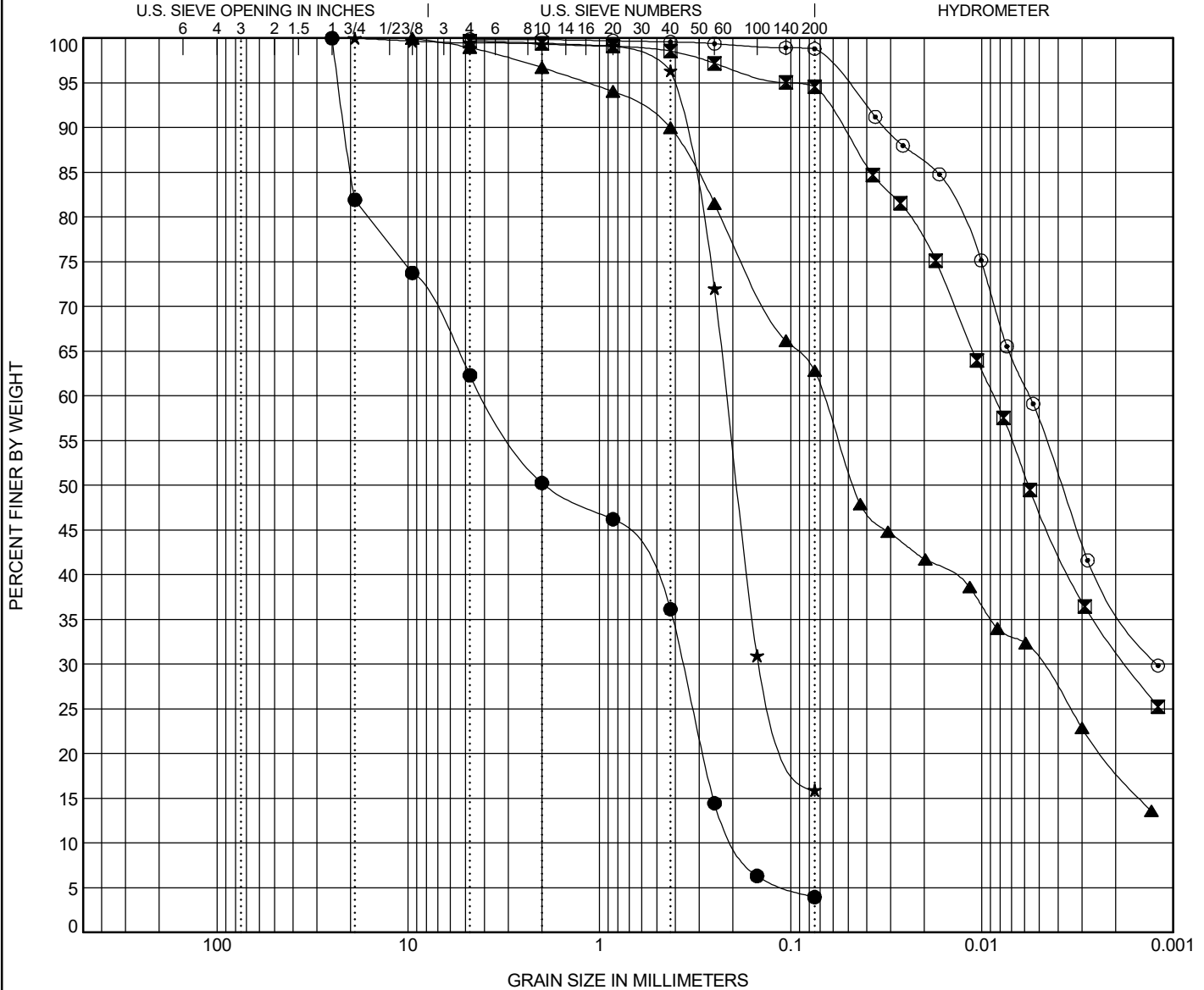


CLIENT City of Mt. Pleasant, MI

PROJECT NAME Former Mt Pleasant Landfill

PROJECT NUMBER M3460003

PROJECT LOCATION Mt. Pleasant, MI



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu		
● MW-200 / 17-20 17.0	POORLY GRADED SAND with GRAVEL (SP)	NP	NP	NP	0.18	21.30		
■ MW-200 / 25.5-30 25.5	LEAN CLAY (CL)	31	14	17				
▲ MW-200 / 37-39.5 37.0	SANDY LEAN CLAY (CL)	23	11	12				
★ MW-201 / 20-24 20.0	SILTY SAND (SM)	NP	NP	NP				
⊙ MW-201 / 29-30 29.0	LEAN CLAY (CL)	33	16	17				
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● MW-200 / 17-20 17.0	25	4.026	0.366	0.189	37.7	58.3	4.0	
■ MW-200 / 25.5-30 25.5	4.75	0.009	0.002		5.1	62.8	31.7	
▲ MW-200 / 37-39.5 37.0	9.525	0.068	0.005		1.1	36.1	44.4 18.4	
★ MW-201 / 20-24 20.0	19	0.215	0.144		0.5	83.6	15.9	
⊙ MW-201 / 29-30 29.0	4.75	0.006	0.001		1.1	61.9	36.9	

GRAIN SIZE - GINT STD. US LAB. GDT - 7/15/22 08:13 - W:\PROJECTS\PROJECTS K-OM3460003\ADMIN\LAB\M3460002 BORING LOGS REV2.GPJ



The Mannik & Smith Group, Inc.
 2365 Haggerty Road South, Canton, MI 48188
 ph: (734) 397-3100 fax: (734) 397-3131
 www.manniksmithgroup.com

GRAIN SIZE DISTRIBUTION

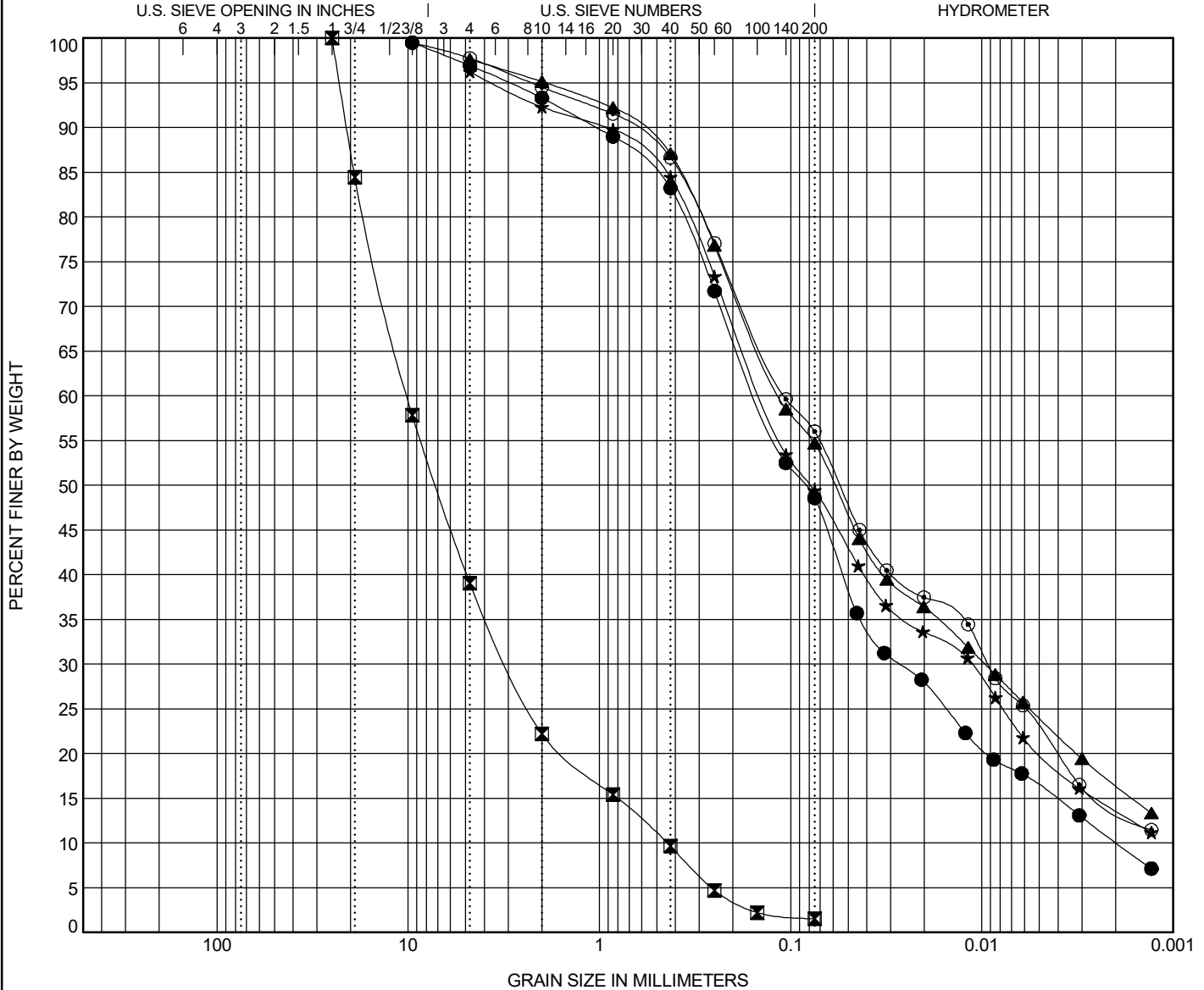


CLIENT City of Mt. Pleasant, MI

PROJECT NAME Former Mt Pleasant Landfill

PROJECT NUMBER M3460003

PROJECT LOCATION Mt. Pleasant, MI



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu		
● MW-201 / 39-40 39.0	SILTY, CLAYEY SAND (SC-SM)	17	10	7	2.47	75.13		
■ MW-202 / 5-7 5.0	WELL-GRADED GRAVEL with SAND (GW)	NP	NP	NP	1.99	22.71		
▲ MW-202 / 8.5-10 8.5	SANDY LEAN CLAY (CL)	20	10	10				
★ SB-19 / 34-35 34.0	CLAYEY SAND (SC)	17	9	8				
○ SB-19 / 47-49 47.0	SANDY LEAN CLAY (CL)	19	10	9				
Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● MW-201 / 39-40 39.0	9.525	0.148	0.027	0.002	2.6	48.4	38.5	10.1
■ MW-202 / 5-7 5.0	25	10.07	2.984	0.443	61.0	37.5	1.5	
▲ MW-202 / 8.5-10 8.5	4.75	0.114	0.01			42.9	38.2	16.5
★ SB-19 / 34-35 34.0	4.75	0.14	0.011			46.8	35.8	13.6
○ SB-19 / 47-49 47.0	9.525	0.108	0.009		1.7	41.7	42.1	14.0

GRAIN SIZE - GINT STD US LAB.GDT - 7/15/22 08:13 - W:\PROJECTS\PROJECTS K-OM3460003\ADMIN\LAB\M3460002 BORING LOGS REV2.GPJ



The Mannik & Smith Group, Inc.
 2365 Haggerty Road South, Canton, MI 48188
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GRAIN SIZE DISTRIBUTION

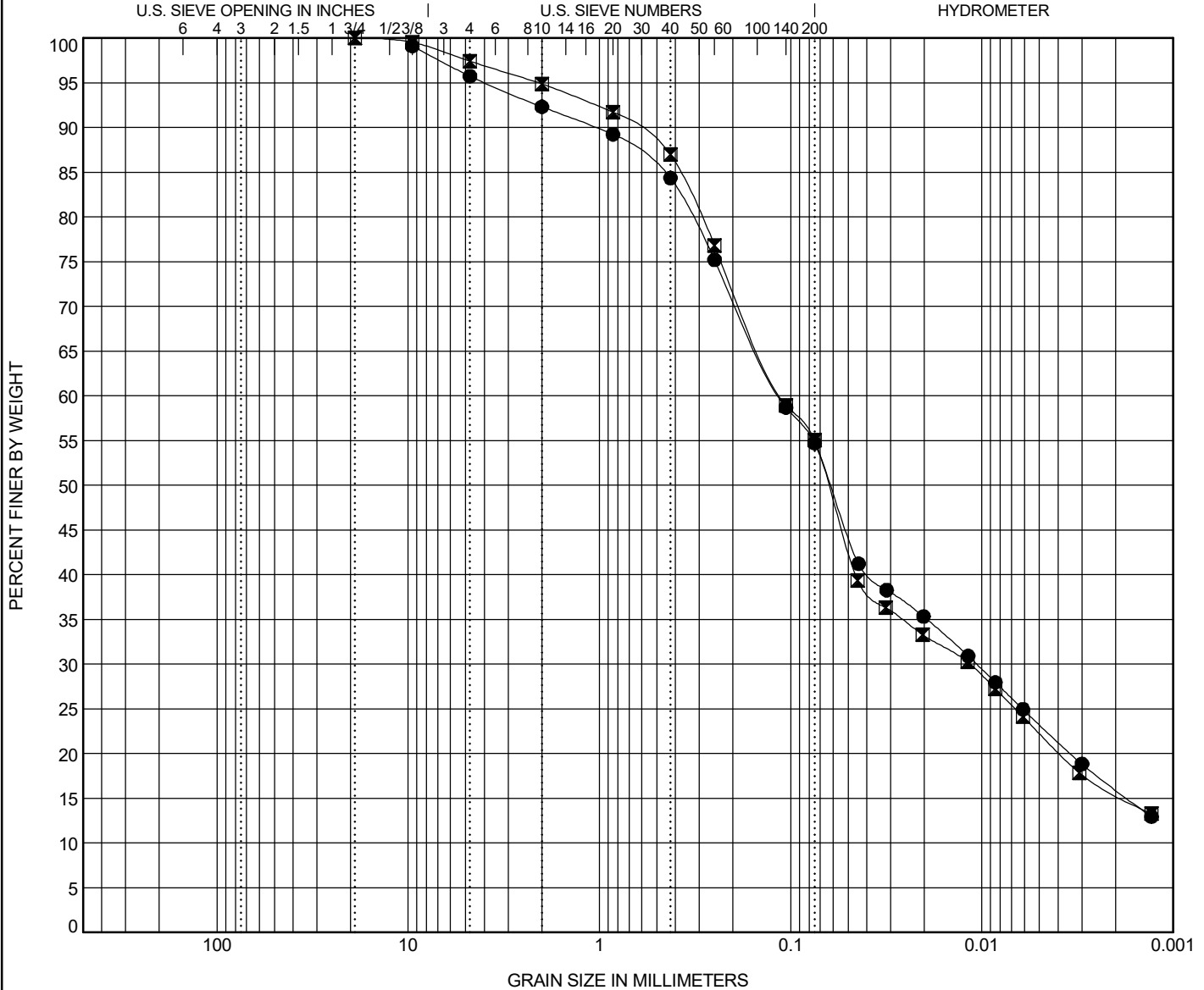


CLIENT City of Mt. Pleasant, MI

PROJECT NAME Former Mt Pleasant Landfill

PROJECT NUMBER M3460003

PROJECT LOCATION Mt. Pleasant, MI



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● SB-20 / 45-50	45.0 SANDY LEAN CLAY (CL)	19	10	9		
■ SB-21 / 23-25	23.0 SANDY LEAN CLAY (CL)	20	10	10		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● SB-20 / 45-50	45.0	9.525	0.113	0.011	3.4	41.0	38.7	16.0
■ SB-21 / 23-25	23.0	19	0.111	0.012	2.6	42.4	39.5	15.6

GRAIN SIZE - GINT STD US LAB.GDT - 7/15/22 08:13 - W:\PROJECTS\PROJECTS K-OM\3460003\ADMIN\LAB\M3460002 BORING LOGS REV2.GPJ

Overview

Project Name

City Hall Retaining Wall - Broadway Street Sidewalk Replacement

Total Requested

\$70,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Medium

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Infrastructure
-

Project Description

The retaining walls along the front side of the Borden Building/City Hall are part of the original construction and were deemed as having historic significance during the redevelopment by the State Historic Preservation Office. As a result, the walls were repaired and underpinned during the project rather than being replaced. The walls, which have been patched and repainted on a semiannual basis, continue to show signs of severe cracking.

In late 2021, staff contracted with SME, who provided the recommendation/engineering work for the original restoration, to evaluate movement evident along the west side of the site along the public sidewalk. Staff received SME's finding in early 2021 that outlined a number of options to improve the condition and overall appearance of the walls with updated drainage and coatings, along with a cost estimate to replace the wall/s in their entirety. The retaining walls that run along the west side of the site with a height of 2-4 feet above

grade are leaning and were determined that they need to be replaced along with the sidewalk that is failing.

The funding request is to cover the replacement of the public sidewalk along Broadway Street.

Benefit Description

The retaining walls are more than 100 years old and have been showing signs of cracking, spalling and areas where the wall is leaning causing the sidewalk to fail. This project will replace the sidewalk and protect the street and streetscape from potential damage.

