Project Summary and Environmental Analysis
for the
Timberline Trail Recycling and Disposal Facility
Proposed Northern Expansion No. 2
April 21, 2026

General Facility Information

Proposed Facility:	Timberline Trail Recycling and Disposal Facility (TTRDF) Landfill, License No. 3455, Facility Identification Number (FID) 855040230, Proposed Northern Expansion No. 2
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Licensee/Property Owner:	Waste Management of Wisconsin, Inc. (WMWI)
Facility Location:	South Half of the Northeast Quarter of Section 4, Township 34 North, Range 8 West, Town of Stubbs, Rusk County, Wisconsin

Facility Description

The proposed Northern Expansion No. 2 (proposed expansion) would be a contiguous expansion of the existing Timberline Trail RDF landfill (existing landfill) located on 661-acre landfill property owned by WMWI. The proposed expansion would consist of a 29-acre horizontal expansion north of the existing landfill waste limits and a 16.8-acre vertical overlay atop the existing landfill. The proposed capacity would add approximately 6.5 million cubic yards (cy) to the existing landfill for a total capacity of 16.138 million cy. The proposed landfill would provide an estimated 8 years of additional site life beginning in 2030 for a total site life of 14.5 years, based on the feasibility report.

The landfill began operating in 1994 after the Department of Natural Resources (department) issued a plan of operation on May 23, 1994, which included Phases 1 to 5 (original landfill). WMWI has operated the landfill since acquiring ownership of the landfill in 1996. The department approved the first northern expansion on June 7, 2002, which included Phases 6 to 9. The existing landfill is currently operating in part

of Phase 9.

Access to the landfill would remain the same. The entrance is at N4581 Hutchinson Rd., Weyerhaeuser, WI.

Primary Service Area

The primary service area for the proposed expansion would be for eighteen northwestern Wisconsin counties, including Ashland, Barron, Bayfield, Buffalo, Burnett, Chippewa, Clark, Dunn, Eau Claire, Pepin, Pierce, Polk, Price, Rusk, Sawyer, St. Croix, Taylor and Washburn; and seventeen east central Minnesota counties, including Anoka, Carlton, Chisago, Dakota, Goodhue, Hennepin, Kanabec, McLeod, Pine, Ramsey, Rice, St. Louis, Scott, Sherburne, Wabasha, Washington and Winona.

Proposed Waste Types

Proposed waste types would be similar to the waste types currently accepted at the existing landfill which includes, nonhazardous municipal, commercial, industrial and special wastes (in accordance with the landfill's special waste plan). The composition of waste accepted in the proposed expansion is expected to have similar characteristics to waste accepted at the existing landfill. The proposed expansion is anticipated to include the following proportions of waste categories:

- Municipal Solid Waste (MSW): approximately 90%
- Industrial and Special Waste and Contaminated Soil: approximately 10%
- Construction and Demolition (C&D) Waste: less than 1%

The existing landfill accepts soil derived from industrial sources and contaminated soil such as petroleum impacted sites to be used as daily cover, intermediate cover or in the final cover system such as for the grading layer soil. The volume of soil is on average approximately 2% of the overall total waste volume accepted at TTRDF.

Relevant Approvals/Permits

The following approvals and permits are required for the proposed expansion:

- Favorable feasibility determination under ch. NR 512, Wisconsin Administrative Code (Wis. Adm. Code).
- Variances to the requirement of s. NR 812.08(4), Table A, Wis. Adm. Code, under the provisions of s. NR 812.43(1)(a), Wis. Adm. Code, for all of the wells located within 1,200 feet of the limits of waste, including the existing landfill and the proposed expansion.
- Plan of operation approval under ch. NR 514, Wis. Adm. Code.
- Construction documentation approval under ch. NR 516, Wis. Adm. Code.
- Air permit(s) under the NR 400 series, Wis. Adm. Code, for operation and construction. The existing landfill and the proposed expansion have received an air pollution control construction permit (Construction Permit No. 24-MIN-260) and operation permit (Operation Permit No. 85504023A-P40) which was issued by the department on July 1, 2025, which expires on July 1, 2030, and incorporates the increased design capacity of the proposed expansion.
- Storm water permit(s) under ch. NR 216, Wis. Adm. Code. The existing landfill has current coverage under a Tier 2 Industrial Storm Water permit, FIN58156. Monitoring requirements are specified in s. NR 216.28, Wis. Adm. Code, and section 4 of the Tier 2 Industrial Storm Water permit. Coverage

under a storm water construction site permit would not be necessary, but revisions to the current permit may be necessary to cover the proposed expansion.
- Local negotiated agreements with all participating affected municipalities and compliance with all applicable local rules and approvals. This process is independent of the department plan review process.

The affected municipalities as defined under s. 289.01(1), Wisconsin Statute (Wis. Stats.), in the area of the proposed expansion include the Town of Stubbs and Rusk County. WMWI sent notifications dated November 7, 2024, to the affected municipalities informing them of the proposed expansion. Town of Stubbs received notification on December 19, 2024. Rusk County received notification on January 3, 2025. Copies of the notification letters to the affected municipalities are included in Appendix E of the August 19, 2025, feasibility report. TTRDF did not receive a written response from the Town of Stubbs. Rusk County responded in a letter stating no local approvals are required for the proposed expansion.

Grants of Exemption

TTRDF has previously received grants of exemption from the following Wis. Adm. Code, requirements:

1. **Exemptions under s. NR 140.28, Wis. Adm. Code**, from the groundwater quality standards in s. NR 140.10, and 140.12, Wis. Adm. Code, were previously granted for manganese at two existing groundwater monitoring wells (MW-104 and MW-106) and vanadium at one groundwater monitoring well (MW-101).

2. An **exemption from s. NR 504.04(3)(a), Wis. Adm. Code**, was granted as part of the existing landfill's previous feasibility determination dated August 9, 2001, restricting construction of a landfill where the limits of waste would be within 1,000 feet of a navigable pond. There is a pond that is within a wetland located approximately 300 feet east of the existing landfill near the landfill office.

3. An **exemption from s. NR 504.04(3)(f), Wis. Adm. Code,** was granted as part of the existing landfill's previous feasibility determination dated August 9, 2001, restricting construction of a landfill where the limits of waste are within 1,200 feet of water supply well. There are two water supply wells, identified as PW02 that serves the landfill office and PW03 that serves the gas plant. In accordance with s. NR 504.04(2)(a), Wis. Adm. Code, the exemption for these wells would be re−evaluated for the proposed expansion.

