MINNESOTA POLLUTION CONTROL AGENCY

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March 1, 2024

To: Interested Parties

RE: Pine Bend Landfill Vertical Expansion Project

The Minnesota Pollution Control Agency (MPCA) has approved the Findings of Fact, Conclusions of Law, and Order for a Negative Declaration (FOF) on the need for an Environmental Impact Statement (EIS) on the Pine Bend Landfill Vertical Expansion Project. The FOF document concludes that this project does not have the potential for significant environmental effects. The decision for a Negative Declaration completes the state environmental review process under Environmental Quality Board rules, Minn. R. ch. 4410. Final governmental decisions on permits or approvals for the project may now be made.

The MPCA appreciates comments submitted on the Environmental Assessment Worksheet (EAW). The comments were considered by MPCA staff during the environmental review process and responses to these comments are provided in the FOF.

Interested parties can review the FOF and the EAW documents at the following locations: the MPCA offices in St. Paul; the Hennepin County Library at 300 Nicollet Mall, Minneapolis. Interested parties can also view the documents on MPCA's website at Recently completed MPCA reviews.
Please contact the MPCA's St. Paul office at 651-757-2044 for copies of these documents.

STATE OF MINNESOTA

MINNESOTA POLLUTION CONTROL AGENCY

IN THE MATTER OF THE DECISION ON THE NEED FOR AN ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED PINE BEND LANDFILL VERTICAL EXPANSION INVER GROVE HEIGHTS, DAKOTA COUNTY, MINNESOTA	**FINDINGS OF FACT CONCLUSIONS OF LAW AND ORDER**

INTRODUCTION

Pursuant to Minn. R. ch. 4410, the Minnesota Pollution Control Agency (MPCA) staff prepared and distributed an Environmental Assessment Worksheet (EAW) for the proposed Pine Bend Landfill Vertical Expansion (Project) at the Pine Bend Landfill (Pine Bend) in Inver Grove Heights, Minnesota. Based on the MPCA staff environmental review, the EAW, comments, and information received during the comment period, and other information in the record of the MPCA, the MPCA hereby makes the following Findings of Fact, Conclusions of Law, and Order.

FINDINGS OF FACT

Pursuant to Minn. R. ch. 4410, the Minnesota Pollution Control Agency (MPCA) staff prepared and distributed an Environmental Assessment Worksheet (EAW) for the proposed Pine Bend Landfill Vertical Expansion Project (Project) at the Pine Bend Landfill (Facility) in Inver Grove Heights, Minnesota. Based on the MPCA staff environmental review, the EAW, comments, and information received during the comment period, and other information in the record of the MPCA, the MPCA hereby makes the following Findings of Fact, Conclusions of Law, and Order.

Project Description

1. BFI Waste Systems of North America, LLC (BFI) proposes to develop and amend its Municipal Solid Waste (MSW) permit to allow for an 85-foot vertical expansion over the existing Phase 5 and 6 areas of the Pine Bend Landfill to increase the permitted design capacity by approximately 8,185,000 cubic yards.
2. This final vertical expansion (also referenced as Phase 7) will be over an approximately 89-acre portion of the existing landfill to extend the life of the landfill, which is nearing its currently permitted capacity. The Project would extend the existing permitted 3:1 cover slopes around and over the Phase 5 and Phase 6 areas of the landfill, but not change the existing permitted landfill footprint or associated buildings (Facility).
3. More specifically, BFI proposes to increase the currently permitted peak elevation of the existing Facility from the currently permitted maximum elevation of 1020 Mean Sea Level (MSL), by approximately 85 vertical feet, to 1105 MSL. See Attachment 1, Site Rendering.
4. In lieu of reaching capacity in 2027, the Project would extend the lifespan of the landfill by approximately 21 years, or until 2048.
5. The Project would accommodate estimated current and forecasted waste flows to the landfill.
6. The Facility receives municipal solid waste at the Facility in trucks. Waste is weighed and calculated as a rate in tons per year (TPY) to determine the waste acceptance rate. Waste acceptance rates have varied from an historical high of 410,914 TPY to the current acceptance rate of 310,000 TPY – an amount that is estimated to constant until the Facility is closed.
7. BFI applied for an MMSW permit modification on June 2, 2022, which is currently under review while the draft permit is being drafted. A public comment period on this permit will be provided at a future date.

8. BFI applied for reissuance of their Part 70 air operating permit on September 1, 2009. A minor air permit amendment application was submitted on December 18, 2020 to add a diesel tipper and renewable natural gas facility. Additional permits are existing and required for the Project, as reflected in finding 128.

Procedural History

9. An EAW is a brief document designed to provide the basic facts necessary for the Responsible Governmental Unit (RGU) to determine whether an Environmental Impact Statement (EIS) is required for a proposed project or to initiate the scoping process for an EIS (Minn. R. 4410.0200, subp. 24). The MPCA is the RGU for this Project. Pursuant to Minn. R. 4410.4300, subp. 17 (F), BFI submitted a mandatory draft EAW to the MPCA for the proposed vertical expansion project on May 6, 2022. Subsequently, an EAW on the Project was prepared by MPCA staff for publication. The MPCA provided public notice of the Project as follows:

    A. The Environmental Quality Board (EQB) published the notice of availability of the EAW for public comment in the *EQB Monitor* on October 31, 2023 as required by Minn. R. 4410.1500.
    B. The EAW was available for review October 31 -December 15, 2023 on the MPCA website at: MPCA Environmental Review Project Comment Input.
    C. The MPCA provided a news release to media in Dakota County, Minnesota, and other state-wide interested parties, on November 1, 2023.

10. During the 45-day comment period on the EAW that ended December 15, 2023, the MPCA received comments from River Heights Chamber of Commerce, City of Inver Grove Heights, Dakota County, Ramsey/Washington Recycling & Energy, International Union of Operating Engineering-Local 49, the Minnesota Department of Natural Resources, the Minnesota State Historic Preservation Office, and seven community members.

11. On December 22, 2023, the MPCA requested and was granted approval from the EQB for a 15-day extension of the decision-making process on the need for an EIS for the Project in accordance with Minn. R. 4410.1700, subp. 2(B).

12. The list of comments received during the 45-day public comment period is included as Appendix A to these Findings. The MPCA prepared written responses to the comments received during the public comment period. These responses are included as Appendix B to these Findings.

13. Minnesota Indian Affairs Council (MIAC) submitted comments on December 29, 2023, after the close of the public comment period. Responses to those comments are also located in Appendix B.

Criteria for Determining the Potential for Significant Environmental Effects

14. The MPCA shall base its decision on the need for an EIS on the information gathered during the EAW process and the comments received on the EAW (Minn. R. 4410.1700, subp. 3). The MPCA must order an EIS for projects that have the potential for significant environmental effects. (Minn. R. 4410.1700, subp. 1). In deciding whether a project has the potential for significant environmental effects, the MPCA must compare the impacts that may be reasonably expected to occur from the Project with the criteria set forth in Minn. R. 4410.1700, subp. 7. These criteria are:

    A. Type, extent, and reversibility of environmental effects.
    B. Cumulative potential effects. The RGU shall consider the following factors: whether the cumulative potential effect is significant; whether the contribution from the project is significant when viewed in connection with other contributions to the cumulative potential effect; the degree to which the project complies with approved mitigation measures

specifically designed to address the cumulative potential effect; and the efforts of the proposer to minimize the contributions from the project.

C. The extent to which the environmental effects are subject to mitigation by ongoing public regulatory authority. The RGU may rely only on mitigation measures that are specific and that can be reasonably expected to effectively mitigate the identified environmental impacts of the project.

D. The extent to which environmental effects can be anticipated and controlled as a result of other available environmental studies undertaken by public agencies or the project proposer, including other EISs.

The MPCA Findings with Respect to Each of These Criteria Are Set Forth Below

Type, Extent, and Reversibility of Environmental Effects

15. The first criterion the MPCA must consider when determining if a project has the potential for significant environmental effects is the "type, extent, and reversibility of environmental effects," as identified in Minn. R. 4410.1700, subp. 7(A). The MPCA findings with respect to this criterion are set forth below.

16. The types of impacts the MPCA anticipates may reasonably be expected to occur from the Project include the following:

    A. air quality impacts related to fugitive dust, fugitive gas emissions, and landfill gas emissions through control devices.
    B. greenhouse gas impacts related to increased and extended emissions.
    C. water resource related impacts related to increased duration of waste acceptance at the landfill.
    D. Known and emerging contaminant impacts related to increase duration of waste acceptance and unknown impacts to air and water quality.

17. Written comments received during the comment period raised additional issues, as follows:

    E. Management of landfill gas.
    F. Nuisance conditions related to fugitive dust, odor, traffic, and noise.
    G. Visual impacts related to increased height of landfill, conformity to landscape.
    H. Wildlife deterrence.

18. Written comments received after the comment period raised an additional new issue, as follows:

    I. Borrow pit locations to determine impacts to human burial sites and cultural resources.

19. With respect to the extent and reversibility of impacts that are reasonably expected to occur from the Project, the MPCA makes the following findings.

a. Air Quality

i. Air permit

20. The Facility operates under MPCA Air Permit 03700138-004. The proposed vertical expansion will require an amendment to the Air Emissions Permit, to address the vertical expansion of 8,185,000 cubic yards.

21. The public notice for the EAW incorrectly stated the draft air permit also addresses the vertical expansion. This should be corrected to state the Part 70 air permit reissuance addresses standard updates to the air permit, including] activities reviewed for the September 1, 2009 Part 70 air permit

reissuance application, the November 3, 2009 minor amendment application for the tipper, the December 18, 2020 minor amendment application for the RNG facility, the May 28, 2021 minor amendment application for the 2021 expansion, and the November 30, 2023 administrative amendment for a name change. By rule, a facility is allowed to construct and operate changes proposed in a minor amendment application seven days after MPCA receives the application. Further, the 2023 proposed vertical expansion, as reviewed in this EAW, will be addressed in a future Part 70 air permit amendment not yet applied for.

ii. Air emissions

22. Under existing conditions, BFI anticipates that no additional waste could be accepted beyond 2027 with an estimated closure year of 2048. Instead of closure in 2027, the Project would accommodate approximately 21 years of additional disposal capacity based on existing waste flows to the landfill compared to existing conditions, thereby extending the possibility of air pollution.

23. The Facility is a stationary source for air emissions associated with typical landfill operations including fugitive dust, fugitive landfill gas emissions, and landfill gas emissions through control devices.

24. Traffic, compacting, and earth moving activities have the potential to generate fugitive dust emissions. Minimization and mitigation measures for fugitive dust as part of the operation of the existing facility include paving the approach road and main on-site road, utilizing an on-site water tank truck to apply water to unpaved aggregate branch roads, and, if necessary, spreading sand on the unpaved roads. Operations at the Facility are expected to decrease from past peaks but remain relatively constant with current and projected acceptance rate. An increase in fugitive dust at the Facility is not anticipated as existing measures that have been put in place will continue. The duration of fugitive dust will increase and last through the proposed landfill closure in 2048. The landfill will produce Landfill Gas (LFG) under anaerobic conditions consisting of approximately 50 percent methane (CH^4), 48 percent carbon dioxide (CO_2) and two percent volatile organic compounds.

25. Landfill gases (greenhouse gases and volatile organic chemicals) emitted on a daily or annual basis are expected to remain relatively steady until landfill closure because the waste accepted is anticipated to remain consistent throughout operation of the facility. The duration of landfill gases, however, will increase lifetime of emissions through the proposed landfill closure in 2048.

26. After landfill closure, landfill gas generation is expected to gradually decrease over time. This is because the older parts of the landfill have already reached such a state of decomposition that little to no landfill gas is being emitted from these areas.

27. LFG from the Pine Bend Landfill is processed at a previously permitted off-site Renewable Natural Gas facility (RNG facility) and injected into a natural gas system through a 5,600-foot pipeline for the Northern State Power Company Minnesota (NSPM) grid.

28. The RNG facility and pipeline routing permits were authorized by the Minnesota Public Utility Commission in July 2021. The RNG facility and pipeline are not a part of the vertical expansion project, however, treatment of LFG as an offset to CO^2e emissions are included in the GHG calculations.

29. EPA's LandGEM landfill gas model was used to identify landfill gas generation rates for the landfill before and after the expansion. Based on Facility projections, no change in maximum annual landfill gas generation rates is expected. The expansion would maintain current landfill gas generation rates for an additional 24 years compared to existing waste capacity, as shown in Appendix H in the EAW. Landfill gas will remain relatively constant through closure in 2048.

30. Landfill gas will continue to be processed with the flare and thermal oxidizer at the adjacent RNG facility, with the flare used on an as needed basis for the RNG facility. No significant change in flare or thermal oxidizer use, RNG Facility waste gas emissions, nor fugitive landfill gas emissions are expected as a result of the Project. The Project would increase the duration solid waste is accepted therefore increasing the lifetime emissions produced by the landfill.

31. There is no expected increase in air emissions from the proposed project, therefore, no further air assessment is required in the form of criteria pollutant air dispersion modeling or Air Emissions Risk Analysis.

32. The MPCA finds that information presented in the EAW and other information in the environmental review record are adequate to assess potential air quality impacts that are reasonably expected to occur to and from the Project.

33. The MPCA finds the Project, as proposed, does not have the potential for significant environmental effects based on the type, extent and reversibility of impacts related to air quality impacts which are reasonably expected to occur.

b. Greenhouse gas (GHG) emissions

34. The MPCA considered GHG emission sources that are within the scope of the Project.

35. The Project will directly release GHG emissions, which can widely disperse within the atmosphere, and which vary both in terms of their global warming potential and their persistence in the atmosphere.

36. To provide a common unit of measure, the MPCA uses the individual global warming potential of methane and nitrous oxide to convert to carbon dioxide equivalency (CO_2e).

37. As shown in the revised GHG calculations in Appendix C of these Findings **construction mobile sources** for the Project will release 4,757 MTPY [5,244 TPY] of CO_2e.

38. As shown in revised GHG calculations in Appendix C of these Findings, the **operational stationary sources** of GHG emissions include the flare, RNG facility, fugitive gas, and indirect operations for the Project will release 175,297 MTPY [193,232 TPY] of CO^2e.

39. As shown in revised GHG calculations in Appendix C of these Findings, the **operational mobile sources** of GHG emissions include the Waste Disposal Operations and Insignificant Operations for the Project will release 6,697,167 MTPY [7,382,363 TPY] of CO^2e.

40. As shown in the revised GHG calculations in Appendix C of these Findings, the Project is not introducing new or increased sources of operational emissions; therefore, no annual change in operational GHG emissions (CO_2e MTPY) is anticipated as a result of the proposed project and current operational GHG emissions (**total stationary and mobile sources**) will remain at 6,872,269 MTPY [7,575,380 TPY] of CO^2e.

41. As shown in the revised GHG calculations in Appendix C of these Findings, **lifetime emissions** for the Project assume the life of the project will be 24 years, the period between the estimated calendar year of initial operation, 2024, and closure in the year 2048. The estimated 24-year lifetime operating emissions after the expansion is 164,934,452 Mtons [181,809,112 Tons] of CO_2e.

42. As shown in the revised GHG calculations in Appendix C, maximum landfill gas generated is based upon LandGEM estimate of 3799 scfm. Approximately 85% of landfill gas is collected and sent to the RNG facility. Fugitive emissions are assumed to be 15% of the maximum landfill gas generated.

43. As shown in the revised GHG calculations in Appendix C, Pine Bend Landfill equipment has the capacity of managing up to 7200 standard cubic feet per minute (scfm) of collected LFG: 3200 standard cubic feet per minute (scfm) can be sent to the RNG facility and 4000 scfm can be sent to the open flare.

44. The RNG collects landfill gas at the capacity rate of 3200 scfm with an approximate offset of LFG emissions of 88,790 MTPY [97,873 TPY], shown in Attachment 2.

45. As shown in Appendix H of the EAW, BFI estimates the RNG facility will shut down when the landfill generates approximately 1600 scfm or less of LFG. To operate the equipment efficiently between peak operation and shutdown of the RNG facility, the operation capacity of the RNG facility as well as the open flare will decline until 2069 when the LFG generation is approximately 1600 scfm. After 2069, it is presumed the RNG facility will be closed, and the open flare will be the only device combusting LFG. PBL estimates the open flare will be able to combust LFG and emit GHG until the calendar year of 2104 when the LandGEM curve estimates a flow of approximately 400 scfm. If PBL meets the requirements of control removal noted in the regulations in 2104, GHG will be emitted through fugitive emissions after 2104. Figure 2-1 demonstrates the decline of landfill gas flow and GHG emissions over time.

46. There are no Minnesota or National Ambient Air Quality Standards for GHGs.

47. Currently, there are no federal or Minnesota thresholds of GHG significance for determining impacts of GHG emissions from an individual project on global climate change.

48. The MPCA finds that information presented in the EAW and other information in the environmental review record are adequate to assess potential greenhouse gas emission impacts that are reasonably expected to occur to and from the Project.

49. The MPCA finds the Project, as proposed, does not have the potential for significant environmental effects based on the type, extent and reversibility of impacts related to greenhouse gas emissions, which are reasonably expected to occur.

c. Water resources

50. Under existing conditions, BFI anticipates that no additional waste could be accepted beyond 2027. The Project would accommodate approximately 21 years of additional disposal capacity based on existing waste flows to the landfill compared to existing conditions, thereby extending the possibility of water resource contamination.

51. The Mississippi River is approximately one mile east of the Project area and is designated as impaired, Assessment Unit Identification 07010206-814.

52. No DNR Public Waters or wetlands are present within the Project area, however the National Wetlands Inventory identifies wetland features consisting of existing stormwater ponds.

53. There are no public waters nor Waters of the State present within the site.

54. There are no floodplains in the area.

55. Existing stormwater ponds use emergency overflow discharge to the existing infiltration pond east of the railroad and the city storm sewer. Currently, one existing 36-inch culvert conveys stormwater runoff from the landfill beneath the railroad tracks to the eastern pond. To accommodate additional stormwater flows, two additional 36-inch culverts will be installed under the railroad tracks.

56. The design of the surface water system is to manage a 100-year, 24-hour MSE (Midwest/Southwest Region) 3-storm event of 7.43 inches. The system consists of benches, catch basins, drainage piping,

downslope structures, junction vaults, and sedimentation ponds. The surface water management system exceeds infiltration requirements per the City's stormwater management requirements.

57. The Facility has an existing groundwater monitoring network in place and would continue to monitor groundwater quality using current monitoring standards under terms of the Solid Waste permit.

58. The MPCA finds that information presented in the EAW and other information in the environmental review record are adequate to assess water resource impacts that are reasonably expected to occur to and from the Project.

59. The MPCA finds that the Project, proposed, does not have the potential for significant environmental effects based on the type, extent, and reversibility of impacts related to water resources that are reasonably expected to occur from the Project.

d. Known and emerging contaminants

60. Solid waste facilities, such as the Facility, are receivers of known and emerging contaminants, such as Per- and Polyfluoroalkyl Substances (PFAS). This waste is received from residential and commercial sources.

61. Pine Bend monitors for a standard list of contaminants used at all municipal solid waste landfills. This list includes the volatile organic compound 1,4-Dioxane which is considered an emerging contaminant of concern. In addition to this standard municipal solid waste list BFI monitors for 14 PFAS. The full list of contaminants monitored for in groundwater at Pine Bend can be found in Section 8 of the 2019 Solid Waste Permit (8.1.1 through 8.1.114).

62. The Pine Bend Landfill groundwater monitoring network is below drinking water health thresholds and the associated intervention limits listed in Section 8 of the Solid Waste Permit. There are known guidance value exceedances associated with the unlined portion of the landfill. The proposed vertical expansion would occur above a liner system, which minimizes the potential for groundwater impacts. The current Site-Specific Sampling Protocol that includes groundwater monitoring is identified in Item 6b 2) of the EAW, describing the Liner System, Drainage Layer System, Collection Pipes, Leachate Collection Sump, Head Build-Up and Removal, and Leachate Storage.

63. In March of 2022, the MPCA developed a PFAS Monitoring Plan. The PFAS Monitoring Plan addresses PFAS monitoring at several different types of industries including Solid Waste facilities. Because Pine Bend was already monitoring for PFAS they are not included in the MPCA PFAS Monitoring Plan.

64. Sampling was first conducted as part of a PFAS Monitoring Work Plan that was submitted to the MPCA at the end of 2010. The annual sampling requirement was then incorporated into facility operations.

65. Pine Bend Landfill has submitted annual monitoring data for PFAS and other inorganic contaminants, and organic contaminant data from each quarter except for Q1/winter. The monitoring network confirms an eastward transport path of landfill contamination towards the Mississippi, the regional surface water discharge, and away from any private drinking water wells that are north of the facility. There is also a special well and boring construction area (SWBCA) encompassing the facility and the properties to the east up to the Mississippi River. Any requests to install wells in this SWBCA must be approved by the Minnesota Department of Health and essentially precludes any drinking water wells being installed in the areas known to be impacted by the landfill or that are high risk.

66. Based on monitoring results, there are known and emerging contaminants in the leachate gathered and then transported for treatment at the Metropolitan Council's Metro Wastewater Treatment Plant. The level of PFAS in the wastewater stream, and ultimately in the air, from the incineration process is currently unknown.

67. The MPCA finds the information presented in the EAW and other information in the environmental review record is adequate to address the concerns related to human health impacts from known and emerging contaminants in groundwater and leachate. The impacts on human health from known and emerging contaminants that are reasonably expected to occur from the Project have been considered during the review process. The current methods to contain, transport, and treat leachate and monitor groundwater quality are considered the best methods currently available to address known and emerging contaminants.

68. The MPCA finds that the Project, as it is proposed, does not have the potential for significant environmental effects based on the type, extent, and reversibility of impacts related to human health impacts from known and emerging contaminants that are reasonably expected to occur from the Project.

Written public comments received:

e. Management of landfill gas

69. BFI is working with the MPCA and the City of Inver Grove Heights to address gas migration concerns. This is an ongoing process. Additional gas migration mitigation measures were implemented in 2022, including 39 methane monitoring probes installed around the perimeter of the landfill that detect off-site gas migration. The results of these activities were provided to the City of Inver Grove Heights, Dakota County, and the MPCA in the 2023 Annual Report. Landfill gas emissions are not expected to pose a safety or health hazard. The most recent gas migration report prepared for the Facility was submitted to the MPCA. Mitigation and analysis efforts include multiple geoprobe investigations, installation of passive gas vents, installation of wind turbines on the passive gas vents, radon fan installation on gas vents, and temporary skid blower pilot study to apply more vacuum to the vents.

70. The MPCA finds that information presented in the EAW and other information in the environmental review record is adequate to address the concerns related to landfill gas management. The impacts on human health impacts from landfill gas that are reasonably expected to occur from the Project have been considered during the review process and methods to prevent significant adverse impacts have been developed.

71. The MPCA finds that the Project, as it is proposed, does not have the potential for significant environmental effects based on the type, extent, and reversibility of impacts related to landfill gas management that are reasonably expected to occur from the Project.

f. Nuisance conditions related to fugitive dust, odor, traffic, noise

72. Traffic, compacting, and earth moving activities have the potential to generate fugitive dust emissions. Fugitive dust control measures are in-place at the Facility. Minimization and mitigation measures for fugitive dust have included paving the approach road and main on-site road, utilizing an on-site water tank truck to apply water to unpaved aggregate branch roads, and, if necessary, spreading sand on the unpaved roads.

73. Operations at the Facility are expected to decrease from past peaks but remain relatively constant with current calendar year 2023 acceptance rates; therefore, it is not anticipated that the Project would result in an increase in fugitive dust at the Facility.

74. Nearby homes will continue to be impacted from existing conditions associated with traffic, noise, dust, odor, and other issues related to a Mixed Municipal Solid Waste landfill.

75. The nearest sensitive receptors are residences along Bartley Court and 108th Street, northwest of the Project. These residences are approximately 500-feet from the northwestern boundary of the existing landfill to the edge of the residential property boundaries. The residential homes are separated from the landfill by the railroad corridor and wooded vegetation.

76. Varying degrees of noise can be expected during the construction period. Construction would be limited to closure activities and minor improvements, such as stormwater management features. No cell construction is proposed as part of this Project. The GHG analysis conservatively assumed construction would last 130 days a year and 10 hours per day, which would not occur every year. Anticipated noise sources are primarily construction equipment and normal construction activities.

77. Any increase in noise after operation of the Project starts is expected to be minimal as the Facility is currently fully operational.

78. The MPCA finds the information presented in the EAW and other information in the environmental review record is adequate to address concerns related to fugitive dust, odor, traffic, and noise. The impacts on fugitive dust, odor, traffic, and noise that are reasonably expected to occur from the Project have been considered during the review process and methods to prevent significant adverse impacts have been developed.

79. The MPCA finds that the Project, as proposed, does not have the potential for significant environmental effects based on the type, extent, and reversibility of impacts related to fugitive dust, odor, traffic, and noise are reasonably expected to occur from the Project.

g. Visual impacts related to increased height of landfill, conformity to landscape

80. The Project would result in an increase in the height of the waste fill by approximately 85 vertical feet from the currently permitted maximum elevation of 1020 to 1105 MSL. The proposed vertical expansion height would be higher compared to other nearby landfill facilities. For instance, the existing SKB Rich Valley Landfill on the south side of 117th Street, across from the Facility, is approximately 960 MSL.

81. The Project is consistent with surrounding and designated land uses. The Project area consists of an operational landfill facility that is heavily disturbed. It is surrounded by heavy industrial activities including the SKB Rich Valley landfill and the Flint Hills Refinery to the south, warehouse and light industrial facilities to the east and west, and agricultural land to the north.

82. There are no hospitals or daycare centers adjacent to the Project area. Rich Valley Athletic complex lies less than one mile to the northwest, and Pine Bend Scenic Area lies one mile to the east.

83. The MPCA finds the information presented in the EAW and other information in the environmental review record is adequate to address concerns related to height and conformity of the landfill. The impacts on height and conformity of the landfill that are reasonably expected to occur from the Project have been considered during the review process and because the final height will conform to adjacent land use, no significant adverse impacts are anticipated.

84. The MPCA finds that the Project, as proposed, does not have the potential for significant environmental effects based on the type, extent, and reversibility of impacts related to height and conformity of the landfill are reasonably expected to occur from the Project.

h. Wildlife deterrence

85. The landfill facility will attract wildlife species such as mice, raccoon, coyotes, eagles, and other species.

86. The Facility has a Bird Control Plan, Pest Control Plan, and Solid Waste Management Plan that include measures to deter wildlife and birds. The Bird Control Plan is designed to prevent birds from feeding or concentrating in the vicinity of the active area of the landfill. BFI continues to deter birds and other animals searching out food from the landfill through noise, activity, closure of working spaces, and fencing.