Funding Requirements

Not Entered

Project Timeline

Summer of 2024

Budget Items

Name	Cost	Quantity	Total	Category
Sidewalk Replacement	\$70,000.00	1	\$70,000.00	Infrastructure
AmountRequested	\$70,000.00			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	\$0.00		

Budget Summary

Amount Requested

\$70,000.00

Amount Matched

\$0.00

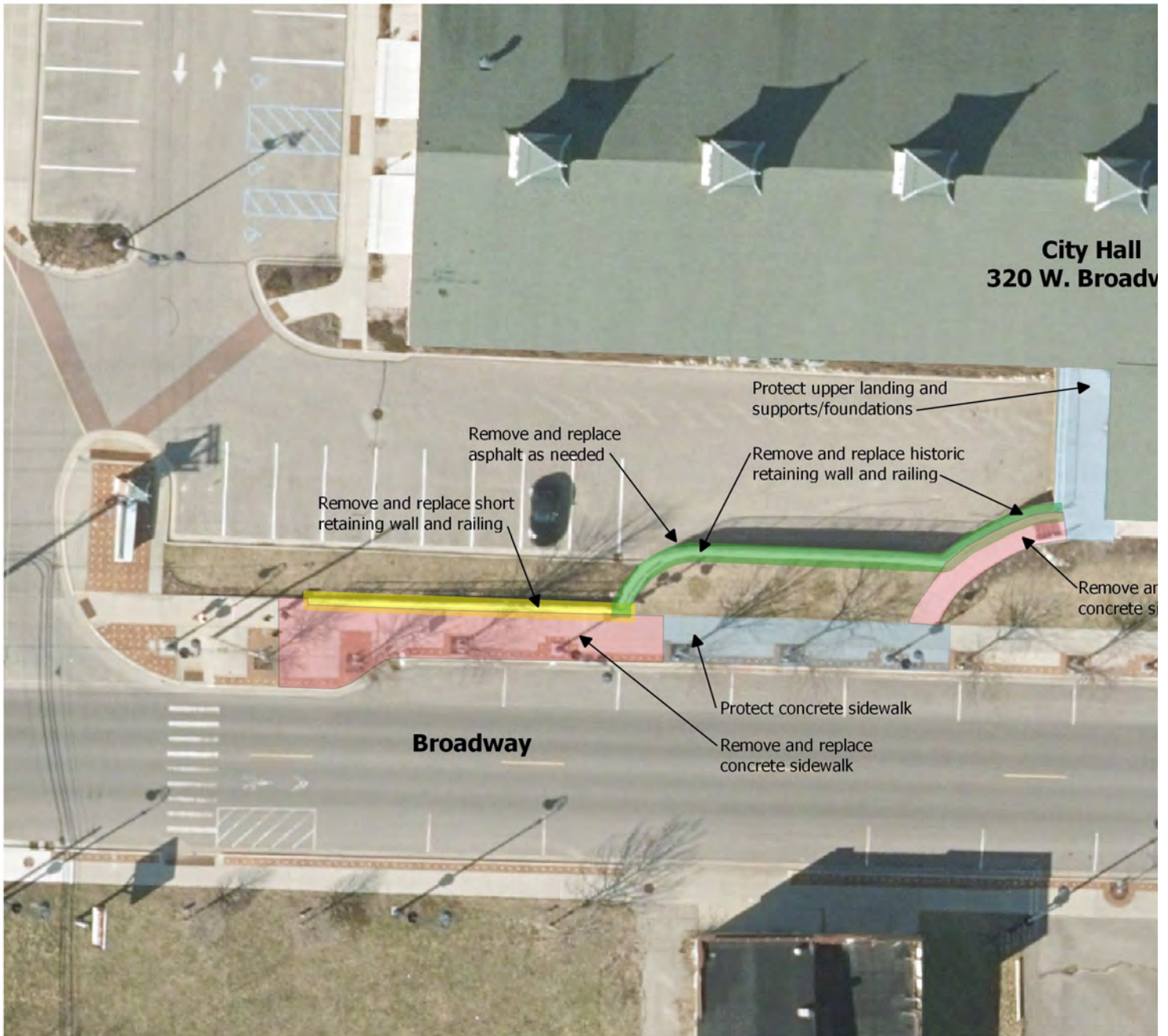
Total Amount

\$70,000.00

Uploaded Files

Name
RetainingWallImage20230306_2023-09-06.jpg
FinalGeotechReport20230306_2023-09-06.pdf

There are no comments to display.





856 E. Eighth Street, Suite 1
Traverse City, MI 49686-2784

T (231) 941-5200

www.sme-usa.com

February 2, 2023

Mr. Christopher Dombrowski, PE
Williams & Works, Inc.
549 Ottawa Avenue NW, Suite 310
Grand Rapids, Michigan 49503

Via E-mail: Dombrowski@williams-works.com

RE: Geotechnical Evaluation – Revised
Mt. Pleasant City Hall Retaining Walls
320 West Broadway Street
Mt. Pleasant, Michigan 48858
SME Project No. 091171.00

Dear Mr. Dombrowski:

We have completed the geotechnical evaluation for the proposed retaining wall replacement at Mt. Pleasant City Hall. This report presents the results of our observations and analyses, our geotechnical recommendations, and a discussion on general construction considerations based on the information disclosed by the borings.

This evaluation was conducted in general accordance with the scope of services outlined in SME Proposal No. P03459.22 dated December 21, 2022. We revised our report dated December 22, 2022 based on our conversations with Mr. Christopher Dombrowski, PE with Williams & Works. Williams & Works (W&W) authorized our services.

As input into this evaluation W&W provided SME with the following documents.

- A preliminary drawing titled “Existing Conditions” (Sheet No. 2) for the “City Hall Retaining Wall Replacement” project, prepared by W&W.
- A document titled “Request for Proposals” prepared by the City of Mt. Pleasant.
- Historic plan sheets nos. A2.1, A2.4, A2.5, A2.6, A6.1, A8.2, and S2.1 prepared by J.E. Johnson Design Group, LLC.
- A document titled “Discloser Statement” dated November 2006 and prepared by AKT Peerless Environmental Services.

SME previously prepared a Geotechnical Evaluation Report dated January 7, 2022 (SME Project No. 088030.00).

SITE CONDITIONS AND PROJECT DESCRIPTION

The site is located at Mt. Pleasant City Hall at 320 West Broadway Street. The site location is depicted on the Location Map on the attached Boring Location Diagram (Figure No. 1).

Existing retaining walls extend in a generally east-west direction across the site. The retaining walls provide grade separation between the City Hall parking area and the sidewalk and West Broadway Street. The project includes replacement of the existing walls that extend from the west end of the site to the existing City Hall building (i.e. the retaining walls east of the building are not included in this project). The subject retaining walls are about 1-foot high at the west end and about 12 feet high on east end at the existing building. The eastern retaining wall was underpinned and refurbished in 2008 when the building was remodeled and converted into City Hall.

The new cast-in-place concrete retaining walls will be located approximately along the same alignment and will be about the same height as the existing retaining walls. We understand the new retaining wall footings will have a design bearing elevation of 749 feet. Temporary and new permanent footings could be required to support the existing upper landing at the building entrance.

EVALUATION PROCEDURES

FIELD EXPLORATION

SME completed two borings (B101 and B102) on October 21, 2022. One boring extended 15 feet beneath the existing ground surface and one boring extended 25 feet beneath the existing ground surface. The approximate locations of the borings are shown on Figure No. 1. Figure No. 1 also depicts the approximate locations of previous borings B1 and B2.

The planned number, locations, and depths of the borings were determined by SME. SME located the borings in the field by referencing existing site features and estimated the existing ground surface elevations at the borings based on the referenced Existing Conditions drawing.

The borings were performed with a truck-mounted rotary drill rig and were advanced to the sampling depths using continuous-flight, hollow-stem augers. The borings included soil sampling based upon the Split-barrel Sampling Procedure. Recovered split-barrel samples were sealed in glass jars by the driller.

Groundwater observations were recorded during and upon completion of drilling at each boring. After completion of drilling and collection of groundwater observations, the boreholes were backfilled with auger cuttings and capped with similar material in paved areas.

Soil samples recovered from the field exploration were returned to the SME laboratory for further observation and testing.

LABORATORY TESTING

The laboratory testing program consisted of performing visual soil classification on recovered samples in general accordance with ASTM D2488. SME also performed moisture content and hand penetrometer tests on portions of recovered cohesive soil samples and moisture content tests on portions of organic soil samples. The attached Laboratory Testing Procedures provides descriptions of these laboratory tests. Based on the laboratory testing, we assigned a Unified Soil Classification System (USCS) group symbol to each of the various soil strata encountered.

Upon completion of the laboratory testing, boring logs were prepared that include information on materials encountered, penetration resistances, pertinent field observations made during the drilling operations, existing ground surface elevations as estimated by SME, and the results of the laboratory tests. The boring logs are attached to this report. Explanations of symbols and terms used on the boring logs are provided on the attached Boring Log Terminology sheet.

Soil samples retained over a long time, even sealed in jars, are subject to moisture loss and are no longer representative of the conditions initially encountered in the field. Therefore, we normally retain soil samples in our laboratory for 60 days and then dispose of them, unless instructed otherwise.

SUBSURFACE CONDITIONS

SOIL CONDITIONS

The soil conditions encountered at borings B101, B102, and B1 (western retaining wall borings) generally consist of surficial topsoil or pavement overlaying existing sand fill over organic soils, e.g., peat. The peat was underlain by natural sands overlying natural clay (at boring B102), that extended to the explored depths of the borings; however, natural soils were not encountered at boring B1 which terminated in organic soils.

The existing sand fill extended about 3.5 to 9 feet beneath the existing ground surface. The existing sand fill was encountered in a very loose to medium dense condition. Portions of the existing sand fill contained construction debris. Near boring B1 performed for our previous evaluation, potential buried pavement was encountered about 6 inches beneath the existing ground surface. Refer to the referenced Geotechnical Evaluation Report for additional information.

In borings B101 and B202, the peat extended to about 6 to 11 feet below the existing ground surface. In boring B1, organic soil, mostly silt, extended to the termination depth, 9.5 feet, of the boring; therefore, the organic soils may extend deeper in this area. The peat had moisture contents of about 122 to 141 percent.

The natural sands were encountered in a very loose to dense condition, and the natural clays encountered at boring B102 exhibited very stiff consistency.

The soil profile described above and included on the attached draft boring logs is a generalized description of the conditions encountered. The stratification depths described above and shown on the boring logs indicate a zone of transition from one soil type to another and do not show exact depths of change from one soil type to another. Soil conditions may vary between or away from the boring locations from those conditions noted on the logs. Please refer to the boring logs for the specific soil conditions at the boring locations.

Thickness measurements of surficial materials reported on the boring logs should be considered approximate since mixing of these materials with the underlying subgrade can occur while advancing the augers, and it is difficult to measure the thickness of surface materials in small-diameter boreholes. Shallow hand augers or test pits in topsoil areas and pavement cores in pavement areas should be performed if more accurate topsoil thicknesses are required.

GROUNDWATER CONDITIONS

In borings B101 and B102 groundwater was encountered about 7 to 8.5 feet beneath the existing ground surface during drilling, corresponding to approximate elevations 747 to 751.5 feet. Groundwater was not encountered above the borehole cave-in depth upon completion of drilling in borings B101 and B102. Groundwater was not encountered in boring B1 which terminated at a depth of 9.5 feet.

In organic soils and clays a long time may be required for the groundwater level in the borehole to reach an equilibrium position. Therefore, the use of groundwater observation wells (piezometers) is necessary to accurately determine the hydrostatic groundwater level within cohesive and organic soils.

Hydrostatic groundwater levels, perched groundwater conditions, and the rate of infiltration into excavations should be expected to fluctuate throughout the year, based on variations in precipitation, evaporation, run-off, and other factors. The groundwater observations recorded on the boring logs represent conditions at the time the readings were taken. The groundwater depths/elevations at the time of construction may vary from those conditions noted on the logs.

ANALYSIS AND RECOMMENDATIONS

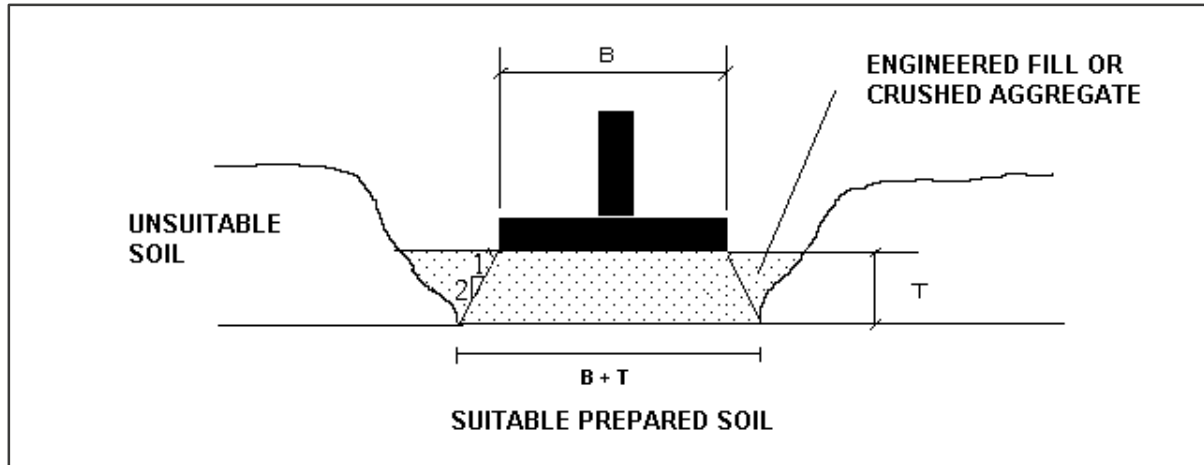
RETAINING WALLS AND DRAINAGE

WALL FOUNDATIONS

The new cast-in-place concrete retaining walls will vary from about 2 to 12 feet high. The existing fill and organic soils are not suitable for foundation support and must be removed beneath shallow foundations. Shallow foundations should bear on engineered fill overlying suitable natural soils or on suitable natural soils. Suitable bearing soils were encountered below the existing fill and organic soils between 6 and 11 feet beneath the existing ground surface, corresponding to approximate elevations 748 to 749 feet; however, the organic soils may extend deeper in the area of B1 that terminated in organic soils. Retaining wall foundations should be designed with a maximum net allowable soil bearing pressure of 3,000 pounds per square-foot (psf) bearing on suitable soils described above, except that retaining wall foundations with a non-uniform pressure distribution at their base may be designed using a maximum edge pressure of 3,500 psf, provided the average pressure below the foundation does not exceed 3,000 psf. The design maximum net allowable soil bearing pressure is based on a global safety factor of three or more (for general shear failure).

SME should evaluate foundation subgrades during construction to verify that the design soil bearing pressure is achieved. New footings must not bear on or above existing fill and organic soils. Where existing fills and organic soils are encountered, they must be undercut to expose suitable natural sands. Since groundwater was encountered as high as elevation 751.5 feet at the borings, we anticipate groundwater will be encountered in the undercuts to remove the existing fills and organic soils, and the contractor should be prepared to dewater the undercuts and footing excavations, as necessary. After undercutting unsuitable soils, the design bearing elevation can be reestablished using coarse-crushed aggregate consisting of a well graded crushed natural aggregate or crushed concrete ranging from one to three inches in size with no more than seven percent by weight passing the No. 200 sieve. The aggregate should be “tamped” into the subgrade using the excavator bucket until the subgrade is stable.

The foundation undercuts should be oversized laterally and backfilled with granular engineered fill or crushed aggregate as shown on the Typical Foundation Undercutting Diagram below.



The foundation subgrade soils at this site are susceptible to disturbance, especially where groundwater is encountered. To reduce the incidence and severity of subgrade disturbance, the contractor should prepare to place the coarse-crushed aggregate as soon the undercutting is performed.

The retaining wall foundations must be situated a minimum of 42 inches below final site grades for protection against frost action during normal winters.

We estimate total settlement for retaining wall foundations using the recommended maximum net allowable bearing pressures and bearing on suitable soils as described above and as verified in the field at the time of construction by SME should be 1 inch or less. Differential settlements are estimated to be about one-half the total settlement. The settlement estimates provided are based on the available boring information, recommended bearing pressure, our experience with similar structures and soil conditions, and field verification of suitable bearing soils by SME.

WALL BACKFILL

We recommend the retaining walls be backfilled with MDOT Class II granular material extending a minimum of two feet horizontally from the backside of the walls. Retaining wall backfill should be compacted to a minimum of 95 percent of the maximum dry density as determined by the Modified Proctor test. Care should be exercised during compaction of the wall backfill to avoid overstressing the walls. The retaining wall recommendations below are based on properly placed and compacted backfill that meets the gradational requirements of MDOT Class II granular material. For purposes of design, we recommend using a unit weight of 115 pounds per cubic-foot (pcf) and a friction angle of 30 degrees for the compacted backfill.