Requested Exemptions

TTRDF has requested exemptions from the following Wis. Adm. Code, requirements for the proposed expansion as discussed below:

Baseline Sampling of New Groundwater Monitoring Wells

Exemptions under s. NR 140.28, Wis. Adm. Code, are requested from the groundwater quality standards in s. NR 140.10 or 140.12, Wis. Adm. Code, based on the results of at least four rounds of baseline groundwater sampling collected at groundwater monitoring wells installed for the proposed expansion. Below is a summary of specific ch. NR 140, Wis. Adm. Code, (NR 140), exemption requests:

- An exemption in accordance with ss. NR 140.28(3)(a), and NR 140.28(4)(a) Wis. Adm. Code, is

requested for the public welfare standard for:
  - Chloride in groundwater monitoring well MW-205
  - Manganese in groundwater monitoring wells MW-1RR, MW-1ARR, MW-11CR, MW-12AR, MW-103R, MW-201, MW-202, MW-203, MW-204, MW-205, MW-207, MW-208 and MW-210

- An exemption in accordance with ss. NR 140.28(3)(b), and NR 140.28(4)(b), Wis. Adm. Code, is requested for the following public health standards:
  - Benzene in groundwater monitoring well MW-202A
  - Chromium in groundwater monitoring well MW-206
  - Lead in groundwater monitoring wells MW-203 and MW-206A
  - Manganese in groundwater monitoring wells MW-103R, MW-201, MW-204, MW-205, MW-207, MW-208 and MW-210
  - Nitrate + nitrite (as nitrogen) in groundwater monitoring wells, MW-103R, MW-201, MW-202, MW-202A, MW-204, MW-204A, MW-205, MW-206, MW-207, MW-208, MW-209 and MW-210.

Granting an exemption from an NR 140 groundwater quality standard for a substance at a groundwater monitoring well where concentrations exceed the standard due to circumstances not related to the existing or proposed facility is a pre-requisite to approving and applying an alternative concentration limit (ACL) for the substance and groundwater monitoring well during the detection monitoring program of the facility. Using an ACL calculated from baseline concentrations gives the department the ability to regulate groundwater quality at a facility if there are any releases from the facility and background concentrations exceed established NR 140 standards.

Existing Groundwater Monitoring Wells

Exemptions under s. NR 140.28, Wis. Adm. Code, are requested from the groundwater quality standards in s. NR 140.10 or 140.12, Wis. Adm. Code, for some reported exceedances of substances at existing groundwater monitoring wells. The purpose for these exemption requests is to satisfy the requirement under s. NR 140.28 (1), Wis. Adm. Code, which requires that the department may not approve a proposed facility, practice or activity at a location where a preventative action limit (PAL) or enforcement standard (ES) has been attained or exceeded unless an exemption has been granted.

- An exemption in accordance with ss. NR 140.28(3)(a), and NR 140.28(4)(a) Wis. Adm. Code, is requested for the public welfare standard:
  - Manganese for groundwater monitoring wells MW-1RR, MW-1ARR, MW-11CR and MW-12AR.
  - Sulfate for groundwater monitoring well MW-107.
- An exemption in accordance with ss. NR 140.28(3)(b), and NR 140.28(4)(b), Wis. Adm. Code, is requested for the following public health standards:
  - Manganese for groundwater monitoring wells MW-1RR, MW-1ARR, MW-11CR and MW-12AR.
  - Nitrate + nitrite (as nitrogen) for groundwater monitoring wells MW-11AR, MW-12AR, MW-104, MW-106, MW-107, MW-109 and MW-110.

Private Water Supply Well Setback

An **exemption from s. NR 504.04(3)(f), Wis. Adm. Code,** is requested to the 1,200-foot setback distance for two existing water supply wells owned by WMWI. These water supply wells are identified as PW02 that serves the landfill office and PW03 that serves the gas plant. PW02 (landfill office) is located approximately 255 feet from the waste limits of the existing landfill and approximately 3,170 feet from the horizontal footprint of the proposed expansion. PW03 (gas plant) is located approximately 600 feet from the waste limits of the existing landfill and approximately 1,450 feet from the horizontal footprint of the proposed expansion. The landfill applicant may be required to apply for a ch. NR 812, Wis. Adm. Code, well

variance under s. NR 812.43 (1) (a), Wis. Adm. Code.

Surface Waterbody Setback

An exemption from s. NR 504.04(3)(a), Wis. Adm. Code, was granted as part of the existing landfill's previous feasibility determination dated August 9, 2001, restricting construction of a landfill where the limits of waste would be within 1,000 feet of a navigable pond. There is a pond within a wetland located approximately 300 feet east of the existing TTRDF landfill near the landfill office.

Alternate Geotechnical Investigation Program

An Alternate Geotechnical Investigation Program (AGIP) as outlined under s. NR 512.085, Wis. Adm. Code, for the proposed expansion was submitted to the department on March 14, 2023. The proposal included a detailed description of the proposed AGIP and detailed explanations of the rationale for the proposed differences between the code requirements in ss. NR 512.09 or 512.10, Wis. Adm. Code, and the proposed AGIP. It also included the anticipated benefits of the proposed AGIP. The department accepted the AGIP on June 13, 2023, and includes the requested exemptions from ch. NR 512, Wis. Adm. Code, listed below. Formal approval of an accepted AGIP is made in the department's feasibility determination.

- Utilize information from existing groundwater monitoring wells and previously drilled soil borings to reduce the number of required new borings, water table groundwater wells, and piezometers as required by ss. NR 512.09(1) and NR 512.09(2), Wis. Adm. Code. The minimum number of required borings and groundwater monitoring wells is still met; however, some of the information comes from previous geotechnical work in the area of the proposed expansion, rather than from new borings and groundwater monitoring wells.
- Retain soil samples and rock cores for only the required new soil boings and not the older soil borings as part of the previous subsurface investigation for the existing landfill until the department approves the report that includes documentation of the soil samples in accordance with s. NR 507.05(1)(e), Wis. Adm. Code, (s. NR 512(1)(d), Wis. Adm. Code).
- Submission of documentation on previous versions of the department forms for groundwater monitoring well abandonment (Form 3300-005) and groundwater monitoring well construction and development (Forms 4400-113A, 4400-113B) and soil borings (Form 4400-122) in accordance with s. NR 507.14(5), Wis. Adm. Code, (s. NR 512.09(2)(e), Wis. Adm. Code).
- Perform water level measurements semiannually rather than quarterly following the 6-month period of monthly water level measurements (s. NR 512.09(4)(e), Wis. Adm. Code).
- Utilize sonic drilling for the soil borings for the 15 proposed wells/piezometers. The standard penetration tests (SPTs) as required by ss. NR 512.09(1)(d) and NR 507.06(1)(b), Wis. Adm. Code, would not be done to allow for collecting continuous soil samples.

Land Use and Zoning

The site of the proposed expansion is on land owned by WMWI and the current land use in the area of the expansion consists of landfill support features including soil stockpiles and storm water management structures, grassland and agricultural use (row crop). Land use within one mile of the project area consists of mixed land uses including agriculture and grasslands forested areas. Figure 4- 3 of the feasibility report shows current land use.