87. Scavenging birds, like eagles, are attracted to biological waste, and have died after feeding on material within landfill facilities. Situations like this highlight the need to monitor for the presence of protected wild animals using the site to protect them from inadvertent harm.

88. The MPCA finds the information presented in the EAW and other information in the environmental review record is adequate to address concerns related to wildlife deterrence. The impacts on wildlife that are reasonably expected to occur from the Project have been considered during the review process and methods to prevent significant adverse impacts have been developed.

89. The MPCA finds that the Project, as proposed, does not have the potential for significant environmental effects based on the type, extent, and reversibility of impacts related to wildlife deterrence are reasonably expected to occur from the Project.

i. Borrow pit locations to determine impacts to human burial sites and cultural resources

90. Commentor submitted significant late comments related to potential impacts to human burial sites near the proposed project, and recommended formal consultation, and field survey coordination.

91. As a result of these comments, MPCA met with the commentor on January 9, 2024, where additional concerns addressed traffic, parking, and staging areas from heavy equipment.

92. Borrow pit locations or sources of soil material for the landfill are not identified in the solid waste permit, nor does BFI track the sources of the material so long as the content (mixture, soil type) meets provisions in the solid waste permit. Commentor expressed concern regarding many known burial sites in the immediate proximity to the Project, and there have been no surveys to better understand what archeological sites are present.

93. The proposed project is a vertical expansion only and will not expand horizontally, retaining the same footprint onsite. Therefore, the potential impacts to adjacent archeological sites and cultural resources are not anticipated.

94. In addition, BFI must comply with Minn. Stat. § 307.08, Subd. 10. Construction and development plan review. When human burials are known or suspected to exist, on public lands or waters, the state or political subdivision controlling the lands or waters or, in the case of private lands, the landowner or developer, shall submit construction and development plans to the state archaeologist for review before plans are finalized and prior to any disturbance within the burial area. If the known or suspected burials are thought to be American Indian, plans shall also be submitted to the Indian Affairs Council. The state archaeologist and the Indian Affairs Council shall review the plans within 45 days of receipt and make recommendations for the preservation in place or removal of the human burials or remains, which may be endangered by construction or development activities.

95. It is the responsibility of BFI to comply with Minn. Stat. § 307.08, Subd. 10 to allow for review of design plans, specification, and onsite coordination of field surveys if needed depending upon the project activities.

96. The MPCA finds the information presented in the EAW and other information in the environmental review record is adequate to address concerns related to human burial sites and cultural resources. The impacts on wildlife that are reasonably expected to occur from the Project have been considered during the review process and methods to prevent significant adverse impacts have been developed.

97. The MPCA finds that the Project, as proposed, does not have the potential for significant environmental effects based on the type, extent, and reversibility of impacts related to human burial sites and cultural resources are reasonably expected to occur from the Project.

Cumulative potential effects

98. The second criterion the MPCA must consider when determining if a project has the potential for significant environmental effects is the "cumulative potential effects." In making this determination, the MPCA must consider "whether the cumulative potential effect is significant; whether the contribution from the project is significant when viewed in connection with other contributions to the cumulative potential effect; the degree to which the project complies with approved mitigation measures specifically designed to address the cumulative potential effects; and the efforts of the proposer to minimize the contributions from the project," as identified in Minn. R. 4410.1700, subp.7(B). The MPCA findings with respect to this criterion are set forth below.

99. The EAW, public comments, and MPCA follow-up evaluation did not disclose any related or anticipated future projects that may interact with this Project in such a way as to result in significant cumulative potential environmental effects.

100. The EAW addressed the following areas for cumulative potential effects for the proposed Project:

A. Air quality.
B. Greenhouse gas emissions.
C. Water resources.

a. Air quality

101. Cumulative potential effects related to air quality were discussed in Part 17 and Part 21.c of the EAW. Findings 20 through 30 are incorporated herein as part of MPCA's cumulative potential effects evaluation for human health impacts to air quality.

102. The existing Facility produces air emissions associated with landfill gas, fugitive dust associated with the operation of equipment, and vehicular emissions generated by haul trucks. The Project would not increase the amount of waste accepted daily or vehicle traffic accessing the Facility. It is projected that daily waste acceptance rates will remain relatively constant at the current acceptance rate of 310,000 TPY. Therefore, air emission generated by landfill gas, fugitive dust, and vehicular traffic volumes will not substantially change compared to existing conditions. Landfill gas will continue to be processed with the flare and thermal oxidizer at the RNG facility, with the flare used on an as needed basis for control of landfill gas that cannot be accommodated by the RNG facility. No significant change in flare or thermal oxidizer use, RNG facility waste gas emissions, nor fugitive landfill gas emissions are expected as a result of the Project.

103. Other existing landfill facilities in the geographic area and future landfill expansion projects in the same geographic area will generate similar air emissions associated with landfill gas, fugitive dust, and vehicle emissions. Air emissions associated with these facilities are subject to MPCA air permitting requirements. Required air emission minimization and mitigation measures would be

identified through the permitting process to demonstrate how these facilities will adhere to federal and state air quality regulations.

104. The MPCA finds the information presented in the EAW and other information in the environmental review record does not demonstrate that the Project has the potential for significant environmental effects to air quality based on significant cumulative potential effects because: the Project will obtain and comply with an MPCA air emissions permit, will meet the NAAQS, and will not pose any acute inhalation health hazards or any sub-chronic or chronic multi-pathway health hazards to the public.

105. There are no anticipated increases in the annual air impacts, therefore we do not anticipate that there will be an increase in the cumulative impacts as a result of this project.

b. Greenhouse gas emissions

106. The RNG facility was constructed and permitted as a GHG mitigation control technology to convert landfill gas to RNG that can then be utilized as fuel. This has resulted in a reduction of GHG emissions by 88,790 MTPY [97,873 TPY] of CO^2e. Since a portion of the landfill gas is redirected to the RNG facility. On-site, stationary source GHG emissions calculations found the Project will return to the current rate of emissions after construction is completed.

107. Global climate change results from the total accumulation of GHG emissions in the earth's atmosphere, as well as other man-made and natural factors. The GHG composition of the earth's atmosphere is changing and causing the planet's climate to change.

108. While it may be possible to model the effects of the incremental GHG emissions associated with the Project (e.g., a social cost of carbon estimate based on a modeling framework that considers the social cost of each marginal ton of CO_2e), as a matter of empirical observation, it would be impossible to "see" the effects signal observationally amidst the internal noise of the global climate system. In other words, the available models might be used, and the results of those models might be extrapolated to give MPCA some idea of physical impacts caused by the amount of GHGs emitted from the Project; however, significant uncertainly would remain, especially as to when and where the physical impacts might occur.

109. It is not within the current state of the science to provide an analysis of the impact that the Project related GHG emissions will have on the environment.

110. It is impossible to know whether and when reliable data regarding Project GHG emissions' impact on the environment will become available, and any study of cumulative impacts of GHGs would necessarily go well beyond evaluating the impacts solely from the Project.

111. The information on Project impacts might be developed from any such GHG/climate modeling cannot be reasonably obtained as required for an EAW Minn. R. 4410.1700, subp. 2(A).

112. There are no Minnesota or National Ambient Air Quality Standards for GHGs.

113. Regarding Minn. R. 4410.1700, subp. 7(B), findings 97-104 analyze whether the cumulative potential effect is significant and whether the contribution form the Project is significant when viewed in connection with other contributions to the cumulative potential effect.

114. The MPCA finds that for the reasons stated in findings 97-104, the cumulative potential effect of Project GHG impacts, as proposed, does not have the potential for significant environmental effects related to cumulative potential effects based on the Project's GHG emissions that are reasonably expected to occur.

115. Therefore, the MPCA finds that the Project is not expected to contribute significantly to adverse cumulative potential effects on greenhouse gas emissions.

c. Water resources

116. The Project will not involve water appropriation or dewatering activities. Therefore, the Project will not contribute to groundwater supply constraints in the area.

117. The proposed vertical expansion will be constructed entirely on top of existing lined cells to ensure capture and treatment of leachate within the landfill to minimize the potential for groundwater contamination.

118. The Facility includes an existing groundwater monitoring system to ensure early detection of groundwater quality impacts. The existing groundwater monitoring network and sampling program is designed to detect if leachate or other landfill constituents have entered the groundwater prior to reaching any of Minnesota's water resources, in particular sensitive waterbodies such as the Mississippi River.

119. The Proposer will coordinate closely with the MPCA to implement appropriate actions to address and improve groundwater quality in compliance with the Solid Waste permit.

120. Other existing industrial facilities and future landfill expansion projects in the vicinity of the Project area are required to report environmental monitoring data, including groundwater monitoring results, in compliance with MPCA solid waste permitting requirements to detect the potential for adverse groundwater impacts. Any potential impacts to groundwater would require coordination with the MPCA to determine appropriate corrective actions.

121. As discussed in finding 46, the Facility is approximately one mile west of the Mississippi River, designated as an impaired water body. The Mississippi River is designated as impaired for aluminum; fecal coliform; mercury in fish tissue and the water column; nutrients; polychlorinated biphenyls ("PCBs") in fish tissue and the water column; perfluorooctane sulfonate ("PFOS" and total suspended solids ("TSS"). BFI has implemented a surface water management system to capture and treat runoff generated from the landfill. The Facility operates under a National Pollutant Discharge Elimination System (NPDES) General Stormwater Permit for Industrial Activity Permit (No. MNR053B5P), which includes monitoring requirements for water quality. The surface water management system has been conservatively sized to capture and treat stormwater runoff and remove pollutants such as nutrients and total suspended solids. The Proposer will update the existing NPDES permit for the proposed vertical expansion.

122. Other landfill facilities and industrial development in the vicinity of the Project area will be required to adequately capture and treat stormwater runoff generated in compliance with federal, State, and local regulations. The City of Inver Grove Heights and Dakota County will be required to construct stormwater BMPs to adequately capture and treat stormwater runoff generated by the proposed 117th Street Reconstruction Project in compliance with all existing stormwater regulations. The proposed SKB Rich Valley MMSW Landfill Expansion Project will also be required to capture and treat stormwater in compliance with NPDES industrial stormwater permit requirements.

123. The MPCA finds the information presented in the EAW and other information in the environmental review record does not demonstrate that the Project has the potential for significant environmental effects to water resources based on significant cumulative potential effects because: the Project will obtain and comply with an MPCA solid waste permit and will meet local, states and federal water quality standards and requirements. Therefore, the MPCA finds the

Project, as proposed, is not expected to contribute significantly to adverse cumulative potential effects on water resources.

Cumulative effects – summary

124. Based on information on the Project obtained from reporting on air quality, greenhouse gases, water resources, and PFAS, presented in the EAW, and consideration of potential effects due to related or anticipated future projects, the MPCA does not expect significant cumulative effects from this Project.

125. The MPCA finds the Project, as proposed, does not have the potential for significant environmental effects related to cumulative potential effects that are reasonably expected to occur.

The Extent to Which the Environmental Effects Are Subject to Mitigation by Ongoing Public Regulatory Authority

126. The third criterion the MPCA must consider when determining if a project has the potential for significant environmental effects is "the extent to which the environmental effects are subject to mitigation by ongoing public regulatory authority. The RGU may rely only on mitigation measures that are specific and that can be reasonably expected to effectively mitigate the identified environmental impacts of the project." Minn. R. 4410.1700, subp. 7(C). The MPCA findings with respect to this criterion are set forth below. The following permits or approvals will be required for the Project:

Unit of government	Type of application	Status
MPCA	Solid Waste Permit-45*	Expires July 30, 2025
	Part 70 Air Permit 03700138-004	Current permit
MPCA	Part 70 Air Permit Renewal 03700138-101	Submitted September 2009
MPCA	Part 70 Minor Air Permit Amendments (3)	Submitted 2009, 2020, 2021; vertical expansion application pending
MPCA	Administrative Air Permit Amendment, Name Change	Submitted November 20, 2023
MPCA	NPDES General Stormwater Permit for Industrial Activity Permit MNR053B5P	Expires March 31, 2025
MPCA	Certificate of Need (CON)	December 2021
Minnesota Public Utilities Commission**	Pipeline Routing Permit	Issued July 2021
Dakota County	Solid Waste Facility License	To be amended
Metropolitan Council	Industrial Discharge Permit #2001	Expires September 30, 2025
City of Inver Grove Heights	Conditional Use Permit	To be amended

**Solid Waste Permit-45 includes compliance with MN Statute 473-848 (Restriction on Disposal) in accordance with the Metropolitan Solid Waste Policy Plan 2016-2036.*
***Issued to Petroleum Fuels Company (PFC) to construct a 5,600-foot pipeline to transport natural gas generated from a processing facility near the Pine Bend Landfill to an interconnection point. This project was approved and is in operation.*

127. The MPCA Solid Waste Permit ensures the project is within limits of design capacity and operates under rules administered by the MPCA.

128. The MPCA Air Emissions Permit Reissuance (including the Air Permit Renewal, Minor Air Permit Amendments, and Administrative Amendment) assures that the Facility is designed using good engineering practices and, in a manner, consistent with the air quality rules administered by the MPCA.

129. The MPCA NPDES/SDS Construction Stormwater Permit (CSW permit) is required when a project disturbs one acre or more of soil. The CSW permit requires the use of best management practices to prevent erosion and to keep eroded sediment from leaving the construction site and requires projects that create one acre or more of new impervious surface to provide permanent treatment of stormwater runoff. The project proposer must have a stormwater pollution prevention plan (SWPPP) that provides details of the specific measures to be implemented.

130. The MPCA Certificate of Need (CON) is a process by which MPCA offers existing landfills the opportunity to expand their existing capacity. MPCA arrive at these determinations through a thoughtful and deliberative process that includes a review of current county solid waste plans, consideration of county letters of support to best determine the future location of their waste, future solid waste forecast data, and public comment.

131. The Minnesota Public Utilities Commission (PUC) evaluated the potential environmental impacts resulting from the project as part of the Pipeline Route Permit process for the Pine Bend Pipeline Project and issued the permit in July 2021. This project was subsequently constructed and is currently in operation. The Dakota County Solid Waste Facility license regulates solid waste generation, transport, and disposal in Dakota County.

132. The City of Inver Grove Heights requires a Conditional Use Permit through a public process and approval.

133. The above-listed permits include general and specific requirements for mitigation of environmental effects of the Project. The MPCA finds that the environmental effects of the Project are subject to mitigation, as explained in these Findings and the EAW, by ongoing public regulatory authority.

The Extent to Which Environmental Effects can be Anticipated and Controlled as a Result of Other Available Environmental Studies Undertaken by Public Agencies or the Project Proposer, Including Other EISs

134. The fourth criterion that the MPCA must consider is "the extent to which environmental effects can be anticipated and controlled as a result of other available environmental studies undertaken by public agencies or the project proposer, including other EISs," Minn. R. 4410.1700, subp. 7(D). The MPCA Findings with respect to this criterion are set forth below.

135. Although not exhaustive, the MPCA reviewed the following documents as part of the environmental impact analysis for the proposed Project.

    i. Data presented in the EAW.
    ii. Permits and environmental review of similar projects.
    iii. MPCA PFAS Monitoring Plan (2022).

136. The MPCA also relies on information provided by BFI, persons commenting on the EAW, staff experience, and other available information obtained by staff.

137. The environmental effects of the Project have been addressed by the design and permit development processes, and by ensuring conformance with regional and local plans. No elements of the Project pose the potential for significant environmental effects that are not addressed or mitigated by the requirements of the permits listed above or in the EAW.

138. Based on the environmental review, previous environmental studies by public agencies or the project proposer, and staff expertise and experience on similar projects, the MPCA finds that the environmental effects of the Project that are reasonably expected to occur can be anticipated and controlled.

139. The MPCA adopts the rationale stated in the attached Response to Comments (Appendix B) and the Errata (Appendix C) as the basis for response to any issues not specifically addressed in these Findings.

CONCLUSIONS OF LAW

140. The MPCA has jurisdiction in determining the need for an EIS for this Project. The EAW, the permit development process, and the evidence in the record are adequate to support a reasoned decision regarding the potential significant environmental effects that are reasonably expected to occur from this Project.

141. The MPCA identified areas for potential significant environmental effects. The Project design and permits ensure BFI will take appropriate mitigation measures to address significant effects. The MPCA expects the Project to comply with all environmental rules, regulations, and standards.

142. Based on a comparison of the impacts that are reasonably expected to occur from the Project with the criteria established in Minn. R. 4410.1700, subp. 7, the Project does not have the potential for significant environmental effects.

143. An EIS is not required for the proposed Pine Bend Landfill Vertical Expansion.

144. Any Findings that might properly be termed conclusions and any conclusions that might properly be termed Findings are hereby adopted as such.

ORDER

145. The Minnesota Pollution Control Agency determines that there are no potential significant environmental effects reasonably expected to occur from the Pine Bend Landfill Vertical Expansion Project and that there is no need for an Environmental Impact Statement.

Katrina Kessler

Katrina Kessler, Commissioner
Minnesota Pollution Control Agency

__March 1, 2024 _____,
Date

Pine Bend Landfill Expansion
Inver Grove Heights, MN

View of Existing Landfill from Rich Valley Athletic Complex

October 26, 2023

Not to Scale

North

Stantec

Pine Bend Landfill Expansion
Inver Grove Heights, MN

View of Proposed Landfill Expansion from Rich Valley Athletic Complex

October 26, 2023

Not to Scale

North

Stantec

Greenhouse gas and RNG plant offset

RNG capacity is 3200 scfm

Emission Source	Regulated Pollutants	Maximum Gas Consumption		Hours of Operation	Emission Factors		Uncontrolled PTE	Controlled PTE	Uncontrolled PTE	Limited PTE	Limited PTE
		cfm	MMCF/yr	(hrs/yr)			(lbs/hr)	(lbs/hr)	(TPY)	(TPY)	(Metric TPY)
TREA 6 Open Flare Burning LFG	CO_2 (Flare combustion)	3200	2102	8760	52.07	kg/MMBtu	11165	11165	48905	48905	44366
	CO_2 (LFG passing through flare)	3200	2102	8760	13906	lb/hr	11124	11124	48725	48725	44203
	CH_4	3200	2102	8760	0.0032	kg/MMBtu	0.686	0.686	3.01	3.01	2.73
	N_2O	3200	2102	8760	0.00060	kg/MMBtu	0.129	0.129	0.564	0.564	0.511
	$CO_2(e)$	3200	2102	8760			22345	22345	97873	97873	88790

Emission factors from 40 CFR Part 98, Subpart C, Tables C-1, C-2

$CO_2(e) = CO_2 + (25*CH_4) + (298 * N_2O)$

APPENDIX A

Minnesota Pollution Control Agency

Pine Bend Landfill Vertical Expansion
Environmental Assessment Worksheet

LIST OF COMMENT LETTERS RECEIVED

1. Ross Crow. 11/20/2023
2. Rebecca Kruse. 11/28/2023
3. John Rutz. 11/28/2023 and 12/04/2023
4. Brett Kramer. 12/02/2023
5. John Wendt. 12/06/2023
6. Sigurd Scheurle. 12/13/2023
7. Brooklyn Petrich. 12/14/2023
8. River Heights Chamber of Commerce. 12/01/2023
9. City of Inver Grove Heights. 11/28/2023
10. Dakota County. 12/13/2023
11. Ramsey/Washington Recycling & Energy. 12/15/2023
12. International Union of Operating Engineering Local 49. 12/14/2023
13. Melissa Collins, Minnesota Department of Natural Resources. 12/15/2023
14. Kelly Gragg-Johnson, Minnesota State Historic Preservation Office. 12/15/2023

Comment letter 15 received after end of comment period.

15. John Reynolds, Minnesota Indian Affairs Council. Email received 12/29/2023

Ross Crow

I am against this landfill expansion. No more it has been used many years. It's time for somewhere new. This area doesn't need more garbage. Plus all the trucks get annoying and pull out in front of people is dangerous. Enough! Stop!

Rebecca Kruse

The Dakota County landfills are already passing the point at which the height of the landfill detracts from all else on this relatively flat landscape. It will be seen from many miles and is not the monument that Dakota County wishes to erect or be identified with. Adding a hill where one does not belong is no less offensive than than destroying a natural mountain. Unlike other development, this is permanent visual blight. I oppose the proposal to increase the height of the landfill.

John Rutz

This seems to be a short term solution. It seems to me a better solution is to open a composting site on the top of the current pile. The leach aide system to catch contaminated water is already in place. You could do a winrow system with all the space you have. You may also be able to use the leach water you currently have in the system to water the compost. You would be able to mine the current pile to increase space for the additional garbage. The completed compost could be used in the housing and commercial developments in the surrounding area.

The other benefits in composting would :

1. Reduce the amount of methane coming off of the current garbage pile.

2. Reduce the time it takes to compost the current garbage.

3. Extend the time in filling up the landfill to it current specifications.

4. No need to expand the current landfill.

5. No need to put in addition liners

6. Have a complete cycle of processing garage to a usable product.

7. No need to close and monitor a full landfill.

8. You can also add ash waste to the compost.

9. After the compost is degraded you could screen it and take out additional recycles that were buried in the original garbage.

Lauren Lewandowski

Attached is a hand written comment from an individual the agency received at the public meeting held to discuss the project on 11/30/2023. The individual's name and contact information is included on the attachment.

Share your comment

MINNESOTA POLLUTION CONTROL AGENCY

Thank you for your interest in the Pine Bend Landfill expansion project. We value your comments and will use them to better inform our environmental review and permitting processes.

We invite you to comment on the draft Environmental Assessment Worksheet (EAW) and/or draft air permit for the proposed project. The solid waste permit will go on public notice in early 2024 and is **not** currently available for public comment. Please provide your comments by entering them online using the specified QR codes or by writing them in below. Please be sure to check the box for what you are commenting on and include your address or email in case we have follow up questions or need more information.

Get more information and comment online:

- **Environmental Assessment Worksheet**
  www.pca.state.mn.us/qr/12
- **Draft air permit**
  www.pca.state.mn.us/qr/13

First and last name: JOHN RUTZ

City, state, and zip code: INVER GROVE HEIGHTS, MN 55076

Email address: johnrutz@hotmail.com

☒ Send me email updates about the Pine Bend Landfill expansion project.

☑ EAW comment ☐ Air permit comment

*if you wish to comment on both, please use separate comment sheets

Please enter your comment below. There is more space on the back of the page.

We need to look @ other options then expanding the landfill. Composing, processing, burning. We need to get more of the recycling ~~to~~ out of the garbage. My expectation is that unless we stop landfilling nothing will change.

Your signature: Date:

Brett Kramer

As an Inver Grove Heights resident owning a home immediately north of the landfill, I have strong opposition to the proposed expansion. While understanding the need for our regional refuse to have to go somewhere, increasing the allowable height an additional 85 feet is so far from being in conformity with the nearby land contour. The increase in allowable volume (and height) will exponentially increase the garbage that I already find on my property including plastic bags and wraps that get tangled in a wooded area on my property. Although the landfill operator may try its best to avoid, as garbage is piled higher above the nominal wind-blocking buffer of trees/fencing, a very substantial increase in trash and odor resulting from the expansion cannot be denied. Additionally, with the mound being so high above any natural buffer (trees), the noise of the machinery will also be increased. We already clearly hear the on-going "beeps" from the equipment reversing depending on the weather and where on the landfill they are working, and if they are working higher, the noise will carry even more. With the expansion, I am also concerned with the increased contamination risk of our ground water as all the homes in the area source our water from wells. My concern is both for contamination under the actual landfill area as well as from the surface level runoff. By increasing the height of the mound by an additional 85 feet at a slope of 3:1, the water runoff would be moving very fast in a significant rain/flood event that could potentially cause it to breach the retention mechanisms proposed/in place. Lastly, the proposed height increase would be a massive eyesore. I am not naïve in that I purchased a home in close proximity to a landfill and I know that they are being as best of neighbor possible while operating their business, but this proposed expansion seems extremely aggressive and I am very much against it.

John Wendt

Imagine you live in the shadow of a 25 story building that runs for several blocks.

Now add another 8 or 9 stories on top of it!!

This has to stop!!!!

We strongly oppose this expansion!!

Sigurd Scheurle

242 Oak Leaf Drive, Winona, MN 55987

612-669-1377 – sidrunner@gmail.com

Date: December 13, 2023

To: Megen Kabele, Dan Card, Joy Wiecks, Minnesota Pollution Control Agency (MPCA)

From: Sigurd Scheurle

Regarding: Additional Comments on the Proposed Bend Landfill Expansion – EAW and Draft Air Permit

First, thank you for your attention to these additional public comments and those submitted earlier on the proposed major expansion of the Pine Bend landfill. I repeat comment #1 and outline additional comments in #2 & #3 below:

1. Based on available public information, environmental review in the form of an EIS is mandatory. Under the Environmental Quality Board ("EQB") rules, an EIS is mandatory for an expansion by 25 percent or more of previous capacity of a mixed municipal solid waste land disposal facility that accepts 100,000 cubic yards of waste per year, as the Pine Bend Landfill does. See Minn. R. 4410. 4400, subp. 13E. According to the EAW, the project will expand the current permitted design capacity of 33,937,400 by 8,185,500 cubic yards, or slightly more than 24%, which is slightly below the mandatory category criteria. However, in June 2019 MPCA approved an expansion of 4,137,400 cubic yards. This expansion should be counted as part of the present project for two reasons. First, the present expansion would not be occurring "but for" the plans approved by the MPCA in 2019, i.e., the projects are "connected actions" as defined in Minn. R. 4410.0200, subp. 9c. Under Minn. R. 4410.1000, subp. 4, connected actions must be considered together in determining whether a mandatory EIS should be prepared. The 2019 plans anticipated the present expansion and resulted in the engineering features that compels and dove tails with the present expansion in that it that the 2019 expansion essentially fills the saddle, changes the side slopes from 5 to 1 to 3 to 1 thereby expanding the area functioning as the base for proposed expansion, and installed a liner on top of the landfill to support vertical expansion. Second, construction of the 2019 expansion did not occur until after MPCA and local approvals were secured. The application for the present proposed new expansion was submitted to MPCA in June 2022. Based on these dates, the application for the expansion was filed less than three years following beginning of construction of the 2019 project. Minn. R. 4410.3400, subp. 1 provides if the proposed project is an expansion or additional stage of an existing project, the cumulative total of the proposed project and any existing stages or components of the existing project must be included when determining if a threshold is met or exceeded "if construction was begun within three years before the date of application for a permit or approval from a governmental unit for the expansion or additional stage…" If the 4,137,400 cubic yards is added to the present application, the 25% figure for a mandatory EIS is easily exceeded. Finally, given that the alternatives to this facility have not been examined since the 1980s, the MPCA should resolve any doubt in favor of a mandated EIS.