LATERAL EARTH PRESSURES AND SLIDING RESISTANCE

For the purpose of designing the retaining walls, we recommend a design groundwater elevation of 751.5 feet. For a drained granular backfill situated above the design groundwater level, and a level surface behind the walls, an active equivalent fluid pressure of 40 pcf should be used for the design of flexible walls. For below-grade walls below the design groundwater level, we recommended a combined lateral earth and hydrostatic (water) of 80 pcf for the active pressure condition. Additional lateral pressures due to surcharge loading, such as stored materials, sloping ground, or traffic loads, should be added to the above lateral earth pressures for design. We recommend using a horizontal coefficient of 0.33 for an active condition, to calculate loads on walls due to surcharges. Use of this value requires a granular wall backfill. Surcharge loads should be modeled as a uniform pressure distribution applied to the entire wall height. An outward movement away from the backfill equal to approximately 0.001 times the height of the wall is generally required to achieve the active earth pressure condition for granular backfill.

We recommend using an allowable passive equivalent fluid pressure to model the passive resistance of the soil wedge adjacent to retaining walls to resist sliding or overturning. To account for the full passive resistance, a horizontal surface is required for the soil mass extending at least 10 feet from the face of the wall foundation, or three times the height of the surface generating the passive pressure, whichever is greater. An allowable equivalent passive fluid pressure of 180 pcf can be considered for properly compacted MDOT Class II engineered fill, or natural soils, above the design groundwater level based on the ultimate equivalent passive fluid pressure divided by a factor of safety of about two. The allowable equivalent passive fluid pressure should be reduced to 100 pcf below the design groundwater level. The upper 12 inches of soil in areas not protected by pavement or other erosion resistant material should not be included in the design for passive resistance to lateral loads.

To evaluate the sliding of the wall, the sliding resistance at the base, and the passive (resisting) and active (driving) earth forces must be computed. The sliding resistance may be determined by using a recommended ultimate sliding coefficient of 0.35 for concrete footings cast directly on coarse-crushed aggregate or natural sands. Typically, a factor of safety of 1.5 is applied for sliding, and a factor of safety of 2.0 is often applied to overturning.

DRAINAGE

The earth pressures presented above are for a drained backfill. To reduce the potential for the build-up of hydrostatic pressure behind the retaining walls during construction and post construction we recommend drains be installed along the base of the retained soil side of the retaining walls. The drains should consist of a minimum six-inch-diameter perforated plastic drainpipe, wrapped with a filter fabric and surrounded by six inches of a filter material, such as pea gravel (MDOT 34G or MDOT 34R), wrapped with a filter fabric. The drains should be discharged to a gravity drainage outlet, if feasible. We recommend the design include provisions for access to the drains for cleaning and maintenance. Typically, annual checking and maintenance of the drains should be planned for.

EXTERNAL STABILITY

Based on the soil conditions, the retaining wall heights, and provided the recommendations above are followed, and considering final grades will approximately match existing grades, we do not expect external stability to control the wall design. Therefore, we do not judge a formal global stability analysis to be required.

DESIGN AND CONSTRUCTION CONSIDERATIONS

As indicated above, groundwater should be anticipated in undercuts to remove the existing fills and organic soils. Provided undercuts are performed in relatively small areas at a time, a coarse-crushed aggregate is placed as organic soils are removed, we anticipate conventional sump pit and pumping techniques will generally be suitable to control groundwater seepage in the foundation undercuts. Excavations that extend below the groundwater level in sands will require high capacity dewatering techniques.

Temporary footings to support the existing landing area can bear in the existing sand fill provided a maximum net allowable soil bearing pressure of 1,500 psf is used for design. New permanent footings should bear below the existing sand fill and organic soils using a maximum net allowable soil bearing pressure of 3,000 psf.

The contractor must provide a safely sloped excavation or an adequately constructed and braced shoring system in accordance with federal, state, and local safety regulations for individuals working in an excavation that may expose them to the danger of moving ground. If material is stored or heavy equipment is operated near an excavation, use appropriate shoring to resist the extra pressure due to the superimposed loads.

We understand the existing sidewalk will be removed during construction of the new retaining wall. Based on the proposed wall alignment and the required undercut depth to remove organic soils, we anticipate temporary earth retention may be required to protect the adjacent roadway along a portion of the retaining wall alignment. Excavations cannot extend below existing foundations without first properly underpinning or shoring the existing foundations. Based on the site conditions and anticipated excavation depths, we anticipate temporary earth retention (if required) will need to retain about 3 feet adjacent to the existing roadway. Therefore, we do not anticipate the temporary earth retention will need to consist of heavy steel sheeting or other similar system. Rather, we anticipate steel sheets that are pushed into the subgrade or precast blocks may provide sufficient temporary earth retention. However, underpinning, shoring and earth retention systems should be designed by a qualified professional engineer, and installed by a contractor experienced with construction of these systems.

The contractor must protect adjacent existing buildings, utilities and roadways during demolition of the existing retaining walls and during construction of the proposed retaining walls. During the excavating and compacting operations, excessive vibrations should not cause settlement of the existing buildings, utilities and roadways, and the contractor should avoid undermining existing building, utilities, and roadways.

Handling, transportation, and disposal of excavated materials and groundwater should be performed in accordance with applicable regulations. Refer to the referenced Disclosure Document for information regarding environmentally impacted soils at this site.

We appreciate the opportunity to be of service. If you have questions regarding this report, or if you require additional information, please contact us.

Very truly yours,

SME

PREPARED BY:



Paul Anderson
Feb 2 2023 2:11 PM

Paul E. Anderson, PE
Senior Project Engineer

REVIEWED BY:



Andrew T. Bolton
Feb 2 2023 10:40 AM

Andrew T. Bolton, PE
Senior Consultant

Attachments: Boring Location Diagram (Figure No. 1)
Boring Log Terminology
Boring Logs (B101 and B102)
Previous Boring Logs (B1 and B2) – SME Project No. 088030.00
Important Information About This Geotechnical-Engineering Report
General Comments
Laboratory Testing Procedures



\\sme-inc\p2\WIP\091171.00\CAD\Design Files\BLD\Rev0\091171.00-BLD.dwg

PLOT DATE: Dec 21, 2022 - 12:00pm - julie.blake

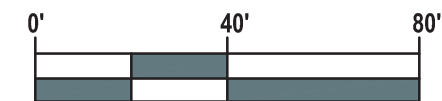


LOCATION MAP
NOT TO SCALE

LEGEND

-  APPROXIMATE LOCATION OF 2021 BORING
SME PROJECT NO. 088030.00
-  APPROXIMATE CURRENT BORING LOCATION

NOTE:
BASE DRAWING INFORMATION TAKEN FROM GOOGLE EARTH PRO
WITH IMAGE DATE 9/21/2015.



GRAPHIC SCALE: 1" = 40'



Project
**MT. PLEASANT
CITY HALL RETAINING
WALLS**

Project Location
**MT. PLEASANT,
MICHIGAN**

Sheet Name
**BORING LOCATION
DIAGRAM**

No.	Revision Date

Date **12-20-2022**

CADD **JAB**
















Designer **PEA**













Scale **AS NOTED**

Project **091171.00**

Figure No.
1

DRAWING NOTE: SCALE DEPICTED IS MEANT FOR 11" X 17"
AND WILL SCALE INCORRECTLY IF PRINTED ON ANY
OTHER SIZE MEDIA
NO REPRODUCTION SHALL BE MADE WITHOUT THE PRIOR
CONSENT OF SME
© 2022

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART		
COARSE-GRAINED SOIL (more than 50% of material is larger than No. 200 sieve size.)		
Clean Gravel (Less than 5% fines)		
GRAVEL More than 50% of coarse fraction larger than No. 4 sieve size		Well-graded gravel; gravel-sand mixtures, little or no fines
		Poorly-graded gravel; gravel-sand mixtures, little or no fines
	Gravel with fines (More than 12% fines)	
		Silty gravel; gravel-sand-silt mixtures
		Clayey gravel; gravel-sand-clay mixtures
Clean Sand (Less than 5% fines)		
SAND 50% or more of coarse fraction smaller than No. 4 sieve size		Well-graded sand; sand-gravel mixtures, little or no fines
		Poorly graded sand; sand-gravel mixtures, little or no fines
	Sand with fines (More than 12% fines)	
		Silty sand; sand-silt-gravel mixtures
		Clayey sand; sand-clay-gravel mixtures
FINE-GRAINED SOIL (50% or more of material is smaller than No. 200 sieve size)		
SILT AND CLAY Liquid limit less than 50%		Inorganic silt; sandy silt or gravelly silt with slight plasticity
		Inorganic clay of low plasticity; lean clay, sandy clay, gravelly clay
		Organic silt and organic clay of low plasticity
SILT AND CLAY Liquid limit 50% or greater		Inorganic silt of high plasticity, elastic silt
		Inorganic clay of high plasticity, fat clay
		Organic silt and organic clay of high plasticity
HIGHLY ORGANIC SOIL		Peat and other highly organic soil

OTHER MATERIAL SYMBOLS		
		
		
		
		

LABORATORY CLASSIFICATION CRITERIA	
GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3
GP	Not meeting all gradation requirements for GW
GM	Atterberg limits below "A" line or PI less than 4
GC	Atterberg limits above "A" line with PI greater than 7
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 6; $C_c = \frac{D_{30}^2}{D_{10} \times D_{60}}$ between 1 and 3
SP	Not meeting all gradation requirements for SW
SM	Atterberg limits below "A" line or PI less than 4
SC	Atterberg limits above "A" line with PI greater than 7

Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows:

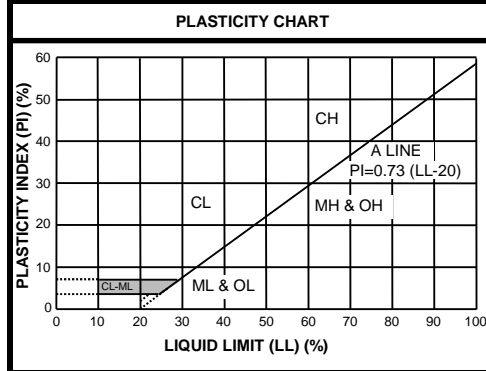
Less than 5 percent.....GW, GP, SW, SP
 More than 12 percent.....GM, GC, SM, SC
 5 to 12 percent.....Cases requiring dual symbols

- SP-SM or SW-SM (SAND with Silt or SAND with Silt and Gravel)
- SP-SC or SW-SC (SAND with Clay or SAND with Clay and Gravel)
- GP-GM or GW-GM (GRAVEL with Silt or GRAVEL with Silt and Sand)
- GP-GC or GW-GC (GRAVEL with Clay or GRAVEL with Clay and Sand)

If the fines are CL-ML:

- SC-SM (SILTY CLAYEY SAND or SILTY CLAYEY SAND with Gravel)
- SM-SC (CLAYEY SILTY SAND or CLAYEY SILTY SAND with Gravel)
- GC-GM (SILTY CLAYEY GRAVEL or SILTY CLAYEY GRAVEL with Sand)

PARTICLE SIZES	
Boulders	- Greater than 12 inches
Cobbles	- 3 inches to 12 inches
Gravel- Coarse	- 3/4 inches to 3 inches
Gravel- Fine	- No. 4 to 3/4 inches
Sand- Coarse	- No. 10 to No. 4
Sand- Medium	- No. 40 to No. 10
Sand- Fine	- No. 200 to No. 40
Silt and Clay	- Less than (0.074 mm)



VISUAL MANUAL PROCEDURE
When laboratory tests are not performed to confirm the classification of soils exhibiting borderline classifications, the two possible classifications would be separated with a slash, as follows:
For soils where it is difficult to distinguish if it is a coarse or fine-grained soil:
<ul style="list-style-type: none"> • SC/CL (CLAYEY SAND to Sandy LEAN CLAY) • SM/ML (SILTY SAND to SANDY SILT) • GC/CL (CLAYEY GRAVEL to Gravelly LEAN CLAY) • GM/ML (SILTY GRAVEL to Gravelly SILT)
For soils where it is difficult to distinguish if it is sand or gravel, poorly or well-graded sand or gravel; silt or clay; or plastic or non-plastic silt or clay:
<ul style="list-style-type: none"> • SP/GP or SW/GW (SAND with Gravel to GRAVEL with Sand) • SC/GC (CLAYEY SAND with Gravel to CLAYEY GRAVEL with Sand) • SM/GM (SILTY SAND with Gravel to SILTY GRAVEL with Sand) • SW/SP (SAND or SAND with Gravel) • GP/GW (GRAVEL or GRAVEL with Sand) • SC/SM (CLAYEY to SILTY SAND) • GM/GC (SILTY to CLAYEY GRAVEL) • CL/ML (SILTY CLAY) • ML/CL (CLAYEY SILT) • CH/MH (FAT CLAY to ELASTIC SILT) • CL/CH (LEAN to FAT CLAY) • MH/ML (ELASTIC SILT to SILT)

DRILLING AND SAMPLING ABBREVIATIONS	
2ST	- Shelby Tube - 2" O.D.
3ST	- Shelby Tube - 3" O.D.
AS	- Auger Sample
GS	- Grab Sample
LS	- Liner Sample
NR	- No Recovery
PM	- Pressuremeter
RC	- Rock Core diamond bit. NX size, except where noted
SB	- Split Barrel Sample 1-3/8" I.D., 2" O.D., except where noted
VS	- Vane Shear
WS	- Wash Sample

OTHER ABBREVIATIONS	
WOH	- Weight of Hammer
WOR	- Weight of Rods
SP	- Soil Probe
PID	- Photo Ionization Device
FID	- Flame Ionization Device

DEPOSITIONAL FEATURES	
Parting	- as much as 1/16 inch thick
Seam	- 1/16 inch to 1/2 inch thick
Layer	- 1/2 inch to 12 inches thick
Stratum	- greater than 12 inches thick
Pocket	- deposit of limited lateral extent
Lens	- lenticular deposit
Hardpan/Till	- an unstratified, consolidated or cemented mixture of clay, silt, sand and/or gravel, the size/shape of the constituents vary widely
Lacustrine	- soil deposited by lake water
Mottled	- soil irregularly marked with spots of different colors that vary in number and size
Varved	- alternating partings or seams of silt and/or clay
Occasional	- one or less per foot of thickness
Frequent	- more than one per foot of thickness
Interbedded	- strata of soil or beds of rock lying between or alternating with other strata of a different nature

DESCRIPTION OF RELATIVE QUANTITIES	
The visual-manual procedure uses the following terms to describe the relative quantities of notable foreign materials, gravel, sand or fines:	
Trace	- particles are present but estimated to be less than 5%
Few	- 5 to 10%
Little	- 15 to 25%
Some	- 30 to 45%
Mostly	- 50 to 100%

CLASSIFICATION TERMINOLOGY AND CORRELATIONS			
Cohesionless Soils		Cohesive Soils	
Relative Density	N₆₀ (N-Value) (Blows per foot)	Consistency	N₆₀ (N-Value) (Blows per foot)
Very Loose	0 to 4	Very Soft	<2
Loose	5 to 10	Soft	2 - 4
Medium Dense	11 to 30	Medium	5 - 8
Dense	31 to 50	Stiff	9 - 15
Very Dense	51 to 80	Very Stiff	16 - 30
Extremely Dense	Over 81	Hard	> 30
		Undrained Shear Strength (kips/ft²)	
		< 0.25	0.25 or less
		> 0.25 to 0.50	> 0.25 to 0.50
		> 0.50 to 1.0	> 0.50 to 1.0
		> 1.0 to 2.0	> 1.0 to 2.0
		> 2.0 to 4.0	> 2.0 to 4.0
		> 4.0 or greater	> 4.0 or greater

Standard Penetration 'N-Value' = Blows per foot of a 140-pound hammer falling 30 inches on a 2-inch O.D. split barrel sampler, except where noted. N₆₀ values as reported on boring logs represent raw N-values corrected for hammer efficiency only.