Land zoning within one mile of the project area includes agriculture, forestry, and shoreland zoning. The use of the site of the proposed expansion is zoned agriculture and allows for land use as solid waste disposal with

a conditional use permit subject to compliance with provisions of the Rusk County Zoning Ordinance. As part of the local approvals process under s. 289.22, Wis. Stats., Rusk County did not request that WMWI to apply for a conditional use permit for the proposed expansion. Figure 4-2 of the feasibility report shows currently zoned districts.

Regional and Site-Specific Geological Information

Geology and Soils

Surficial soil as mapped by the Natural Resource Conservation Service (NRCS) in the area of the proposed expansion consists of Magnor very stony and silt loam (3456A), characterized by gentle slopes ranging from 0 to 4 percent, exhibiting somewhat poor drainage and a moderate available water capacity. Other soil types surrounding the landfill are similarly described as very stony and silt loam.

The results of the subsurface investigation in the area of the proposed expansion show the geology and soils encountered are similar to the area of the existing landfill. The thick Pleistocene deposits overlay sandstone bedrock. The 2024 field investigation, bedrock was not encountered in any of the soil borings for the proposed expansion. However, bedrock was encountered in a soil boring MW-11C, located south of the proposed expansion, as part of the site investigation for the original landfill. The major soil units exists beneath the proposed expansion, loess (windblown silt) and glacial drift of the Copper Falls Formation consisting of till (clay, silt, sand, gravel, and boulders) and outwash (predominantly sand and gravel).

Loess is the upper most unit encountered of the proposed expansion area. Loess is relatively thin and not typically more than 3 feet thick but is found up to five feet thick. Loess is found in many of the soil borings in the area of the proposed expansion present and along the east and west side of the existing landfill but overlain by fill soils during construction of the perimeter roads. The loess is described as dark brown to strong brown/grayish brown, mottled lean clay (CL), silt (ML), silty clay (CLML), or sandy lean clay (CL). Based on the grain size analysis of the loess samples, the overall average consistency is trace gravel, 8% sand, 68% silt, and 24% clay.

Till is one of the predominant major soil units encountered in all borings and wells in the proposed expansion area. Till is typically overlain by fill soils (such as landfill support berms) and loess. The till unit is typically 60 to 140 feet thick and ranges in depth from at the surface to 160 feet below ground surface (bgs). Overall, the till is a silty fine sand (SM) containing varying amounts of gravel, cobbles, and boulders.

Within the till, there is variability that includes isolated pockets of clay and clayey sand found at or near the ground surface in borings and wells in the north and west portions of the proposed expansion area. The clayey till portion (identified in the feasibility report as weathered till) ranges from approximately two to 35 feet thick and is present at various depths within the till unit ranging from the surface to approximately 120 feet bgs. Even though this clayey unit may have thickness greater than 2 feet and, in some areas, appear to extend laterally across multiple soil borings as shown on the geologic cross sections of the feasibility report, the clayey till may not have an overall effect of the local hydrogeologic flow system beneath the proposed expansion or the existing landfill. This clayey till portion largely consists of, fine-grained, yellow-brown to reddish-brown sandy lean clay (CL), lean clay with sand (CL), or clayey sand (SC), till. Based on grain size analysis of the clayey portion of till samples, the overall average consistency is 10% gravel, 36% sand, 32% silt, and 22% clay.

A glacial outwash unit is also predominant in many of the soil borings for the proposed expansion. Outwash consists of well sorted sand with silt and some gravel in areas. Generally, outwash underlies the till where encountered in soil borings; however, some soil borings encountered isolated pockets of outwash ranging

from two to 12 feet thick within the till unit. The depth of the top of the main outwash unit ranges from three to 160 feet bgs. The bottom of the main outwash unit was not encountered in the proposed expansion area investigation. Based on grain size analysis of outwash samples, the overall average consistency is 18% gravel, 74% sand, 6% silt, and 3% clay.

A lacustrine unit documented as part of the original landfill was found to be isolated in pockets in some borings for the proposed expansion but not laterally extensive to be considered a major soil unit for the proposed expansion. Lacustrine is characterized as dark gray-brown silty clay.

Hydrogeology

During the subsurface investigation for the proposed expansion, the groundwater (water table) was initially encountered in the till and outwash units. The groundwater elevations range from 1,130 to 1,145 feet above mean seal level (AMSL). Depth to groundwater ranges from approximately 80 to 110 feet below the existing ground surface depending on the land surface elevation across the site. The bedrock was not encountered in the area of the proposed expansion, but sandstone was encountered in the area of the original landfill—south of the proposed expansion. The aquifer is hydraulically connected between the major soil units including bedrock where encountered. Perched groundwater was not observed during the subsurface investigation for the proposed expansion. Even though bedrock is much deeper in the area of the proposed expansion, the water supply wells located within 1,200 feet of the limits of waste of the exiting landfill draw water from the sandstone bedrock.

The geometric mean of the hydraulic conductivity within the till is 1.77×10^{-4} centimeters per second (cm/sec), and the outwash is 6.66×10^{-3} cm/sec based on the groundwater monitoring wells screened in these units. None of the groundwater monitoring wells in the area of the proposed expansion were screened in the lacustrine or were deep enough to encounter sandstone; however, data from the site investigations of the previous expansion and the original landfill were used to calculate gradients (indicated below) as comparison to gradients of the formations encountered beneath the existing landfill and the proposed expansion.

Groundwater Flow and Gradients

Groundwater flow direction in the area of the proposed expansion is consistent with the groundwater flow direction across the site of the existing TTRDF. Generally, the groundwater flow direction across the site is to the southeast. Groundwater flow direction during high water table conditions is similar to low water table conditions and water levels generally vary by one foot or less in the area of the proposed expansion. Regionally, groundwater flows toward the Chippewa River.

The horizontal gradient across the site of the proposed expansion is approximately 0.004 ft/ft (based on the January 28, 2025 high water table measurements) and is consistent with the horizontal gradients as previously calculated and reported for the existing landfill.

Vertical hydraulic gradients were calculated using water level measurements from the May 15, 2024, low water table monitoring event and the January 28, 2025 high water table monitoring event. Vertical gradients during high and low water conditions were primarily downward in monitoring wells located in the area of the proposed expansion.