2. The EAW is incomplete because it fails to include information on the significant environmental impacts of the proposed project. In particular, the EAW lacks adequate information on the greenhouse gas and landfill gas impacts of the expansion (and the impacts of the leachate generated by the expansion). Under Minn. R. 4410.1700, subp. 2a, "if the RGU determines that information necessary to a reasoned decision about the potential for, or significance of, one or more possible environmental impacts is lacking, but could be reasonably obtained, the RGU shall either: A. make a positive declaration and include within the scope of the EIS appropriate studies to obtain the lacking information; or B. postpone the decision on the need for an EIS…" As noted below, additional information relative to the quantity and impact of landfill gases and leachate is likely available. The adequacy decision should not be made without this information because of its potential significance. The information that is missing in the EAW will necessitate revising the present forecast of air emissions, inform the proposed air and solid waste permits and allow MPCA to consider mitigative measures to reduce emissions and protect the public and the environment.

   A summary of the Potential to Emit (PTE) in tons per year is as follows:

Pollutant	PM	PM10	PM2.5	SO2	NOx	VOC's	CO	CO2e	Single HAP*	All HAPs
Total Facility PTE Emissions	97	32	13.5	90.6	40.8	10.52	163.2	250,790	3.55	8.95

   PM = Particulate Matter PM10 = PM, 10 microns and smaller
   PM2.5 = PM, 2.5 microns and smaller SO2 = Sulfur Dioxide
   NOx = Nitrogen Oxides VOCs = Volatile Organic Compounds
   CO = Carbon Monoxide CO2e = Carbon Dioxide Equivalents as defined in Minn. R. 7007.0100
   HAP = Hazardous Air Pollutant * Single HAP = Metallic HAPs

   The table above illustrates the magnitude Pine Bend's air emissions based on incomplete data. Additional information is necessary to calculate additional anticipated air emissions.

   In recent years fires at MMSW facilities, including landfills, have increased significantly. A fire at the Rice County Landfill (SW-123) recently raged for almost a week. The draft air permit and EAW are silent regarding air emissions due to waste fires at the Pine Bend Landfill. A review of publicly available data indicates alternative methods to estimate air emissions from landfill fires. Therefore, this data is available. If the facility has had fires, then that needs to be stated and the estimated air emission impacts outlined. If the facility has not had a fire, which is unlikely, then the measures to mitigate fires in the future need to be outlined. Given the increased risks of fires caused be electronics, information about fires appears to be necessary.

   Again, actual or more accurate air emission data from fires will allow for accurate calculations of GHG, VOC and air toxic emissions. Only after gathering accurate data can MPCA apply this information to health risk calculations, anticipated overall GHG impacts, and as well as offering insight into potential mitigative measures. Permit approval without a clear data set is unacceptable. Accurate data will inform both the draft EAW (or EIS), the draft solid waste, and the draft Air Emissions permit.

If the facility or firefighters that access the site to fight the fire uses PFAS containing firefighting foams, then this aspect of fire related impacts need to be outlined. Or if the facility uses leachate to fight fires, then this fire related impact needs to be outlined in the draft air permit and EAW.

3. Leachate is the facility's primary water and land pollutant. The analysis of leachate impacts in the EAW is wholly inadequate and incomplete. If the facility uses leachate as part of an alternative method of cover at the working face (such as making a foam covering), then volatile chemicals may be released to the environment be the leachate. This pathway for the release of pollution to the air is not described in the draft EAW or Air permit.

   Allied reported that over nine million (9,188,290 gl.) gallons of leachate were shipped by truck to the Metro Plant in 2021. This volume may not account for leachate used at the facility for various other purposes including alternative cover foams. If leachate is used, then the EAW should evaluate alternative that may release less pollution. This may necessitate recalculating leachate generation, discharge to the Mississippi River, evaporation, recirculation, and air emissions.

   The U.S. EPA is examining whether federal rules should require landfill leachate be pre-treated to remove known and emerging toxic chemicals. In 2023, EPA began a new rulemaking process to determine whether MSW landfill leachate should be accepted at POTWs given the problems experienced with treating concentrated toxic chemicals including high levels of PFOS in leachate. The EAW should have discussed whether large landfills like Pine Bend will be able to comply with the likely new requirements for treatment (most likely at the site) prior to disposal. Moreover, several other landfills also dispose of large quantities of leachate at the Metro Facility. The cumulative impact of tens of millions of gallons of leachate from just the three largest landfills in Dakota County, Waste Connections, Burnsville and Pine Bend needs to be examined in the EAW in terms of their cumulative effects.

In closing, I note again that the EAW indicated an EIS was completed for the Pine Bend Landfill in 1980. That is the same year the Waste Management Act (Chapter 115A) was passed into law and the Metropolitan Landfill Abatement Act was first implemented. In 1980, landfills were not lined in 1980 and MPCA did not adopt landfill rules until 1987. Since then, the state has largely failed to come to terms with implementing the Waste Management Act, and the result has been new multi-media pollution problems from landfills, and the overall resistance to real change. An EIS-- 44 years after Pine Bend's only EIS was prepared—provides an opportunity to take a hard look at emissions from this facility, available mitigative measures, cumulative impacts from Pine Bend and neighboring landfills and the proposed project's impacts on the solid waste management system that it is part of.

Again, I thank you for your attention to these added comments. I hope MPCA will take whatever additional time and expend the resources to perform a complete and up-to-date environmental review of the proposed project. If the work is done, these efforts will have a profound positive affect on public health and the environment. This review may have results MPCA can be proud of.

Brooklyn Petrich

I oppose the landfill expansion and request the funds be rerouted to investing in a more sustainable future that cuts down on the amount of waste that goes into a landfill. Examples of projects that would do this include municipal curbside composting, expanded recycling (e.g., curbside or drop-off tetra recycling), and curbside yard waste pickup.

River Heights Chamber of Commerce

See attached letter from the River Heights Chamber of Commerce.

RIVER HEIGHTS CHAMBER OF COMMERCE
Driving South Metro Business Success

November 29, 2023

Commissioner Kessler

RE: Pine Bend Landfill Expansion Project

Dear Commissioner Kessler,

We are writing in support of the Pine Bend Landfill Expansion project in Inver Grove Heights.

Republic Services has been a valued member of the River Heights Chamber of Commerce and was named the "Business of the Year" in 2019. Republic Services is a strong steward of the environment and provides good paying jobs in our community.

As you may know, Minnesota's first renewable natural gas plant is located at Pine Bend Landfill in Inver Grove Heights. This clean energy technology turns biogases produced by trash into Renewable Natural Gas—part of Republic's very aggressive goals to reduce absolute operational greenhouse gas emissions every year.

Republic Services has been recognized at the national level as well – in 2020, Republic was named the "Organics Recycler of the Year" by the National Waste and Recycling Association. This year, Republic unveiled a "Polymer Center" in Las Vegas to support their long-term sustainability goal to increase the recovery and circularity of key materials by 40% by 2030.

Republic Services has proven to be a great community member, and we look forward to working closely with Republic Services in the years to come.

Please don't hesitate to contact us with any questions. Thank you.

Sincerely,

Greg Dennis
2023 Board Member
River Heights Chamber of Commerce

City of Inver Grove Heights, Minnesota

Ms. Kabele,

Please see the attached memo from the City of Inver Grove Heights. This letter provides the City of Inver Grove Heights' comments on the EAW for the Pine Bend Landfill Phase 7 Vertical Expansion Project that was published for public review on October 31, 2023 in the Environmental Quality Board Monitor.

Thank you for the opportunity to provide comments and recommendations on the EAW. The City appreciates your consideration of the recommendations and looks forward to your reply. If the MPCA has any questions, please contact me at 651-604-8511 or asutherland@ighmn.gov.

Thank you,
Ally Sutherland | Environmental Specialist
Tel: (651) 604-8511
City of Inver Grove Heights | 8150 Barbara Avenue | Inver Grove Heights | Minnesota | 55077
asutherland@ighmn.gov | www.ighmn.gov

CITY OF
INVER GROVE
HEIGHTS

COMMUNITY DEVELOPMENT DEPARTMENT

8150 Barbara Avenue
Inver Grove Heights
Minnesota 55077

651-450-2500

www.ighmn.gov

November 28, 2023

Ms. Megen Kabele
Planner Principal
Resource Management and Assistance Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St Paul, MN 55155

Re: City of Inver Grove Heights' Public Comments on Pine Bend Landfill's 2023 Environmental Assessment Worksheet (EAW) for Request for Major Modification of Permit #SW-45

Dear Ms. Kabele:

This letter provides the City of Inver Grove Heights' comments on the EAW for the Pine Bend Landfill (PBL) Phase 7 Vertical Expansion Project (Project) that was published for public review on October 31, 2023 in the Environmental Quality Board Monitor. The Project proposes an airspace capacity expansion over the existing landfill footprint by raising the permitted peak elevation and extending the existing 3:1 (horizontal : vertical) side slopes. This vertical expansion is designated as Phase 7.

These comments were developed by Barr Engineering Co. (Barr). The City requests that the MPCA consider incorporation of these recommendations into the final EAW. These recommendations will also be shared with Pine Bend Landfill and Dakota County.

The City requests that the MPCA respond to this letter and address the comments detailed below. The City also recommends that PBL identify and provide environmental benefits to offset potential negative environmental impacts from the proposed expansion.

As detailed in comments #20-#22 below, it should be noted that PBL will need to obtain approvals from the City of Inver Grove Heights to allow the proposed expansion in the form of amendments to the Conditional Use Permit, Non-Conforming Use Certificate, Zoning Ordinance, and a Host Community Agreement. The EAW should be clear that the proposed expansion is not currently approved by the City of Inver Grove Heights. It is the City's understanding is that the MPCA will not reissue the solid waste permit until these City approvals are complete.

The City believes the following are the most significant potential environmental impacts relating to the existing landfill and proposed expansion. Please address the following:

1. **Subsurface gas migration near or beyond the property line:** While the EAW discusses existing subsurface gas migration, it does not address how the proposed expansion would affect that. The EAW should address if and how the proposed expansion would affect subsurface gas migration.

2. **Groundwater contamination, including concentrations exceeding some Intervention Limits listed in the MPCA's Solid Waste Permit.** These include some metals, VOCs, and PFAS. While the EAW addresses existing groundwater contamination, it does not address how the proposed expansion would affect that. The EAW should describe if and how the proposed expansion would affect groundwater contamination.
3. **Expansion Visual, Page 58:** Because PBL is currently visible from some of the nearby residences and PBL is proposing to significantly increase the landfill height (85 feet), we believe that 3D visualization modeling figures are imperative to show the existing, currently permitted, and proposed conditions from various locations near PBL (including the residential area to the north) to fully evaluate the visual effects of the proposed expansion. Please provide.
4. **Wildlife impacts:** Although the footprint will not change, will birds be more attracted to the proposed increased landfill height? If so, how will wildlife be deterred from the site? Please address this issue.
5. **Public nuisance:** The effects on odor, litter, dust, and noise expected from the proposed increased height of the landfill should be evaluated in the EAW. Will odor, dust, and noise carry further than is occurring with the existing landfill? Please evaluate this.

The City has additional technical recommendations on the EAW. Please address the following:

6. Page 6, Table 1 Historical Leachate Collection Data. Years 2017 through 2020 do not match the number of gallons of leachate found in PBL's annual reports. Please correct or explain.
7. Page 6, Final Cover Design. The third sentence indicates that "This design provides for increased capacity without increasing site footprint or elevations…" This is incorrect, elevation will be increased. Please correct.
8. Page 7, Peak Run-off. The last sentence referring to the 100-year high water level appears to be referring to the stormwater ponds. Please clarify this sentence.
9. Page 8, Bend and Drainage Swale Design. The last sentence, "Runoff contained during…" is not a complete sentence. What is intended here? Please correct.
10. Page 8, Junction Vaults. The paragraph indicates that downslope piping is on the northeast corner of the permitted design, but the last word indicates it is on the northwest. Please correct or explain.
11. Page 9, Landfill Gas Management. PBL has done significant work to try to resolve the migration of subsurface gas near or beyond the property boundary. Please include a summary of this work.
12. Page 9, Landfill Gas Management, Background. Second paragraph, last sentence reads, "The Facility has an MPCA-approved gas collection and monitoring system to meet regulatory standard and to address concerns with migration of combustible gas." Although PBL has been trying to resolve this problem for years, this sentence is misleading because subsurface landfill gas is migrating near or beyond the property

boundary at concentrations above the LEL, so the regulatory standard is not being met. Please correct.

13. Page 9, Landfill Gas Management, Existing and Future Extraction Wells. The middle of the first paragraph indicates that the annular space between the outer pipe and the well casing will be sealed. However, the gas well design (Appendix B, Sheet 14) does not appear to have inner and outer pipes. Please correct or explain.
14. Page 10, Landfill Gas Management, Renewable Natural Gas Pipeline and RNG Facility. The first paragraph, second to last sentence indicates that the facility is "preliminary", but we understand that the RNG facility is in operation. Please correct or explain.
15. Page 10, Landfill Gas Management, Renewable Natural Gas Pipeline and RNG Facility. The first paragraph, last sentence reads "The meter station in the northwest portion of the site will be the start of the pipeline that is the subject of this Application." What "Application" is being referred to here. Please correct or explain.
16. Page 11, Phased Closures, the second sentence reads "Prior to final closure and installing the final cover system, I waste fill surface…" What is meant by this sentence. Please correct or explain.
17. Page 11, Phased Closures, Significant demolition, removal, or remodeling of existing structures. It is stated that there will be no demolition, removal, or remodeling of existing structures, however, we understand that the administration building, scale, and related structures will need to be relocated prior to constructing Cell F-2. Please explain or correct.
18. Pages 18 and 19 indicate that the U.S. EPA's Climate Resilience Evaluation and Awareness Tool (CREAT) was reviewed to evaluate storm intensification for the local area. The evaluation indicated that the "Stormy" scenario, the highest intensity model, projects the 100-year storm to increase 13.7 percent in 2035 and 26.6 percent in 2060 for the local area. We understand that the stormwater management infrastructure is based on the NOAA Atlas 14, 100-year, 24-hour storm event of 7.43 inches but it appears that the design should be based on a larger storm event as predicted by CREAT. Please explain.
19. Page 36, first paragraph and table 7 indicate that the Project will convert 89 acres from "Other (active landfill)" to "Lawn/landscaping, Final cover will be vegetated". Although this is accurate, please clarify that this conversion of cover types will occur with or without the proposed vertical expansion Project. Also clarify that this Project will delay when this cover conversion takes place.
20. Page 37, Table 10 Permits and Approvals. The table indicates that a Conditional Use Permi application is required to be submitted to the City of Inver Grove Heights, however, the applicant will also be required to submit an application for amendments to the Non-Conforming Use Certificate, Zoning Ordinance, and Host Community Agreement. Please add these to the table.
21. Page 39, Section 10.b. first paragraph. The third sentence is incorrect, PBL will have to request a City zoning ordinance amendment. Please correct.
22. Page 39, Section 10.b, second paragraph, second sentences reads, "Therefore, the Project is allowable through a Conditional Use Permit ("CUP"). However, the Project is not

currently "allowable", and the EAW should made clear that the City of Inver Grove Heights would need to go through a public process prior to any approvals. Please correct.

23. Page 44, Section ii, Groundwater, fourth sentence reads in part, "If the Proposer observes groundwater quality impacts during monitoring, they will closely coordinate with the MPCA to develop appropriate actions…" The use of the word "If" is misleading because there are decades of groundwater data indicating that PBL has negatively impacted downgradient groundwater quality. Please explain or correct.
24. Page 44, Section ii, Groundwater, does not include the Minnesota Department of Health Special Well Construction Area (Inver Grove Heights (Pine Bend Area) Special Well and Boring Construction Area - MN Dept. of Health (state.mn.us) located east (downgradient) from PBL. Please include a description and figure of this area or explain.
25. Page 44, Groundwater, Onsite and/or nearby wells. The second sentence indicates that the majority of public supply wells are east of the Project Area. However, it appears that only one public supply well is shown on Figure 10. Please add a figure showing a larger area where more public supply wells may be present or explain.
26. Page 44, Groundwater, Table 13 MDH Wells within Pine Bend Landfill. Not all of PBL's monitoring wells are listed in this table including wells 11A, 15, 23, and others. Please correct or explain.
27. Page 44, Groundwater, Table 13. Some wells are listed as "Monitoring Well", and some are listed as "Test Well". Please add a definition of what these designations mean.
28. Page 46, Perfluoroalkyl substance analysis. The first sentence indicates that the July 2022 sampling event analysis is in Appendix D. It does not appear that these analyses are in Appendix D. Please correct or explain.
29. Page 46, Perfluoroalkyl substance analysis. The second paragraph references the PFASs that have limits listed in the May 31, 2019 Solid Waste Permit. However, perfluorohexane sulfonate has an intervention limit of 0.01175 µg/L in the Solid Waste Permit but this is not included in the paragraph. Please correct or explain.
30. Page 46, Perfluoroalkyl substance analysis. The second paragraph indicates that PFASs were detected above the limits in the May 31, 2019 Solid Waste Permit in 12 wells. However, the 2022 Annual Report indicates PFAS intervention limits were exceeded in 15 wells. Please correct or explain.
31. Page 51, Section 14, see comment #4, requesting affects on wildlife.
32. Page 51, Section 14. The harm to bald eagles that occurred in Inver Grove Heights in 2022 is still under investigation. If the investigation concludes that the harm was caused by the eagles having access to waste in Pine Bend Landfill, what will Pine Bend Landfill do to deter wildlife access to the waste? This should be addressed in the EAW.
33. Page 58, Visual. This section refers to the "Rich Valley Landfill", but for clarification and in accordance with Figure 11 this facility should be referred to as the "SKB Rich Valley Landfill". Please correct.
34. Page 58 Visual. See comment #3, requesting 3D visualization modeling.
35. Page 61 Air. Vehicle emissions. The EAW states that the facility "currently accepts approximately 160 refuse trucks per day". However, the MPCA's workbooks supporting

the RNG minor amendment project and the Title V permit reissuance both report 131 vehicles/day. We suspect that the workbooks may be in error and that the 131 vehicles/day may actually be 131 vehicle miles traveled/day because the workbooks report 47,815 vehicle miles traveled/year which is 365 times 131. Please correct or explain.

36. Pages 62 and 63, Greenhouse Gas (GHG) Emission/Carbon Footprint. The GHG emissions reported in Tables 16 and 17 of the EAW match those in Appendix A of the GHG Assessment Report (attached as Appendix H to the EAW).. Appendix A, in turn, references the calculations in Appendix B of the GHG Assessment Report. However, there appears to be several errors converting tons to Mtons in the supporting workbook. Specifically, we believe the CO2e (Mtons/yr) reported in Appendix A for the "RNG Plant", "Waste Disposal Operations" and "Insignificant Operations" are incorrect. The total emissions from all sources should be 6,872,268.85 rather than 6,250,729.31 Mton/yr. The suggested edits are included in the following table. Please correct or explain.

Source Descriptions	Emission Sub-Type	Existing CO2e Emissions (Mton/yr)	Calculation Methods
Flare	Combustion	110,860.76	Emission factors and info from 40 CFR 98 Subpart C
RNG Plant	Combustion	~~56,315.95~~ 56,318.50	Emission factors and info from 40 CFR 98 Subpart C
Fugitive LFG	Fugitive	7,853.08	Emission factors and info from 40 CFR 98 Subpart C
Waste Disposal Operations	Combustion Mobile Sources	~~6,075,453.06~~ 6,696,971.90	Emission factors and info from 40 CFR 98 Subpart C
Insignificant Operations	Combustion Mobile Sources	~~177.35~~ 195.49	Emission factors and info from 40 CFR 98 Subpart C
Indirect Operations	Electrical Usage	69.12	Emission factors and info from 40 CFR 98 Subpart C
	Total	~~6,250,729.31~~ 6,872,268.85	

37. Page 66, Conformance to State Noise Standards – Construction Noise. The discussion notes that the city construction ordinance prohibits construction activity 10pm to 7am weekdays, and then notes the construction will follow a 6am to 4pm operations schedule. This appears to indicate that construction will not comply with the city construction ordinance. Please correct or explain.
38. Page 66, Quality of Life. Text notes "No construction or operation hours would occur during nighttime hours" Nighttime in noise regulation runs from 10pm to 7am. This is inconsistent with the proposed construction and operating hours of 6am to 4pm indicated in the preceding paragraph. Please correct or explain.
39. Page 69, Water Resources, Groundwater. First paragraph, fifth sentence reads in part, "If groundwater impacts are identified…" The use of the word "If" is misleading because there are decades of groundwater data indicating that PBL has negatively impacted downgradient groundwater quality. Please explain or correct.

40. Appendix B. Drawings 3, 4, and 5 are missing from the EAW published to the EQB monitor compared to the EAW published on the MPCA website. Please include or explain.
41. Appendix B through Appendix H. The flow of supplemental natural gas to the thermal oxidizer is reported as 160 scfm pre-project and 180 scfm post-project while the GHG emissions are reported to be identical for both pre- and post-project. We believe 160 scfm is correct. Please correct or explain.

Thank you for the opportunity to provide comments and recommendations on the EAW. The City appreciates your consideration of the recommendations and looks forward to your reply. If the MPCA has any questions, please contact City of Inver Grove Heights Environmental Specialist Ally Sutherland at 651-604-8511 or asutherland@ighmn.gov.

Sincerely,

CITY OF INVER GROVE HEIGHTS

c: Ally Sutherland, City of Inver Grove Heights
Abdi Hassan, MPCA
Aaron Janusz, Republic Services
Tyler Kraft, Republic Services
Tom Shustarich, Stantec Consulting Services Inc.
Terry Muller, Dakota County
Dave Magnuson, Dakota County
Bryan Pitterle, Barr Engineering Co.
Jeff Ubl, Barr Engineering Co.
Paul Taylor, Barr Engineering Co.

From: Tonsager, Cindy
To: Kabele, Megen (MPCA)
Cc: Droste, Bill; Smith, Matt
Subject: Dakota County Comment EAW Pine Bend Vertical Expansion
Date: Wednesday, December 13, 2023 8:34:34 AM
Attachments: image001.png
Dakota County Comment EAW Pine Bend Vertical Expansion.pdf

Good morning,
Thank you for the opportunity to review the Environmental Assessment Worksheet (EAW) for the project to develop and permit a vertical expansion over the Phase 5 and 6 areas, to increase the permitted capacity of the existing Pine Bend Landfill in Inver Grove Heights. County Physical Development Staff reviewed the document and offer the attached comments for consideration.

Thank you,
Cindy

Cindy Tonsager
Admin Operations Manager

Dakota COUNTY
Physical Development Division

P 952-891-7556
W www.dakotacounty.us
A 14955 Galaxie Ave Apple Valley, MN 55124

Megen Kabele
Resource Management and Assistance Division
Minnesota Pollution Control Agency
520 Lafayette Road North
St. Paul, MN 55155

December 13, 2023

Thank you for the opportunity to review the Environmental Assessment Worksheet (EAW) for the project to develop and permit a vertical expansion over the Phase 5 and 6 areas, to increase the permitted capacity of the existing Pine Bend Landfill in Inver Grove Heights. County Physical Development staff reviewed the document and offer the following comments for consideration.

Environmental Resources

- Cell 6C and 6B have intermediate cover and will be in an open condition at least until Phase 7 is well along in its fill development in several years. Despite engineering plans that meet requirements and have been MPCA approved, the steeper side slopes and heavy rainfall have caused the outside berms in areas of Cell 6C and 6B to be overtopped by stormwater on several different occasions leading to erosion. The erosion can be severe and at times, waste is washed out off the landfill liner. With the increased height of the landfill, longer slopes for water to run down through open cells, and predictions of more frequent heavy rains, what contingencies are being planned by Pine Bend Landfill for addressing and minimizing these expected events?

- Windspeeds increase with height about the ground surface. One could expect that with the increase of landfill height, stronger winds will impact litter dispersal. Over the past couple of years, even with numerous litter fences, the landfill has at times struggled to contain litter near the working face in Cell 6, and significant amounts of litter can leave the site. With waste filling at higher elevations above the perimeter litter fences, what planning is being done to address the likelihood of increased amounts of wind-blow litter? What are the specific parameters that will cause the landfill to stop accepting waste until the windspeeds drop?

- 8 to 9 million gallons of leachate is presumed by BFI to be generated. Have there be discussions or are there plans to treat the leachate before transport to the Metropolitan Council's wastewater treatment facility (WWTF)? The effluent from the WWTF will likely contain contaminants from Pine Bend Landfill leachate that the Mississippi River Pool 2 water or fish are already impaired as stated on page 43, paragraph titled MPCA 303d Impaired waters list. "The Mississippi River is designated as impaired for aluminum; fecal coliform; mercury in fish tissue and the water column; nutrients; polychlorinated biphenyls ("PCBs") in fish tissue and the water column; perfluorooctane sultonate ("PFOS" and total suspended solids ("TSS").

Physical Development Division

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- Is there backup power to manage water in a 100-year storm event in case of a power outage?

- Question 6. b., Page 6-7 - Landfill system related new construction or processes – Leachate collection sump and dual extraction wells: Will these new or expanded systems or processes take into consideration emerging contaminants such as PFAS?

- Page 7 Dual extraction system, regarding the statement, "The number of dual extraction wells has been reduced to allow for the construction of Phase 5 and 6 landfill." Does "reduced" mean sealed? If yes, what year did the sealing occur? As waste placement within Phases 5 and 6 continues, the wells will be brought back online into the dual extraction system to maximize the capture of leachate and landfill gas." Does "online" mean new well construction by a licensed well contractor?

- Page 10 and Drawing Number 16. Gas System Details - are these deeper than 15 feet? If yes, they are regulated. Dakota County's Delegated Well Program permits the sealing and construction of wells. Environmental wells that are 15 feet or more deep require a permit to construct from Dakota County. A variance from the MN Department of Health would be required for not full-length grouting, a deviation from MN Rules 4725, but the proposed alternating clean soil backfill and bentonite.

- Page 11 Final Closure will consist of 18 inches of soil fill, six inches of vegetation supporting topsoil and then seed and mulch. Page 36 Item 8. states, "At closure, disturbed areas will be re-vegetated as lawn/grassland. The DNR recommends that reseeding of disturbed soils be done with native species of grasses and forbs using BWSR Seed Mixes or MnDOT Seed Mixes.

- Question 7. a. and b., Tables 5 and 6, Page 20-33 – Climate Resiliency: With increased leachate collection, will the Metro Plant in St Paul have capacity and technology to treat PFAS or other contaminants that may show increased levels due to identified climate impacts? Increasing groundwater levels increases risk of contamination from leachate – is dewatering a possible adaptation or mitigation? Will this potential be fully evaluated?