12/22/22 10:20:15 AM



BORING B101

PAGE 1 OF 1

BORING DEPTH: 15 FEET

PROJECT NAME: Mt. Pleasant Retaining Walls

PROJECT NUMBER: 091171.00

CLIENT: Williams and Works LLC

PROJECT LOCATION: Mt. Pleasant, Michigan

DATE STARTED: 10/21/22

COMPLETED: 10/21/22

BORING METHOD: Hollow-stem Augers

DRILLER: AR (Brax Drilling)

RIG NO.: CME - Truck

LOGGED BY: MGJ

CHECKED BY: JLN

ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	ELEVATION: 754± FT PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	HAMMER EFFICIENCY: 79% DATE: 11/17/2021 N ₆₀ -- O	DRY DENSITY (pcf) -- ■				MOISTURE & ATTERBERG LIMITS (%)				▼ HAND PENE. ■ TORVANE SHEAR ○ UNC. COMP. □ VANE SHEAR (PK) × VANE SHEAR (REM) ◆ TRIAXIAL (UU) ◆ SHEAR STRENGTH (KSF)	REMARKS	
								90	100	110	120	PL	MC	LL	1			2	3	4
	0		0.5 5 Inches of ASPHALT															
	0.5		FILL- Fine to Coarse SAND with Gravel- Frequent Coal Fragments- Dark Brown- Moist-Medium Dense (SP/GP)	SB1		4	16											
	3.5		Amorphous PEAT- Black (PT)	SB2		1	3											
	5		Fine SILTY SAND- Trace Roots and Gravel- Gray to Brown- Moist to Wet- Medium Dense (SM)	SB3		1	12											
	6.0		Fine to Medium SAND- Occasional Shell Fragments- Brown- Wet- Loose (SP)	SB4		3	9											
	8.5		Fine to Coarse SAND with Gravel- Brown- Wet- Medium Dense (SP/GP)	SB5		4	16											
	13.5					5												
	15.0		END OF BORING AT 15.0 FEET.			7												

GROUNDWATER & BACKFILL INFORMATION		
	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	7.0	747.0
CAVE-IN OF BOREHOLE AT:	7.8	746.2
BACKFILL METHOD:	Auger Cuttings	

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
 2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

12/22/22 10:20:16 AM



BORING B102

PAGE 1 OF 1

BORING DEPTH: 25 FEET

PROJECT NAME: Mt. Pleasant Retaining Walls

PROJECT NUMBER: 091171.00

CLIENT: Williams and Works LLC

PROJECT LOCATION: Mt. Pleasant, Michigan

DATE STARTED: 10/21/22

COMPLETED: 10/21/22

BORING METHOD: Hollow-stem Augers

DRILLER: AR (Brax Drilling)

RIG NO.: CME - Truck

LOGGED BY: MGJ

CHECKED BY: JLN

ELEVATION (FEET)	DEPTH (FEET)	SYMBOLIC PROFILE	ELEVATION: 760± FT PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	RECOVERY LENGTH (INCHES)	SPT BLOWS PER SIX INCHES	HAMMER EFFICIENCY: 79% DATE: 11/17/2021 N ₆₀ -- ○	DRY DENSITY (pcf) -- ■				MOISTURE & ATTERBERG LIMITS (%)				REMARKS
								90	100	110	120	PL	MC	LL	SH	
760	0		12 Inches of TOPSOIL													
	1.0															
	5		FILL- Fine to Medium SAND with Silt- Occasional Roots and Concrete and Coal Fragments- Dark Brown to Black- Moist- Medium Dense to Very Loose (SP-SM)	SB1		7	11									
	6.0			SB2		1	4									
	8.5		FILL- Fine to Coarse SAND with Gravel- Brown- Moist- Loose (SP/GP)	SB3		2	5									
	10		Fibrous to Amorphous PEAT- Black (PT)	SB4		1	3					141				
	11.0			SB5		1	3									
	15		Fine to Coarse SAND- Occasional Gravel Layers- Brown to Gray- Wet- Very Loose to Loose (SP)	SB6		3	9									
	16.0			SB7		3	13									
	18.5		Fine to Coarse SAND- Brown- Wet- Medium Dense (SP)	SB8		6	34									
	20		Fine SILTY SAND- Brown- Wet- Dense (SM)			19										
	23.5					7	21					14				
	25.0		Sandy LEAN CLAY- Gray- Very Stiff (CL)	SB9		9										
	25.0		END OF BORING AT 25.0 FEET.													

GROUNDWATER & BACKFILL INFORMATION		
	DEPTH (FT)	ELEV (FT)
▽ DURING BORING:	8.5	751.5
CAVE-IN OF BOREHOLE AT:	12.1	747.9
BACKFILL METHOD:	Auger Cuttings	

NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.
 2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.

1/7/22 3:56:15 PM



BORING B 1

PAGE 1 OF 1

BORING DEPTH: 9.5 FEET

PROJECT NAME: Mt. Pleasant City Hall Retaining Walls

PROJECT NUMBER: 088030.00

CLIENT: City of Mt. Pleasant

PROJECT LOCATION: Mount Pleasant, Michigan

DATE STARTED: 11/5/21

COMPLETED: 11/5/21

BORING METHOD: Hand Auger

FIELD REPRESENTATIVE: NBS

EQUIPMENT: Hand Auger

LOGGED BY: NBS

CHECKED BY: ATB

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO.	BLOWS PER SIX INCHES	DYNAMIC CONE PENETROMETER (DCP) -- O	DRY DENSITY (pcf) -- ■	MOISTURE & ATTERBERG LIMITS (%)	<ul style="list-style-type: none"> ▼ HAND PENE. ■ TORVANE SHEAR ○ UNC. COMP. ⊠ VANE SHEAR (PK) ⊗ VANE SHEAR (REM) ⊕ TRIAXIAL (UU) ◇ SHEAR STRENGTH (KSF) 	REMARKS
						90 100 110 120				PL MC LL
0.0		TOPSOIL- Fine to Medium SILTY SAND- Frequent Roots- Dark Brown- Moist- Loose (SM)	AS1	10	10				
1.0		FILL- Fine to Medium SILTY SAND- Few Gravel- Occasional Roots and Slag Fragments- Brown and Dark Brown- Moist- Medium Dense (SM)	AS2	23	23				
1.7		FILL- Fine to Coarse SAND- Few Gravel- Frequent Brick and Slag Pieces- Dark Gray- Moist- Medium Dense (SP)	AS3	19	19				
2.5		FILL- Fine to Medium SILTY SAND- Few Gravel- Frequent Brick and Slag Fragments- Occasional Roots- Dark Brown- Moist- Loose (SM)	AS4	29	15				
5.0		FILL- Fine to Coarse SAND with Gravel- Frequent Slag Fragments- Brown- Moist- Loose to Medium Dense (SP)	AS5	9	9				
6.0		FILL- Fine to Medium SILTY SAND- Few Gravel- Frequent Slag and Brick Fragments- Dark Brown- Moist- Medium Dense (SM)	AS6	10	10				
6.8		FILL- Fine to Medium SAND with Silt- Few Gravel- Frequent Slag Fragments- Brown- Moist- Medium Dense (SP-SM)	AS7	18	18				
7.5		FILL- Fine SAND- Occasional Slag Fragments- Brown- Moist- Medium Dense (SP)	AS8	19	19				
8.5		FILL- Fine to Medium SAND with Clay- Few Gravel- Frequent Peat Layers and Seams- Brown- Moist- Loose (SP-SC)	AS9	28	26				
9.0		ORGANIC SOIL- Mostly Silt- Black (OL/OH)	AS10	23	23				
9.5		END OF BORING AT 9.5 FEET.		11	11				
10.0				12	12				

GROUNDWATER & BACKFILL INFORMATION	<p>NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.</p> <p>2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.</p>
GROUNDWATER WAS NOT ENCOUNTERED	
BACKFILL METHOD: Auger Cuttings	

1/7/22 3:56:16 PM



BORING B 2

PAGE 1 OF 1

BORING DEPTH: 10 FEET

PROJECT NAME: Mt. Pleasant City Hall Retaining Walls

PROJECT NUMBER: 088030.00

CLIENT: City of Mt. Pleasant

PROJECT LOCATION: Mount Pleasant, Michigan

DATE STARTED: 11/5/21

COMPLETED: 11/5/21

BORING METHOD: Hand Auger

FIELD REPRESENTATIVE: NBS

EQUIPMENT: Hand Auger

LOGGED BY: NBS

CHECKED BY: ATB

DEPTH (FEET)	SYMBOLIC PROFILE	PROFILE DESCRIPTION	SAMPLE TYPE/NO. INTERVAL	BLOWS PER SIX INCHES	DYNAMIC CONE PENETROMETER (DCP) -- O	DRY DENSITY (pcf) -- ■	MOISTURE & ATTERBERG LIMITS (%)	<ul style="list-style-type: none"> ▼ HAND PENE. ■ TORVANE SHEAR ○ UNC. COMP. ⊠ VANE SHEAR (PK) ⊗ VANE SHEAR (REM) ⊕ TRIAXIAL (UU) SHEAR ◆ STRENGTH (KSF) 	REMARKS
						90 100 110 120				PL MC LL
0.0		TOPSOIL- Fine SILTY SAND- Frequent Roots- Dark Brown- Moist- Loose (SM)	AS1	10	10				
0.5		FILL- Fine to Medium SAND- Brown- Moist- Medium Dense (SP)	AS2	33	33				
1.0		FILL- Fine to Medium SILTY SAND- Few Gravel- Occasional Brick Fragments- Brown- Moist- Medium Dense (SM)	AS3	35	35				
2.3		FILL- Fine to Medium SILTY SAND- Frequent Brick Fragments- Dark Brown- Moist- Medium Dense (SM)	AS4	25	25				
2.5				27	27				
3.5			AS5	45	45				
5.0		Fine to Medium SAND with Silt- Few Gravel- Brown- Moist- Medium Dense to Loose (SP-SM)		12	12				
				9	9				
				8	8				
				6	6				
				3	3				
			AS6	5	5				
				6	6				
				3	3				
				6	6				
				9	9				
10.0		END OF BORING AT 10.0 FEET.	AS7						

GROUNDWATER & BACKFILL INFORMATION	<p>NOTES: 1. The indicated stratification lines are approximate. The in-situ transitions between materials may be gradual.</p> <p>2. The colors depicted on the symbolic profile are solely for visualization purposes and do not necessarily represent the in-situ colors encountered.</p>
GROUNDWATER WAS NOT ENCOUNTERED	
BACKFILL METHOD: Auger Cuttings	

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, you can benefit from a lowered exposure to problems associated with subsurface conditions at project sites and development of them that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed herein, contact your GBA-member geotechnical engineer. Active engagement in GBA exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Understand the Geotechnical-Engineering Services Provided for this Report

Geotechnical-engineering services typically include the planning, collection, interpretation, and analysis of exploratory data from widely spaced borings and/or test pits. Field data are combined with results from laboratory tests of soil and rock samples obtained from field exploration (if applicable), observations made during site reconnaissance, and historical information to form one or more models of the expected subsurface conditions beneath the site. Local geology and alterations of the site surface and subsurface by previous and proposed construction are also important considerations. Geotechnical engineers apply their engineering training, experience, and judgment to adapt the requirements of the prospective project to the subsurface model(s). Estimates are made of the subsurface conditions that will likely be exposed during construction as well as the expected performance of foundations and other structures being planned and/or affected by construction activities.

The culmination of these geotechnical-engineering services is typically a geotechnical-engineering report providing the data obtained, a discussion of the subsurface model(s), the engineering and geologic engineering assessments and analyses made, and the recommendations developed to satisfy the given requirements of the project. These reports may be titled investigations, explorations, studies, assessments, or evaluations. Regardless of the title used, the geotechnical-engineering report is an engineering interpretation of the subsurface conditions within the context of the project and does not represent a close examination, systematic inquiry, or thorough investigation of all site and subsurface conditions.

Geotechnical-Engineering Services are Performed for Specific Purposes, Persons, and Projects, and At Specific Times

Geotechnical engineers structure their services to meet the specific needs, goals, and risk management preferences of their clients. A geotechnical-engineering study conducted for a given civil engineer

will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client.

Likewise, geotechnical-engineering services are performed for a specific project and purpose. For example, it is unlikely that a geotechnical-engineering study for a refrigerated warehouse will be the same as one prepared for a parking garage; and a few borings drilled during a preliminary study to evaluate site feasibility will not be adequate to develop geotechnical design recommendations for the project.

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project or purpose;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, the reliability of a geotechnical-engineering report can be affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying the recommendations in it. A minor amount of additional testing or analysis after the passage of time – if any is required at all – could prevent major problems.

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read the report in its entirety. Do not rely on an executive summary. Do not read selective elements only. *Read and refer to the report in full.*

You Need to Inform Your Geotechnical Engineer About Change

Your geotechnical engineer considered unique, project-specific factors when developing the scope of study behind this report and developing the confirmation-dependent recommendations the report conveys. Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the elevation, configuration, location, orientation, function or weight of the proposed structure and the desired performance criteria;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project or site changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept*

responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.

Most of the “Findings” Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site’s subsurface using various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing is performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgement to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team through project completion to obtain informed guidance quickly, whenever needed.

This Report’s Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, they are not final, because the geotechnical engineer who developed them relied heavily on judgement and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* exposed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals’ misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a continuing member of the design team, to:

- confer with other design-team members;
- help develop specifications;
- review pertinent elements of other design professionals’ plans and specifications; and
- be available whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction-phase observations.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note*

conspicuously that you’ve included the material for information purposes only. To avoid misunderstanding, you may also want to note that “informational purposes” means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. This happens in part because soil and rock on project sites are typically heterogeneous and not manufactured materials with well-defined engineering properties like steel and concrete. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled “limitations,” many of these provisions indicate where geotechnical engineers’ responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a “phase-one” or “phase-two” environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually provide environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures.* If you have not obtained your own environmental information about the project site, ask your geotechnical consultant for a recommendation on how to find environmental risk-management guidance.

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, the engineer’s services were not designed, conducted, or intended to prevent migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, *proper implementation of the geotechnical engineer’s recommendations will not of itself be sufficient to prevent moisture infiltration.* **Confront the risk of moisture infiltration** by including building-envelope or mold specialists on the design team. **Geotechnical engineers are not building-envelope or mold specialists.**



Telephone: 301/565-2733

e-mail: info@geoprofessional.org www.geoprofessional.org

GENERAL COMMENTS

BASIS OF GEOTECHNICAL REPORT

This report has been prepared in accordance with generally accepted geotechnical engineering practices to assist in the design and/or evaluation of this project. If the project plans, design criteria, and other project information referenced in this report and utilized by SME to prepare our recommendations are changed, the conclusions and recommendations contained in this report are not considered valid unless the changes are reviewed, and the conclusions and recommendations of this report are modified or approved in writing by our office.

The discussions and recommendations submitted in this report are based on the available project information, described in this report, and the geotechnical data obtained from the field exploration at the locations indicated in the report. Variations in the soil and groundwater conditions commonly occur between or away from sampling locations. The nature and extent of the variations may not become evident until the time of construction. If significant variations are observed during construction, SME should be contacted to reevaluate the recommendations of this report. SME should be retained to continue our services through construction to observe and evaluate the actual subsurface conditions relative to the recommendations made in this report.

In the process of obtaining and testing samples and preparing this report, procedures are followed that represent reasonable and accepted practice in the field of soil and foundation engineering. Specifically, field logs are prepared during the field exploration that describe field occurrences, sampling locations, and other information. Samples obtained in the field are frequently subjected to additional testing and reclassification in the laboratory and differences may exist between the field logs and the report logs. The engineer preparing the report reviews the field logs, laboratory classifications, and test data and then prepares the report logs. Our recommendations are based on the contents of the report logs and the information contained therein.

REVIEW OF DESIGN DETAILS, PLANS, AND SPECIFICATIONS

SME should be retained to review the design details, project plans, and specifications to verify those documents are consistent with the recommendations contained in this report.

REVIEW OF REPORT INFORMATION WITH PROJECT TEAM

Implementation of our recommendations may affect the design, construction, and performance of the proposed improvements, along with the potential inherent risks involved with the proposed construction. The client and key members of the design team, including SME, should discuss the issues covered in this report so that the issues are understood and applied in a manner consistent with the owner's budget, tolerance of risk, and expectations for performance and maintenance.

FIELD VERIFICATION OF GEOTECHNICAL CONDITIONS

SME should be retained to verify the recommendations of this report are properly implemented during construction. This may avoid misinterpretation of our recommendations by other parties and will allow us to review and modify our recommendations if variations in the site subsurface conditions are encountered.

PROJECT INFORMATION FOR CONTRACTOR

This report and any future addenda or other reports regarding this site should be made available to prospective contractors prior to submitting their proposals for their information only and to supply them with facts relative to the subsurface evaluation and laboratory test results. If the selected contractor encounters subsurface conditions during construction, which differ from those presented in this report, the contractor should promptly describe the nature and extent of the differing conditions in writing and SME should be notified so that we can verify those conditions. The construction contract should include provisions for dealing with differing conditions and contingency funds should be reserved for potential problems during earthwork and foundation construction. We would be pleased to assist you in developing the contract provisions based on our experience.

The contractor should be prepared to handle environmental conditions encountered at this site, which may affect the excavation, removal, or disposal of soil; dewatering of excavations; and health and safety of workers. Any Environmental Assessment reports prepared for this site should be made available for review by bidders and the successful contractor.

THIRD PARTY RELIANCE/REUSE OF THIS REPORT

This report has been prepared solely for the use of our Client for the project specifically described in this report. This report cannot be relied upon by other parties not involved in the project, unless specifically allowed by SME in writing. SME also is not responsible for the interpretation by other parties of the geotechnical data and the recommendations provided herein.