The horizontal groundwater velocity was calculated for each of the major soil units encountered in the groundwater monitoring wells for the proposed expansion as follows:

- Till: 9.05×10^{-4} feet per day

- Outwash: $2.26x10^{-2}$ feet per day

The groundwater velocity calculated for the other soil units encountered in the previous expansion and original landfill's site investigation include the following (but were not encountered in the proposed expansion):

- Lacustrine:$1.20x10^{-4}$ feet per day
- Sandstone: $1.61x10^{-2}$ feet per day

Baseline Groundwater Quality

WMWI collected and submitted baseline groundwater quality data (consisting of at least four, and in some cases eight, sample rounds between May 2024 and April 2025) for the groundwater monitoring wells installed for the proposed expansion in accordance with the requirements in s. NR 512.17 and NR 512.18, Wis. Adm. Code. Concentrations of the following substances greater than groundwater quality standards were observed in multiple consecutive sample rounds (more than two rounds) at the groundwater monitoring wells listed below:

Table 1 Baseline Groundwater Quality

Substance:	Groundwater Monitoring Well:
Chloride	MW-206
Manganese	MW-203 and MW-207
Nitrate +nitrite (as Nitrogen)	MW-201, MW-202, MW-202A, MW-204, MW-204A, MW-205, MW-206, MW-207, MW-208, MW-209 and MW-210

Manganese is commonly detected in groundwater samples collected from groundwater monitoring wells immediately following their installation. Manganese is often released from soils into groundwater when the soil in contact with groundwater is disturbed, such as when a well is drilled. Manganese was detected at concentrations exceeding the public welfare PAL in the initial samples (first two sample rounds) collected from other newly drilled groundwater monitoring wells but in subsequent sample rounds concentrations decreased to below the PAL. In many cases, a total of eight sample rounds were collected and further demonstrate concentrations remain below the PAL.

Nitrate + nitrite is commonly detected in groundwater monitoring wells where fertilizers are applied on agricultural land located upgradient from the wells. The nitrate + nitrite concentrations in samples collected from water table groundwater monitoring wells MW-201, MW-202, MW-202A, MW-204, MW-204A, MW-205, MW-206, MW-207, MW-208, MW-209 and MW-210 exceeded the PAL and/or ES during the baseline sampling consisting of at least eight sample rounds between May 2024 and April 2025. Due to the hydraulic location of these wells and results from nearby wells, the feasibility report states the detected nitrate + nitrite (as nitrogen) concentrations to agricultural practices or sources other than the existing landfill.

WMWI is requesting an exemption from NR 140 groundwater quality standards for the substances and wells listed in Table 1 above. If the requested exemptions are granted in a favorable feasibility determination, then ACLs would need to be proposed in the plan of operation report for the naturally occurring substances. The ACLs would be used as site-specific groundwater quality standards during detection monitoring to assess if the existing landfill is impacting groundwater quality with these substances during operation and the post-closure period.

Constraints on Landfill Development

Locational Criteria

Navigable Lakes or Ponds, Navigable Rivers or Streams, State or Federal Highways, Parks or Natural Areas and Airports

The proposed expansion would not be located within 300 feet of a navigable river or stream or in a flood hazard area or floodplain. The nearest navigable stream or river is Hay Creek located approximately 825 feet west of the proposed expansion limits of waste. The existing landfill limits of waste are approximately 400 feet from Hay Creek, at its nearest point.

The proposed expansion is within 1,000 feet of any navigable lake, pond or flowage. The wetland identified as Wetland No. 9 has surface water considered to be a navigable pond as determined in previous feasibility study for the existing landfill. The boundary of pond is undefined, but is within the extent of Wetland No. 9. The existing landfill limits of waste maintains a 300-foot setback from the navigable pond of Wetland No. 9. The horizontal footprint of the proposed expansion is greater than the 300-foot setback distance from the pond by more than 860 feet (as determined from the 300-foot setback distance between the existing landfill and the pond).

The proposed expansion would not be located within 1,000 feet of the nearest edge of the right−of−way of any state trunk highway, interstate or federal aid primary highway or the boundary of any public park or state natural area. The proposed expansion is not located within 10,000 feet of an airport runway used by turbojet aircraft, nor within 5,000 feet of an airport runway used by piston-type aircraft.

Faults, Seismic Impact Zones and Unstable Areas

The proposed expansion is not located within 200 feet of a fault that has had displacement in Holocene times. No faults in Wisconsin are known to have had displacements since the Holocene time. The existing landfill and proposed expansion are not located within a seismic impact zone. The site is not located within an unstable area.

Public or Private Water Supply Wells

Two water supply wells, identified as PW02 that serves the landfill office and PW03 that serves the gas plant, are located within the 1,200-foot setback from the existing landfill; however, the horizontal component of the proposed expansion is greater than 1,200 feet from PW02 and PW03. In 2001 as part of the previous landfill expansion, the department granted an exemption from s. NR 504.04(3)(f), Wis. Adm. Code, to the 1200-foot setback for PW02. The water supply well PW03 was installed in 2003, and WMWI is requesting an exemption from s. NR 504.04(3)(f), Wis. Adm. Code as part of the proposed expansion.

Performance Standards

Surface Water, Groundwater, Wetlands and Landfill Gas Migration and Emissions

The proposed expansion would be a vertical and horizontal expansion above and extending north of the existing landfill. Like the existing landfill, the proposed expansion would be constructed with a composite liner system, leachate collection system, landfill gas extraction system, storm water management system, final cover system and associated environmental monitoring systems. Therefore, a significant adverse impact to wetlands, a detrimental effect on surface water, a detrimental effect on groundwater quality, the migration and concentration of explosive gases and/or the emission of any hazardous contaminant would not be

expected.

Endangered or Threatened Species

The Endangered Resources Review letter dated November 12, 2021 and updated as recently as October 10, 2025, indicated "no action required or recommended" for one species. No further actions are needed based on the search results of the National Heritage Inventory (NHI) portal for the area within one mile (for terrestrial and wetland species) and two miles (for aquatic species) of the proposed limits of soil disturbance. Therefore, it is not expected the proposed expansion would interfere with or result in the take of an endangered or threatened species.

Potential Constraints to Development

No constraints regarding design, material, or support services necessary to construct and operate the proposed expansion were identified in the feasibility report. Because this is an expansion of the existing landfill, many of the existing landfill support structures (e.g., entrance, office, scale, perimeter roads) are already in place and would be utilized for the proposed expansion.

Existing Facility Performance

Groundwater Quality Monitoring

Groundwater monitoring wells assigned to the existing landfill are sampled semiannually in April and October. Nineteen (19) groundwater monitoring wells comprise the monitoring network. Fifteen groundwater monitoring wells are monitored semiannually for indicator parameters and annually for volatile organic compounds (VOCs). Four (4) groundwater monitoring wells are designated as Subtitle D wells and are sampled semiannually for indicator parameters and VOCs. Water elevation, specific conductance, pH, temperature, color, odor and turbidity are also measured in the field at each monitoring point during sampling. The monitoring network for the existing landfill is adequate, and the monitoring wells are in good condition and provide comprehensive data to evaluate the groundwater conditions of the site.