- Page 40, The Franconia Formation is now referred to as the Tunnel City Group - Lone Rock Formation and the Ironton and Galesville are now referred to as the Wonewoc Sandstone.

- Page 44. 12 ii. states, "If the Proposer observes groundwater quality impacts during monitoring, they will closely coordinate with the MPCA to develop appropriate actions to address and improve groundwater quality under the terms of their solid waste permit." The sample results from the environmental wells at the site already show that the groundwater is contaminated. Page 69 states that "If any groundwater impacts are identified, the Proposer will coordinate closely with the MPCA to implement appropriate actions to address and improve groundwater quality in compliance with the solid water permit." There are already multiple contaminants detected in the existing environmental well network.

- Page 44 ii.3. Statement " The majority of the public supply wells are east of the Project Area." Figure 10 shows four wells east of the site that are Public Supply. Minnesota Unique Numbers 207297, 44188 and 207292 are all sealed; 265255 is suspect because there is so little information. Table 13. is incomplete. The Pine Bend Landfill owns 57 environmental wells and one water supply (commercial) well, that have an assigned Minnesota Unique Well number. The records should be available from the proposer for inclusion in Appendix D. Only 22 records are currently located in Appendix D.

Physical Development Division

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- Question 12. a. ii. Page 44-46 – Groundwater: *"The July 2022 sampling event included analyses for PFAS at 22 monitoring wells and 2 springs."* "*Levels were detected at or above set limits for one or more of the PFAS at 12 wells and two springs."* PFAS contaminants have been detected in the monitoring well network, how will expansion impact the presence of PFAS and other contaminants identified in the monitoring well network and the leachate?

- Page 46 Section Perfluoroalkyl substance analyses "The July 2022 sampling event included analyses for PFAS at 22 monitoring wells and 2 springs, see Appendix D." There is no PFAS data in Appendix D. Note: the Minnesota Department of Health now refers to monitoring wells as environmental wells.

- Page 46 "A submersible pump capable of pumping approximately 80 to 120 gallons per minute (gpm) will pump leachate collected in the sumps to the existing force main that encircles the perimeter of the Facility". Is there a backup power supply for the submersible pump for the leachate?

- Question 12. b. ii. Page 47-48 – Stormwater: *"The system consists of benches, catch basins, drainage piping, downslope structures, junction vaults, and infiltration ponds."* Has stormwater or accumulated sediment been sampled for contaminants that may be carried with stormwater to the various ponds and catch basins? Does sediment or stormwater remain within the landfill property? Has PFAS been included in any stormwater or sediment sampling?

- FYI Minnesota Department of Health has a designated Special Well and Boring Construction Area that due to the contaminants in groundwater from the Pine Bend Landfill, mainly solvents and other contaminants originating at nearby industrial properties. The Boundaries of the Special Well and Boring Construction Area fully encompass the Pine Bend Landfill and are defied as follows Sections 33, 34 and 35 of Township 27 North and Range 22 West. New water supply wells constructed within the Area would be permitted with requirements to avoid contaminated groundwater.

- Page 92 Drawings 8 and 9: Is a licensed well contractor installing the horizontal collectors?

- Appendix B: what is the purpose of the Injections Wells not discussed in the text but on the Drawings 2, 6, 7, 8 and 9?

- Appendix B Plan Drawings - Pages 89 thru 91 were blank which could be missing Drawings 1, 3, 4 and 5. Drawing 16 - should the gas extraction wells be 15 feet or deeper they will be required to be permitted as Environmental Wells by the Dakota County Delegated Well Program, full length grouted and labeled with the official Minnesota Unique Well Number tag provided by the well contractor.

- Page 133 Table 1 Environmental Monitoring System Summary has two or three asterisks after five of the well locations and no explanation of what the asterisks mean.

- Page 134 Table 4 Summary of Groundwater Field Parameters for 2022. The pH in upgradient wells MW-100 and MW-101 is between 3 and 4. Any explanation of why the pH is so acidic?

- Throughout the document, Figure 10 "County Well Index Map" can be updated to the current name of "Minnesota Well Index".

- There is no Table 2 or Table 3 in Appendix D.

- There is habitation, likely an old farmstead mapped in the 1896 and 1916 plat maps and visible on the 1945 and 1951 air photos. There is no Well and Boring Sealing Record for a domestic well at this location. See attached figure. This area is still accessible. so a well search should be conducted and the well(s) ultimately sealed by a licensed well contractor. A magnetometer is the best, sometimes only way to locate wells that are below grade. Dakota County can help locate a wells using a magnetometer by calling 952-891-7000. Magnetometers work best on a clear site free from large metal obstructions. A Dakota County well inspector must be present during any well searches to rule out the presence of a well.

If you have any questions relating to our comments, please contact me at 952-891-7007 or Georg.Fischer@co.dakota.mn.us

Sincerely,

Georg T. Fischer, Director
Physical Development Division

cc: Commissioner William Droste, District 4
Matt Smith, County Manager

Physical Development Division

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Habitation in SE quarter of Section 33 on Pine Bend Landfill at 2495 117th St E, Inver Grove Heights. Area of possible one or more unsealed domestic wells is circle in yellow in figures below.

Figure 1. 1916 plat map – 116.79 acre parcel owned by J. Chapron

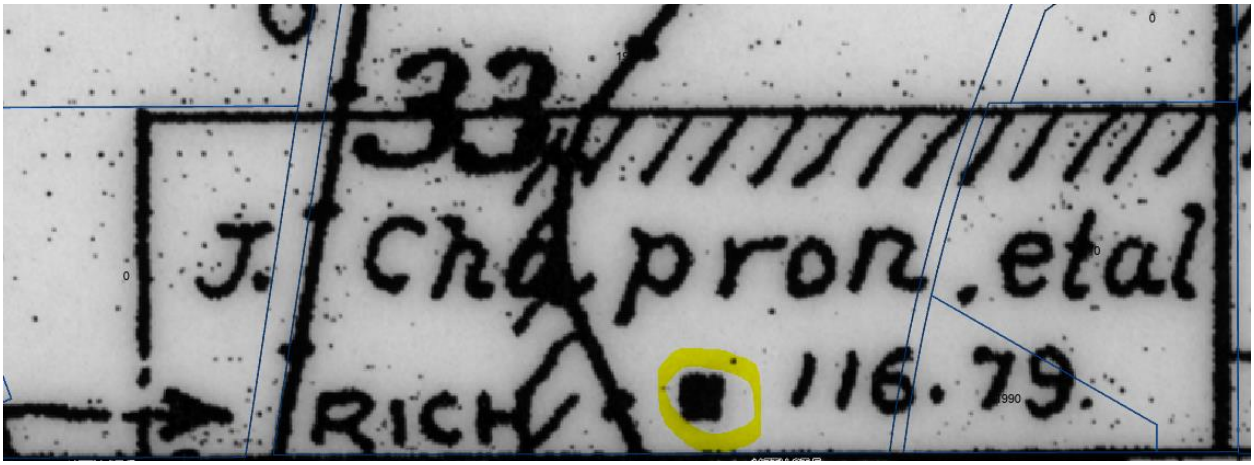


Figure 2. 1951 air photo – habitation is visible.

Figure 3. 2023 property is accessible for a well search, excavation and sealing

RAMSEY/WASHINGTON
RECYCLING & ENERGY
CONNECTING VALUE TO WASTE

December 15, 2023

Megen Kabele
Minnesota Pollution Control Agency
520 Lafayette Road
Saint Paul, MN 55155

Dear Ms. Kabele,

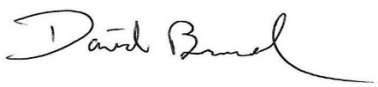
Ramsey/Washington Recycling & Energy (R&E) is a public entity formed by a Joint Powers Agreement between Ramsey and Washington counties and governed by a joint powers board made up of commissioners from the two counties. Our vision is for vibrant, healthy communities without waste and our mission is "Enhancing public health & the environment by creating value from waste through partnerships".

R&E exists to manage all municipal solid waste generated in the counties to protect health and the environment and meet the state's 75% recycling goal by 2030. R&E views the waste stream as a resource stream and works to extract maximum value from discarded materials. As part of this work, R&E sorts all solid waste generated in the counties at the Recycling & Energy Center (R&E Center) facility in Newport, reducing the need for landfilling by up to 90%.

Despite our best upstream comprehensive waste prevention, reuse and recycling programs, and our facility's efforts to maximize recovery through waste processing to capture additional recyclables and create refuse derived fuel, we still end up with materials that require landfilling. Until such time that new solutions can be found to effectively reduce or recycle our processing residue and non-processible bulky wastes, landfill disposal is required. While our goal remains to minimize landfilling of solid waste resources, more time is needed to explore and pursue additional technologies and strategies necessary to achieve success.

R&E relies on both the Republic Pine Bend Landfill as well as local WM landfills. R&E and the customers in both Ramsey and Washington Counties benefit when competition in disposal options is available. Additionally, the Pine Bend landfill location is closer to Newport, which can reduce road miles driven and generate fewer GHG emissions from trucks.

Accordingly, while R&E remains fully committed to strategies that maximize waste reduction, reuse, recycling and non-landfilling management options for our solid waste resources, we would like to state our support for Republic Service's landfill expansion at the Pine Bend Landfill.



David Brummel
Washington County
R&E Joint Leadership Team

Michael Reed
Ramsey County
R&E Joint Leadership Team

International Union of Operating Engineers Local 49

Dear Commissioner Kessler:

I am writing today to express my strong support for the expansion of the Pine Bend Landfill in Inver Grove Heights. I am the elected Business Manager/Financial Secretary for the International Union of Operating Engineers Local 49. We represent 15,000 members across Minnesota, North Dakota, and South Dakota. Our members are highly skilled workers, and we represent heavy equipment operators/mechanics and stationary engineers. Several of our members enjoy high quality jobs at the Pine Bend Landfill.

Our members are proud to contribute to the strong environmental record at the Pine Bend Landfill. The landfill expansion is necessary to continue serving communities in Minnesota to ensure waste is disposed of properly. In addition, the first renewable natural gas plant in Minnesota is located at the Pine Bend Landfill. This cutting-edge technology turns biogases produced by trash into renewable natural gas.

Pine Bend is the only private landfill in Minnesota that has our 49ers working on site and we hope to support these workers for years to come. Please let me know if you have any questions. Thank you for your time.

Sincerely,

Jason George
Business Manager
IUOE Local 49

From: Collins, Melissa (DNR)
To: Kabele, Megen (MPCA)
Cc: tkraft2@republicservices.com
Subject: Pine Bend Landfill Vertical Expansion EAW - DNR Comments
Date: Friday, December 15, 2023 12:19:03 PM
Attachments: image003.png
image004.png
image005.png
image006.png

Dear Megen Kabele,

Thank you for the opportunity to review the Pine Bend Landfill Vertical Expansion EAW, located in Dakota County. The DNR has reviewed the document and respectfully submits the following comments for your consideration:

- Section 14, Rare Features. This section describes potential impacts to habitat, but does not address other potential impacts to wildlife. It is a known issue that many types of landfills attract wildlife species, particularly cosmopolitan and scavenging species like mice, raccoon, coyotes, eagles and more. Scavenging birds, like eagles, are attracted to biological waste, and have died after feeding on material within landfill facilities. Situations like this highlight the need to monitor for the presence of protected wild animals using the site in order to protect them from inadvertent harm. We encourage the project to investigate integrated pest management strategies and raptor deterrent programs. These strategies should be described within this section of the EAW.
- Section 16, Visual. Project lighting is not described in this section. Because the project area is less than a mile from the Mississippi River Twin Cities Important Bird Area, a significant migratory bird corridor, lighting for the facility will be especially important to limit impacts to migratory birds. Animals depend on the daily cycle of light and dark for behaviors such as hunting, migrating, sleeping, and protection from predators. Light pollution can affect their sensitivity to the night environment and alter their activities. In addition to the undesirable effects of upward facing lighting, the hue of lights can also affect wildlife. LED lighting has become increasingly popular due to its efficiency and long lifespan. However, these bright lights tend to emit blue light, which can be harmful to birds, insects, and fish. The DNR recommends that any projects using LED luminaries follow the MnDOT Approved Products for luminaries, which limits the Uplight rating to 0. A nominal color temperature below 2700K is preferable for wildlife, and so we recommend choosing products that have the lowest number for backlight and glare (all approved products should already be 0 for Uplight).

Please let me know if you have any questions. A confirmation of receipt would be most appreciated.

Thank you,

Melissa Collins
Regional Environmental Assessment Ecologist | Ecological and Water Resources
Pronouns: She/her/hers
Minnesota Department of Natural Resources
1200 Warner Road
St. Paul, MN 55106
Phone: 651-259-5755
Email: melissa.collins@state.mn.us
mndnr.gov

From: GraggJohnson, Kelly (ADM)
To: Kabele, Megen (MPCA)
Subject: SHPO No 2024-0270 EAW - Pine Bend Landfill Vertical Expansion Project
Date: Friday, December 15, 2023 10:51:00 AM
Attachments: 2024-0270.pdf
image001.png

Good Morning,

Please find attached, the SHPO comment letter for this proposed project.

Thanks,

Kelly

Kelly Gragg-Johnson (she/her/hers) **| Environmental Review Program Specialist**
50 Sherburne Avenue, Suite 203
Saint Paul, MN 55155
(651) 201-3285 | kelly.graggjohnson@state.mn.us

For information about how to submit projects for review, please visit the Environmental Review Program Website.

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MINNESOTA
INDIAN AFFAIRS COUNCIL

161 St. Anthony Ave, Suite 919 Saint Paul, MN 55103
MIAC.Culturalresources@state.mn.us

Date: 12/29/2023

Megen Kabele
Minnesota Pollution Control Agency
651-757-2044
megen.kabele@state.mn.us

Project Name:
EAW Public Notice
for the Proposed
Pine Bend Landfill
Vertical Expansion

Submitter's
Project ID:

Known or Suspected Cemeteries
☐ Platted Cemeteries ☐ Unplatted Cemeteries ☐ Burial File ☐ Authenticated Burial
Notes/Comments
The Minnesota Indian Affairs Council (MIAC) completed review of the EAW for - Pine Bend Landfill Vertical Expansion. As part of the assessment, MIAC recommends THPO consultation, and cultural resource management fieldwork (survey). THPO consultation and CRM survey can potentially identify and cultural resources in the project area. For any questions regarding this review, please reply to MIAC's cultural resource personnel.
Recommendations

☐ Not Applicable

☐ No Concerns

☐ Monitoring

☐ Avoidance

☐ Phase Ia – Literature Review

☐ Phase I – Reconnaissance survey

☐ Phase II – Evaluation

☐ Phase III – Data Recovery

☒ Other -

If you require additional information or have questions, comments, or concerns please contact our office.

Sincerely,

John Reynolds
Cultural Resource Specialist
MIAC
161 St. Anthony Avenue, Ste. 919
Saint Paul MN 55103
651.539.2200
John.Reynolds@state.mn.us

Pine Bend Landfill Vertical Expansion
Environmental Assessment Worksheet (EAW)

RESPONSE TO COMMENTS

1. Comments by Ross Crow

Comment 1-1: I am against this landfill expansion. No more it has been used many years. It's time for somewhere new. This area doesn't need more garbage. Enough! Stop!

Response to 1-1: Thank you for your comment. This comment is beyond the scope of the EAW because the information on this issue would not inform a reasoned decision about the potential for or significance of the environmental effects of the Project under Minn. R. 4410.1700.

Comment 1-2: Plus all the trucks get annoying and pull out in front of people is dangerous

Response to 1-2: The Facility currently accepts approximately 160 trucks per day. The Project will not alter the existing traffic operations at the Facility and will not generate additional traffic. All vehicles within the landfill boundary are required to comply with PBL's safety requirements. Outside of the landfill, the planned 117th Street Reconstruction Project will improve safety and mobility along 117th Street when constructed.

2. Comments by Rebecca Kruse

Comment 2-1: The Dakota County landfills are already passing the point at which the height of the landfill detracts from all else on this relatively flat landscape. It will be seen from many miles and is not the monument that Dakota County wishes to erect or be identified with. Adding a hill where one does not belong is no less offensive than destroying a natural mountain. Unlike other development, this is permanent visual blight. I oppose the proposal to increase the height of the landfill.

Response to 2-1: Pine Bend Landfill is surrounded by heavy industrial activities including the SKB Rich Valley landfill and the Flint Hills Refinery to the south, warehouse and light industrial facilities to the east and west, and agricultural land to the north. The Project is consistent with surrounding and designated land uses, however, the Project would result in an increase in the height of the waste fill by approximately 85 vertical feet from the currently permitted maximum elevation of 1020 to 1105 mean sea level. While approximately 500 feet of wooded vegetation provides a natural buffer between residential homes and the Project Area, nearby residences, parks, and roadways would be affected by the increased height. No tree clearing or alterations to this existing natural buffer area would result from the Project.

3. Comments by John Rutz

Comment 3-1: This seems to be a short term solution. It seems to me a better solution is to open a composting site on the top of the current pile. The leach aide system to catch contaminated water is already in place. You could do a windrow system with all the space you have. You may also be able to use the leach water you currently have in the system to water the compost. You would be able to mine the current pile to increase space for the additional garbage. The completed compost could be used in the housing and commercial developments in the surrounding area.

The other benefits in composting would:

1. Reduce the amount of methane coming off of the current garbage pile.
2. Reduce the time it takes to compost the current garbage.

3. Extend the time in filling up the landfill to it current specifications.
4. No need to expand the current landfill.
5. No need to put in addition liners
6. Have a complete cycle of processing garage to a usable product.
7. No need to close and monitor a full landfill.
8. ou can also add ash waste to the compost.
9. After the compost is degraded you could screen it and take out additional recycles that were buried in the original garbage.
10. Written Comments received at public meeting: We need to look at other options from expanding the landfill. Composting, processing, burning. We need to get more of the recycling out of the garbage. My experience is that unless we stop landfilling nothing will change.

Response to 3-1: Comment is beyond the scope of the EAW because the information on this issue would not inform a reasoned decision about the potential for or significance of the environmental effects of the Project under Minn. R. 4410.1700.

4. Comments by Brett Kramer

Comment 4-1: While understanding the need for our regional refuse to have to go somewhere, increasing the allowable height an additional 85 feet is so far from being in conformity with the nearby land contour.

Response to 4-1: The Project Area consists of an operational landfill facility that is heavily disturbed. It is surrounded by heavy industrial activities including the SKB Rich Valley landfill to the south. The Project would result in an increase in the height of the waste fill by approximately 85 vertical feet from the currently permitted maximum elevation of 1020 to 1105 mean sea level. The proposed vertical expansion height would be higher compared to other nearby landfill facilities. For instance, the existing SKB Rich Valley Landfill on the south side of 117th Street, across from the Facility, is approximately 960 mean sea level.

Comment 4-2: The increase in allowable volume (and height) will exponentially increase the garbage that I already find on my property including plastic bags and wraps that get tangled in a wooded area on my property. Although the landfill operator may try its best to avoid, as garbage is piled higher above the nominal wind-blocking buffer of trees/fencing, a very substantial increase in trash and odor resulting from the expansion cannot be denied.

Response to 4-2: As stated in Item 10b. of the EAW, existing conditions associated with traffic, noise, dust, odor, and other issues related to Facility operations would continue, but would not increase from current operations. Additionally, as it pertains to litter, working faces are limited with work area/litter fences established around the area (15-20 feet high) to deter litter blowing from the working area prior to closure. BFI also considers wind and weather conditions to minimize litter blowing during days where there are higher wind speeds. If there are sustained winds PBL personnel evaluate the current practices to prevent litter. Additional cover may be placed, or the active waste placement area may be moved to a lower elevation during high winds. The decision is made at the discretion of trained operators. If they believe winds are high enough for litter/safety issues, they will temporarily shut down.

Comment 4-3: Additionally, with the mound being so high above any natural buffer (trees), the noise of the machinery will also be increased. We already clearly hear the on-going "beeps" from the equipment reversing depending on the weather and where on the landfill they are working, and if they are working higher, the noise will carry even more.

Response to 4-3: Existing conditions associated with noise would continue but would not increase from current operations. Noise associated with landfill activities will not occur outside of operating hours. See also Response 9-6.

Comment 4-4: With the expansion, I am also concerned with the increased contamination risk of our ground water as all the homes in the area source our water from wells. My concern is both for contamination under the actual landfill area as well as from the surface level runoff. By increasing the height of the mound by an additional 85 feet at a slope of 3:1, the water runoff would be moving very fast in a significant rain/flood event that could potentially cause it to breach the retention mechanisms proposed/in place.

Response to 4-4: The EAW addresses the potential environmental effects of the Project and the measures to address subsurface contamination avoidance and stormwater management in Items 6, 12, and 21c, which are in conformance with the solid waste permit requirements.

Atlas 14 Rainfall values for Dakota County were used in setting the storm event composite Curve Number, a commonly used parameter for predicting direct runoff or soil infiltration after a rainfall event. To be conservative in the analysis, no infiltration was modeled in swales or downslopes. The 100-year high water level was also set by modeling for no infiltration in the swales and downslopes. Benches are placed on all 3:1 slopes, graded into final cover and V-shaped with right and left side slopes 3:1 and 8:1 respectively. The benches are placed to intercept and direct flow, as well as minimize erosion. The drainage benches are designed to handle the flow for each subarea, spaced 40 feet vertically around the perimeter of the landfill. The peak flow depth will not exceed the depth of the bench. Proposed benches will have category 4 erosion-control matting installed to protect against erosion until vegetation is established. Each bench discharges into one of seven cable concrete lined downslope structures around the perimeter of the Facility, designed to contain runoff during a back-to-back 100-year rainfall event. The surface water management system exceeds infiltration requirements per the City's stormwater management requirements.

Comment 4-5: Lastly, the proposed height increase would be a massive eyesore. I am not naïve in that I purchased a home in close proximity to a landfill and I know that they are being as best of neighbor possible while operating their business, but this proposed expansion seems extremely aggressive and I am very much against it.

Response to 4-5: See response to Comment 4-2.

5. Comments by John Wendt

Comment 5-1: Imagine you live in the shadow of a 25 story building that runs for several blocks. Now add another 8 or 9 stories on top of it!! This has to stop!!!! We strongly oppose this expansion!!

Response to 5-1: Thank you for your comment. This comment is beyond the scope of the EAW because the information on this issue would not inform a reasoned decision about the potential for or significance of the environmental effects of the Project under Minn. R. 4410.1700.

6. Comments by Sigurd Scheurle

Comment 6-1: Based on available public information, environmental review in the form of an EIS is mandatory. Under the Environmental Quality Board ("EQB") rules, an EIS is mandatory for an expansion by 25 percent or more of previous capacity of a mixed municipal solid waste land disposal facility that accepts 100,000 cubic yards of waste per year, as the Pine Bend Landfill does. See Minn. R. 4410. 4400, subp. 13E. According to the EAW, the project will expand the current permitted design capacity of 33,937,400 by 8,185,500 cubic yards, or slightly more than 24%, which is slightly below the mandatory category criteria. However, in June 2019 MPCA approved an expansion of 4,137,400 cubic yards. This expansion should be counted as part of the present project for two reasons. First, the present expansion would not be occurring "but for" the plans approved by the MPCA in 2019, i.e., the projects are "connected actions" as defined in Minn. R. 4410.0200, subp. 9(C). Under Minn. R. 4410.1000, subp. 4, connected actions must be considered together in determining whether a mandatory EIS should be prepared. The 2019 plans anticipated the present expansion and resulted in the engineering features that compels and dove tails with the present expansion in that it that the 2019 expansion essentially fills the saddle, changes the side slopes from 5 to 1 to 3 to 1 thereby expanding the area functioning as the base for proposed expansion, and installed a liner on top of the landfill to support vertical expansion.

Response to 6-1: In 2016, an EAW was reviewed for the future 2019 vertical expansion over the existing Facility that included constructing 3:1 cover slopes around the entire existing landfill footprint, and increasing the permitted capacity from 29,800,000 cubic yards ("cy") airspace to 33,937,400; an increase of approximately 4,137,400 cubic yards. Therefore, the 2019 expansion is exempt from further environmental review (including an EIS) as it is exempt per 4410.4600, subp. 2(E). Further, the current 2023 expansion for this EAW does not exceed mandatory criteria for an EIS, again because the 2019 expansion, even though a phased action, is exempt as stated above.

Comment 6-2: Second, construction of the 2019 expansion did not occur until after MPCA and local approvals were secured. The application for the present proposed new expansion was submitted to MPCA in June 2022. Based on these dates, the application for the expansion was filed less than three years following beginning of construction of the 2019 project. Minn. R. 4410.3400, subp. 1 provides if the proposed project is an expansion or additional stage of an existing project, the cumulative total of the proposed project and any existing stages or components of the existing project must be included when determining if a threshold is met or exceeded "if construction was begun within three years before the date of application for a permit or approval from a governmental unit for the expansion or additional stage…" If the 4,137,400 cubic yards is added to the present application, the 25% figure for a mandatory EIS is easily exceeded.

Response to 6-2. See response to comment 6-1.

Comment 6-3: Finally, given that the alternatives to this facility have not been examined since the 1980s, the MPCA should resolve any doubt in favor of a mandated EIS.

Response to 6-3: An EAW is designed to evaluate a project as proposed. Alternative analysis of facility operations is beyond the scope of the EAW and therefore cannot be used in the decision on the need for an EIS.

Comment 6-4: The EAW is incomplete because it fails to include information on the significant environmental impacts of the proposed project. In particular, the EAW lacks adequate information on the greenhouse gas and landfill gas impacts of the expansion (and the impacts of the leachate generated by the expansion).

Response to 6-4: GHG emissions and carbon footprint for this project have been evaluated using the Minnesota Environmental Quality Board Revised Environmental Assessment Worksheet (EAW) Guidance dated January 2022 (EQB EAW Guidance). The Greenhouse Gas Analysis (GHG) was revised to address adjustments in RNG combustion, Waste Disposal Operations combustion, and insignificant mobile source combustion, shown in Appendix C of the Findings of Fact. Information about the leachate capture and management is included in the EAW Item 12.

Comment 6-5: Under Minn. R. 4410.1700, subp. 2(A), "if the RGU determines that information necessary to a reasoned decision about the potential for, or significance of, one or more possible environmental impacts is lacking, but could be reasonably obtained, the RGU shall either: A. make a positive declaration and include within the scope of the EIS appropriate studies to obtain the lacking information; or B. postpone the decision on the need for an EIS…" As noted below, additional information relative to the quantity and impact of landfill gases and leachate is likely available. The adequacy decision should not be made without this information because of its potential significance.

Response to 6-5: A GHG analysis was completed and is found to be consistent with the guidance provided to the Proposer for the preparation of the EAW, including landfill gas management (see EAW item 18). Additional information about the leachate capture and management is included in the EAW Item 12. MPCA determined that the information in the EAW was sufficient to make a determination on the cumulative potential for significant effects and the need for an EIS as specified in MR 4410.1700, subp. 7.