LABORATORY TESTING PROCEDURES

VISUAL ENGINEERING CLASSIFICATION

Visual classification was performed on recovered samples. The appended General Notes and Unified Soil Classification System (USCS) sheets include a brief summary of the general method used visually classify the soil and assign an appropriate USCS group symbol. The estimated group symbol, according to the USCS, is shown in parentheses following the textural description of the various strata on the boring logs appended to this report. The soil descriptions developed from visual classifications are sometimes modified to reflect the results of laboratory testing.

MOISTURE CONTENT

Moisture content tests were performed by weighing samples from the field at their in-situ moisture condition. These samples were then dried at a constant temperature (approximately 110° C) overnight in an oven. After drying, the samples were weighed to determine the dry weight of the sample and the weight of the water that was expelled during drying. The moisture content of the specimen is expressed as a percent and is the weight of the water compared to the dry weight of the specimen.

HAND PENETROMETER TESTS

In the hand penetrometer test, the unconfined compressive strength of a cohesive soil sample is estimated by measuring the resistance of the sample to the penetration of a small calibrated, spring-loaded cylinder. The maximum capacity of the penetrometer is 4.5 tons per square-foot (tsf). Theoretically, the undrained shear strength of the cohesive sample is one-half the unconfined compressive strength. The undrained shear strength (based on the hand penetrometer test) presented on the boring logs is reported in units of kips per square-foot (ksf).

TORVANE SHEAR TESTS

In the Torvane test, the shear strength of a low strength, cohesive soil sample is estimated by measuring the resistance of the sample to a torque applied through vanes inserted into the sample. The undrained shear strength of the samples is measured from the maximum torque required to shear the sample and is reported in units of kips per square-foot (ksf).

LOSS-ON-IGNITION (ORGANIC CONTENT) TESTS

Loss-on-ignition (LOI) tests are conducted by first weighing the sample and then heating the sample to dry the moisture from the sample (in the same manner as determining the moisture content of the soil). The sample is then re-weighed to determine the dry weight and then heated for 4 hours in a muffle furnace at a high temperature (approximately 440° C). After cooling, the sample is re-weighed to calculate the amount of ash remaining, which in turn is used to determine the amount of organic matter burned from the original dry sample. The organic matter content of the specimen is expressed as a percent compared to the dry weight of the sample.

ATTERBERG LIMITS TESTS

Atterberg limits tests consist of two components. The plastic limit of a cohesive sample is determined by rolling the sample into a thread and the plastic limit is the moisture content where a 1/8-inch thread begins to crumble. The liquid limit is determined by placing a 1/2-inch thick soil pat into the liquid limits cup and using a grooving tool to divide the soil pat in half. The cup is then tapped on the base of the liquid limits device using a crank handle. The number of drops of the cup to close the gap formed by the grooving tool 1/2 inch is recorded along with the corresponding moisture content of the sample. This procedure is repeated several times at different moisture contents and a graph of moisture content and the corresponding number of blows is plotted. The liquid limit is defined as the moisture content at a nominal 25 drops of the cup. From this test, the plasticity index can be determined by subtracting the plastic limit from the liquid limit.

Overview

Project Name

Sidewalk Replacement

Total Requested

\$150,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Medium

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Infrastructure
-

Project Description

Each year the City invests in maintenance of the sidewalk system. Focus is generally placed on identifiable hazards such as large obstacles and trees blocking sidewalk paths, small lips and cracks, pocketing water and spalling. Replacement sidewalks are built to coincide with planned street and water main replacement projects.

This project would replace sidewalk in various locations within the city.

Benefit Description

Since 1996, sidewalk has been replaced each year throughout the City. The Division of Public Works has created a sidewalk rating system so that the sidewalk replacement list can be prioritized and this project would address the worst sidewalk within the city.

Funding Requirements

Sidewalk replacement is an ongoing expense.

Project Timeline

Summer - 2024

Budget Items

Name	Cost	Quantity	Total	Category
Sidewalk Replacement - Various Locations	\$150,000.00	1	\$150,000.00	Infrastructure
AmountRequested	\$150,000.00			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	\$0.00		

Budget Summary

Amount Requested

\$150,000.00

Amount Matched

\$0.00

Total Amount

\$150,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

Mid-Michigan/GKB Pathway North Connection

Total Requested

\$200,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

High

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

pbiscorner@mt-pleasant.org

Applicant Email

Phil Biscorner

Organization

City of Mt. Pleasant

Address

320 West Broadway

Mt. Pleasant , 48858

Phone Number

989-779-5328

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway

Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Project Partners

Partnered With

Union Township

Authorizers

Mark Stuhldreher mstuhldreher@unionshipmi.com

Status

Review

Address

2010 S Lincoln Road

Mount Pleasant, Michigan 48858

Phone

989-772-4600

Fax

989-773-1988

Categories

- Infrastructure
- Park Improvements
- Transportation

Project Description

The Project request is for funds to secure Design, Engineering, Bidding, and Construction services for the 2024 Mid-Michigan Pathway and GKB Riverwalk North Connection

Benefit Description

This pathway would add additional community-wide pedestrian access to the GKB Riverwalk Trail, connect Mission Creek Park to the GKB Riverwalk Trail and connect the City of Mt. Pleasant dog park to the pathway system. The dog park is a partnership between the City, Union Township, and the Friends of the Dog Park citizen's group. The trail addition would also create a northerly connection point for the Mid-Michigan Community Pathway to connect to Clare in the future. Connection points to regional pathway systems have been shown to increase the ability to obtain grant funding for pathway projects and increase the number of visitors to a community having positive economic benefits. Pathway projects also contribute to a reduction in obesity and provide an overall positive health benefit to the community. This project also supports the philosophy and many of the recommendations contained in the Greater Mt. Pleasant Area Non-Motorized Plan.

Funding Requirements

Partnerships with area agencies will be a focus along with pursuit and leveraging of available grant resources to design the trail in 2024 and construct in 2025.

Project Timeline

Not Entered

Budget Items

Name	Cost	Quantity	Total	Category
2% Request	\$200,000.00	1	\$200,000.00	Transportation
AmountRequested	\$200,000.00			

Matching Funds

Name	Cost	Quantity	Total
City of Mt. Pleasant	\$400,000.00	1	\$400,000.00
Union Township	\$300,000.00	1	\$300,000.00
MDOT TAP Grant	\$400,000.00	1	\$400,000.00
AmountMatched	\$1,100,000.00		

Budget Summary

Amount Requested

\$200,000.00

Amount Matched

\$1,100,000.00

Total Amount

\$1,300,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

Aerial Fire Apparatus

Total Requested

\$250,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Critical

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

dlobsinger@mt-pleasant.org

Applicant Email

Doug Lobsinger

Organization

Mt. Pleasant Fire Dept.

Address

804 E. High St.

Mount Pleasant , 48858

Phone Number

9897795152

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway

Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Safety/Security
-

Project Description

In 1997 The City of Mt Pleasant along with funding from the Saginaw Chippewa Indian Tribe purchased a 102-foot Aerial Fire Apparatus more commonly known as a ladder truck. Our current Aerial Apparatus is 27+ years old and in need of replacement. The Aerial apparatus allows firefighters to reach tall buildings, such as high-rise buildings, large commercial buildings, multi-story buildings in our downtown area and on CMU campus and on Tribal properties when requested. They can provide a high vantage point for supplying water to elevated master streams, utilized for ventilation, providing an access route for firefighters and an escape route for firefighters and people they have rescued.

Benefit Description

Currently the Mt. Pleasant Fire Department is available to assist the Tribal community in any fire or rescue situation. The purchase of this new Aerial Apparatus would enable us to maintain a level of response for fire suppression and enhance our ability to provide mutual aid to the Tribal community assisting in protecting its infrastructure such as the Soaring Eagle Casino, Hotel and Water Park while increasing our capabilities. Also, our department has mutual aid agreements with all other department within the county, as well as Clare and Alma. The purchase of this Aerial Apparatus would enable us to maintain that level of service to the citizens of Mt. Pleasant and Union Township, as well as providing mutual aid to the other communities in the surrounding area.

Funding Requirements

The Estimated cost from our research that we have completed to purchase a comparable Aerial Apparatus is \$2,250,000. Anticipated funds for the purchase of this Aerial Fire Apparatus are from the following sources:

1. Resale of our current Aerial Fire Apparatus
2. Funding from The City of Mt Pleasant
3. Possible two percent allocations from The Saginaw Chippewa Indian Tribe

The maintenance and operation of this Aerial Apparatus would be maintained by Mt. Pleasant Fire Department.

Project Timeline

Not Entered

Budget Items

Name	Cost	Quantity	Total	Category
Aerial Fire Apparatus	\$250,000.00	1	\$250,000.00	Safety/Security
AmountRequested	\$250,000.00			

Matching Funds

Name	Cost	Quantity	Total
Aerial Fire Apparatus	\$250,000.00	1	\$250,000.00
AmountMatched	\$250,000.00		

Budget Summary

Amount Requested

\$250,000.00

Amount Matched

\$250,000.00

Total Amount

\$500,000.00

Uploaded Files

Name
2Request2023 2023-09-07.doc

There are no comments to display.



City of Mount Pleasant, Michigan
DEPARTMENT OF PUBLIC SAFETY



A. Please give a brief description of the project, providing as much detail as possible.

In 1997 The City of Mt Pleasant along with funding from the Saginaw Chippewa Indian Tribe purchased a 102-foot Aerial Fire Apparatus more commonly known as a ladder truck. Our current Aerial Apparatus is 27 years old and in need of replacement. The Aerial apparatus allows firefighters to reach tall buildings, such as high-rise buildings, large commercial buildings, multi-story buildings in our downtown area and on CMU campus and on Tribal properties when requested. They can provide a high vantage point for supplying water to elevated master streams, utilized for ventilation, providing an access route for firefighters and an escape route for firefighters and people they have rescued.

B. Please give a brief description of the project benefits to the Tribe, Community, and governmental service area.

Currently the Mt. Pleasant Fire Department is available to assist the Tribal community in any fire or rescue situation. The purchase of this new Aerial Apparatus would enable us to maintain a level of response for fire suppression and enhance our ability to provide mutual aid to the Tribal community assisting in protecting its infrastructure such as the Soaring Eagle Casino, Hotel and Water Park while increasing our capabilities. Also, our department has mutual aid agreements with all other department within the county, as well as Clare and Alma. The purchase of this Aerial Apparatus would enable us to maintain that level of service to the citizens of Mt. Pleasant and Union Township, as well as providing mutual aid to the other communities in the surrounding area.

C. Please state the long-term projection of funding requirements (if applicable). The maintenance and operation of this Aerial Apparatus would be maintained by Mt. Pleasant Fire Department.

D. Cost Estimate:

The Estimated cost from our research that we have completed to purchase a comparable Aerial Apparatus is \$2,250,000. Anticipated funds for the purchase of this Aerial Fire Apparatus are from the following sources:

1. Resale of our current Aerial Fire Apparatus
2. Funding from The City of Mt Pleasant
3. Possible two percent allocations from The Saginaw Chippewa Indian Tribe

Overview

Project Name

Mt. Pleasant Police Vehicle and Body Camera Project

Total Requested

\$406,620.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Critical

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

plauria@mt-pleasant.org

Applicant Email

Paul Lauria

Organization

Mt. Pleasant Police and Fire Department

Address

804 E. High St

Mount Pleasant , 48858

Phone Number

9893304378

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway

Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Safety/Security
-

Project Description

This project is for the replacement of 9 patrol vehicle camera systems and 30 police body worn cameras.

Our current vehicle camera system, L3 Mobile Vision was installed in 2014 and is past its service life. Many of the components are broken and are no longer available. In addition, this system cannot be upgraded to include body worn cameras that are used by police officers.

Having a totally integrated vehicle and body worn camera system is the most effective and seamless way to implement a comprehensive system. For this reason, Axon Inc was chosen as the system to meets this need. This project will be completed in its entirety in one phase. Axon Inc is a leading manufacturer of a comprehensive vehicle and body worn camera system. The Axon vehicle cameras come with the latest technology of LPR (license plate readers), body microphone for audio recordings and tamperproof automatic downloading of video evidence. The recorded events are stored in the "cloud" and access is only given to authorized personnel. This video evidence in then used in court proceedings and other matters such as citizens' complaints to verify what did or did not occur.

This project now includes the immediate implementation of 30 body worn cameras. Previous concerns pertaining to Freedom of Information Requests will be addressed if the need arises. While we expect the number of requests is going to increase significantly, we feel that ongoing reviews of workloads will address these concerns.

Benefit Description

The benefits of this project are vast. Having up-to-date high quality video equipment and software provides the community with the transparency it demands. Video evidence is the first aspect that is requested when a police officers' actions are being questioned. This video evidence provides an unbiased look at what took place during a specific incident. It eliminates the bias of the facts given by the officer and the other party involved. It allows the viewer to make their own assessment of the events that took place. The video of an incident can then be used by the police department for training officers, officer accountability, policy development and changes, civil and criminal court proceedings, as well as to build confidence and credibility with the entire community.

Funding Requirements

Maintenance of the vehicle and body cameras will be covered within the annual police department's budget.

Project Timeline

The implementation of police body and vehicle cameras will be started as soon as funding is secured. Once ordered the delivery date of the equipment and software will be provided.

Budget Items

Name	Cost	Quantity	Total	Category
Axon Patrol Vehicle Cameras	\$18,000.00	9	\$162,000.00	Safety/Security
Axon Police Body Camera, Software and Storage	\$8,154.00	30	\$244,620.00	Safety/Security
AmountRequested	\$406,620.00			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	\$0.00		

Budget Summary

Amount Requested

\$406,620.00

Amount Matched

\$0.00

Total Amount

\$406,620.00

Uploaded Files

Name
Q42604144831813KUNew_2023-09-07.pdf

There are no comments to display.



Axon Enterprise, Inc.
 17800 N 85th St.
 Scottsdale, Arizona 85255
 United States
 VAT: 86-0741227
 Domestic: (800) 978-2737
 International: +1.800.978.2737

Q-426041-44831.813KU

Issued: 09/27/2022

Quote Expiration: 11/15/2022

EST Contract Start Date: 12/01/2022

Account Number: 323132

Payment Terms: N30

Delivery Method:

SHIP TO	BILL TO
Business;Delivery;Invoice-804 E High St 804 E High St Mount Pleasant, MI 48858-3595 USA	Mount Pleasant Police Dept. - MI 804 E High St Mount Pleasant, MI 48858-3595 USA Email:

SALES REPRESENTATIVE	PRIMARY CONTACT
Keith Utter Phone: Email: kutter@axon.com Fax:	Paul Lauria Phone: (989) 779-5108 Email: plauria@mt-pleasant.org Fax: (989) 773-4020

Program Length	60 Months
TOTAL COST	\$406,620.72
ESTIMATED TOTAL W/ TAX	\$418,091.07

Bundle Savings	\$113,584.38
Additional Savings	\$10,802.30
TOTAL SAVINGS	\$124,386.68

PAYMENT PLAN		
PLAN NAME	INVOICE DATE	AMOUNT DUE
Year 1	Nov, 2022	\$62,280.00
Year 1	Jun, 2023	\$17,683.36
True Up	Jun, 2023	\$6,804.00
Year 2	Nov, 2023	\$62,280.00
Year 2	Nov, 2023	\$17,683.34
Year 3	Nov, 2024	\$62,280.00
Year 3	Nov, 2024	\$17,683.34
Year 4	Nov, 2025	\$62,280.00

Year 4	Nov, 2025	\$17,683.34
Year 5	Nov, 2026	\$62,280.00
Year 5	Nov, 2026	\$17,683.34

BILLED ON FULFILLMENT		
PLAN NAME	INVOICE DATE	AMOUNT DUE
None	As Fulfilled	\$0.00

Quote Details

Bundle Summary		
Item	Description	QTY
Core+	2021 Core+	30
Fleet3A	Fleet 3 Advanced	9
DynamicBundle	Dynamic Bundle	1
DynamicBundle	Dynamic Bundle	1

Bundle: 2021 Core+ Quantity: 30 Start: 12/1/2022 End: 11/30/2027 Total: 286200 USD			
Category	Item	Description	QTY
Bundle Scaler	999999	BUNDLE SCALER	1
Bundle Scaler	999999	BUNDLE SCALER	1
Signal Sidearm Kit	75015	SIGNAL SIDEARM KIT	30
Warranty	80465	EXT WARRANTY, MULTI-BAY DOCK (TAP)	4
Camera Warranty	80464	EXT WARRANTY, CAMERA (TAP)	30
E.com License	73746	PROFESSIONAL EVIDENCE.COM LICENSE	30
Respond License	73449	RESPOND DEVICE LICENSE	30
Multi-bay Dock Refresh 1	73689	MULTI-BAY BWC DOCK 1ST REFRESH	4
Device Storage	73686	EVIDENCE.COM UNLIMITED AXON DEVICE STORAGE	30
Auto Tagging	73682	AUTO TAGGING LICENSE	30
Camera Refresh 1 with Spares	73309	AXON CAMERA REFRESH ONE	31
Camera Refresh 2 with Spares	73310	AXON CAMERA REFRESH TWO	31
Multi-bay Dock Refresh 2	73688	MULTI-BAY BWC DOCK 2ND REFRESH	4

Other	80395	EXT WARRANTY, TASER 7 HANDLE	30
Other	80395	EXT WARRANTY, TASER 7 HANDLE	1
Other	80374	EXT WARRANTY, TASER 7 BATTERY PACK	36
Other	80396	EXT WARRANTY, TASER 7 SIX BAY DOCK	1

Bundle: Fleet 3 Advanced Quantity: 9 Start: 7/1/2023 End: 11/30/2027 Total: 88416.72 USD

Category	Item	Description	QTY
Bundle Scaler	999999	BUNDLE SCALER	1
Storage	80410	FLEET, UNLIMITED STORAGE, 1 CAMERA	18
E.com License	80400	FLEET, VEHICLE LICENSE	9
ALPR License	80401	FLEET 3, ALPR LICENSE, 1 CAMERA	9
Respond License	80402	RESPOND DEVICE LICENSE - FLEET 3	9
Camera Kit & Warranty	72036	FLEET 3 STANDARD 2 CAMERA KIT	9
Vehicle Installation	73391	FLEET 3 NEW INSTALLATION (PER VEHICLE)	9
Camera Refresh	72040	FLEET REFRESH, 2 CAMERA KIT	9
Axon Signal Unit	70112	AXON SIGNAL UNIT	9
Other	80495	EXT WARRANTY, FLEET 3, 2 CAMERA KIT	9
Other	80379	EXT WARRANTY, AXON SIGNAL UNIT	9

Bundle: Dynamic Bundle Quantity: 1 Start: 12/1/2022 End: 6/30/2023 Total: 6804 USD

Category	Item	Description	QTY
Other	80462	FLEET 3 ADVANCED BUNDLE WITH TAP TRUE UP	9

Individual Items USD

Category	Item	Description	QTY
Other	73447	RESPOND DEVICE TO RESPOND DEVICE PLUS UPGRADE LICENSE	30

Tax is estimated based on rates applicable at date of quote and subject to change at time of invoicing. If a tax exemption certificate should be applied, please submit prior to invoicing.