Groundwater quality monitoring data are available on the department's Groundwater and Environmental Monitoring System (GEMS) database online. Below is a summary of the groundwater quality based on sample data.

Public Health Parameters

Nitrite + nitrate (as nitrogen) concentrations greater than the NR 140 PAL at groundwater monitoring wells MW11AR, MW12AR, MW103R, MW-106, MW107, MW109, and MW110. With exception of MW107, historical concentrations have been between the PAL and ES and appear to be from agricultural practices in the area surrounding the landfill.

At groundwater monitoring well MW-107, nitrate +nitrite (as N) concentrations have exceeded the PAL since 2016 and have increased since then with a maximum concentration of 198 micrograms per liter (µg/L) in October 2020. Recent concentrations are less than the historical high; however, average concentrations remain approximately fifty times greater than the PAL. MW-107 is located upgradient of the landfill and near the North Sedimentation Basin.

Impacts at groundwater monitoring well MW-107 are attributed to the improper storage of and/or damage

to sealed plastic bags of dry fertilizer set on pallets (approximately 24,000 pounds) on the TTRDF property located upslope of MW-107 in years between 2003 and 2007. This fertilizer, which was intended for use in the bio pile operations within the existing landfill, is no longer stored or used on site.

Public Welfare Parameters

No public welfare parameters with confirmed exceedances greater than the NR 140 PAL reported at the existing groundwater monitoring wells.

Indicator Parameters

Indicator parameters (alkalinity, hardness and specific conductance) are used to monitor changes in general water quality based on well-specific PALs which are calculated from the baseline sample data.

At groundwater monitoring well MW107, concentrations of hardness and specific conductance have exceeded their respective well specific PALs since April 2019 and may be attributed to the higher mineral content in the water associated with the historical spill of fertilizer stockpile near the well.
The following other groundwater monitoring wells have periodically exceeded their respective well-specific indicator PALs:

- MW-109: Concentrations of specific conductance were greater than the well-specific PAL in October 2025 and the well will be monitored again in April 2026 to confirm its concentration.
- MW-109A: Confirmed exceedance of the well specific PAL for hardness in April 2024. Since October 2024, concentrations have remained less than the PAL.
- MW-110: An exceedance of the well-specific PAL for specific conductance in April 2020 and October 2021. The well-specific PALs for specific conductance have not since been exceeded.

Alkalinity concentrations exceeded the well-specific PAL at groundwater monitoring wells MW-106, MW-109, and MW-110 for the first time in October 2022 but have not since then.

Water Supply Well Monitoring

The WMWI-owned water supply well PW02 (landfill office well) is sampled for volatile organic compounds nitrate + nitrite (as nitrogen) and certain inorganics as part of the existing monitoring program required for the existing landfill. The water supply well PW03 (gas plant well) is not required to be sampled as part of the monitoring program for the existing landfill. The department will evaluate whether additional sampling for either water supply well is needed as part of the department's review of the plan of operation report for the proposed expansion.

There have been no confirmed groundwater quality standard exceedances for VOCs, nitrate, or other inorganic substances reported to the department since sampling began in 2001 at the landfill office well PW02. Sampling results are unavailable for the gas plant well PW03 as there are currently no requirements to sample PW03.

Surface Water Monitoring

WMWI currently operates a surface water management system to remove sediment prior to discharge to Hay Creek. The system consists of two sedimentation basins and two treatment basins. The sedimentation basins retain storm water for a period of time that allows for larger particles to settle out of suspension. Additional removal of suspended matter with addition of flocculants (cationic and anionic polymers) in the treatment basins. The treatment process is operated on a batch basis and treated storm water is discharged to Hay Creek

once turbidity thresholds have been met as measured in nephelometric turbidity units (NTU). The plan of operation approval dated June 7, 2002, requires that the storm water discharge may not exceed 100 NTU and the maximum weighted average concentration of 50 NTU during a 30-day period, and limits a discharge rate of 100 gallons per minute (gpm) during low flow periods or 10% of the Hay Creek stream flow during average to high flow conditions.

During construction seasons when soil stockpiles are disturbed and the storm water requires treatment, culverts are dammed to pond storm water in the ditches and artificially created wetlands. Storm water is then directed to either the North or South sedimentation basin and then directed to one of the two treatment basins to remove fine particles with the addition of polymer. The storm water management system also has the capability to bypass the treatment sedimentation basins and divert storm water that is below the threshold requiring treatment prior to discharge to Hay Creek.

Monitoring requirements are specified in the June 7, 2002, plan of operation approval. Three samples are collected annually during a discharge event. One sample is taken at the treated water (SED01), two from the sample points along Hay Creek, one downstream of SED01 (SP-03) and upstream of SED01 (SP-04R). Samples are analyzed for the following field and analytical parameters: specific conductance, pH, temperature, chloride, Total Suspended Solids (TSS), total alkalinity, total hardness, biological oxygen demand $(BOD)_5$, surface water elevation, noting odor, color and turbidity, if present at the time of sample collection.

In addition, monitoring requirements are specified in s. NR 216.28, Wis. Adm. Code, and section 4 of the Tier 2 Industrial Storm Water permit number FIN58156. Storm water outfalls at the existing landfill are monitored in accordance with the Storm Water Pollution Prevention Plan (SWPPP) in Appendix M of the feasibility report. Qualified facility personnel inspect storm water outfalls and evaluate storm water contributions to the storm drainage system and reports storm water discharges from the facility using the Annual Facility Site Compliance Inspection Report Form and the Quarterly Visual Inspection Form.

The 2022, 2023 and 2024 landfill annual reports by WMWI for the existing landfill state that the site is operating in accordance with its SWPPP and with the approval conditions in the plan of operation for the existing landfill with no evidence of elevated constituents in the discharge to Hay Creek or other surface water bodies. As part of the plan of operation review, the department would review the existing landfill's storm water management infrastructure and performance including the sedimentation basins, treatment basins and water discharges to determine whether modifications are needed to accommodate the proposed expansion.

Lysimeter Monitoring

There is one lysimeter (LYS-01) for the existing landfill. Lysimeter discharge (volume of liquid pumped) is monitored semiannually in April and October. Since April 2005, the lysimeter has been reported dry. In the event there is liquid present, analytical sampling for VOCs and certain inorganic substances is required. The last sampling event to include analytical sampling occurred in October 2004, and the analytical results show substances were either not detected or below the NR 140 groundwater quality standards.

Landfill Gas Monitoring

The existing landfill includes sixty-five (65) existing or planned vertical gas extraction wells, sixteen (16) leachate cleanout risers (LCRs), and five (5) gas probes. Site conditions and the blower are also monitored as part of the approved landfill gas monitoring program. Additionally, leachate recirculation trenches (LRTs) and select LCRs serve dual functions as both leachate management features and horizontal gas

extraction monitoring locations.