Comment 6-6: The information that is missing in the EAW will necessitate revising the present forecast of air emissions, inform the proposed air and solid waste permits and allow MPCA to consider mitigative measures to reduce emissions and protect the public and the environment.

Response to 6-6: While the EAW found no overall increase in annual operating landfill gas emissions from the expansion, the increased duration of waste acceptance would increase the lifetime landfill gas

emissions to 164,934,452 Mtons CO^2e (see FOF, Appendix C). The RNG process collects landfill gas to offset of LFG emissions at approximately 88,790 MTPY [97,873 TPY]. Emissions from the landfill as a whole are decreasing over time. This is because the older parts of the landfill have already reached such a state of decomposition that little to no landfill gas is being emitted from these areas. In addition, current and projected waste acceptance rates are lower than historical acceptance rates. Temporary emissions from construction will result in 4757 CO^2e tons per year. Emissions after construction will be the same as the pre-construction rate of 6,872,269 CO^2e tons per year, as shown in the FOF Appendix C.

Comment 6-7: A summary of the Potential to Emit (PTE) in tons per year is as follows:

Pollutant	PM	PM10	PM2.5	SO2	NOx	VOCs	CO	CO2e	Single HAP*	All HAPs
Total Facility PTE Emissions	97	32	13.5	90.6	40.8	10.52	163.2	250,790	3.55	8.95

PM = Particulate Matter PM_{10} = PM, 10 microns and smaller

$PM_{2.5}$ = PM, $_{2.5}$ microns and smaller SO_2 = Sulfur Dioxide

NO_x = Nitrogen Oxides VOCs = Volatile Organic Compounds

CO = Carbon Monoxide CO_2e = Carbon Dioxide Equivalents as defined in Minn. R. 7007.0100

HAP = Hazardous Air Pollutant * Single HAP = Metallic HAPs

The table above illustrates the magnitude Pine Bend's air emissions based on incomplete data. Additional information is necessary to calculate additional anticipated air emissions.

Response to 6-7: Since the maximum annual landfill gas generation estimate was the same with and without expansion (3,799 scfm), expected in calendar year 2023, the PTE was sufficiently calculated. The use of LandGEM is an accepted model and has been approved for use in permitting situations by EPA. Federal regulations for methane monitoring are incorporated into the permit. The facility is required by the MSW permit to monitor surface methane emissions to ensure they remain below 500 parts per million above background levels. Additionally, the facility is required to maintain negative pressure at each wellhead, to monitor landfill cover integrity, and to implement landfill cover repairs as necessary on a monthly basis. These actions all serve to ensure that methane leaks are controlled to the extent possible. The monitoring of methane emissions in the permit is adequate to ensure continual compliance with the requirements of 40 CFR pt. 63, subp. AAAA because the NSPS and NESHAPs included in this permit were promulgated after November 15, 1990, and therefore contain adequate monitoring requirements.

Comment 6-8: The draft air permit and EAW are silent regarding air emissions due to waste fires at the Pine Bend Landfill. A review of publicly available data indicates alternative methods to estimate air emissions from landfill fires. Therefore, this data is available. If the facility has had fires, then that needs to be stated and the estimated air emission impacts outlined. If the facility has not had a fire, which is unlikely, then the measures to mitigate fires in the future need to be outlined. Given the increased risks of fires caused be electronics, information about fires appears to be necessary.

Again, actual or more accurate air emission data from fires will allow for accurate calculations of GHG, VOC and air toxic emissions. Only after gathering accurate data can MPCA apply this information to health risk calculations, anticipated overall GHG impacts, and as well as offering insight into potential mitigative measures. Permit approval without a clear data set is unacceptable. Accurate data will inform both the draft EAW (or EIS), the draft solid waste, and the draft Air Emissions permit.

If the facility or firefighters that access the site to fight the fire uses PFAS containing firefighting foams, then this aspect of fire related impacts need to be outlined. Or if the facility uses leachate to fight fires, then this fire related impact needs to be outlined in the draft air permit and EAW.

Response to 6-8: A fire at a landfill, like any other industrial facility, is not included in PTE as it is not how the facility is designed to operate. Estimating emissions from such a "what if" catastrophic event is not required for air permitting or EAW evaluations. Waste fires are not within the authority of the EPA approved State Implementation Plan for Minnesota exercised by the Air Quality Permits Section of the MPCA, and is therefore out of scope for this project including the air emission analysis, either for permitting or environmental review. Further, BFI has not proposed using leachate to fight fires.

Comment 6-9: The analysis of leachate impacts in the EAW is wholly inadequate and incomplete. If the facility uses leachate as part of an alternative method of cover at the working face (such as making a foam covering), then volatile chemicals may be released to the environment be the leachate. This pathway for the release of pollution to the air is not described in the draft EAW or Air permit.

Response to 6-9: The Facility does not use leachate as alternative cover or in any method other than as described in the EAW.

Comment 6-10: Allied reported that over nine million (9,188,290 gl.) gallons of leachate were shipped by truck to the Metro Plant in 2021. This volume may not account for leachate used at the facility for various other purposes including alternative cover foams. If leachate is used, then the EAW should evaluate alternative that may release less pollution. This may necessitate recalculating leachate generation, discharge to the Mississippi River, evaporation, recirculation, and air emissions.

Response to 6-10: The Facility does not use leachate as alternative cover or in any method other than as described in the EAW.

Comment 6-11: The EAW should have discussed whether large landfills like Pine Bend will be able to comply with the likely new requirements for treatment (most likely at the site) prior to disposal.

Response to 6-11: Comment is beyond the scope of the EAW.

Comment 6-12: The cumulative impact of tens of millions of gallons of leachate from just the three largest landfills in Dakota County, Waste Connections, Burnsville and Pine Bend needs to be examined in the EAW in terms of their cumulative effects.

Response to 6-12: The proposed vertical expansion will include lined cells to ensure capture and treatment of leachate within the landfill to minimize the potential for groundwater contamination. The Facility includes an existing groundwater monitoring network to ensure early detection of groundwater quality impacts. This existing groundwater monitoring network and sampling program are designed to detect if leachate or other released landfill constituents that have entered the groundwater prior to reaching sensitive waterbodies such as the Mississippi River.

Other existing industrial facilities and future landfill expansion projects in the vicinity of the Project Area are required to report environmental monitoring data, including groundwater monitoring results, in compliance with MPCA solid waste permitting requirements to minimize the potential adverse groundwater impacts. Any potential impacts to groundwater would require coordination with the MPCA to determine appropriate remediation actions.

Comment 6-13: In 1980, landfills were not lined in 1980 and MPCA did not adopt landfill rules until 1987. Since then, the state has largely failed to come to terms with implementing the Waste Management Act, and the result has been new multi-media pollution problems from landfills, and the overall resistance to real change.

Response to 6-13: Thank you for your comment. This comment is beyond the scope of the EAW because the information on this issue would not inform a reasoned decision about the potential for or significance of the environmental effects of the Project under Minn. R. 4410.1700

Comment 6-14: An EIS-- 44 years after Pine Bend's only EIS was prepared—provides an opportunity to take a hard look at emissions from this facility, available mitigative measures, cumulative impacts from Pine Bend and neighboring landfills and the proposed project's impacts on the solid waste management system that it is part of.

Response to 6-14: The Commissioner of the MPCA has made the determination on the need for an EIS after carefully reviewing all the information in the EAW, written public comments, and the Response to Comments. Upon reviewing all of the available information, the Commissioner determined the Project does not have the potential for significant environmental effects following the criteria specified in Minn. R. 4410.1700 subp. 7. The Commissioner issues Findings of Fact, Conclusions of Law, and Order to support either a positive declaration on the need for an EIS, or a negative declaration on the need for an EIS.

7. Comments by Brooklyn Petrich

Comment 7-1: I oppose the landfill expansion and request the funds be rerouted to investing in a more sustainable future that cuts down on the amount of waste that goes into a landfill. Examples of projects that would do this include municipal curbside composting, expanded recycling (e.g., curbside or drop-off tetra recycling), and curbside yard waste pickup.

Response to 7-1: As the EAW is designed to evaluate a project as proposed, thank you for your comment. This comment is beyond the scope of the EAW because the information on this issue would not inform a reasoned decision about the potential for or significance of the environmental effects of the Project under Minn. R. 4410.1700.

8. Comments by River Heights Chamber of Commerce

Comment 8-1: We are writing in support of the Pine Bend Landfill Expansion project in Inver Grove Heights.

Republic Services has been a valued member of the River Heights Chamber of Commerce and was named the "Business of the Year" in 2019. Republic Services is a strong steward of the environment and provides good paying jobs in our community.

As you may know, Minnesota's first renewable natural gas plant is located at Pine Bend Landfill in Inver Grove Heights. This clean energy technology turns biogases produced by trash into Renewable Natural Gas-part of Republic's very aggressive goals to reduce absolute operational greenhouse gas emissions every year.

Republic Services has been recognized at the national level as well - in 2020, Republic was named the "Organics Recycler of the Year" by the National Waste and Recycling Association. This year, Republic unveiled a "Polymer Center" in Las Vegas to support their long-term sustainability goal to increase the recovery and circularity of key materials by 40% by 2030.

Republic Services has proven to be a great community member, and we look forward to working closely with Republic Services in the years to come.

Response to 8-1: Thank you for your comment.

9. Comments by City of Inver Grove Heights, Minnesota

Comment 9-1: PBL will need to obtain approvals from the City of Inver Grove Heights to allow the proposed expansion in the form of amendments to the Conditional Use Permit, Non- Conforming Use Certificate, Zoning Ordinance, and a Host Community Agreement. The EAW should be clear that the proposed expansion is not currently approved by the City of Inver Grove Heights. It is the City's understanding is that the MPCA will not reissue the solid waste permit until these City approvals are complete.

Response to 9-1: Noted. In addition to the Conditional Use Permit (CUP) to be sought from the City of Inver Grove Heights, the following must also be sought from the City: 1) Non-Conforming Use Certificate Amendment, 2) Zoning Ordinance Amendment, and 3) Host Community Agreement Amendment.

Comment 9-2: Subsurface gas migration near or beyond the property line: While the EAW discusses existing subsurface gas migration, it does not address how the proposed expansion would affect that. The EAW should address if and how the proposed expansion would affect subsurface gas migration.

Response to 9-2: Any new waste placed would be contained within a liner system to prevent subsurface gas migration. Existing gas migration mitigation efforts are in-place and continued efforts to prevent and reduce gas migration will be implemented. There is an active gas collection system in both the lined and unlined areas to extract methane from the waste mass. Additional efforts to tune the wellfield and increase vacuum may be implemented as warranted. See also page 9 of the EAW.

Comment 9-3: Groundwater contamination, including concentrations exceeding some Intervention Limits listed in the MPCA's Solid Waste Permit. These include some metals, VOCs, and PFAS. While the EAW addresses existing groundwater contamination, it does not address how the proposed expansion would affect that. The EAW should describe if and how the proposed expansion would affect groundwater contamination.

Response to 9-3: Pine Bend monitors for a standard list of contaminants used at all municipal solid waste landfills. This list includes the volatile organic compound 1,4-Dioxane which is considered an emerging contaminant of concern. In addition to this standard municipal solid waste list, BFI monitors for 14 PFAS. The full list of contaminants monitored for in groundwater at Pine Bend can be found in Section 8 of the 2019 Solid Waste Permit (8.1.1 through 8.1.114).

The Pine Bend Landfill groundwater monitoring network is below drinking water guidance values and the associated intervention limits listed in Section 8 of the Solid Waste Permit. There are known guidance value exceedances associated with the unlined portion of the landfill.

The proposed vertical expansion would occur above a liner system, which minimizes the potential for groundwater impacts. The current Site-Specific Sampling Protocol that includes groundwater monitoring is identified in Item 6.b.2. of the EAW, describing the Liner System, Drainage Layer System, Collection Pipes, Leachate Collection Sump, Head Build-Up and Removal, and Leachate Storage.

Comment 9-4: Expansion Visual, Page 58: Because PBL is currently visible from some of the nearby residences and PBL is proposing to significantly increase the landfill height (85 feet), we believe that 3D visualization modeling figures are imperative to show the existing, currently permitted, and proposed conditions from various locations near PBL (including the residential area to the north) to fully evaluate the visual effects of the proposed expansion. Please provide.

Response to 9-4: The landfill is visible under the existing condition. The 500 feet of wooded vegetation would continue to provide a buffer between residential homes and the Project. No tree clearing or

alterations to the existing buffer area would result from the Project. Renderings of the vertical expansion were prepared and presented at the public meeting, see Attachment 1, Site Rendering.

Comment 9-5: Wildlife impacts: Although the footprint will not change, will birds be more attracted to the proposed increased landfill height? If so, how will wildlife be deterred from the site? Please address this issue.

Response to 9-5: A number of bird species are attracted to more easily accessible food or perceived food sources including landfills, roadkill, household pets, gut piles (left behind by hunters after cleaning a hunted animal); however, there is not a known correlation between birds scavenging at greater heights. A number of factors will continue to deter birds and other animals searching out food from the landfill including noise, activity, closure of working spaces, and fencing. The Facility has a Bird Control Plan, Pest Control Plan, and Solid Waste Management Plan that include measures that includes measures to deter wildlife and birds. The Bird Control Plan is designed to prevent birds from feeding or concentrating in the vicinity of the active area of the landfill.

Comment 9-6: Public nuisance: The effects on odor, litter, dust, and noise expected from the proposed increased height of the landfill should be evaluated in the EAW. Will odor, dust, and noise carry further than is occurring with the existing landfill? Please evaluate this.

Response to 9-6: As stated in Item 10b of the EAW, existing conditions associated with traffic, noise, dust, odor, and other issues related to Facility operations would continue, but would not change from current operations. Additionally, as it pertains to litter, working faces are limited with work area/litter fences established around the area (15-20 feet high) to deter litter blowing from working area prior to closure. Wind/weather conditions are also considered by the Facility, to avoid litter blowing during days where there are higher wind speeds.

Minnesota's noise pollution rules are based on statistical calculations that quantify noise levels over a one-hour monitoring period. The L10 calculation is the noise level that is exceeded for 10 percent, or 6 minutes, of the hour, and the L50 calculation is the noise level exceeded for 50 percent, or 30 minutes, of the hour. The statutory limits for a residential location are L10 = 65 dBA and L50 = 60 dBA during the daytime (7:00 a.m. – 10:00 p.m.) and L10 = 55 dBA and L50 = 50 dBA during the nighttime (10:00 p.m. – 7:00 a.m.). This means that during the one-hour period of monitoring, daytime noise levels cannot exceed 65 dBA for more than 10 percent of the time or 60 dBA more than 50 percent of the time.

Operations will remain the same, however, the height of the landfill may increase the amount of noise not buffered by vegetation. With the nearest residence at 500 ft and due to dissipation over distance, noise from operations (see Table 19, below from EAW Section 19) or construction (see Table 20, below from EAW Section 19) is not likely to exceed Minnesota Noise Area Classifications and will be monitored for compliance by nearby sensitive receptors along Bartley Court and 108th Street. The Facility's operating hours from 6:00 a.m. to 4:00 p.m. from Monday through Friday. The facility may be open for limited hours on Saturday if there was a holiday during the week. Operational activities may occur until 5:00 p.m. No heavy equipment operates outside of these times.

Table 19. Landfill machinery noise levels during operation

Operations

Landfill machinery	dBA at 50 feet*	Hours per week
Backhoe	80	42
Compactor 1 (836G)	82	72
Compactor 2 (836H)	82	14
Dozer (D8-T)	85	36
Soil hauling truck	84	42

Construction

Table 20. Typical construction noise levels at 50 feet Equipment	dBA	Hours per week	Approx. duration (weeks)
Backhoe	80	60	15
Compactor	82	60	15
Dozer	85	60	15
Loader	80	60	15
Soil Hauling Truck	84	60	15

Comment 9-7: Page 6, Table 1 Historical Leachate Collection Data. Years 2017 through 2020 do not match the number of gallons of leachate found in PBL's annual reports. Please correct or explain.

Response to 9-7: Table 1 should be revised to the following total leachate collection volumes (gallons) See Errata Sheet, Appendix C:

- 2021: 9,188,290
- 2020: 10,453,293
- 2019: 9,235,088
- 2018: 8,087,766
- 2017: 7,848,040

Comment 9-8: Page 6, Final Cover Design. The third sentence indicates that "This design provides for increased capacity without increasing site footprint or elevations…" This is incorrect, elevation will be increased. Please correct.

Response to 9-8: Statement corrected to remove "or elevations"; sentence will read: This design provides for increased capacity without increasing site footprint. See Errata Sheet, Appendix C.

Comment 9-9: Page 7, Peak Run-off. The last sentence referring to the 100-year high water level appears to be referring to the stormwater ponds. Please clarify this sentence.

Response to 9-9: This sentence should be modified as follows: The 100-year high water level (for the stormwater ponds) was also set by modeling no infiltration in the swales and downslopes. See Errata Sheet, Appendix C.

Comment 9-10: Page 8, Bend and Drainage Swale Design. The last sentence, “Runoff contained during…” is not a complete sentence. What is intended here? Please correct.

Response to 9-10: This sentence should be revised as follows: Runoff would be contained during the 100-year, 24-hour rainfall event. See Errata Sheet, Appendix C.

Comment 9-11: Page 8, Junction Vaults. The paragraph indicates that downslope piping is on the northeast corner of the permitted design, but the last word indicates it is on the northwest. Please correct or explain.

Response to 9-11: Instead of "downslope piping systems" change to "downslope drainage systems". In the junction vaults in the southwest and northwest corners of the landfill, flow is combined to a single pipe that outlets to the existing railroad crossing culverts, a 48-inch reinforced concrete pipe (RCP) on the southwest corner and a 96-inch RCP on the northwest corner. See Errata Sheet, Appendix C.

Comment 9-12: Page 9, Landfill Gas Management. PBL has done significant work to try to resolve the migration of subsurface gas near or beyond the property boundary. Please include a summary of this work.

Response to 9-12: The most recent gas migration report prepared for the Facility was submitted to the MPCA in the 2022 Annual Report. Mitigation and analysis efforts include multiple geoprobe investigations, installation of passive gas vents, installation of wind turbines on the passive gas vents, radon fan installation on gas vents, and temporary skid blower pilot study to apply more vacuum to the vents. Additional details will be provided in an update with the 2023 Annual Report to MPCA Solid Waste permitting and is available upon request.

Comment 9-13: Page 9, Landfill Gas Management, Background. Second paragraph, last sentence reads, “The Facility has an MPCA-approved gas collection and monitoring system to meet regulatory standard and to address concerns with migration of combustible gas.” Although PBL has been trying to resolve this problem for years, this sentence is misleading because subsurface landfill gas is migrating near or beyond the property boundary at concentrations above the LEL, so the regulatory standard is not being met. Please correct.

Response to 9-13: BFI has an approved landfill gas management plan and is working with MPCA to address gas migration outside of permit standards.

Comment 9-14: Page 9, Landfill Gas Management, Existing and Future Extraction Wells. The middle of the first paragraph indicates that the annular space between the outer pipe and the well casing will be sealed. However, the gas well design (Appendix B, Sheet 14) does not appear to have inner and outer pipes. Please correct or explain.

Response to 9-14: Sheet 14 depicts a leachate riser manhole, the detail on Sheet 16 for the gas extraction well is correct. The sentence: "The Proposer will seal the annular space between the outer pipe and well casing using a bentonite mixture" should be deleted. Refer to Errata Sheet, Appendix C.

Comment 9-15: Page 10, Landfill Gas Management, Renewable Natural Gas Pipeline and RNG Facility. The first paragraph, second to last sentence indicates that the facility is "preliminary", but we understand that the RNG facility is in operation. Please correct or explain.

Response to 9-15: This sentence should be revised to: The low-pressure pipeline is constructed with 24-inch, high density polyethylene. Figure 4 includes the facility and the low-pressure landfill gas pipeline. Refer to Errata Sheet, Appendix C.

Comment 9-16: Page 10, Landfill Gas Management, Renewable Natural Gas Pipeline and RNG Facility. The first paragraph, last sentence reads "The meter station in the northwest portion of the site will be the start of the pipeline that is the subject of this Application." What "Application" is being referred to here. Please correct or explain.

Response to 9-16: This sentence should be revised to: The meter station in the northwest portion of the site is the start of the pipeline for the RNG Facility. Reference to Application is in reference to the permitting materials prepared for the RNG and pipeline. Refer to Errata Sheet, Appendix C.

Comment 9-17: Page 11, Phased Closures, the second sentence reads "Prior to final closure and installing the final cover system, I waste fill surface…" What is meant by this sentence. Please correct or explain.

Response to 9-17: This sentence should be revised as follows: Prior to final closure and installing the final cover system, ~~I~~ the waste fill surface will conform to the design plans for final grade and benching. Refer to Errata Sheet, Appendix C.

Comment 9-18: Page 11, Phased Closures, Significant demolition, removal, or remodeling of existing structures. It is stated that there will be no demolition, removal, or remodeling of existing structures, however, we understand that the administration building, scale, and related structures will need to be relocated prior to constructing Cell F-2. Please explain or correct.

Response to 9-18: Yes, the administration building, scale and related structures will need to be relocated; however, the question asks if there will be demolition, removal or remodeling of existing structures and the response remains the same that there will not be demolition, removal or remodeling of existing structures. Any demolition will be associated with the currently permitted cell, and not the proposed expansion.

Comment 9-19: Pages 18 and 19 indicate that the U.S. EPA's Climate Resilience Evaluation and Awareness Tool (CREAT) was reviewed to evaluate storm intensification for the local area. The evaluation indicated that the "Stormy" scenario, the highest intensity model, projects the 100-year storm to increase 13.7 percent in 2035 and 26.6 percent in 2060 for the local area. We understand that the stormwater management infrastructure is based on the NOAA Atlas 14, 100-year, 24-hour storm event of 7.43 inches but it appears that the design should be based on a larger storm event as predicted by CREAT. Please explain.

Response to 9-19: While the EQB has set out guidance for the preparation of the response to Item 7 of the EAW, the industry is currently in transition from Atlas 14 to Atlas 15, with differing precipitation values to enter into CREAT. Ultimately it us up to local permitting officials to determine which precipitation values to utilize when calculating a 100-year storm event.

Comment 9-20: Page 36, first paragraph and table 7 indicate that the Project will convert 89 acres from "Other (active landfill)" to "Lawn/landscaping, Final cover will be vegetated". Although this is accurate, please clarify that this conversion of cover types will occur with or without the proposed vertical expansion Project. Also clarify that this Project will delay when this cover conversion takes place.

Response to 9-20: Yes, with or without the proposed vertical expansion (Project), the conversion of the existing cover types will occur. However, the vertical expansion does delay final reclamation vegetative cover.

Comment 9-21: Page 37, Table 10 Permits and Approvals. The table indicates that a Conditional Use Permit application is required to be submitted to the City of Inver Grove Heights, however, the applicant will also be required to submit an application for amendments to the Non- Conforming Use Certificate, Zoning Ordinance, and Host Community Agreement. Please add these to the table.

Response to 9-21: In addition to the Conditional Use Permit (CUP) to be sought from the City of Inver Grove Heights, the following must also be sought by BFI from the City: 1) Non-Conforming Use Certificate Amendment, 2) Zoning Ordinance Amendment, and 3) Host Community Agreement Amendment.

Comment 9-22: Page 39, Section 10.b. first paragraph. The third sentence is incorrect, PBL will have to request a City zoning ordinance amendment. Please correct.

Response to 9-22: BFI will seek a Zoning Ordinance Amendment for the Project.

Comment 9-23: Page 39, Section 10.b, second paragraph, second sentences reads, "Therefore, the Project is allowable through a Conditional Use Permit ("CUP"). However, the Project is not currently "allowable", and the EAW should made clear that the City of Inver Grove Heights would need to go through a public process prior to any approvals. Please correct.

Response to 9-23: The first two sentences of the paragraph are revised as follows: A Conditional Use Permit would need to be sought for the Project. Refer to Errata Sheet, Appendix C.

Comment 9-24: Page 44, Section ii, Groundwater, fourth sentence reads in part, "If the Proposer observes groundwater quality impacts during monitoring, they will closely coordinate with the MPCA to develop appropriate actions…" The use of the word "If" is misleading because there are decades of groundwater data indicating that PBL has negatively impacted downgradient groundwater quality. Please explain or correct.

Response to 9-24: The sentence is revised as follows: If the Proposer observes groundwater quality impacts during monitoring, that are inconsistent with the recent historical data and known conditions, they will coordinate with the MPCA to develop appropriate actions to address and improve groundwater quality under the terms of their solid waste permit. Refer to Errata Sheet, Appendix C.

Comment 9-25: Page 44, Section ii, Groundwater, does not include the Minnesota Department of Health Special Well Construction Area (Inver Grove Heights (Pine Bend Area) Special Well and Boring Construction Area - MN Dept. of Health (state.mn.us) located east (downgradient) from PBL. Please include a description and figure of this area or explain.

Response to 9-25: It has been noted and also documented in the Figure 10, Appendix A provided with this response that the Project is located within the Minnesota Department of Health, Inver Grove Heights (Pine Bend Area) Special Well and Boring Construction Area (SWBCA), that went into effect April 19, 1973. The SWBCA provides conditions and requirements for the construction, repair, and sealing of regulated wells and borings within the SWBCA. Refer to Errata Sheet, Appendix C.

Comment 9-26: Page 44, Groundwater, Onsite and/or nearby wells. The second sentence indicates that the majority of public supply wells are east of the Project Area. However, it appears that only one public supply well is shown on Figure 10. Please add a figure showing a larger area where more public supply wells may be present or explain.

Response to 9-26: MDH recently provided guidance that it is preferred not to identify public supply wells in EAW documents to reduce exposure to security threats. Figure 10, Appendix A has been revised to show a larger area; however, public supply wells are not specifically identified at the request of MDH. Refer to Errata Sheet, Appendix C.

Comment 9-27: Page 44, Groundwater, Table 13 MDH Wells within Pine Bend Landfill. Not all of PBL's monitoring wells are listed in this table including wells 11A, 15, 23, and others. Please correct or explain.

Response to 9-27: As noted in the EAW, wells identified in Table 13 are based on available data from the Minnesota Well Index database and includes wells within the Project Area. It is acknowledged that there are additional monitoring wells in the vicinity that are included in annual groundwater reports.

Comment 9-28: Page 44, Groundwater, Table 13. Some wells are listed as "Monitoring Well", and some are listed as "Test Well". Please add a definition of what these designations mean.

Response to 9-28: The use type identified in Table 13 is based on the classification in the MDH Well Log Reports for each well. The differences in terminology ("test well" or "monitoring well") is dependent on how it is reported to Minnesota Department of Health.