Standard Terms and Conditions

Axon Enterprise Inc. Sales Terms and Conditions

Axon Master Services and Purchasing Agreement:

This Quote is limited to and conditional upon your acceptance of the provisions set forth herein and Axon's Master Services and Purchasing Agreement (posted at www.axon.com/legal/sales-terms-and-conditions), as well as the attached Statement of Work (SOW) for Axon Fleet and/or Axon Interview Room purchase, if applicable. In the event you and Axon have entered into a prior agreement to govern all future purchases, that agreement shall govern to the extent it includes the products and services being purchased and does not conflict with the Axon Customer Experience Improvement Program Appendix as described below.

ACEIP:

The Axon Customer Experience Improvement Program Appendix, which includes the sharing of de-identified segments of Agency Content with Axon to develop new products and improve your product experience (posted at www.axon.com/legal/sales-terms-and-conditions), is incorporated herein by reference. By signing below, you agree to the terms of the Axon Customer Experience Improvement Program.

Acceptance of Terms:

Any purchase order issued in response to this Quote is subject solely to the above referenced terms and conditions. By signing below, you represent that you are lawfully able to enter into contracts. If you are signing on behalf of an entity (including but not limited to the company, municipality, or government agency for whom you work), you represent to Axon that you have legal authority to bind that entity. If you do not have this authority, please do not sign this Quote.

Signature

Date Signed

9/27/2022

FLEET STATEMENT OF WORK BETWEEN AXON ENTERPRISE AND AGENCY

Introduction

This Statement of Work ("SOW") has been made and entered into by and between Axon Enterprise, Inc. ("AXON"), and Mount Pleasant Police Dept. - MI the ("AGENCY") for the purchase of the Axon Fleet in-car video solution ("FLEET") and its supporting information, services and training. (AXON Technical Project Manager/The AXON installer)

Purpose and Intent

AGENCY states, and AXON understands and agrees, that Agency's purpose and intent for entering into this SOW is for the AGENCY to obtain from AXON deliverables, which used solely in conjunction with AGENCY's existing systems and equipment, which AGENCY specifically agrees to purchase or provide pursuant to the terms of this SOW.

This SOW contains the entire agreement between the parties. There are no promises, agreements, conditions, inducements, warranties or understandings, written or oral, expressed or implied, between the parties, other than as set forth or referenced in the SOW.

Acceptance

Upon completion of the services outlined in this SOW, AGENCY will be provided a professional services acceptance form ("Acceptance Form"). AGENCY will sign the Acceptance Form acknowledging that services have been completed in substantial conformance with this SOW and the Agreement. If AGENCY reasonably believes AXON did not complete the professional services in conformance with this SOW, AGENCY must notify AXON in writing of the specific reasons within seven (7) calendar days from delivery of the Acceptance Form. AXON will remedy the issues to conform with this SOW and re-present the Acceptance Form for signature. If AXON does not receive the signed Acceptance Form or written notification of the reasons for rejection within 7 calendar days of the delivery of the Acceptance Form, AGENCY will be deemed to have accepted the services in accordance to this SOW.

Force Majeure

Neither party hereto shall be liable for delays or failure to perform with respect to this SOW due to causes beyond the party's reasonable control and not avoidable by diligence.

Schedule Change

Each party shall notify the other as soon as possible regarding any changes to agreed upon dates and times of Axon Fleet in-car Solution installation-to be performed pursuant of this Statement of Work.

Axon Fleet Deliverables

Typically, within (30) days of receiving this fully executed SOW, an AXON Technical Project Manager will deliver to AGENCY's primary point of contact via electronic media, controlled documentation, guides, instructions and videos followed by available dates for the initial project review and customer readiness validation. Unless otherwise agreed upon by AXON, AGENCY may print and reproduce said documents for use by its employees only.

Security Clearance and Access

Upon AGENCY's request, AXON will provide the AGENCY a list of AXON employees, agents, installers or representatives which require access to the AGENCY's facilities in order to perform Work pursuant of this Statement of Work. AXON will ensure that each employee, agent or representative has been informed or and consented to a criminal background investigation by AGENCY for the purposes of being allowed access to AGENCY's facilities. AGENCY is responsible for providing AXON with all required instructions and documentation accompanying the security background check's requirements.

Training

AXON will provide training applicable to Axon Evidence, Cradlepoint NetCloud Manager and Axon Fleet application in a train-the-trainer style method unless otherwise agreed upon between the AGENCY and AXON.

Local Computer

AGENCY is responsible for providing a mobile data computer (MDC) with the same software, hardware, and configuration that AGENCY personnel will use with the AXON system being installed. AGENCY is responsible for making certain that any and all security settings (port openings, firewall settings, antivirus software, virtual private network, routing, etc.) are made prior to the installation, configuration and testing of the aforementioned deliverables.

Network

AGENCY is responsible for making certain that any and all network(s) route traffic to appropriate endpoints and AXON is not liable for network breach, data interception, or loss of data due to misconfigured firewall settings or virus infection, except to the extent that such virus or infection is caused, in whole or in part, by defects in the deliverables.

Cradlepoint Router

When applicable, AGENCY must provide AXON Installers with temporary administrative access to Cradlepoint's [NetCloud Manager](#) to the extent necessary to perform Work pursuant of this Statement of Work.

[Evidence.com](#)

AGENCY must provide AXON Installers with temporary administrative access to Axon Evidence.com to the extent necessary to perform Work pursuant of this SOW.

Wireless Upload System

If purchased by the AGENCY, on such dates and times mutually agreed upon by the parties, AXON will install and configure into AGENCY's existing network a wireless network infrastructure as identified in the AGENCY's binding quote based on conditions of the sale.

VEHICLE INSTALLATION

Preparedness

On such dates and times mutually agreed upon by the parties, the AGENCY will deliver all vehicles to an AXON Installer less weapons and items of evidence. Vehicle(s) will be deemed 'out of service' to the extent necessary to perform Work pursuant of this SOW.

Existing Mobile Video Camera System Removal

On such dates and times mutually agreed upon by the parties, the AGENCY will deliver all vehicles to an AXON Installer which will remove from said vehicles all components of the existing mobile video camera system unless otherwise agreed upon by the AGENCY.

Major components will be salvaged by the AXON Installer for auction by the AGENCY. Wires and cables are ~~not~~ considered expendable and will not be salvaged. Salvaged components will be placed in a designated area by the AGENCY within close proximity of the vehicle in an accessible work space.

Prior to removing the existing mobile video camera systems, it is both the responsibility of the AGENCY and the AXON Installer to test the vehicle's systems' operation to identify and operate, documenting any existing component or system failures and in detail, identify which components of the existing mobile video camera system will be removed by the AXON Installer.

In-Car Hardware/Software Delivery and Installation

On such dates and times mutually agreed upon by the parties, the AGENCY will deliver all vehicles to an AXON Installer, who will install and configure in each vehicle in accordance with the specifications detailed in the system's installation manual and its relevant addendum(s). Applicable in-car hardware will be installed and configured as defined and validated by the AGENCY during the pre-deployment discovery process.

If a specified vehicle is unavailable on the date and time agreed upon by the parties, AGENCY will provide a similar vehicle for the installation process. Delays due to a vehicle, or substitute vehicle, not being available at agreed upon dates and times may result in additional fees to the AGENCY. If the AXON Installer determines that a vehicle is not properly prepared for installation ("Not Fleet Ready"), such as a battery not being properly charged or properly up-fit for in-service, field operations, the issue shall be reported immediately to the AGENCY for resolution and a date and time for the future installation shall be agreed upon by the parties.

Upon completion of installation and configuration, AXON will systematically test all installed and configured in-car hardware and software to ensure that ALL functions of the hardware and software are fully operational and that any deficiencies are corrected unless otherwise agreed upon by the AGENCY, installation, configuration, test and the correct of any deficiencies will be completed in each vehicle accepted for installation.

Prior to installing the Axon Fleet camera systems, it is both the responsibility of the AGENCY and the AXON Installer to test the vehicle's existing systems' operation to identify, document any existing component or vehicle systems' failures. Prior to any vehicle up-fitting the AXON Installer will introduce the system's components, basic functions, integrations and systems overview along with reference to AXON approved, AGENCY manuals, guides, portals and videos. It is both the responsibility of the AGENCY and the AXON Installer to agree on placement of each components, the antenna(s), integration recording trigger sources and customer preferred power, ground and ignition sources prior to permanent or temporary installation of an Axon Fleet camera solution in each vehicle type. Agreed placement will be documented by the AXON Installer.

AXON welcomes up to 5 persons per system operation training session per day, and unless otherwise agreed upon by the AGENCY, the first vehicle will be used for an installation training demonstration. The second vehicle will be used for an assisted installation training demonstration. The installation training session is customary to any AXON Fleet installation service regardless of who performs the continued Axon Fleet system installations.

The customary training session does not 'certify' a non-AXON Installer, customer-employed Installer or customer 3rd party Installer, since the AXON Fleet products does not offer an Installer certification program. Any work performed by non-AXON Installer, customer-employed Installer or customer 3rd party Installer is not warranted by AXON, and AXON is not liable for any damage to the vehicle and its existing systems and AXON Fleet hardware.

Overview

Project Name

Pickard and Bradley Traffic Signal

Total Requested

\$84,100.00

(amount based on the Itemized Budget total)

Applicant Project Priority

High

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Safety/Security
-

Project Description

This project will install a new traffic signal at the intersection of Bradley and Pickard Streets.

Benefit Description

Early in 2022 the Isabella County Road Commission received notice of grant funding available to install a traffic signal at the intersection of Pickard and Bradley Streets. The county engineer has determined that the intersection meets warrants and that a signal would be an appropriate upgrade for the intersection.

The grant will cover just over half the project cost. Since the intersection includes two city street segments, the City will be covering 50% of the excess costs. This expense was not in the City's Capital Improvement Plan, so it is challenging to incorporate this cost share into our budget. Funding through a Tribal 2% grant will ensure that our portion of the project is covered.

Funding Requirements

Routine maintenance will be covered by the operations budget.

Project Timeline

Fall 2023

Budget Items

Name	Cost	Quantity	Total	Category
Pickard and Bradley Traffic Signal	\$84,100.00	1	\$84,100.00	Safety/Security
AmountRequested	\$84,100.00			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	\$0.00		

Budget Summary

Amount Requested

\$84,100.00

Amount Matched

\$0.00

Total Amount

\$84,100.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

Asphalt Overlays and Street Resurfacing

Total Requested

\$976,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Medium

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Infrastructure
 - Transportation
-

Project Description

The city's engineering department utilizes an in-depth process to develop our capital plan for the maintenance of our street network. It involves regular evaluation of the street surface to determine the right "mix of fixes" to maintain the system as effectively as possible. Generally, our mix of fixes includes crack sealing, thin overlays, mill and overlays, and full reconstructs. We strive to schedule these projects at the most effective point in a street segment's maintenance curve to get the highest return on investment in terms of service life that we can.

Our streets spend most of their useful life in a cycle of mill/overlays and thin overlays since these are far more effective treatments on a

dollar/year basis than full reconstructs. Reconstruction is around 50x more expensive than overlays. With a 2% contribution by the Saginaw Chippewa Indian Tribe, the City's overlay program can continue into the future and ensure that we avoid costly reconstructs unnecessarily.

Benefit Description

The City's overlay program allows us to stay on top of maintenance in our street system. Thin overlays are one of the most cost-effective treatments in the "mix of fixes" that we use and being able to fund the program fully means that we can incorporate full reconstructs into our capital improvement plan as the need arises. Any funding provided helps ensure that our street maintenance program continues at a sustainable pace.

With the reduction in population accounted for in the 2020 census the city's road maintenance funding has decreased significantly. Overlays will be even more important to accomplish with this decrease in funding.

Funding Requirements

The City's overlay program is ongoing with projects of various size and location happening normally every year.

Project Timeline

Summer of 2024

Budget Items

Name	Cost	Quantity	Total	Category
Major Street Overlays	\$427,000.00	1	\$427,000.00	Transportation
Local Street Overlays	\$537,000.00	1	\$537,000.00	Transportation
Parking Lot 1 Overlay	\$12,000.00	1	\$12,000.00	Transportation
AmountRequested	\$976,000.00			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	\$0.00		

Budget Summary

Amount Requested

\$976,000.00

Amount Matched

\$0.00

Total Amount

\$976,000.00

Uploaded Files

Name
Listofstreetstobeoverlayedin2024 2023-09-06.docx

There are no comments to display.

List of streets to be overlaid in 2024

Locals

Adams: Broadway to Pickard

Arnold: Illinois to Broadway

Elm: Bradley to Henry

Edgewood: Broomfield to Deming

Deming: Broomfield to Edgewood

May: Watson to Sansote

Majors

Brown: Broadway to Pickard

Broadway Bridge Deck

Overview

Project Name

Broadway Street Storm Sewer Upgrade

Total Requested

\$215,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Medium

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Infrastructure
 - Transportation
-

Project Description

This request is for funding to upsize storm sewer mains and structures on Broadway Street from Fancher to Mission. Based on the analysis provided by the Multi-Jurisdictional Stormwater Master Plan that was accomplished with a previous two-percent grant, this sewer will need upgrading to provide adequate service to the upstream areas.

Benefit Description

With the recent, significant, decrease in funding for our street network from the state of Michigan, storm sewer upgrades will need to be funded through other means. If funded, this project will be able to be done along side the road work meaning less disruption for residents and more effect use of public funds.

Funding Requirements

Future funding requirements for operations and maintenance of the stormwater infrastructure are roughly equal to that of the current infrastructure.

Project Timeline

Summer of 2024

Budget Items

Name	Cost	Quantity	Total	Category
Broadway Storm Sewer Upgrade	\$215,000.00	1	\$215,000.00	Infrastructure
AmountRequested	\$215,000.00			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	\$0.00		

Budget Summary

Amount Requested

\$215,000.00

Amount Matched

\$0.00

Total Amount

\$215,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

Close Crawford Rd Sidewalk Gap

Total Requested

\$23,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Medium

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Infrastructure
 - Safety/Security
 - Transportation
-

Project Description

This project is intended to close a gap in the existing sidewalk network to create a continuous sidewalk in various highly traveled pathways. The gaps in the sidewalk were the result of past developments that were not required to install sidewalks, or developments that are disconnected from existing sidewalks.

1) Crawford Road south of Broomfield Road - There is a gap in the sidewalk from the WestPoint Village apartments to Broomfield Road. This apartment development is disconnected from existing sidewalk.

A 2% Tribal contribution of \$23,000 will allow us to fill in this gap and complete this sidewalk in a highly traveled pedestrian area.

Benefit Description

Crawford Road sidewalk section will benefit the community along with Central Michigan University, as this sidewalk is a direct connection from the WestPoint Village apartments and Central Michigan University. Crawford Road is a highly traveled roadway that also sees higher speeds, the addition of a sidewalk in this location would help to provide safety to the pedestrian traveling this stretch of road.

Funding Requirements

None.