Landfill gas monitoring at the five gas probes surrounding the existing landfill is performed quarterly. Results reported as recent as 2024 indicate that landfill gas is not migrating laterally from the existing landfill.

Leachate Head Monitoring

Leachate monitoring required for the existing landfill includes quarterly measurements of the leachate head elevations at thirteen (13) active leachate headwells, three (3) of which were constructed as vertical headwells (LHW1, LHW3 and LHW4) located within the original landfill and ten (10) were constructed along the landfill side slopes.

Elevated leachate head levels in some headwells are likely attributed to their design and may not be representative of the leachate head levels on the liner for that part of the landfill. Vertical leachate headwell LHW4 has head levels greater than one foot since 2007. As stated in the annual report for the existing landfill, measurements at LHW4 in Phase 4 may be influenced by the condition of the screen and have proven to be less reliable over time. Leachate headwell LHW11 in Phase 6 has head levels greater than one foot since 2024. As stated in the annual report for the existing landfill, WMWI attributes these to be false measurements due to issues with the design of the headwell. Maintenance, including jetting and descaling, has shown limited success in reducing leachate levels but still have not dropped to less than one foot.

Leachate volume pumped from the three leachate storage tanks is monitored monthly and sampled on a semiannual basis from monitoring point LST-01, located at the leachate loadout facility. Included in Appendix R are the annual reports from 2022 to 2024 that summarize the leachate volumes managed, including a breakdown of leachate recirculated, leachate hauled off-site, and analytical results.

Proposed Preliminary Landfill Design and Operation

Subbase Grades

The proposed expansion is a vertical and horizontal expansion along the northern side of the existing landfill (Phase 9B). The horizontal portion of the expansion would tie into the existing subbase grades while modifying the base grades of Phase 9B to remove the outer side wall and tie into the proposed Phase 10.

Base Grade Slopes and Elevations

The base grade elevations of the proposed horizontal expansion (modified Phase 9B and Phases 10 to 12) range from approximately 1188 to 1198 ft-MSL with 3:1 side slopes extending upward to the edge of the proposed expansion footprint. Base grades would be designed to meet the minimum 2% slope towards leachate collection lines required in s. NR 504.06 (2) (d), Wis. Adm. Code, and would drain toward a leachate collection pipe at the center of each phase. The leachate collection trenches within the horizontal portion of the expansion (Phase 10) would be designed to drain from east to west with a 1% slope. Base grades would be approximately four feet above subbase grades.

Liner and Drainage Blanket

The proposed horizontal expansion (Phases 10 to 12) would tie into Phase 9B of the existing landfill. Phase

9B is modified to remove the sidewall to tie into the base grades of Phase 10. The proposed liner would comply with s. NR 504.06, Wis. Adm. Code, including the minimum separation distances from the seasonal high groundwater table and bedrock surfaces required in s. NR 504.06 (2m), Wis. Adm. Code. The drainage blanket would comply with requirements of s. NR 504.06 (5), Wis. Adm. Code. The proposed liner and drainage blanket would be the same design used in the existing landfill. From top to bottom, the general elements of the liner and drainage blanket would be as follows:

- One (1) foot granular drainage blanket
- 16 oz/yd^2 Geotextile cushion layer
- 60-mil high density polyethylene (HDPE) geomembrane
- Four (4) feet of clay meeting the requirements of s. NR 504.06(2)(a), Wis. Adm. Code

Leachate Collection

The proposed expansion would connect to the existing leachate collection system (LCS) and be designed in accordance with s. NR 504.06 (5), Wis. Adm. Code, with a similar design to that in the existing landfill. The proposed LCS would consist of a granular drainage layer, leachate collection/transfer pipes, and leachate collection sumps along the landfill base. The leachate collection trenches would transfer leachate from the base of the proposed expansion through granular drainage stone and a perforated HDPE pipe sloped at 1% grade to the leachate collection sumps on the west side of each phase (modified Phase 9B and Phases 10 to 12). Proposed collection pipe lengths are extended and exceed 1,200 feet in length. The piping layout would be such that leachate flows no more than 130 feet across the base of the liner before encountering a perforated leachate collection pipe.

Leachate collected for the proposed expansion would be removed by pumping through side slope riser pipes into the perimeter force main pipe, which would be connected to existing perimeter force main which is located underground along the western side of the existing landfill. This force main routes leachate to the above ground leachate storage tanks to the west of the landfill.

The LCS for the proposed expansion would be designed to limit the leachate head level on the composite liner to one foot or less, at all locations except the leachate sump during operation and after closure of the landfill. To monitor the performance of the LCS, two sideslope riser design leachate headwells are constructed in each liner phase to measure leachate head on top of the liner. The proposed expansion LCS design would include two leachate headwells each in Phases 10 to 12.

Leachate Generation Rate and Treatment

The leachate collected from the proposed expansion would be transported off-site to either the City of Rice Lake, the City of Medford, or the Metropolitan Council Environmental Services (MCES) treatment plant in St. Paul, Minnesota via leachate haul trucks or would be recirculated within the existing landfill. The feasibility report includes the City of Menomonie as an alternative disposal location; however, WMWI has indicated that option would no longer be pursued. The existing landfill's leachate recirculation plan would need to be updated for the proposed expansion.

Leachate generation calculations conducted as part of the feasibility report consider closed and active portions of the existing landfill and the proposed expansion area. Based on the preliminary open and closed footprint scenarios, the proposed maximum average leachate generation rate is 32,925 gallons per day using general annual rates provided in s. NR 512.12(3), Wis. Adm. Code. Leachate generation, collection and removal would continue after landfill closure. Leachate generation would be expected to initially increase as

the landfill is expanded and then decrease over time, as the final covered area increases in size. The average leachate generation rate after closure for the combined proposed expansion and the existing landfill is estimated to be approximately 7,112 gallons per day.

Gas Collection and Management

The proposed expansion would utilize and expand upon the existing gas management system. Landfill gas generated by the waste material is extracted by a series of gas extraction wells that would be installed to control gas migration in accordance with applicable state and federal regulations. The gas extraction wells would be installed in accordance with s. NR 504.08, Wis. Adm. Code. The landfill gas collection system in the proposed expansion is anticipated to primarily include vertical gas extraction wells. HDPE lateral and header piping would be used to connect the new gas extraction wells to the existing gas header pipe. Drip legs and/or condensate knockout sumps (designed low-points within the collection network) would be installed along the header piping as needed to prevent condensate buildup from limiting efficient gas flow in the piping system.