Comment 9-29: Page 46, Perfluoroalkyl substance analysis. The first sentence indicates that the July 2022 sampling event analysis is in Appendix D. It does not appear that these analyses are in Appendix D. Please correct or explain.

Response to 9-29: The information required for this response was provided in the body of the EAW rather than in Appendix D which was mistakenly referenced. Refer to Errata Sheet, Appendix C.

Comment 9-30: Page 46, Perfluoroalkyl substance analysis. The second paragraph references the PFAs that have limits listed in the May 31, 2019 Solid Waste Permit. However, perfluorohexane sulfonate has an intervention limit of 0.01175 µg/L in the Solid Waste Permit but this is not included in the paragraph. Please correct or explain.

Response to 9-30: This sentence has been revised to include that perfluorohexane sulfonate has an intervention limit of 0.01175 µg/L. Refer to Errata Sheet, Appendix C.

Comment 9-31: Page 46, Perfluoroalkyl substance analysis. The second paragraph indicates that PFASs were detected above the limits in the May 31, 2019 Solid Waste Permit in 12 wells. However, the 2022 Annual Report indicates PFAS intervention limits were exceeded in 15 wells. Please correct or explain.

Response to 9-31: This sentence has been revised from 12 wells to 15 wells. Refer to Errata Sheet, Appendix C.

Comment 9-32: Page 51, Section 14, see comment #4, requesting affects on wildlife.

Response to 9-32: See response to Comment 9-5.

Comment 9-33: Page 51, Section 14. The harm to bald eagles that occurred in Inver Grove Heights in 2022 is still under investigation. If the investigation concludes that the harm was caused by the eagles having access to waste in Pine Bend Landfill, what will Pine Bend Landfill do to deter wildlife access to the waste? This should be addressed in the EAW.

Response to 9-33: See Response in Comment 9-5. There are plans in place to prevent potential harm to eagles.

Comment 9-34: Page 58, Visual. This section refers to the "Rich Valley Landfill", but for clarification and in accordance with Figure 11 this facility should be referred to as the "SKB Rich Valley Landfill". Please correct.

Response to 9-34: Noted that the reviewer would like the Operator/Owner name added when the landfill is referred to in the text.

Comment 9-35: Page 58 Visual. See comment #3, requesting 3D visualization modeling.

Response to 9-35: See response to Comment 9-4.

Comment 9-36: Page 61 Air. Vehicle emissions. The EAW states that the facility "currently accepts approximately 160 refuse trucks per day". However, the MPCA's workbooks supporting the RNG minor amendment project and the Title V permit reissuance both report 131 vehicles/day. We suspect that the workbooks may be in error and that the 131 vehicles/day may actually be 131 vehicle miles traveled/day because the workbooks report 47,815 vehicle miles traveled/year which is 365 times 131. Please correct or explain.

Response to 9-36: 160 refuse trucks per day was a conservative estimate used for the preparation of the EAW. The number of trucks can vary from day to day.

Comment 9-37: Pages 62 and 63, Greenhouse Gas (GHG) Emission/Carbon Footprint. The GHG emissions reported in Tables 16 and 17 of the EAW match those in Appendix A of the GHG Assessment Report (attached as Appendix H to the EAW). Appendix A, in turn, references the calculations in Appendix B of the GHG Assessment Report. However, there appears to be several errors converting tons to Mtons in the supporting workbook. Specifically, we believe the CO_2e (Mtons/yr) reported in Appendix A for the "RNG Plant", "Waste Disposal Operations" and "Insignificant Operations" are incorrect. The total emissions from all sources should be 6,872,268.85 rather than 6,250,729.31 Mton/yr. The suggested edits are included in the following table. Please correct or explain.

Source Descriptions	**Emission Sub-Type**	**Existing CO_2e Emissions (Mton/yr)**	**Calculation Methods**
Flare	Combustion	110,860.76	Emission factors and info from 40 CFR 98 Subpart C
RNG Plant	Combustion	~~56,315.95~~ 56,318.50	Emission factors and info from 40 CFR 98 Subpart C
Fugitive LFG	Fugitive	7,853.08	Emission factors and info from 40 CFR 98 Subpart C
Waste Disposal Operations	Combustion Mobile Sources	~~6,075,453.06~~ 6,696,971.90	Emission factors and info from 40 CFR 98 Subpart C
Insignificant Operations	Combustion Mobile Sources	~~177.35~~ 195.49	Emission factors and info from 40 CFR 98 Subpart C
Indirect Operations	Electrical Usage	69.12	Emission factors and info from 40 CFR 98 Subpart C

Source Descriptions	Emission Sub-Type	Existing CO_2e Emissions (Mton/yr)	Calculation Methods
Total		~~6,250,729.31~~ 6,872,268.85	

Response to 9-37: The GHG calculations have been revised in the table above, supported by calculations in the Errata sheet in Appendix C.

Comment 9-38: Page 66, Conformance to State Noise Standards – Construction Noise. The discussion notes that the city construction ordinance prohibits construction activity 10pm to 7am weekdays, and then notes the construction will follow a 6am to 4pm operations schedule. This appears to indicate that construction will not comply with the city construction ordinance. Please correct or explain.

Response to 9-38: Sentence corrected to read: Operation hours would continue in accordance with the Facility's Nonconforming Use Certificate from the City of Inver Grove Heights (6 a.m. to 4:00 p.m. Monday through Friday; Saturday 7:00 a.m. to 4:00 p.m., upon request). No construction would occur outside of the City's ordinance restricting construction activities to 7:00 a.m. to 7:00 p.m. Refer to Errata Sheet, Appendix C.

Comment 9-39: Page 66, Quality of Life. Text notes “No construction or operation hours would occur during nighttime hours” Nighttime in noise regulation runs from 10pm to 7am. This is inconsistent with the proposed construction and operating hours of 6am to 4pm indicated in the preceding paragraph. Please correct or explain.

Response to 9-39: Sentence corrected to read: Operation hours would continue in accordance with the Facility's Nonconforming Use Certificate from the City of Inver Grove Heights (6 a.m. to 4:00 p.m. Monday through Friday; Saturday 7:00 a.m. to 4:00 p.m., upon request). No construction would occur outside of the City's ordinance restricting construction activities to 7:00 a.m. to 7:00 p.m. Refer to Errata Sheet, Appendix C.

Comment 9-40: Page 69, Water Resources, Groundwater. First paragraph, fifth sentence reads in part, “If groundwater impacts are identified…” The use of the word “If” is misleading because there are decades of groundwater data indicating that PBL has negatively impacted downgradient groundwater quality. Please explain or correct.

Response to 9-40: The sentence is revised as follows: If the Proposer observes groundwater quality impacts during monitoring, that are inconsistent with the recent and historical data trends and known conditions, they will coordinate with the MPCA to develop appropriate actions to address and improve groundwater quality under the terms of their solid waste permit. Refer to Errata Sheet, Appendix C.

Comment 9-41: Appendix B. Drawings 3, 4, and 5 are missing from the EAW published to the EQB monitor compared to the EAW published on the MPCA website. Please include or explain.

Response to 9-41: Comment noted and included in the Appendix C Errata Sheet.

Comment 9-42: Appendix B through Appendix H. The flow of supplemental natural gas to the thermal oxidizer is reported as 160 scfm pre-project and 180 scfm post-project while the GHG emissions are reported to be identical for both pre- and post-project. We believe 160 scfm is correct. Please correct or explain.

Response to 9-42: The thermal oxidizer was installed as part of an approved RNG project outside the scope of this EAW. The two projects are related in that LFG for the expansion will be piped from the Project area and treated at the RNG facility, therefore, the supplemental flow has been included in the greenhouse gas analysis for the Project. 160 scfm pre-project is correct. The GHG calculations have been revised accordingly.

10. Comments by Dakota County

Comment 10-1: Cell 6C and 6B have intermediate cover and will be in an open condition at least until Phase 7 is well along in its fill development in several years. Despite engineering plans that meet requirements and have been MPCA approved, the steeper side slopes and heavy rainfall have caused the outside berms in areas of Cell 6C and 6B to be overtopped by stormwater on several different occasions leading to erosion. The erosion can be severe and at times, waste is washed out off the landfill liner. With the increased height of the landfill, longer slopes for water to run down through open cells, and predictions of more frequent heavy rains, what contingencies are being planned by Pine Bend Landfill for addressing and minimizing these expected events?

Response to 10-1: See Response to Comment 4-4. At the existing Facility and with the proposed vertical expansion, drainage swales are required every 40 vertical feet up the slope. The Facility operations team constructs the swales in the waste and daily cover soil and drain tiles will be installed to assist in subsurface drainage during closure construction. BFI is making efforts to efficiently seed any inactive areas to promote vegetation and prevent erosion, and the installation of drainage downslope structures will increase the effectiveness of the stormwater management systems.

Comment 10-2: Windspeeds increase with height about the ground surface. One could expect that with the increase of landfill height, stronger winds will impact litter dispersal. Over the past couple of years, even with numerous litter fences, the landfill has at times struggled to contain litter near the working face in Cell 6, and significant amounts of litter can leave the site. With waste filling at higher elevations above the perimeter litter fences, what planning is being done to address the likelihood of increased amounts of wind‐blow litter? What are the specific parameters that will cause the landfill to stop accepting waste until the windspeeds drop?

Response to 10-2: If there are sustained winds Pine Bend Landfill personnel evaluate the current practices to prevent litter. Additional cover may be placed or the active waste placement area may be moved to a lower elevation during high winds. The decision is made at the discretion of trained operators. If they believe winds are high enough for litter/safety issues, they will temporarily shut down. There is no proposal to adjust current management of litter due to windspeed. See response to Comment 4-2.

Comment 10-3: 8 to 9 million gallons of leachate is presumed by BFI [Pine Bend Landfill] to be generated. Have there be discussions or are there plans to treat the leachate before transport to the Metropolitan Council's wastewater treatment facility (WWTF)? The effluent from the WWTF will likely contain contaminants from Pine Bend Landfill leachate that the Mississippi River Pool 2 water or fish are already impaired as stated on page 43, paragraph titled MPCA 303d Impaired waters list. "The Mississippi River is designated as impaired for aluminum; fecal coliform; mercury in fish tissue and the water column; nutrients; polychlorinated biphenyls ("PCBs") in fish tissue and the water column; perfluorooctane sultonate ("PFOS" and total suspended solids ("TSS").

Response to 10-3: As of now onsite pre-treatment of leachate prior to transport to a WWTF is not required as a permit condition, however if it becomes a requirement BFI will comply.

Comment 10-4: Is there backup power to manage water in a 100‑year storm event in case of a power outage?

Response to 10-4: All onsite stormwater management systems are gravity-based rather than mechanical, and therefore, in the case of a power outage, stormwater management controls will not be impacted.

Comment 10-5: Question 6. b., Page 6-7 - Landfill system related new construction or processes – Leachate collection sump and dual extraction wells: Will these new or expanded systems or processes take into consideration emerging contaminants such as PFAS?

Response to 10-5: BFI has sampled for PFAS during annual summer groundwater monitoring activities since 2011, therefore the Facility was removed from the formal MPCA PFAS Monitoring Plan. Sampling was first conducted as part of a PFC Monitoring Work Plan that was submitted to the MPCA at the end of 2010. The annual sampling requirement was then incorporated into the Solid Waste Facility Permit when the permit was modified as part of the 2018 expansion. This PFAS monitoring will continue to be required indefinitely and will be a part of future Solid Waste permit reissuance. If any requirements regarding PFAS or other contaminants are implemented PBLBFI will comply with said requirements.

Comment 10-6: Page 7 Dual extraction system, regarding the statement, "The number of dual extraction wells has been reduced to allow for the construction of Phase 5 and 6 landfill." Does "reduced" mean sealed? If yes, what year did the sealing occur? As waste placement within Phases 5 and 6 continues, the wells will be brought back online into the dual extraction system to maximize the capture of leachate and landfill gas." Does "online" mean new well construction by a licensed well contractor?

Response to 10-6: The number of dual extraction wells being "reduced" referred to pumps being removed from the well and the well temporarily not participating in the dual extraction system. Being brought "online" would not refer to a new well, but a pump being installed in the same dual extraction well to once again remove leachate from the well.

Comment 10-7: Page 10 and Drawing Number 16. Gas System Details - are these deeper than 15 feet? If yes, they are regulated. Dakota County's Delegated Well Program permits the sealing and construction of wells. Environmental wells that are 15 feet or more deep require a permit to construct from Dakota County. A variance from the MN Department of Health would be required for not full-length grouting, a deviation from MN Rules 4725, but the proposed alternating clean soil backfill and bentonite.

Response to 10-7: Gas wells are installed in the waste mass and not native soil, therefore, they are not subject to this requirement.

Comment 10-8: Page 11 Final Closure will consist of 18 inches of soil fill, six inches of vegetation supporting topsoil and then seed and mulch. Page 36 Item 8. states, "At closure, disturbed areas will be re-vegetated as lawn/grassland. The DNR recommends that reseeding of disturbed soils be done with native species of grasses and forbs using BWSR Seed Mixes or MnDOT Seed Mixes.

Response to 10-8: Typically, MnDOT seed mix 25-141 is used for vegetation of the final cover layer. Per the EAW, native pollinator seed mixes will be considered where opportunities exist such as adjacent to stormwater pond buffers.

Comment 10-9: Question 7. a. and b., Tables 5 and 6, Page 20-33 – Climate Resiliency: With increased leachate collection, will the Metro Plant in St Paul have capacity and technology to treat PFAS or other contaminants that may show increased levels due to identified climate impacts?

Response to 10-9: Evaluating the potential of Metro Plant to treat PFAS is beyond the scope of the EAW because the information on this issue would not inform a reasoned decision about the potential for or significance of the environmental effects of the Project under Minn. R. 4410.1700.

Comment 10-10: Increasing groundwater levels increases risk of contamination from leachate – is dewatering a possible adaptation or mitigation? Will this potential be fully evaluated?

Response to 10-10: As noted in the EAW, the MPCA released the PFAS Blueprint and PFAS Monitoring Plan, which establishes an approach to reduce PFAS and addresses PFAS monitoring at several types of industries, including wastewater treatment plants. The maximum waste depth beneath existing grades outside of the waste limits is approximately 50 feet. Groundwater levels are approximately 100 ft. feet deep in the Project Area, therefore, seasonal changes in groundwater elevations related to climate impacts are not anticipated to increase contamination risk.

Comment 10-10: Page 40, The Franconia Formation is now referred to as the Tunnel City Group - Lone Rock Formation and the Ironton and Galesville are now referred to as the Wonewoc Sandstone.

Response to 10-10: Comment noted and documented in Appendix C Errata Sheet.

Comment 10-11: Page 44. 12 ii. states, "If the Proposer observes groundwater quality impacts during monitoring, they will closely coordinate with the MPCA to develop appropriate actions to address and improve groundwater quality under the terms of their solid waste permit." The sample results from the environmental wells at the site already show that the groundwater is contaminated. Page 69 states that "If any groundwater impacts are identified, the Proposer will coordinate closely with the MPCA to implement appropriate actions to address and improve groundwater quality in compliance with the solid water permit." There are already multiple contaminants detected in the existing environmental well network.

Response to 10-11: The sentence is revised as follows: If the Proposer observes groundwater quality impacts during monitoring, which are inconsistent with the recent historical data and known conditions, they will closely coordinate with the MPCA to develop appropriate actions to address and improve groundwater quality under the terms of their solid waste permit. See Appendix C Errata Sheet.

Comment 10-12: Page 44 ii.3. Statement " The majority of the public supply wells are east of the Project Area." Figure 10 shows four wells east of the site that are Public Supply. Minnesota Unique Numbers 207297, 44188 and 207292 are all sealed; 265255 is suspect because there is so little information. Table 13. is incomplete. The Pine Bend Landfill owns 57 environmental wells and one water supply (commercial) well, that have an assigned Minnesota Unique Well number. The records should be available from the proposer for inclusion in Appendix D. Only 22 records are currently located in Appendix D.

Response to 10-12: Of the 57 environmental wells, a large number (approx. 21) of them are not groundwater wells, they are passive vents. Table 13 includes well information available from the Minnesota Well Index database within the Project Area evaluated in the EAW.

Comment 10-13: Question 12. a. ii. Page 44-46 – Groundwater: *"The July 2022 sampling event included analyses for PFAS at 22 monitoring wells and 2 springs."* "*Levels were detected at or above set limits for one or more of the PFAS at 12 wells and two springs."* PFAS contaminants have been detected in the monitoring well network, how will expansion impact the presence of PFAS and other contaminants identified in the monitoring well network and the leachate?

Response to 10-13: Leachate from the expansion area will all be collected within existing leachate management systems in Phases 5 and 6. PFAS and contaminants identified in the leachate are dependent on the waste composition, which is not anticipated to change.

Comment 10-14: Page 46 Section Perfluoroalkyl substance analyses "The July 2022 sampling event included analyses for PFAS at 22 monitoring wells and 2 springs, see Appendix D." There is no PFAS data in Appendix D. Note: the Minnesota Department of Health now refers to monitoring wells as environmental wells.

Response to 10-14: The information for this response was included on page 46 of the EAW. Appendix D was mistakenly referenced and is not required. Refer to Errata Sheet in Appendix C.

Comment 10-15: Page 46 "A submersible pump capable of pumping approximately 80 to 120 gallons per minute (gpm) will pump leachate collected in the sumps to the existing force main that encircles the perimeter of the Facility". Is there a backup power supply for the submersible pump for the leachate?

Response to 10-15: There is no backup power supply, however, through generators or vacuum trucks PBL would be able to continue to remove leachate in the event of a power outage.

Comment 10-16: Question 12. b. ii. Page 47-48 – Stormwater: *"The system consists of benches, catch basins, drainage piping, downslope structures, junction vaults, and infiltration ponds."* Has stormwater or accumulated sediment been sampled for contaminants that may be carried with stormwater to the various ponds and catch basins? Does sediment or stormwater remain within the landfill property? Has PFAS been included in any stormwater or sediment sampling?

Response to 10-16: Stormwater is sampled and analyzed, but PFAS is not typically included **in** the analysis. PFAS analysis for stormwater is not currently required per the NPDES permit for industrial stormwater permit, however, the **MPCA is in the process of incorporating PFAS into its regulatory programs including industrial stormwater**. Sediment and stormwater are routed to the onsite stormwater ponds and do not leave the property.

Comment 10-17: FYI Minnesota Department of Health has a designated Special Well and Boring Construction Area that due to the contaminants in groundwater from the Pine Bend Landfill, mainly solvents and other contaminants originating at nearby industrial properties. The Boundaries of the Special Well and Boring Construction Area fully encompass the Pine Bend Landfill and are defied as follows Sections 33, 34 and 35 of Township 27 North and Range 22 West. New water supply wells constructed within the Area would be permitted with requirements to avoid contaminated groundwater.

Response to 10-17: A figure has been prepared to demonstrate the Project Area relative to the SWBCA. Refer to Errata Sheet in Appendix C.

Comment 10-18: Page 92 Drawings 8 and 9: Is a licensed well contractor installing the horizontal collectors?

Response to 10-18: It is not required to utilize a licensed well driller for installing horizontal collectors within the waste mass.

Comment 10-19: Appendix B: what is the purpose of the Injections Wells not discussed in the text but on the Drawings 2, 6, 7, 8 and 9?

Response to 10-19: The injection wells were utilized for a study several years ago and are no longer actively used.

Comment 10-20: Appendix B Plan Drawings - Pages 89 thru 91 were blank which could be missing Drawings 1, 3, 4 and 5. Drawing 16 - should the gas extraction wells be 15 feet or deeper they will be required to be permitted as Environmental Wells by the Dakota County Delegated Well Program, full length grouted and labeled with the official Minnesota Unique Well Number tag provided by the well contractor.

Response to 10-20: Missing documents have been included in the Errata Sheet in Appendix C. Extraction well requirements noted.

Comment 10-21: Page 133 Table 1 Environmental Monitoring System Summary has two or three asterisks after five of the well locations and no explanation of what the asterisks mean.

Response to 10-21: The double asterisk (**) indicates that well M-5B, M-6, M-7 are a vertical set. The triple asterisk (***) indicates M-15 and M-42 are a vertical well set.

Comment 10-22: Page 134 Table 4 Summary of Groundwater Field Parameters for 2022. The pH in upgradient wells MW- 100 and MW-101 is between 3 and 4. Any explanation of why the pH is so acidic?

Response to 10-22: The low pH in the groundwater wells was attributed to a faulty pH meter.

Comment 10-23: Throughout the document, Figure 10 “County Well Index Map” can be updated to the current name of “Minnesota Well Index”.

Response to 10-23: Thank you for your comment.

Comment 10-24: There is no Table 2 or Table 3 in Appendix D.

Response to 10-24: See response to comment 9-29.

Comment 10-25: There is habitation, likely an old farmstead mapped in the 1896 and 1916 plat maps and visible on the 1945 and 1951 air photos. There is no Well and Boring Sealing Record for a domestic well at this location. See attached figure. This area is still accessible. so a well search should be conducted and the well(s) ultimately sealed by a licensed well contractor. A magnetometer is the best, sometimes only way to locate wells that are below grade. Dakota County can help locate a wells using a magnetometer by calling 952-891-7000. Magnetometers work best on a clear site free from large metal obstructions. A Dakota County well inspector must be present during any well searches to rule out the presence of a well.

Response to 10-25: BFI is not aware of an inactive well in this location. BFI will coordinate with Dakota County to address this.

11. Comments by Ramsey/Washington Recycling & Energy (under Michael P Reed)

Comment 11-1: Despite our best upstream comprehensive waste prevention, reuse and recycling programs, and our facility's efforts to maximize recovery through waste processing to capture additional recyclables and create refuse derived fuel, we still end up with materials that require landfilling. Until such time that new solutions can be found to effectively reduce or recycle our processing residue and non- processible bulky wastes, landfill disposal is required. While our goal remains to minimize landfilling of solid waste resources, more time is needed to explore and pursue additional technologies and strategies necessary to achieve success.

R&E relies on both the Republic Pine Bend Landfill as well as local WM landfills. R&E and the customers in both Ramsey and Washington Counties benefit when competition in disposal options is available. Additionally, the Pine Bend landfill location is closer to Newport, which can reduce road miles driven and generate fewer GHG emissions from trucks.

Accordingly, while R&E remains fully committed to strategies that maximize waste reduction, reuse, recycling and non-landfilling management options for our solid waste resources, we would like to state our support for Republic Service's landfill expansion at the Pine Bend Landfill.

Response to 11-1: Thank you for your comments.

12. Comments by Kelly Gragg-Johnson, SHPO

Comment 12-1: Based on our review of the project information, we conclude that there are no properties listed in the National or State Registers of Historic Places, and no known or suspected archaeological properties in the area that will be affected by this project.

Please note that this comment letter does not address the requirements of Section 106 of the National Historic Preservation Act of 1966 and 36 CFR § 800. If this project is considered for federal financial assistance, or requires a federal permit or license, then review and consultation with our office will need to be initiated by the lead federal agency. Be advised that comments and recommendations provided by our office for this state-level review may differ from findings and determinations made by the federal agency as part of review and consultation under Section 106.

Response to 12-1: Thank you for your comments.

13. Comments by Melissa Collins, Department of Natural Resources

Comment 13-1: Section 14, Rare Features. This section describes potential impacts to habitat, but does not address other potential impacts to wildlife. It is a known issue that many types of landfills attract wildlife species, particularly cosmopolitan and scavenging species like mice, raccoon, coyotes, eagles and more. Scavenging birds, like eagles, are attracted to biological waste, and have died after feeding on material within landfill facilities. Situations like this highlight the need to monitor for the presence of protected wild animals using the site in order to protect them from inadvertent harm. We encourage the project to investigate integrated pest management strategies and raptor deterrent programs. These strategies should be described within this section of the EAW.

Response to 13-1: BFI acknowledges that the landfill facility may attract wildlife species such as mice, raccoon, coyotes, eagles, and other species. The Facility has a Pest Management, Bird Management Plan, and Solid Waste Management Plan in place which include measures to deter wildlife presence. The Bird Control Plan is designed to prevent birds from feeding or concentrating in the vicinity of the active area of the landfill. BFI continues to deter birds and other animals searching out food from the landfill through noise, activity, closure of working spaces, and fencing.

Comment 13-2: Section 16, Visual. Project lighting is not described in this section. Because the project area is less than a mile from the Mississippi River Twin Cities Important Bird Area, a significant migratory bird corridor, lighting for the facility will be especially important to limit impacts to migratory birds. Animals depend on the daily cycle of light and dark for behaviors such as hunting, migrating, sleeping, and protection from predators. Light pollution can affect their sensitivity to the night environment and alter their activities. In addition to the undesirable effects of upward facing lighting, the hue of lights can also affect wildlife. LED lighting has become increasingly popular due to its efficiency and long lifespan. However, these bright lights tend to emit blue light, which can be harmful to birds, insects, and fish. The DNR recommends that any projects using LED luminaries follow the MnDOT Approved Products for luminaries, which limits the Uplight rating to 0. A nominal color temperature below 2700K is preferable for wildlife, and so we recommend choosing products that have the lowest number for backlight and glare (all approved products should already be 0 for Uplight).

Response to 13-2: Limited lighting is used as needed during the early morning and evening. Lighting is downward facing and not LED.

14. Comments by International Union of Operating Engineers Local 49

Comment 14-1: I am writing today to express my strong support for the expansion of the Pine Bend Landfill in Inver Grove Heights. I am the elected Business Manager/Financial Secretary for the International Union of Operating Engineers Local 49. We represent 15,000 members across Minnesota, North Dakota, and South Dakota. Our members are highly skilled workers, and we represent heavy equipment operators/mechanics and stationary engineers. Several of our members enjoy high quality jobs at the Pine Bend Landfill.

Our members are proud to contribute to the strong environmental record at the Pine Bend Landfill. The landfill expansion is necessary to continue serving communities in Minnesota to ensure waste is disposed of properly. In addition, the first renewable natural gas plant in Minnesota is located at the Pine Bend Landfill. This cutting-edge technology turns biogases produced by trash into renewable natural gas.

Pine Bend is the only private landfill in Minnesota that has our 49ers working on site and we hope to support these workers for years to come.

Response to 14-1: Thank you for your comment.

15. Comments by John Reynolds, Minnesota Indian Affairs Council (MIAC). Comment received late after the comment period ended.

Comment 15-1: MIAC recommends THPO consultation, and cultural resource management fieldwork (survey). THPO consultation and CRM survey can potentially identify and cultural resources in the project area.

Response to 15-1: On January 9, 2024, MPCA met with MIAC representatives to discuss and resolve their concerns.

Applicability of the Cemeteries Act below was discussed at the January 9, 2024, meeting.