Project Timeline

Summer 2024

Budget Items

Name	Cost	Quantity	Total	Category
Work Items	\$23,000.00	1	\$23,000.00	Safety/Security
AmountRequested	\$23,000.00			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	\$0.00		

Budget Summary

Amount Requested

\$23,000.00

Amount Matched

\$0.00

Total Amount

\$23,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

Kinney Street Mill and Overlay

Total Requested

\$290,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Medium

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Infrastructure
 - Transportation
-

Project Description

The city's engineering department utilizes an in-depth process to develop our capital plan for the maintenance of our street network. It involves regular evaluation of the street surface to determine the right "mix of fixes" to maintain the system as effectively as possible. Generally, our mix of fixes includes crack sealing, thin overlays, mill and overlays, and full reconstructs. We strive to schedule these projects at the most effective point in a street segment's maintenance curve to get the highest return on investment in terms of service life that we can.

Our streets spend most of their useful life in a cycle of mill/overlays and thin overlays since these are far more effective treatments on a dollar/year basis than full reconstructs. Reconstruction is around 50x more expensive than overlays. However, we have streets in the city that have had their curb pans overlaid causing issues with being able to stay in the overlay cycle.

In the past contractors have been unwilling to mill streets that have overlaid curb pans due to constructability issues. They have been

concerned about damaging the milling machine by striking the concrete curb or having drainage issues after leaving asphalt in the curb. Recently our engineering team worked with our local asphalt contractor to produce a set of specifications that we think will allow us to do a mill and overlay project on these street segments. This project, if funded, would be a proof of concept and allow us to program our capital improvement plan more effectively in the future utilizing this new "fix".

Benefit Description

With the recent, significant, decrease in funding for our street network from the state of Michigan, we must find more cost-effective treatments to maintain our streets. This project would help us greatly in that effort.

Funding Requirements

The City's overlay program is ongoing with projects of various size and location happening normally every year.

Project Timeline

Summer of 2024

Budget Items

Name	Cost	Quantity	Total	Category
Mill and Overlay of Kinney from Michigan to Broadway	\$290,000.00	1	\$290,000.00	Infrastructure
AmountRequested	\$290,000.00			

Matching Funds

Name	Cost	Quantity	Total
No Matching Funds items have been added.			
AmountMatched	\$0.00		

Budget Summary

Amount Requested

\$290,000.00

Amount Matched

\$0.00

Total Amount

\$290,000.00

Uploaded Files

Name
KinneyEstimate 2023-09-06.pdf

There are no comments to display.

City of MtPleasant

Estimate Breakdown Report

Project Number: 268

Project Engineer: Stacie Tewari

Estimate Number: 1

Date Created: 8/28/2023

Project Type: Resurfacing

Date Edited: 8/28/2023

Location: Kinney
Kinney: Michigan to Pickard

Fed/State #:

Fed Item:

Control Section:

Description:

Line	Pay Item	Description	Quantity	Units	Unit Price	Total
Breakdown ID:						
0001	2040020	Curb and Gutter, Rem	160.000	Ft	\$17.00	\$2,720.00
0002	2040050	Pavt, Rem	45.000	Syd	\$17.00	\$765.00
0003	2040055	Sidewalk, Rem	168.000	Syd	\$13.75	\$2,310.00
0004	2080014	Erosion Control, Filter Bag	4.000	Ea	\$115.00	\$460.00
0005	3010002	Subbase, CIP	19.000	Cyd	\$11.50	\$218.50
0006	4037050	_ Dr Structure Cover, STM, Modified	1.000	Ea	\$1,525.00	\$1,525.00
0007	5010002	Cold Milling HMA Surface	13,380.000	Syd	\$3.25	\$43,485.00
0008	5010025	Hand Patching	9.000	Ton	\$340.00	\$3,060.00
0009	5010033	HMA, 13A	1,545.000	Ton	\$102.00	\$157,590.00
0010	8030010	Detectable Warning Surface	80.000	Ft	\$85.00	\$6,800.00
0011	8030030	Curb Ramp Opening, Conc	160.000	Ft	\$34.00	\$5,440.00
0012	8030044	Sidewalk, Conc, 4 inch	400.000	Sft	\$5.00	\$2,000.00
0013	8032002	Curb Ramp, Conc, 6 inch	1,365.000	Sft	\$9.75	\$13,308.75
0014	8167001	_ Restoration, Modified	215.000	Ft	\$325.00	\$69,875.00

Breakdown ID Total: \$309,557.25

Estimate Total: \$309,557.25

Overview

Project Name

Pickard Storm Sewer

Total Requested

\$247,780.00

(amount based on the Itemized Budget total)

Applicant Project Priority

High

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Infrastructure
-

Project Description

This request is for funding to upsize large-diameter storm sewer structures at the Pickard and Brown Street intersection. A large trunk line storm sewer that serves much of the east side of the City of Mt. Pleasant runs down Brown Street and crosses Pickard Street. Based on the analysis provided by the Multi-Jurisdictional Stormwater Master Plan that was accomplished with a previous two-percent grant, this trunk line sewer will need upgrading to provide adequate service to the upstream areas.

MDOT will be reconstructing Pickard Street in 2023-2024 and incorporating storm work into the project at that time will save significant costs associated with traffic control and contractor mobilization. The engineering consultant has incorporated the upsizing into the plans and MDOT is prepared to do the work if provided funding from the City.

Benefit Description

This project will allow for future upgrades to the stormwater collection system in order to meet the demands of future storm events.

Funding Requirements

Future funding requirements for operations and maintenance of the stormwater infrastructure are roughly equal to that of the current infrastructure.

Project Timeline

Not Entered

Budget Items

Name	Cost	Quantity	Total	Category
Work Items	\$222,780.00	1	\$222,780.00	Infrastructure
Mobilization	\$20,000.00	1	\$20,000.00	Infrastructure
Traffic Control	\$5,000.00	1	\$5,000.00	Infrastructure
AmountRequested	\$247,780.00			

Matching Funds

Name	Cost	Quantity	Total
Work Items	\$242,780.00	1	\$242,780.00
Mobilization	\$20,000.00	1	\$20,000.00
Traffic Control	\$5,000.00	1	\$5,000.00
Previous 2% Funding	\$20,000.00	1	\$20,000.00
AmountMatched	\$287,780.00		

Budget Summary

Amount Requested

\$247,780.00

Amount Matched

\$287,780.00

Total Amount

\$535,560.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

Automatic Water Meters

Total Requested

\$59,940.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Medium

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Infrastructure
-

Project Description

Under our water meter replacement program that began in 1998, water meters that meet usage (total gallons registered) and age (years of service) criteria are replaced to ensure accuracy and proper operation.

The Water Distribution Team is currently replacing existing water meters as they fail or are due for replacement with an Advanced Metering Infrastructure (AMI) enabled meters. Due to new technology that promises more cost-effectiveness and better industry standardization, the AMI system is an obvious choice. Installation of these AMI meters will help ensure correct and timely billing and will reduce time spent reading meters. Locations that greatly benefit from these meters include buildings with security systems designed to limit access to the public and large complexes with spread-out buildings. AMI allows utility billing to directly access the data from meters through wireless networks.

Funding of this project will allow the city to double the number of installations that we are able to do with current funding, allowing for efficiency benefits to be realized sooner for the water system.

Benefit Description

Savings will come from the attrition of the part time meter reader positions, elimination of touch pads, fewer final reads, along with real time data.

Funding Requirements

Meter replacement is a continuous and required process and will require perpetual funding that will be incorporated into users rates.

Project Timeline

2023-2024

Budget Items

Name	Cost	Quantity	Total	Category
Automatic Water Meters (5/8 Residential Meters)	\$370.00	162	\$59,940.00	Infrastructure
AmountRequested	\$59,940.00			

Matching Funds

Name	Cost	Quantity	Total
Normal Meter Replacements (Various Sizes)	\$60,000.00	1	\$60,000.00
AmountMatched	\$60,000.00		

Budget Summary

Amount Requested

\$59,940.00

Amount Matched

\$60,000.00

Total Amount

\$119,940.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

Lime Disposal

Total Requested

\$215,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

High

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Environmental
 - Infrastructure
-

Project Description

The water treatment plant softens water using a chemical precipitation process. Lime residual is produced as part of this treatment process. This is a required and ongoing project.

Benefit Description

This is a project that must be completed to ensure continued ability to produce softened drinking water. Lime residual removal is required every 3-5 years depending on the amount produced per year. Additional funding would allow us to remove an amount in 2024 to make up for the lack of removal caused by increased costs realized since 2019.

Funding Requirements

This project is a part of an ongoing Asset Management Program that is funded by the Capitol Improvement Planning process. The city was previously awarded a 2% grant in 2021 for lime residual removal.

Project Timeline

Summer 2024

Budget Items

Name	Cost	Quantity	Total	Category
Lime Disposal	\$215,000.00	1	\$215,000.00	Environmental
AmountRequested	\$215,000.00			

Matching Funds

Name	Cost	Quantity	Total
Lime Disposal	\$429,000.00	1	\$429,000.00
AmountMatched	\$429,000.00		

Budget Summary

Amount Requested

\$215,000.00

Amount Matched

\$429,000.00

Total Amount

\$644,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.

Overview

Project Name

Food Waste/ Organics Receiving

Total Requested

\$300,000.00

(amount based on the Itemized Budget total)

Applicant Project Priority

Medium

Reoccurring Need?

Not Reoccurring

Applicant Information

Applicant Name

jmoore@mt-pleasant.org

Applicant Email

Jason Moore

Organization

City of MtPleasant

Address

320 W Broadway St
MOUNT PLEASANT , 48858

Phone Number

9897795405

Organization Information

Primary Organization

City of Mt. Pleasant

Authorizers

adesentz@mt-pleasant.org

Status

Review

Address

320 W. Broadway
Mount Pleasant, Michigan 48858

Phone

(989) 779-5300

Fax

Categories

- Environmental
 - Infrastructure
-

Project Description

The City of Mt. Pleasant, Water Resource Recovery Team, worked with professors and a senior design team from CMU to pilot receiving food waste into our anaerobic digesters to study the effects of increased organics on gas production. Based on this data and other research, the City of Mt Pleasant envisions constructing a food/organic waste receiving station to accept food waste from CMU and other establishments in the community. The food waste receiving station will properly prepare the food waste and pump it into our anaerobic digester for treatment.

In 2022, the WRRF team participated in a Next Cycle I2P3 challenge track through which \$500,000 in funding from EGLE was pledged to move forward with the project. Our engineering firm's probable opinion was a total package price of \$800,000 for which we are seeking additional funding.

Benefit Description

This project will benefit the tribe and community by providing a local area for disposal of food and organic waste while contributing to a circular economy. Diverting food waste away from landfills and repurposing it as feedstock for our existing digesters reduces methane production from landfills, lowers natural gas usage, our carbon footprint, and produces a beneficially reusable bio-solid that can be directly applied to fields as a soil amendment.

Funding Requirements

None.

Project Timeline

Anticipated start date on this project is 3rd or 4th quarter of 2024.

Budget Items

Name	Cost	Quantity	Total	Category
Food Waste Receiving Equipment	\$300,000.00	1	\$300,000.00	Infrastructure
AmountRequested	\$300,000.00			

Matching Funds

Name	Cost	Quantity	Total
Food Waste Receiving Equipment (NextCycle Grant)	\$500,000.00	1	\$500,000.00
AmountMatched	\$500,000.00		

Budget Summary

Amount Requested

\$300,000.00

Amount Matched

\$500,000.00

Total Amount

\$800,000.00

Uploaded Files

Name
No files have been uploaded.

There are no comments to display.



Mt. Pleasant

[meet here]

2024 Budget

2024 Budget

- Goals & Objectives

- Maintain Stable and Financially Responsible Operations
- Continue Positive and Productive Relationships with Community Partners and Residents/Businesses
- Provide Safe Accommodations for Pedestrians and Bicyclists
- Create a Community Friendly Space in our Downtown Area

Mt. Pleasant

[meet here]

2024 Budget

- Goals & Objectives

- Provide a Great Parks System and Expand our Sports, Events, and Recreation Offerings
- Create a Sense of Place by Promoting the "Meet Here" Branding and Working to Become a Cool Destination
- Address the Housing Market Demands in Our Community, Including Home Ownership Opportunities
- Maximize Economic Viability on Mission Street
- Prepare Mt. Pleasant Center for Future Development Opportunities