The existing blower and/or an additional or larger blower at the same location would be used to extract the landfill gas. The collected landfill gas would be routed to an on-site flare or compressed for use at an onsite landfill gas processing facility. The ability of the existing gas blower and flare/compressor to handle the gas from the proposed expansion would be evaluated as part of the plan of operation. Additional details on the configuration and layout of the proposed landfill gas management system would also be presented in the plan of operation. Additional landfill gas extraction devices may be utilized on an as-needed basis based upon surface emission monitoring results or odor complaints. These additional extraction devices may include horizontal wells, excavation wells, pin wells or other designs based upon the conditions surrounding the particular incident or response necessary.

Gas monitoring probes have been installed outside the waste fill of the existing landfill to monitor for gas migration in soil. One additional gas monitoring probe would be installed to the north of the proposed horizontal expansion.

Final Waste Grades and Final Cover

The final cover system of the proposed expansion would match and expand the final cover system for the existing landfill. The final cover system would meet the requirements of s. NR 504.07 and s. NR 504.073, Wis. Adm. Code. Four (4) different final cover options are proposed and would consist of the following layers, from the top down.

Option A:
- Six-inch topsoil
- 30-inch rooting zone layer
- Geocomposite drainage layer
- 40-mil flexible polyethylene geomembrane
- 24-inch compacted clay
- Six-inch grading layer

Option B:
- Six-inch topsoil
- 30-inch rooting zone layer
- Geocomposite drainage layer
- 40-mil flexible polyethylene geomembrane

- Geosynthetic clay liner (GCL)
- 24-inch soil barrier layer (SBL)
- Six-inch grading layer

Option C:

- Six-inch topsoil
- 42-inch rooting zone layer
- Geocomposite drainage layer
- 40-mil flexible polyethylene geomembrane
- 24-inch compacted clay
- Six-inch grading layer

Option D:

- Six-inch topsoil
- 42-inch rooting zone
- Geocomposite drainage layer
- 40-mil flexible polyethylene geomembrane
- GCL
- 24-inch SBL
- Six-inch grading layer

Options B and D are proposed to incorporate an alternative design under s. NR 504.073, Wis Adm. Code, for the 24-inch SBL. The upper one-foot of SBL would consist of soil (loess) meeting 40% passing the #200 sieve, and the lower one foot would consist of soil (till) that may not meet 25% passing the #200 sieve as required by s. NR 504.07(4)(a)12., Wis. Adm. Code. Loess consists of Unified Soil Classification System (USCS) soil types CL and ML or dual-symbol classifications of these soils. Till consists of USCS soil types CL, SM, or SC. Soil from both units are available onsite in areas that have already been or would be excavated and stockpiled.

Maximum slopes of the final cover would be 4H:1V (excluding surface water diversion berms). The proposed expansion would include maximum intermediate waste grades up to 10% of the total depth of waste at a given location. Prior to the placement of final cover in a given area, waste grades would be surveyed and regraded, as necessary, to ensure waste does not exceed final approved waste grades. The plan of operation would require financial assurance to be established for the removal of waste volume to be placed from the intermediate waste grades between 5% to 10% of the thickness of waste at a specific location.

Surface Water Runoff Management

The design of the surface water management system would follow technical standards 1001, 1051 and 1064, ss. NR 151.122, NR 151.12, and ch. NR 216, Wis. Adm. Code. The system would also be designed in accordance with s. NR 504.09, Wis. Adm. Code. Currently, Rusk County has no storm water management requirements applicable to the landfill's development.

The existing landfill has a surface water management system which consists of drainage swales, diversion berms, culverts and inlets, downslope piping, energy dissipaters, sedimentation basins and treatment basins. During operations, diversion berms would be used to divert surface water away from waste or active filling operations.

Surface water runoff from the existing landfill and proposed expansion would be routed to sedimentation basins located to the west of the existing landfill and proposed expansion footprint. Runoff from soil disturbance areas (or areas not vegetated) is currently treated with flocculants (cationic and anionic polymers) in the treatment basin to remove fine-grained particulates suspended in water. Surface water diversion channels and sedimentation basins would be designed to accommodate the proposed expansion and would include the expansion of existing sedimentation basins or additional sedimentation basins to control rainfall runoff and remove sediment from surface water prior to discharge to Hay Creek.

The department's Storm Water Management Program is currently evaluating the existing storm water management system. Additional information including the polymer usage rates along with dosing requirements to achieve the required turbidity thresholds, will need to be provided with the plan of operation report and storm water permit application.

Surface water that comes in contact with open waste fill areas or areas of exposed waste would be collected and treated as leachate. Also, containment berms would be placed around the active fill areas to control and collect liquid volume resulting from the 25-year, 24-hour storm event as needed and treated as leachate.

Proposed Soil Borrow Source

Soil required for the proposed landfill construction and operation would include materials for daily and intermediate cover, berm construction, clay liner construction, drainage layer, soil barrier layer for the GCL, protective cover soil, and topsoil. To meet s. NR 512.15, Wis. Adm. Code, requirements for clay soil used for the construction of the first phase of landfill liner and final cover clay capping layer, the Czekalski clay borrow source, located 15 miles from TTRDF, has been identified as the expected clay borrow source for the proposed expansion. The clay volume required to construct the first phase (Phase 10A) of the proposed expansion is approximately 19,360 cy (4-foot-thick clay over approximately 3 acres). The clay volume required for the first phase of final cover area (Increment D) of the proposed expansion would require approximately 30,654 cy (2-foot-thick clay over approximately 9.5 acres).

Proposed Operations

General landfill operation hours would be 6:00 a.m. to 4:30 p.m. Monday through Friday and public hours are from 8:30 a.m. to 4:30 p.m. Monday through Friday.

Daily operations would be confined to as small of an area as possible. Filling would proceed from the low point on the base of each phase, with waste placed and compacted in approximately 10 to 15-foot lifts. Daily cover consisting of soil or an approved alternate daily cover material would be placed over the waste at the end of each day of operation. Each phase would be filled to its approved final waste grades or intermediate waste grades and covered a one-foot thick layer of intermediate cover until final cover is constructed.

Nuisance conditions such as dust, odor and windblown material would be minimized in accordance with the site's proposed dust, odor, and windblown material control plans, that would be detailed in the plan of operation. Dust would be controlled with a water truck as needed while noise would be handled by incorporating noise reduction systems where possible. Odor would be controlled by use of daily cover and keeping the gas collection and control system in working condition. Odor masking agents may be used when appropriate. Paper and other windblown debris would be collected daily. If needed, temporary litter fences and/or portable windscreens would be placed around the active area to aid in the control of windblown debris.

Environmental Monitoring

The proposed expansion would include a comprehensive environmental monitoring program that is consistent with or exceeds, the requirements of ch. NR 507, Wis. Adm. Code, to measure groundwater levels and quality, surface water levels and quality, leachate quantity and quality, gas migration potential and gas extraction system performance. Surface water discharges would be monitored in accordance with the Tier 2 Industrial Storm Water permit and the requirements of ch. NR 507.23, Wis. Adm. Code. The conceptual environmental monitoring plan is discussed in Section 8.12, Plan Sheet 25, and Table U-1 of Appendix U of the feasibility report. If a favorable feasibility determination is issued, a formal environmental monitoring plan would be proposed in the plan of operation report.