> Minn. Stat. § 307.08, Subd. 10. Construction and development plan review. When human burials are known or suspected to exist, on public lands or waters, the state or political subdivision controlling the lands or waters or, in the case of private lands, the landowner or developer, shall submit construction and development plans to the state archaeologist for review before plans are finalized and prior to any disturbance within the burial area. If the known or suspected burials are thought to be American Indian, plans shall also be submitted to the Indian Affairs Council. The state archaeologist and the Indian Affairs Council shall review the plans within 45

> days of receipt and make recommendations for the preservation in place or removal of the human burials or remains, which may be endangered by construction or development activities.
>
> Minn. Stat. § 307.08, Subd. 12. Right of entry. The state archaeologist or designee may enter on property for the purpose of assessing burial sites. The Indian Affairs Council or a designated representative of the Indian Affairs Council may enter on property for the purpose of assessing or identifying American Indian cemeteries. Only after obtaining permission from the property owner or lessee, descendants of persons buried in burial grounds covered by this section may enter the burial grounds for the purpose of conducting religious or commemorative ceremonies. This right of entry must not unreasonably burden property owners or unnecessarily restrict their use of the property.

Regarding the project as proposed, the current Project area is already located on previously disturbed soils. Further, the final vertical expansion phase of the Project will not include any new excavation earthwork or disturbance of soil outside of the existing landfill footprint. Therefore, new disturbance of nearby burial sites is not anticipated.

However, MIAC noted at the meeting, there is additional concern about where the daily cover borrow source material/soils are located as used during regular operations at the landfill because if those are on-site, there is a potential for nearby burial sites to be impacted from excavation of borrow material and/or movement and parking of heavy earth moving equipment.

It was agreed at the January 9, 2024, meeting that this concern will be forwarded to BFI with a recommendation that they contact and coordinate with the MIAC prior to beginning construction of the proposed vertical expansion project and follow the requirements of the Cemeteries Act noted above, including allowing MIAC to review design plans and construction specs, right of entry if applicable.

Minnesota Pollution Control Agency

Pine Bend Landfill Vertical Expansion
Environmental Assessment Worksheet (EAW)

ERRATA SHEET

1. Table 1 of the EAW did not correctly display the Historical leachate collection data. The corrected table is provided below.

Table 1: Historical leachate collection data

Year	Leachate collection volumes (gallons)
2021	9,188,290
2020	10,453,293
2019	9,235,088
2018	8,087,766
2017	7,848,040

2. Page 6 of the EAW incorrectly stated the elevation of the landfill would not be increased. The corrected sentence should read: *"This design provides for increased capacity without increasing site footprint."*
3. Page 7 of the EAW incorrectly discussed the 100-year high water level. The corrected sentence should read: *"The 100-year high water level (for the stormwater ponds) was also set by modeling no infiltration in the swales and downslopes."*
4. Page 8 of the EAW had an incomplete sentence. The corrected sentence should read: *"Runoff would be contained during the 100-year, 24-hour rainfall event."*
5. Page 8 of the EAW incorrectly described the downslope piping systems and their location. The "downslope piping systems" should have been referred to as "downslope drainage systems". In the junction vaults in the southwest and northwest corners of the landfill, flow is combined into a single pipe that outlets to the existing railroad crossing culverts, a 48-inch reinforced concrete pipe (RCP) on the southwest corner and a 96-inch RCP on the northwest corner.
6. The gas well design in Appendix B, sheet 14 was unclear about the depiction of a leachate riser manhole. The following sentence from page 9 of the EAW should be deleted: "The Proposer will seal the annual space between the outer pipe and well casing using a bentonite mixture." Sheet 14 depicts a leachate riser manhole, the detail on Sheet 16 for the gas extraction well is correct.
7. Page 10 of the EAW incorrectly referred to the RNG facility as preliminary, when the facility is currently in operation. The corrected sentence should read: *"The low-pressure pipeline is constructed with 24-inch, high density polyethylene. Figure 4 includes the facility and the low-pressure landfill gas pipeline."*
8. Page 10 of the EAW incompletely described the RNG application. The corrected sentence should read: *"The meter station in the northwest portion of the site is the start of the pipeline for the RNG Facility. Reference to Application is in reference to the permitting materials prepared for the RNG and pipeline."*

9. Page 11 of the EAW was incomplete. The corrected sentence should read: *"Prior to final closure and installing the final cover system, the waste fill surface will conform to the design plans for final grade and benching."*

10. *Table 10 of the EAW did not accurately list the status dates for Permits and approvals.*

Unit of government	**Type of application**	**Status**
MPCA	Solid Waste Permit-45*	Expires July 30, 2025
	Part 70 Air Permit 03700138-004	Current permit
MPCA	Part 70 Air Permit Renewal 03700138-101	Submitted ~~August~~ September 2009
MPCA	Part 70 Minor Air Permit Amendments (3)	Submitted 2009, 2020, 2021. *Vertical expansion application pending*
MPCA	Administrative Air Permit Amendment, Name Change	Submitted ~~December 2020~~ November 2023
MPCA	NPDES General Stormwater Permit for Industrial Activity Permit MNR053B5P	Expires March 31, 2025
MPCA	Certificate of Need (CON)	December 2021
Minnesota Public Utilities Commission**	Pipeline Routing Permit	Issued July 2021
Dakota County	Solid Waste Facility License	To be amended
Metropolitan Council	Industrial Discharge Permit #2001	Expires September 30, 2025
City of Inver Grove Heights	Conditional Use Permit	To be amended

11. Page 40 of the EAW incorrectly referred to the bedrock formation as part of the Franconia Formation. The Franconia Formation has been re-named and is now referred to as the Tunnel City Group – Lone Rock Formation.

12. Page 40 of the EAW incorrectly referred to the Paleozoic sedimentary formations as the Ironton and Galesville Sandstones. These has been re-named and are now referred to as the Wonewoc Sandstone.

13. Page 44 of the EAW did not fully describe the groundwater monitoring at PBL. The corrected sentence should read: "*If the Proposer observes groundwater quality impacts during monitoring, that are inconsistent with the recent historical data and known conditions, they will coordinate with the MPCA to develop appropriate actions to address and improve groundwater quality under the terms of their solid waste permit.*"

14. Appendix A was updated to show that the Project is located within the Minnesota Department of Health, Inver Grove Heights (Pine Bend Area) Special Well and Boring Construction Area (SWBCA), that went into effect April 19, 1973. The SWBCA provides conditions and requirements for the construction, repair, and sealing of regulated wells and borings within the SWBCA.

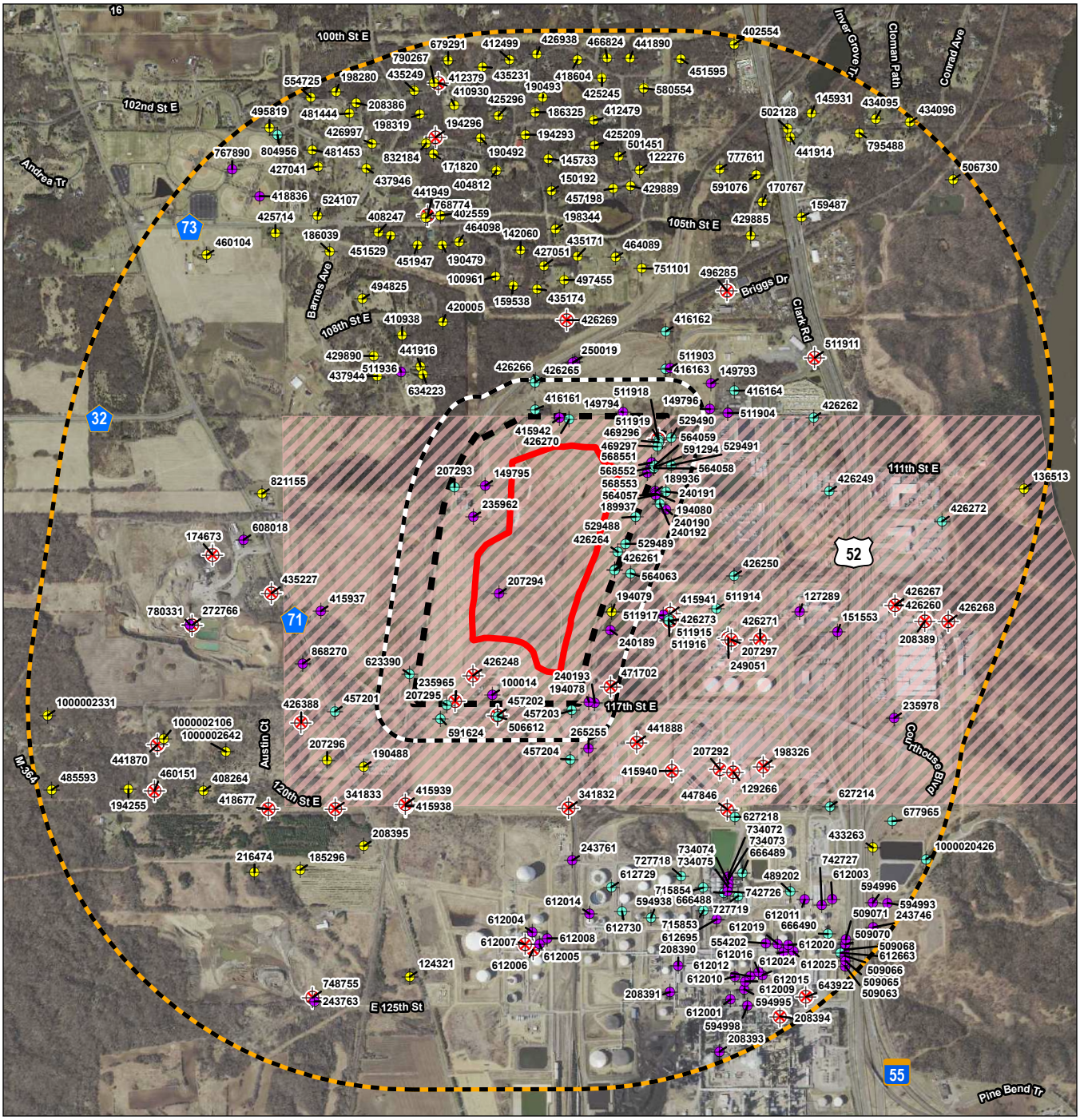
15. Page 46 of the EAW, the second paragraph references the PFAS that have limits listed in the May 31, 2019 Solid Waste Permit. However, perfluorohexane sulfonate has an intervention limit of 0.01175 µg/L in the Solid Waste Permit and was not included in the original paragraph in the EAW.

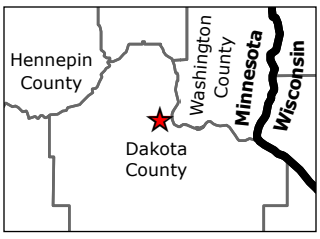
16. Page 46 of the EAW, the second paragraph indicates that PFAS were detected above the limits in the May 31, 2019 Solid Waste Permit in 12 wells. However, the number is corrected to 15 wells in agreement with the 2022 Annual Report.
17. Table 17 of the EAW did not clearly display the Operational Emissions. The corrected table is provided below.

Table 17: Operational Emissions

Source Descriptions	Emission Sub-Type	Existing CO_2e Emissions (Mton/yr)	Calculation Methods
Flare	Combustion	110,860.76	Emission factors and info from 40 CFR 98 Subpart C
RNG Plant	Combustion	~~56,315.95~~ 56,318.50	Emission factors and info from 40 CFR 98 Subpart C
Fugitive LFG	Fugitive	7,853.08	Emission factors and info from 40 CFR 98 Subpart C
Waste Disposal Operations	Combustion Mobile Sources	~~6,075,453.06~~ 6,696,971.90	Emission factors and info from 40 CFR 98 Subpart C
Insignificant Operations	Combustion Mobile Sources	~~177.35~~ 195.49	Emission factors and info from 40 CFR 98 Subpart C
Indirect Operations	Electrical Usage	69.12	Emission factors and info from 40 CFR 98 Subpart C
	Total CO_2e	~~6,250,729.31~~ 6,872,268.85	

18. Page 58 refers to the "Rich Valley Landfill", but for clarification and in accordance with Figure 11 this facility should be referred to as the "SKB Rich Valley Landfill".
19. Page 66 of the EAW incorrectly stated the operation and construction hours. The corrected sentences should read: "*Operation hours would continue in accordance with the Facility's Nonconforming Use Certificate from the City of Inver Grove Heights (6 a.m. to 4 p.m. Monday through Friday; Saturday 7:00 a.m. to 4:00 p.m., upon request). No construction would occur outside of the City's ordinance restricting construction activities to 7 a.m. to 7 p.m.*"
20. Page 69 of the EAW did not fully describe the groundwater monitoring at PBL. The corrected sentence should read: "*If the Proposer observes groundwater quality impacts during monitoring, that are inconsistent with the recent historical data and known conditions, they will coordinate with the MPCA to develop appropriate actions to address and improve groundwater quality under the terms of their solid waste permit.*"
21. Appendix B through Appendix H of EAW incorrectly stated the flow of supplemental natural gas to the thermal oxidizer as 160 scfm pre-project and 180 scfm post-project while the GHG emissions are reported to be identical for both pre- and post-project. The post-project number should be 160 scfm.
22. Throughout the document, Figure 10 "County Well Index Map" can be updated to the current name of "Minnesota Well Index".





Notes

1. Coordinate System: NAD 1983 HARN Adj MN Dakota Feet
2. Data Sources: Stantec, MnGeo, MnDOT, MDA, MGS
3. Background: 2020 color 7-county

Legend

- Proposed Project Area
- Pine Bend Landfill Property Boundary
- 500 ft Radius
- 1-mile Radius
- Special Well Boring Construction Areas

Field Verified Wells

- Irrigation Well
- Domestic Well
- Monitor Well
- Other
- Sealed Wells

0 400 800 Feet

(At original document size of 8.5x11)
1:25,200

N

Stantec

Project Location	Prepared by KJM on 2024-01-05
T27N, R22W, S33	TR by XXX on 2020-XX-XX
Inver Grove Heights, Dakota Co., MN	IR by XXX on 2020-XX-XX
Client/Project	227704791
Republic Services	
PBL Major Permit Mod & EAW	
EAW	
Figure No.	
10	
Title	
County Well Index Map MPCA	

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GHG EMISSIONS SUMMARY

GHG Emissions Before Construction

Source Descriptions	Emission Sub-Type	Existing CO2e Emissions (Mton/yr)	Calculation Methods
Flare	Combustion	110,860.76	Emission factors and info from 40 CFR 98 Subpart C
RNG Plant	Combustion	56,318.50	Emission factors and info from 40 CFR 98 Subpart C
Fugitive LFG	Fugitive	7,853.08	Emission factors and info from 40 CFR 98 Subpart C
Waste Disposal Operations	Combustion Mobile Sources	6,696,971.90	Emission factors and info from 40 CFR 98 Subpart C
Insignificant Operations	Combustion Mobile Sources	195.49	Emission factors and info from 40 CFR 98 Subpart C
Indirect Operations	Electrical Usage	69.12	Emission factors and info from 40 CFR 98 Subpart C
	Total	6,872,268.85	

Notes:

1) Existing greenhouse gas footprint of the Pine Bend Landfill include emissions from a flare, fugitive landfill gas, waste disposal operations, insignificant sources, and offsite electricity. Please note the GHG emissions from the RNG Plant are emissions from combustion of waste gas and natural gas through the thermal oxidizer.

2) Waste disposal operations include emissions from mobile sources (waste disposal trucks, landfill compactor, D8 Bulldozer, and 32 waste disposal trucks) and tippers. Emissions from off-site waste management is included in waste disposal operations.

3) Insignificant sources include light plants, power washer, air compressors, snow blower, weed eaters, heaters, forklift, and HVAC.

4) Emissions calculated based upon information from Pine Bend Landfill. Emission factors from 40 CFR 98 Supbart C of the Mandatory Greenhous Gas Repoprting Rule. **See calculations in Appendix B for further details.**

Emissions from Construction

Source Descriptions	Emission Sub-Type	Project-Related CO2e Emissions (Mton/yr)	Calculation Methods
Construction	Combustion Mobile Sources	4,756.80	Emission factors and info from 40 CFR 98 Subpart C

Notes

1) See emission calculations for emission sources characterized for construction.

2) Daily operations for the landfill are not included as part of the construction. These do not change.

3) Emissions from the installation of the two culverts are included in the calculations.

4) Emission factors used were found in 40 CFR 98 Subpart C of Mandatory Greenhouse Gas Reporting Rule. **See calculations in Appendix B for further details.**

Emissions from Operations After Construction (Calendar Years 2024 to 2048)

Source Descriptions	Emission Sub-Type	Facility CO2e Emissions after Project (Mton/yr)	Calculation Methods
Flare	Combustion	110,860.76	Emission factors and info from 40 CFR 98 Subpart C
RNG Plant	Combustion	56,318.50	Emission factors and info from 40 CFR 98 Subpart C
Fugitive Landfill Gas	Fugitive	7,853.08	Emission factors and info from 40 CFR 98 Subpart C
Waste Disposal Operations	Combustion Mobile Sources	6,696,971.90	Emission factors and info from 40 CFR 98 Subpart C
Insignificant Operations	Combustion Mobile Sources	195.49	Emission factors and info from 40 CFR 98 Subpart C
Indirect Operations	Electrical Usage	69.12	USEPA's Emission Factor's Hub
	Total	6,872,268.85	
Lifetime Emissions, 24 years of operation of the expansion		164,934,452.39	

Notes:

1) Facility operations after project include operating the flare at reduced capacity and majority of the landfill gas sent to a renewable natural gas (RNG) plant. The RNG plant will emit GHG emissions through the thermal oxidizer from treatment of waste and off-gases from the operation of the plant as well from the combustion of the natural gas that is used to fuel the thermal oxidizer. Landfill gas not used in the RNG plant or combusted by the flare is fugitively emitted. Conservately, biogenic CO2 is included in the calculations, since those emissions are part of the natural carbon cycle and not regulated under the Clean Air Act.

2) Future emissions associated with waste diposal operations and insignificant source are assumed to be the same as the emissions from operations before expansion. It is assumed that these emissions do not change from the existing since the purpose of the expansion is to extend the life of the landfill not to accomodate increased waste intake.
3) Emissions from electrical usage is assumed to be same as the emissions from prior to construction. **See calculations in Appendix B for further details.**

Emission Change In Operation After Expansion		
Emissions After Construction	6,872,268.85	MT/yr
Emissions before Construction	6,872,268.85	MT/yr
Emission Change After Construction	0.00	MT/yr

One Time Additional GHG Emissions from Construction		
Construction of Expansion	4,756.80	MT/yr

Landfill Gas Control and Fugitive GHG Emissions

EMISSIONS DURING PERIOD OF OPERATION OF THE RNG PLANT (2023 to 2024)

Operations Before Expansion

Maximum Potential Emissions Before Expansion

Pine Bend Landfill has equipment that has the capacity of managing up to 7200 stanadard cubic feet per minute (scfm). 3200 standard cubic feet per minute (scfm) of collected LFG is sent to the RNG Plant and the remaining 4,000 scfm is sent to the open flare. Emission sources during this operation include the non-enclosed flare (open flare) and the thermal oxidizer. The open flare only burns landfill gas. No period in 8760 hours of operation that off-spec gas will be generated and sent to the enclosed flare. 160 scfm of natural gas fuels the thermal oxidizer in the RNG plant. PTE for these devices are calculated at max capacity. Actual flows combusted in these devices are less.

Fugitive emissions are assumed to be 15% of the maximum landfill gas generated. Maximum landfill gas generated is based upon LandGEM estimate of 3799 scfm. The assumed 85% collection efficiency reflects the approved efficiency of the amendment for RNG Plant.

GHG Emissions from LFG Sources

Biogenic GHG

	LFG Compounds			Methane Heating Value	LFG Heating Value	LFG flow	Heat Input	CO2 Emission Factor	Emissions	
	CH4	CO2							CO2	CO2e
Source Description	%	%	pmv in inlet LFG	BTU/ft^3	BTU/ft^3	scfm	MMBTU/hr	kg/MMBTU	T/yr	T/yr
Flare *(combustion)*	50%	49.8%	498,352	1013	506.5	4000	121.56	52.07	61,131	61,131
Flare *(Pass-through)*	50%	49.8%	498,352	1013	506.5	4000	121.56	-	60,757	60,757
LFG Fugitive	50%	49.8%	498,352	1013	506.5	569.91	121.56	-	8,656	8,656

Anthropogenic GHG

	Global Warming Potential		Methane Heating	LFG Heating	LFG flow	Heat Input	Emission Factor		Emissions	
							CH4	N20	CH4	N2O
Source Description	CH4	N20	BTU/ft^3	BTU/ft^3	scfm	MMBTU/hr	kg/MMBTU	kg/MMBTU	T/yr	T/yr
Flare	25	298	1013	506.5	4000	121.56	0.003	0.001	93.92	220.4
LFG Fugitive	25	-	1013	506.5	569.91	121.56	-	-	-	-
								Total Anthropogenic GHG		314
								Total GHG from LFG Sources, T/yr		**130,858**

Notes:

1) Methane, CH4 Concentration - Assumed

2) Carbon Dioxide, CO2, concentration derived from the sum of the LFG compounds and methane concentration.

3) Estimated LFG generation is 4,000 scfm of LFG. Assumed collection efficiency is 85%. Therefore, fugitie LFG is 15% of LFG generated.

4) Emission factors for CO2 (combustion), CH4, and N20 are from Tables A-1, C-1, and C-2 of 40 CFR 98 respectively

3) CO2 (combustion), CH4, and N20 emissions calculated by: Heat Input, MMBTU/hr * Emission factor, kg/MMTBU*2.205 lb/kg*(8760/2000)

4) CO2 (pass through and fugitive) and CH4 (fugitive) emissions calculated by: ((Flow, scfm * MW, lb/lb mole*ppmv *0.000001 ppm/ppmv*60 min*1 atm)/(0.7302 atm ft^3/lb/mol R*519.68 R))*(8760/2000)

5) Anthropogenic CH4 and N20 emissions are multiplied by the respective global warming potenital factors to obtain CO2e

GHG Emissions from Waste Gas

Biogenic GHG

Source Description	LFG Compounds CH4 %	LFG Compounds CO2 %	LFG Compounds CO2 pmv in inlet LFG	Methane Heating Value BTU/ft^3	WG Heating Value BTU/ft^3	flow scfm	Heat Input MMBTU/hr	CO2 Emission Factor kg/MMBTU	Emissions CO2 T/yr	Emissions CO2e T/yr
Thermal Oxidizer *(combustion)*	5%	78.5%	39,300,000	1012	54.04	2235	7.2	52.07	3,644	3,644
Thermal *(Pass-through)*	5%	78.5%	785,000	1012	54.04	2235	7.2	-	53,441	53,441

Anthropogenic GHG

Source Description	Global Warming Potential CH4	Global Warming Potential N20	Methane Heating BTU/ft^3	LFG Heating BTU/ft^3	LFG flow scfm	Heat Input MMBTU/hr	Emission Factor CH4 kg/MMBTU	Emission Factor N20 kg/MMBTU	Emissions CH4 T/yr	Emissions N2O T/yr
Thermal Oxidizer (combustion)	25	298	1012	54.04	2235	7.2	3.20E-03	6.30E-04	5.60	13.13984

Total GHG from Waste Gas, T/yr 57,104

Notes:

1) Methane and Carbon Dioxide concentrations provided by manufacturer of thermal oxidizer.

2) Waste gas assumed have be equivalent to a biogas therefore emission factors for CO2, CH4, and N20 taken from Table C-1 and Table C-2 of 40 CFR 98

3) CO2 (combustion), CH4, and N20 emissions calculated by: Heat Input, MMBTU/hr * Emission factor, kg/MMTBU*2.205 lb/kg*(8760/2000)

4) CO2 (pass through and fugitive) and CH4 (fugitive) emissions calculated by: ((Flow, scfm * MW, lb/lb mole*ppmv *0.000001 ppm/ppmv*60 min*1 atm)/(0.7302 atm ft^3/lb/mol R*519.68 R))*(8760/2000)

GHG Emissions from Natural Gas

Biogenic GHG

Source Description	flow scfm	Heat Input MMBTU/hr	CO2 Emission Factor kg/MMBTU	Emissions CO2 T/yr	Emissions CO2e T/yr
Thermal Oxidizer *(combustion)*	160	9.7	53.06	4,971	4,971

Anthropogenic GHG

Source Description	flow scfm	Heat Input MMBTU/hr	Emission Factor CH4 kg/MMBTU	Emission Factor N20 kg/MMBTU	Emissions CH4 T/yr	Emissions N2O T/yr	Global Warming Potential CH4	Global Warming Potential N20
Thermal Oxidizer (combustion)	160	9.7	1.00E-03	1.00E-04	2.34	2.79	25	298

Total GHG from Waste Gas, T/yr 4,976

Notes:

1) Emission factors form 40 CFR 98 Table C

2) Manufacturer specifications

Landfill Gas Control and Fugitive GHG Emissions

EMISSIONS DURING PERIOD OF OPERATION OF THE RNG PLANT (2024 to 2048)

Operations After Expansion

Maximum Potential Emissions After Expansion

Pine Bend Landfill has equipment that has the capacity of managing up to 7200 stanadard cubic feet per minute (scfm). 3200 standard cubic feet per minute (scfm) of collected LFG is sent to the RNG Plant and the remaining 4,000 scfm is sent to the open flare. Emission sources during this operation include the non-enclosed flare (open flare) and the thermal oxidizer. The open flare only burns landfill gas. No period in 8760 hours of operation that off-spec gas will be generated and sent to the enclosed flare. 160 scfm of natural gas fuels the thermal oxidizer in the RNG plant. PTE for these devices are calculated at max capacity. Actual flows combusted in these devices are less.

Fugitive emissions are assumed to be 15% of the maximum landfill gas generated. Maximum landfill gas generated is based upon LandGEM estimate of 3799 scfm. The assumed 85% collection efficiency reflects the approved efficiency of the amendment for RNG Plant.