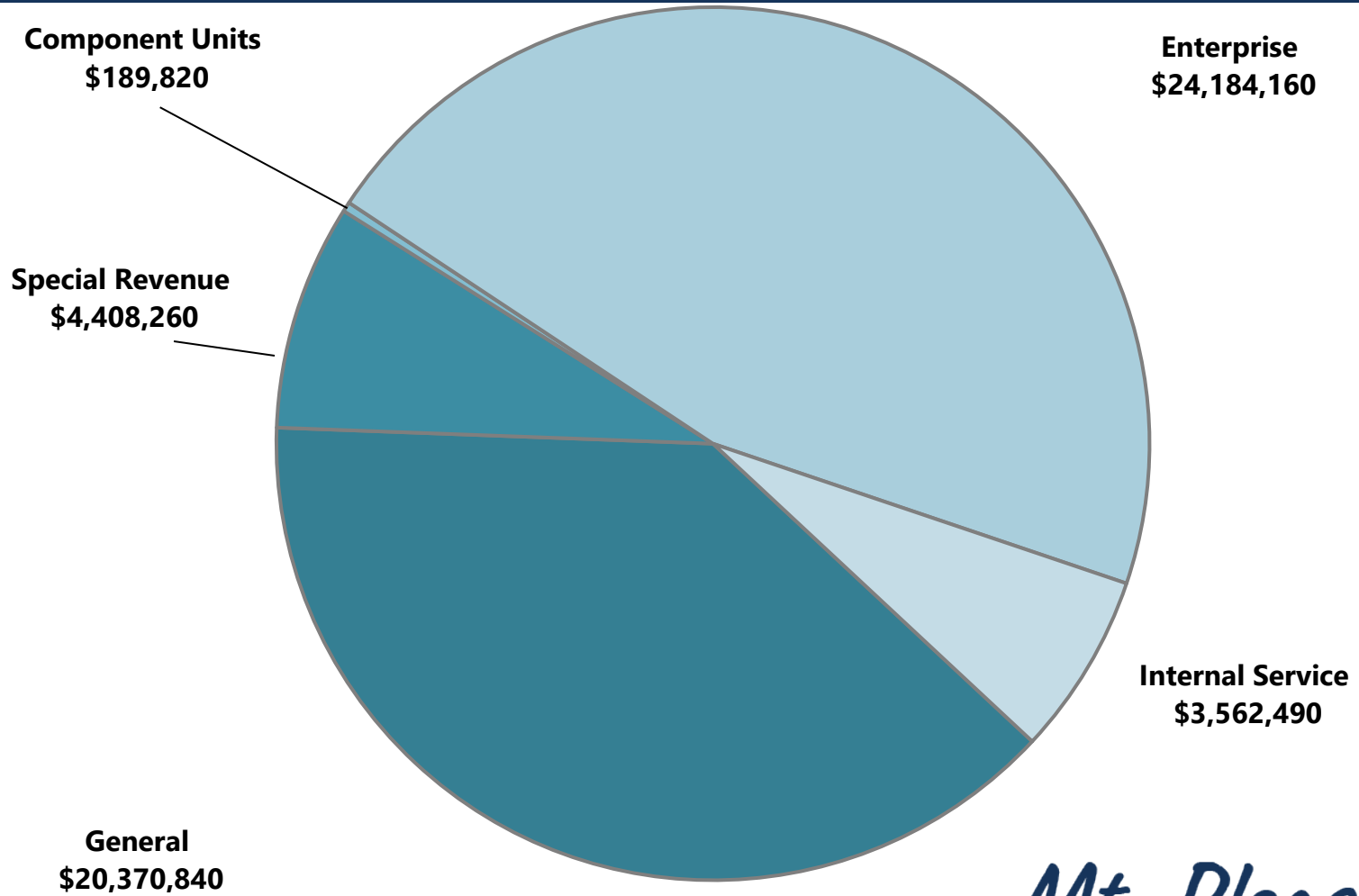
Mt. Pleasant

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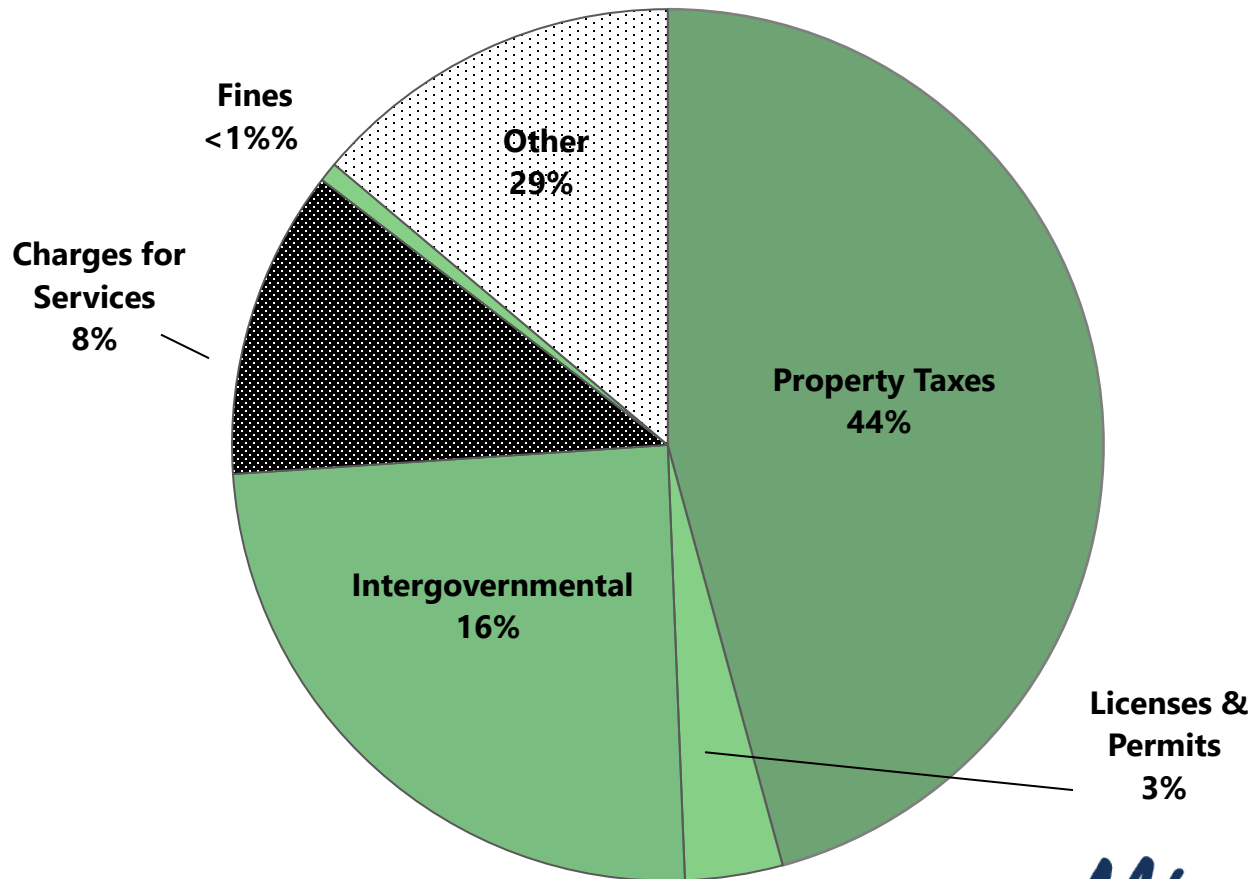
2024 Budget

- Challenges
 - Inflation
 - PEAK & Recreation
 - Act 51 Funding
 - MTT Cases

All Funds Expenditures/Working Capital Uses – \$52.7M



General Fund Revenue – \$20.0M



Mt. Pleasant

[meet here]

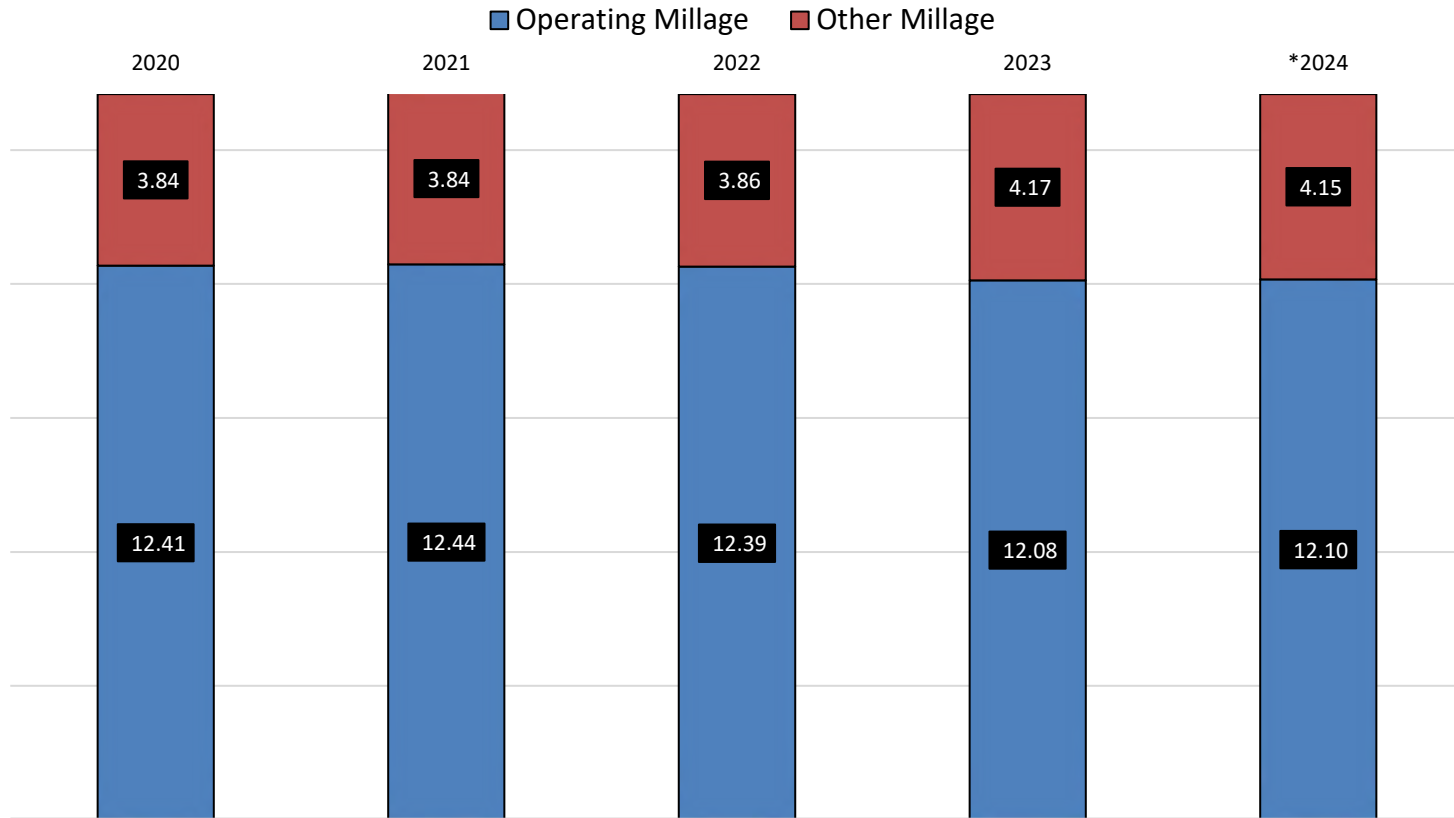
General Fund Revenue

- ARPA Funds
 - Recognize when we use them
 - GKB Trail \$525,000
 - Town Center \$1,138,000
- Same millage rate
 - Assumed 3% increase in taxable value
- State Shared Revenue
 - Current state projections

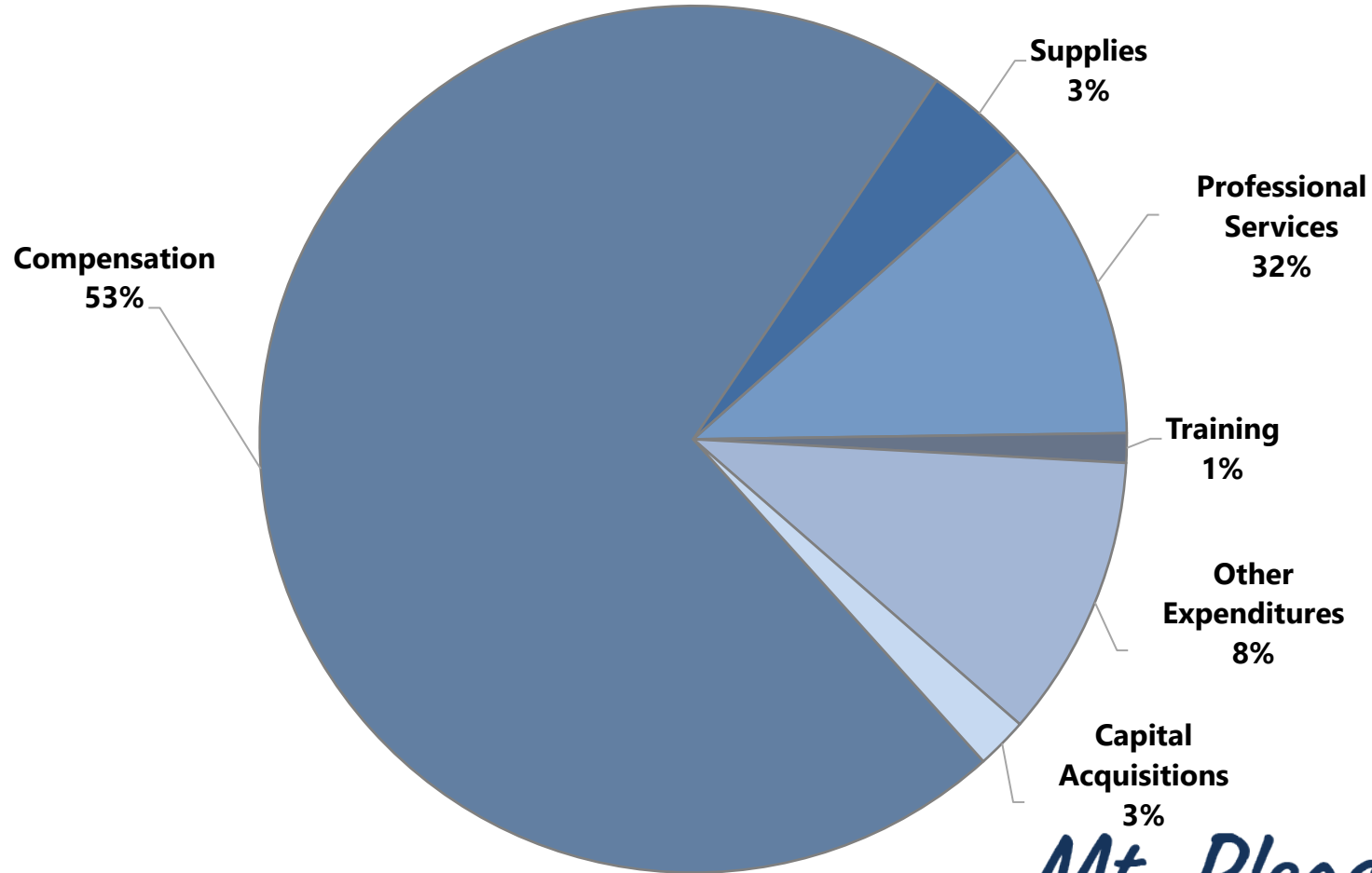
Mt. Pleasant

[meet here]

Millage Rates



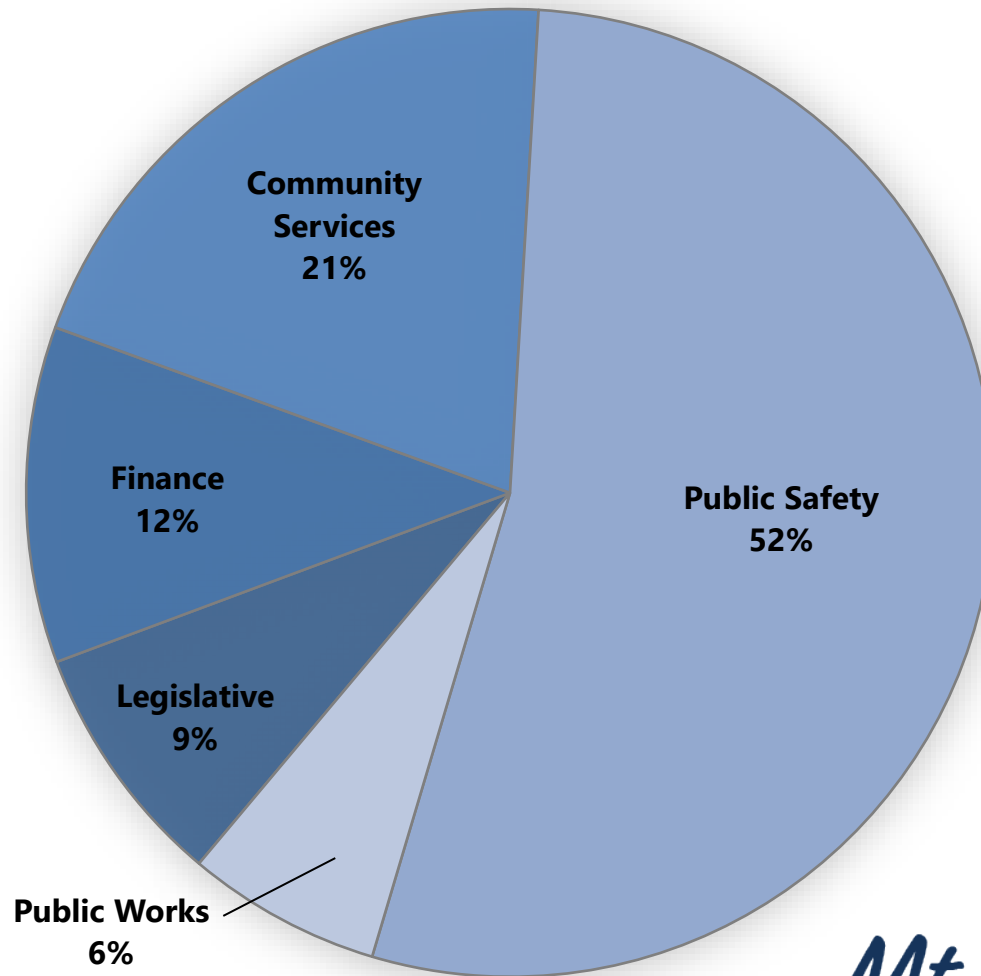
General Fund Expenditures – \$20.3M



Mt. Pleasant

[meet here]

General Fund By Division



General Fund Expenditures

- Mainly Status Quo
- Changes:
 - Fire Study
 - MERS Contribution - \$550,000
 - Parks & Recreation Merger

Mt. Pleasant

[meet here]

General Fund Balance

- Unassigned Fund Balance
 - Using \$69,030 of Unassigned Fund Balance
 - \$5.9 million
 - 29.1% of 2024 budget

Mt. Pleasant

[meet here]

General Fund Balance - Assigned

- Fire truck reserve
 - \$200,000 annual contribution
- Assigned for Economic Initiatives
 - \$640,230

Mt. Pleasant

[meet here]

Other Funds

- Local Street
 - Estimated fund balance \$167,322
 - Reconstructs: None
 - Overlays – Arnold, Adams, Elm, Edgewood, Deming & May
- Major Street
 - Estimated fund balance \$539,783
 - Reconstructs: None
 - Overlays – Brown Street

Mt. Pleasant

[meet here]

Other Funds

- CIP Millage Projects
 - \$265,000 M-20 Pedestrian Bridge
 - \$260,000 Chippewa River Bank Protection
 - \$135,430 Network Switches
 - \$108,000 Parks Roads & Trails
 - \$89,000 Alleyway Renovations
 - \$56,000 DPS Building Masonry Joints
 - \$52,000 Millpond Shelter Roof
 - \$38,000 Universal Access – Chipp-A-Waters Playground

Mt. Pleasant

[meet here]

Other Funds

- CIP Millage Projects
 - \$38,000 Apparatus Bay Floors
 - \$30,000 Downtown Improvement Program

Other Funds

- Airport
 - Taxi-way A rehab
- Water Resource Recovery Facility
 - Plant rehab – Phase II

Other Funds

- Solid Waste
 - Continue no-fee brush pickup twice per year
- Water
 - \$1,238,000 in capital projects

Fees and Charges

- New Fees
 - Water & Sewer
 - Parks & Recreation
 - Building Permits & Zoning Appeals

Utility Bill – Residential Monthly

(assumed 5,000 gallons)

2024	Water	WRRF	Total
Big Rapids	\$36.25	\$48.35	\$84.60
Clare	39.89	53.07	92.89
Union Township	20.00	37.12	57.12
Midland	29.35	34.97	64.32
Bay City	52.14	80.68	132.82

City of Mt. Pleasant

2023 Actual	\$28.79	\$24.82	\$53.61
2024 Proposed	29.29	28.49	57.78
Change from 2023 to 2024	0.50	3.67	4.17

Unresolved Issues/Unknown

- Recreation/PEAK Funding
- Changes to Solid Waste & Recycling

Next Steps

- Work Sessions
 - September 25: Fees
 - October 23: Commissioner Questions
- Questions to City Manager by October 9
- Public Hearing November 13
- Budget Adoption by last meeting of the year

Mt. Pleasant

[meet here]