GHG Emissions from LFG Gas

Biogenic GHG

	LFG Compounds			Methane	LFG			CO2 Emission	Emissions	
	CH4	CO2		Heating	Heating	LFG flow	Heat Input	Factor	CO2	CO2e
Source Description	%	%	pmv in inlet LFG	BTU/ft^3	BTU/ft^3	scfm	MMBTU/hr	kg/MMBTU	T/yr	T/yr
Flare *(combustion)*	50%	49.8%	498,352	1013	506.5	4000	121.56	52.07	61,131	61,131
Flare *(Pass-through)*	50%	49.8%	498,352	1013	506.5	4000	121.56	-	60,757	60,757
LFG Fugitive	50%	49.8%	498,352	1013	506.5	569.91	121.56	-	8,656	8,656

Anthropogenic GHG

	Global Warming Potential		Methane	LFG			Emission Factor		Emissions	
			Heating	Heating	LFG flow	Heat Input	CH4	N20	CH4	N2O
Source Description	CH4	N20	BTU/ft^3	BTU/ft^3	scfm	MMBTU/hr	kg/MMBTU	kg/MMBTU	T/yr	T/yr
Flare	25	298	1013	506.5	4000	121.56	3.20E-03	6.30E-04	93.92	220.4
LFG Fugitive	25	-	1013	506.5	569.91	121.56	-	-	-	-

Total Anthropogenic GHG	314
Total GHG from LFG Sources, T/yr	**130,858**

Notes:

1) Methane, CH4 Concentration - Assumed

2) Carbon Dioxide, CO2, conentration derived from the sum of the LFG compounds and methane concentration. Concentrations of LFG compounds taken from AP-42 Chapter 2.42, tables 2.4.1 and 2.4.2.

3) Estimated LFG generation is 4,000 scfm of LFG. Assumed collection efficiency is 85%. Therefore, fugitie LFG is 15% of LFG generated.

4) Emission factors for CO2 (combustion), CH4, and N20 are from Tables A-1, C-1, and C-2 of 40 CFR 98 respectively

3) CO2 (combustion), CH4, and N20 emissions calculated by: Heat Input, MMBTU/hr * Emission factor, kg/MMTBU*2.205 lb/kg*(8760/2000)

4) CO2 (pass through and fugitive) and CH4 (fugitive) emissions calculated by: ((Flow, scfm * MW, lb/lb mole*ppmv *0.000001 ppm/ppmv*60 min*1 atm)/(0.7302 atm ft^3/lb/mol R*519.68 R))*(8760/2000)

5) Anthropogenic CH4 and N20 emissions are multiplied by the respective global warming potenital factors to obtain CO2e

GHG Emissions from Waste Gas

Biogenic GHG

Source Description	LFG Compounds: CH4 %	LFG Compounds: CO2 %	LFG Compounds: CO2 pmv in inlet LFG	Methane Heating Value BTU/ft^3	WG Heating Value BTU/ft^3	flow scfm	Heat Input MMBTU/hr	CO2 Emission Factor kg/MMBTU	Emissions: CO2 T/yr	Emissions: CO2e T/yr
Thermal Oxidizer *(combustion)*	5%	78.5%	-	1012	54.04	2235	7.2	52.07	3,644	3,644
Thermal *(Pass-through)*	5%	78.5%	785,000	1012	54.04	2235	7.2	-	53,441	53,441

Anthropogenic GHG

Source Description	Global Warming Potential: CH4	Global Warming Potential: N20	Methane Heating BTU/ft^3	LFG Heating BTU/ft^3	LFG flow scfm	Heat Input MMBTU/hr	Emission Factor: CH4 kg/MMBTU	Emission Factor: N20 kg/MMBTU	Emissions: CH4 T/yr	Emissions: N2O T/yr
Thermal Oxidizer (combustion)	25	298	1012	54.04	2235	7.2	3.20E-03	6.30E-04	5.60	13.13984

Total GHG from Waste Gas, T/yr **57,104**

Notes:

1) Methane and Carbon Dioxide concentrations provided by manufacturer of thermal oxidizer.

2) Waste gas assumed have be equivalent to a biogas therefore emission factors for CO2, CH4, and N20 taken from Table C-1 and Table C-2 of 40 CFR 98

3) CO2 (combustion), CH4, and N20 emissions calculated by: Heat Input, MMBTU/hr * Emission factor, kg/MMTBU*2.205 lb/kg*(8760/2000)

4) CO2 (pass through and fugitive) and CH4 (fugitive) emissions calculated by: ((Flow, scfm * MW, lb/lb mole*ppmv *0.000001 ppm/ppmv*60 min*1 atm)/(0.7302 atm ft^3/lb/mol R*519.68 R))*(8760/2000)

GHG Emissions from Natural Gas

Biogenic GHG

Source Description	flow scfm	Heat Input MMBTU/hr	CO2 Emission Factor kg/MMBTU	Emissions: CO2 T/yr	Emissions: CO2e T/yr
Thermal Oxidizer *(combustion)*	160	9.7	53.06	4,971	4,971

Anthropogenic GHG

Source Description	flow scfm	Heat Input MMBTU/hr	Emission Factor: CH4 kg/MMBTU	Emission Factor: N20 kg/MMBTU	Emissions: CH4 T/yr	Emissions: N2O T/yr	Global Warming Potential: CH4	Global Warming Potential: N20
Thermal Oxidizer (combustion)	160	9.7	1.00E-03	1.00E-04	2.34	2.79	25	298

Total GHG from Waste Gas, MT/yr **4,976**

Notes:

1) Emission factors form 40 CFR 98 Table C

2) Manufacturer specifications

OTHER GHG EMISSION SOURCES

General Information

Global Warming Potential

CH4	25
N2O	298

DAILY OPERATION EQUIPMENT

Source Description	Fuel Type	Gallons	MMBTU/ Gal	MMBTU	Emission Factors, kg/MMBTU			Emissions, MT/yr				Short Ton/yr
					CO2	CH4	N2O	CO2	CH4	N2O	CO2e	CO2e
Waste Disposal Operations, Assumed to operate 260 days a year 10 hours per day or 2600 hours a year												
(2) Tippers, 164 hp	Diesel	21,782	0.138	3005.93	73.96	0.003	0.0006	222.32	0.0090	0.0018	223.08	245.90
(2) Landfill Compactor, 562 hp	Diesel	149,287	0.138	20601.61	73.96	0.003	0.0006	1,523.69	0.0618	0.0124	1528.92	1685.35
Trucks, 300 hp	Diesel	6.54E+08	0.138	9.02E+07	73.96	0.003	0.0006	6.67E+06	270.6367	54.1273	6.69E+06	7.38E+06
335hp D8 Dozer	Diesel	22,247	0.138	3070.08	73.96	0.003	0.0006	227.06	0.0092	0.0018	227.84	251.15
Insignificant Operations, Assumed to operate 130 days a year 8 hours per day or 1040 hours a year												
(3) Light Plants, 41.9 hp	Diesel	2,226	0.138	307.19	73.96	0.003	0.0006	22.72	0.0009	0.0002	22.80	25.13
Power Washer, 12 hp	Diesel	638	0.138	87.98	73.96	0.003	0.0006	6.51	0.0003	0.0001	6.53	7.20
Caterpillar Air Compressor, 59.9 hp	Diesel	3,182	0.138	439.16	73.96	0.003	0.0006	32.48	0.0013	0.0003	32.59	35.93
John Deer Compresser, 80 hp	Diesel	4,250	0.138	586.52	73.96	0.003	0.0006	43.38	0.0018	0.0004	43.53	47.98
Snow Blower, 5 hp	Gasoline	266	0.125	33.20	70.22	0.003	0.0006	2.33	0.0001	0.0000	2.34	2.58
(2) weed eaters, 0.5 hp	Gasoline	27	0.125	3.32	70.22	0.003	0.0006	0.23	0.0000	0.0000	0.23	0.26
Heaters, 783,333 btu/hr	Natural Gas	7,406	0.11	814.67	66.88	0.001	0.0001	54.48	0.0008	0.0001	54.53	60.11

Source Description	Fuel Type	Gallons	MMBTU/ Gal	MMBTU	Emission Factors, kg/MMBTU			Emissions, MT/yr				Short Ton/yr
					CO2	CH4	N2O	CO2	CH4	N2O	CO2e	CO2e
Forklift, 101,777.37 btu/hr	Propane	1,163	0.091	105.85	62.87	0.003	0.0006	6.65	0.0003	0.0001	6.68	7.37
HVAC, 400,000 btu/hr	Propane	4,571	0.091	416.00	62.87	0.003	0.0006	26.15	0.0012	0.0002	26.26	28.95

Notes:

1) Emission factors for CO2, CH4, and N20 are from Tables C-1 and C-2 of 40 CFR 98 Subpart C of the Mandatory Greenhous Gas Reporting Rule.

2) To convert hp to gal/yr, the maximum total fuel usage per hour was used based on AP-42 Emission factors from Table 3.3-1 of 7,000 btu/hp-hour; btu/lb of fuel of 19,300 btu; and a density of 7.1 lbs per gallon.

3) Gallons for units operating on propane or natural gas are based upon the annual BTU capacity and high heat value for Natural Gas or Propane from Table C-1of 40 CFR 98.

4) Number of waste trucks to be assumed an approximate annual rate of 590,100 tons of waste was hauled in. Assuming each waste disposal truck had a 40 cy capacity and the waste hand a 1600 lb/cy density; 18750 trucks hauled in waste.

Project GHG Emissions (Construction Equipment)

Source Description	Fuel Type	Gallons	MMBTU/ Gal	MMBTU	Emission Factors, kg/MMBTU			Emissions, MT/yr				Short Ton/yr
					CO2	CH4	N2O	CO2	CH4	N2O	CO2e	CO2e
Construction Operations, Assumed to operate 130 days of the year, 10 hours per day.												
(2) 225hp Dozer	Diesel	29,884	0.138	4123.99	73.96	0.003	0.0006	305.01	0.0124	0.0025	306.06	337.37
180hp backhoe	Diesel	11,954	0.138	1649.59	73.96	0.003	0.0006	122.00	0.0049	0.0010	122.42	134.95
Excavator 512hp	Diesel	34,001	0.138	4692.18	73.96	0.003	0.0006	347.03	0.0141	0.0028	348.22	383.85
249hp Sheepsfoot Comp	Diesel	16,536	0.138	2281.94	73.96	0.003	0.0006	168.77	0.0068	0.0014	169.35	186.68
Scraper 570 hp	Diesel	37,853	0.138	5223.72	73.96	0.003	0.0006	386.35	0.0157	0.0031	387.67	427.33
Vibratory smooth compactor roller, 169hp	Diesel	11,223	0.138	1548.79	73.96	0.003	0.0006	114.55	0.0046	0.0009	114.94	126.70
Grader, 196 hp	Diesel	13,016	0.138	1796.23	73.96	0.003	0.0006	132.85	0.0054	0.0011	133.30	146.94
Articulated Dump Truck, 342 hp	Diesel	45,424	0.138	6268.46	73.96	0.003	0.0006	463.62	0.0188	0.0038	465.21	512.80
Dump Truck, 300 hp	Diesel	79,691	0.138	10997.30	73.96	0.003	0.0006	813.36	0.0330	0.0066	816.15	899.65

Project GHG Emissions (Construction Equipment)-Continued

Source Description	Fuel Type	Gallons	MMBTU/ Gal	MMBTU	Emission Factors, kg/MMBTU			Emissions, MT/yr				Short Ton/yr
					CO2	CH4	N2O	CO2	CH4	N2O	CO2e	CO2e
passenger truck, 348 hp	Diesel	184,882	0.138	25513.74	73.96	0.003	0.0006	1,887.00	0.0765	0.0153	1893.47	2087.19

Notes:

1) Emission factors for CO2, CH4, and N20 are from Tables C-1 and C-2 of 40 CFR 98 Subpart C of the Mandatory Greenhous Gas Reporting Rule.

2) To convert hp to gal/yr, the maximum total fuel usage per hour was used based on AP-42 Emission factors from Table 3.3-1 of 7,000 btu/hp-hour; btu/lb of fuel of 19,300 btu; and a density of 7.1 lbs per gallon.

3) Gallons for units operating on propane or natural gas are based upon the annual BTU capacity and high heat value for Natural Gas or Propane from Table C-1of 40 CFR 98.

4) Assumed the construction will occur 130 days of the year, 10 hours per day.

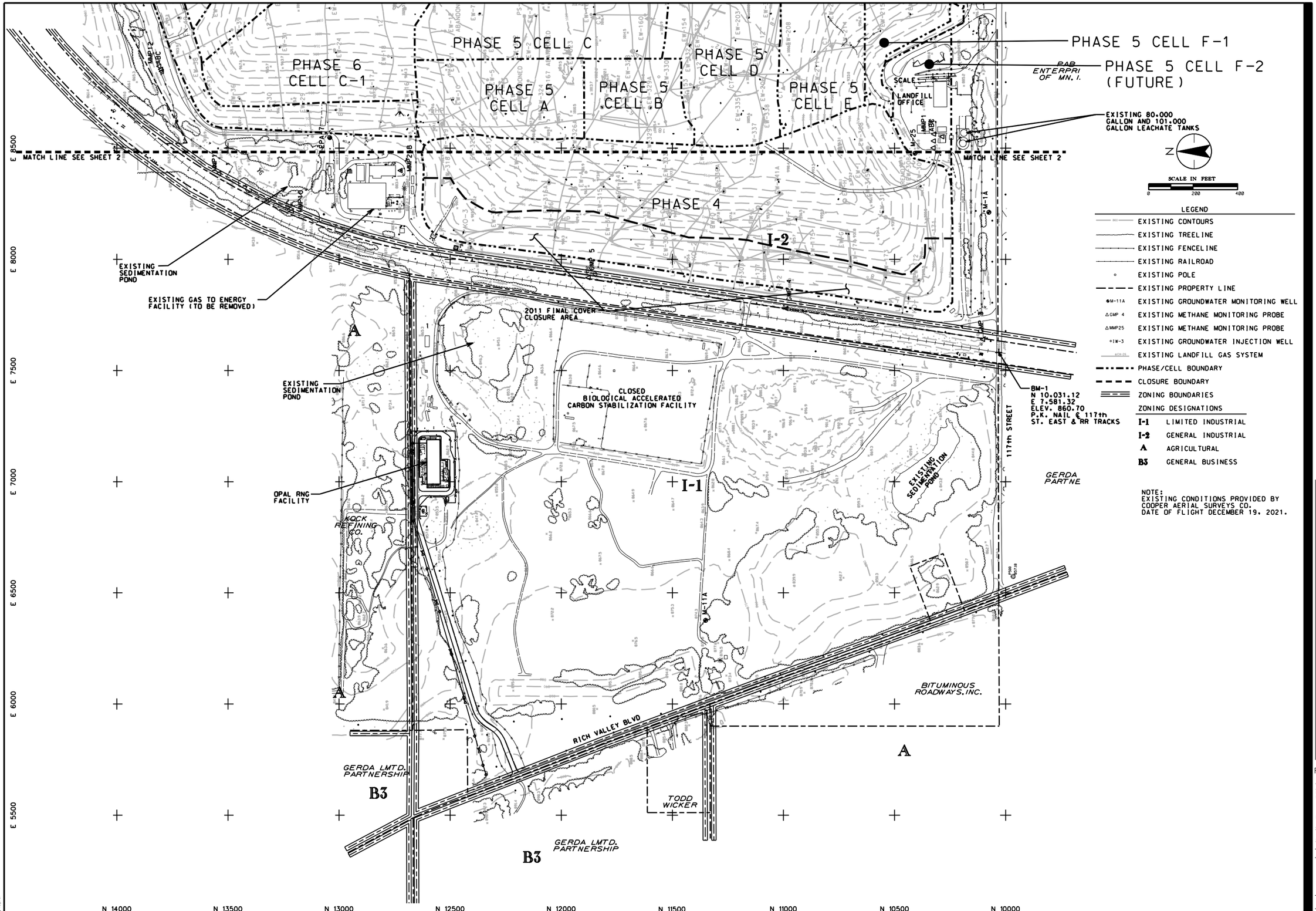
5) Capacity of equipment (Horsepower) assumed from specifications from various manufacturers

GHG Emissions Electrical Usage

Source	Electricity Used				Emissions, short tons/yr				Emissions, MT/y
	MWH	CO2, lb/MWH	CH4, lb/MWH	N2O, lb/MWH	CO2	CH4	N2O	CO2e	CO2e
Electrical Usage	137.72	1,098	0.119	0.02	151271.6	16.39	2.34	76.19	69.12

1) Megawats per hour (MWH) provided by Pine Bend Landfill.

2) Emission factors used were from the USEPA's Emission Factor's Hub for Greenhouse Gas Inventories



NOTE:
EXISTING CONDITIONS PROVIDED BY COOPER AERIAL SURVEYS CO.
DATE OF FLIGHT DECEMBER 19, 2021.

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Client/Project
BFI WASTE SYSTEMS OF NORTH AMERICA, LLC
PINE BEND LANDFILL

2022 MAJOR PERMIT MODIFICATIOON
INVER GROVE HEIGHTS, MINNESOTA
Existing Conditions Map (West Half)

Permit-Seal

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME THOMAS J. SHUSTARICH
SIGNATURE
DATE yy/mm/dd LICENSE # 21210

Project Number: 227704791
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JWT 2022.02.25

Drawing No. 2A
Revision 0
Sheet 3 of 18

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By: jeffrey.tepler

N 14000 N 13500 N 13000 N 12500 N 12000 N 11500 N 11000 N 10500 N 10000

E 11500 E 11000 E 10500 E 10000 E 9500 E 9000 E 8500 E 8000

BENCHMARK BM-2
N 10,033.01
E 11,189.7
ELEV. 924.63
IRON PIPE ℄ 117th ST. EAST

BENCHMARK BM-3
N11,809.56
E 10,440.33
ELEV. 898.51
BETWEEN RR TRACKS

5.1 ACRES

25.5 ACRES

EXISTING SEDIMENTATION POND

EXISTING SEDIMENTATION POND

EXISTING STORMWATER CONVEYANCE PIPE

PHASE 5 CELL F-2 (ACTIVE)

117th STREET

SCALE

LANDFILL OFFICE

EXISTING 80,000 GALLON AND 101,000 GALLON LEACHATE TANKS

EXISTING SEDIMENTATION POND

EXISTING GAS TO ENERGY FACILITY

2011 FINAL COVER CLOSURE AREA

N

SCALE IN FEET
0 200 400

LEGEND

- EXISTING CONTOURS
- EXISTING TREELINE
- EXISTING FENCELINE
- EXISTING RAILROAD
- EXISTING POLE
- EXISTING PROPERTY LINE
- EXISTING GROUNDWATER MONITORING WELL
- EXISTING METHANE MONITORING PROBE
- EXISTING METHANE MONITORING PROBE
- EXISTING GROUNDWATER INJECTION WELL
- EXISTING LANDFILL GAS SYSTEM
- PHASE/CELL BOUNDARY
- FUTURE PHASE/CELL BOUNDARY
- CLOSURE BOUNDARY
- PROPOSED PHASE 7-VERTICAL EXPANSION

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Client/Project
BFI WASTE SYSTEMS OF NORTH AMERICA, LLC
PINE BEND LANDFILL

2022 MAJOR PERMIT MODIFICATIOON
INVER GROVE HEIGHTS, MINNESOTA
Phasing Plan

Permil-Seal

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME THOMAS J. SHUSTARICH
SIGNATURE
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Drawing No. 3
Revision 0
Sheet 3 of 18

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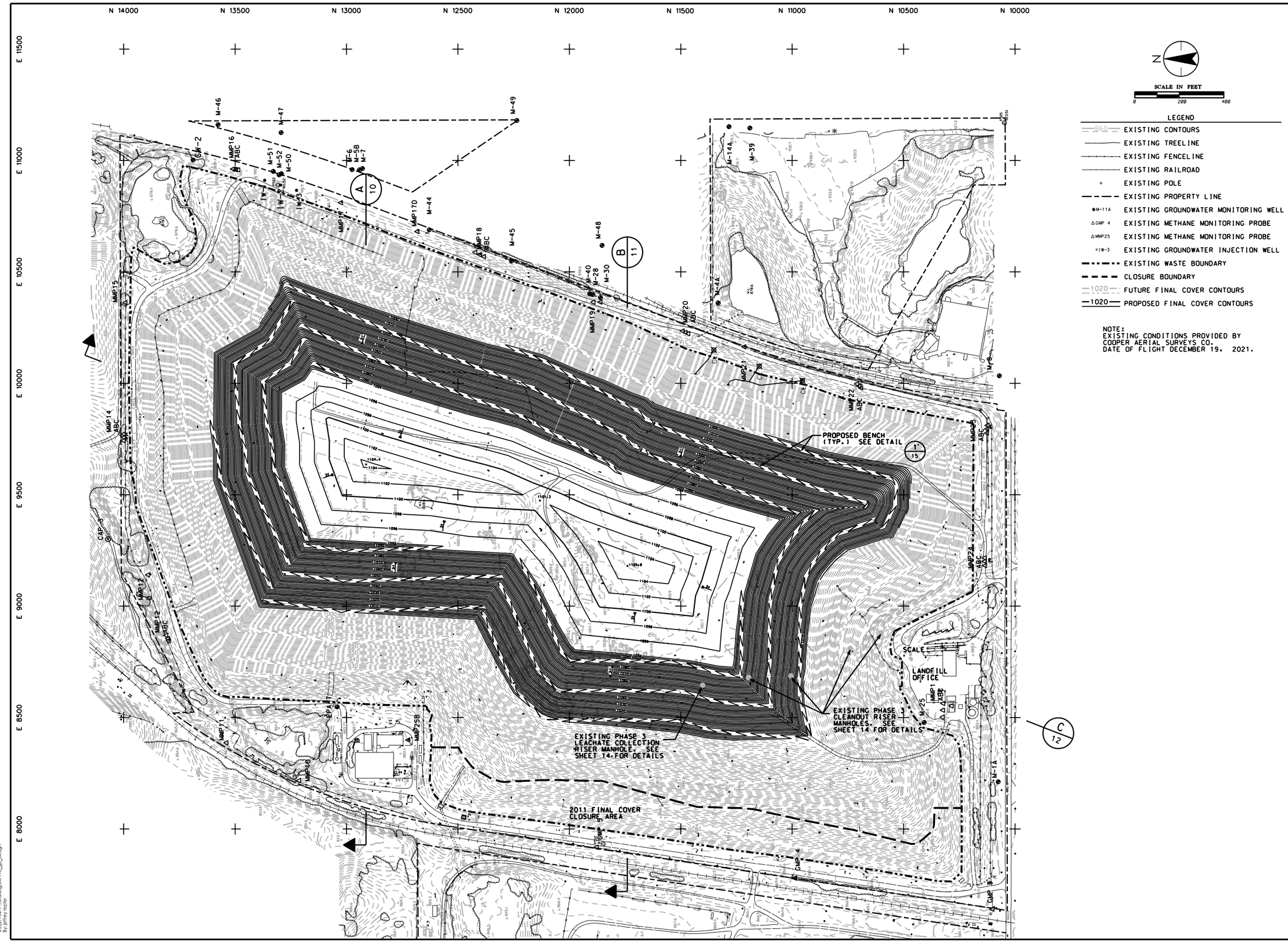
By: jeffrey.tepfer



NOTE:
EXISTING CONDITIONS PROVIDED BY COOPER AERIAL SURVEYS CO.
DATE OF FLIGHT DECEMBER 19, 2021.

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Client/Project
BFI WASTE SYSTEMS OF NORTH AMERICA, LLC
PINE BEND LANDFILL

2022 MAJOR PERMIT MODIFICATIOON

INVER GROVE HEIGHTS, MINNESOTA

Phase 7 Vertical Expansion final Cover Grading Plan

Permit-Seal

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

PRINT NAME THOMAS J. SHUSTARICH

SIGNATURE

DATE yy/mm/dd LICENSE # 21210

Project Number: 227704791

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JW1 2022.02.28

Drawing No. 4

Revision 0

Sheet 4 of 18

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By: jeffrey.taylor

N 14000 N 13500 N 13000 N 12500 N 12000 N 11500 N 11000 N 10500 N 10000

E 11500 E 11000 E 10500 E 10000 E 9500 E 9000 E 8500 E 8000

FUTURE CABLE CONCRETE DOWNSLOPE STRUCTURE W/4" CPEP

PROPOSED CABLE CONCRETE DOWNSLOPE STRUCTURE SEE DETAIL 2/15

PROPOSED 4" CPEP BELOW CABLE CONCRETE

FUTURE CABLE CONCRETE DOWNSLOPE STRUCTURE W/4" CPEP

PROPOSED 4" CPEP BELOW CABLE CONCRETE

PROPOSED CABLE CONCRETE DOWNSLOPE STRUCTURE SEE DETAIL 2/15

PROPOSED BENCH (TYP.) SEE DETAIL 1/15

FUTURE CABLE CONCRETE DOWNSLOPE STRUCTURE W/4" CPEP

FUTURE CABLE CONCRETE DOWNSLOPE STRUCTURE W/4" CPEP

PROPOSED 4" CPEP BELOW CABLE CONCRETE

PROPOSED CABLE CONCRETE DOWNSLOPE STRUCTURE SEE DETAIL 2/15

EXISTING CABLE CONCRETE DOWNSLOPE STRUCTURE

EXISTING CONCRETE DIVERSION STRUCTURE

EXISTING 60" PIPE

EXISTING 96" PIPE TO EXISTING SEDIMENTATION PIPE

EXISTING CONCRETE STORMWATER MANHOLE

2011 FINAL COVER CLOSURE AREA

PROPOSED 4" CPEP IN BENCH (TYP.) SEE DETAIL 1/15

SCALE

LANDFILL OFFICE

PROPOSED 4" CPEP BELOW CABLE CONCRETE

C/12

EXISTING CABLE CONCRETE DOWNSLOPE STRUCTURE TO EXISTING CONCRETE DIVERSION STRUCTURE. FROM THERE FLOWS THRU 36" PIPE, 48" PIPE TO STORM WATER INFILTATION BASIN. SEE SHEET 2A

N

SCALE IN FEET
0 200 400

LEGEND

- 860 EXISTING CONTOURS
- EXISTING TREELINE
- EXISTING FENCELINE
- EXISTING RAILROAD
- EXISTING POLE
- EXISTING PROPERTY LINE
- M-11A EXISTING GROUNDWATER MONITORING WELL
- GMP 4 EXISTING METHANE MONITORING PROBE
- MMP25 EXISTING METHANE MONITORING PROBE
- IW-3 EXISTING GROUNDWATER INJECTION WELL
- EXISTING WASTE BOUNDARY
- CLOSURE BOUNDARY
- 1020 FUTURE FINAL COVER CONTOURS
- 1020 PROPOSED FINAL COVER CONTOURS

NOTE:
EXISTING CONDITIONS PROVIDED BY COOPER AERIAL SURVEYS CO.
DATE OF FLIGHT DECEMBER 19, 2021.

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Client/Project
BFI WASTE SYSTEMS OF NORTH AMERICA, LLC
PINE BEND LANDFILL

2022 MAJOR PERMIT MODIFICATIOON
INVER GROVE HEIGHTS, MINNESOTA
Phase 7 Vertical Expansion Surface Water Management Plan

Permit-Seal
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

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JWT 2022.03.11

Drawing No. 5
Revision 0
Sheet 5 of 18

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By: jeffrey.tepler