Landfill Gas

An active gas collection system currently in operation for the existing landfill and would be expanded with the proposed expansion. A preliminary layout of proposed gas extraction wells would add thirty-one (31) new vertical gas extraction wells and eight (8) leachate cleanouts with landfill gas extraction capabilities within the proposed expansion area, and one (1) new gas probe outside the waste limits along the northern perimeter of the proposed expansion. The active gas collection system for the proposed expansion would be monitored to determine if adjustments to the gas extraction system are necessary to maximize system performance and prevent landfill gas migration or emissions. If a favorable feasibility determination is issued for the proposed expansion, the plan of operation would include details of the number and location of gas extraction wells and gas probes. While no new gas condensate location or blower/flare modifications are proposed at this time, modifications to these components, if required, would be further evaluated as part of the plan of operation.

Air monitoring of the existing landfill and proposed expansion would continue in accordance with the current Air Pollution Control Operation Permit (Operation Permit No. 85504023A-P40) and Air Pollution Control Construction Permit (24-MIN-260).

Landfill Leachate

Monitoring includes analysis of leachate quality, leachate head levels on the liner, and leachate volumes removed for treatment and disposal at a permitted wastewater treatment plant in Wisconsin or to the treatment facility in Minnesota.

Leachate analytical samples would continue to be collected from the sample port located at the leachate loadout facility for the existing landfill and the proposed expansion. Leachate samples would be analyzed on a routine schedule for substances listed in ch. NR 507, Appendix I, Table 4, Wis. Adm. Code, for municipal solid waste (MSW).

Two leachate headwells would be installed in each major phase of the proposed expansion (Phases 10, 11 and 12), as shown on Plan Sheets 22 and 25. Leachate elevations at each leachate headwell would be measured quarterly once constructed. Additional leachate drainage basin monitoring related to leachate recirculation and liquids application would be performed as required under the leachate recirculation plan and the approved research, development & demonstration (RD&D) plan.

Groundwater

As part of the existing groundwater monitoring plan for the existing landfill, fifteen (15) additional groundwater monitoring wells would become part of the groundwater monitoring network to include those

wells installed for the proposed expansion subsurface investigation and baseline monitoring.

The new monitoring well MW-203 is proposed to be designated as the new upgradient Subtitle D monitoring well, replacing the previously designated upgradient monitoring well MW-101, which would then be sampled as a non-Subtitle D monitoring well. Ten (10) of the new monitoring wells would be monitored semiannually under the non-Subtitle D detection monitoring. Four (4) of the new monitoring wells that are located within the proposed footprint of the proposed expansion would be monitored for groundwater elevations semiannually until they are permanently filled and sealed (properly abandoned) ahead of liner construction events.

The proposed and existing groundwater monitoring well network consists of monitoring wells at locations both upgradient and downgradient of the landfill, with respect to groundwater flow. The monitoring plan is designed to provide water quality data with a scheduled detection monitoring program for the parameters listed in ch. NR 507, Appendix I, Table 1, Wis. Adm. Code, for MSW. Water levels measured before sampling would be used to evaluate groundwater flow patterns and gradients at the TTRDF. The substances and the sampling frequencies for the existing and new groundwater monitoring wells are proposed in Table U-1 of Appendix U as well as Plan Sheet 25.

Surface Water

As part of the proposed expansion the existing surface water monitoring network would be maintained and the current monitoring plan would continue, which includes the measurement of water level at the two stream staff gauges along Hay Creek, one upstream (SP03) and one downstream (SP04R) of the treated storm water discharge point (SED01), which are sampled annually during discharge events. Locations, parameters, and monitoring frequencies for the existing and proposed surface water monitoring network are provided on Plan Sheet 25 and Table U-1 of Appendix U.

Storm water discharge at TTRDF is currently regulated by the Wisconsin Pollutant Discharge Elimination System (WPDES) Tier 2 General Permit for the Discharge of Storm Water Associated with Industrial Activity No. WIS067857-5. Additional surface water monitoring would be performed in accordance with these WPDES permits requirements. The WPDES General Permit expired in June 2025, but coverage is administratively extended and the terms and conditions of the general permit continue to apply until reissuance, in accordance with s. NR 205.08(9), Wis. Adm. Code, and s. 227.51, Wis. Stat.

The storm water monitoring program elements, including monitoring locations, are outlined in the Storm Water Pollution Prevention Plan (SWPPP). The most recent version of the SWPPP from January 2025 is provided in Appendix M of the feasibility report.

Settlement

Eight (8) survey control points that provide horizontal and vertical control are currently located around the perimeter of the existing landfill. Settlement monitoring for the existing landfill is evaluated annually through comparison of successive annual topographic surveys. Additional control points and/or settlement monitoring points would be needed for the proposed expansion and proposed as part of the plan of operation.

Environmental Analysis

Proposed Physical Changes

Terrestrial and Aquatic Resources

The proposed expansion consists of both a horizontal and vertical expansion of the existing landfill. The vertical component would consist of filling waste to an elevation approximately 80 feet higher than the currently approved elevation of the existing landfill. The horizontal component would extend the currently approved limits of waste by approximately 900 feet to the north. Developing the horizontal component would occur on previously disturbed land with existing ancillary landfill operations and agriculture practices. Figure 1-2 of the feasibility report and Plan Sheet 3 show the proposed limits of waste in relation to the existing site conditions.

Because of the previous soil disturbance of the area of the proposed expansion, terrestrial resources are limited to those features supported by the current land use that consists of agricultural practices including cropland, grassland and associated drainage ditches and the landfill operations such as soil stockpiles and storm water control structures.

For the proposed expansion, the construction of perimeter soil berms that serve to delineate the limits of waste and provide structural support would tie into the existing perimeter berms on the east and west sides of the existing landfill. The proposed perimeter berms would be approximately 20 to 25 feet higher than the existing land surface elevation. Approximately 4,135 feet of new perimeter road (less than 1 mile) would be constructed for the proposed expansion and less than approximately 100 feet of existing perimeter road along the north side of the existing landfill would be removed.

Within the proposed expansion waste limits, the existing soil would be excavated to achieve the subbase grades for developing the landfill liner. Soil to be excavated within the proposed limits of waste would be either used as general fill used in construction of permitter berms or as daily or intermediate cover soils of waste. Additional soil sourced from offsite includes clay fill meeting specification for the landfill liner (approximately 187,150 cy) and the final cover system (ranging from 0 to 218,770 cy, depending on final cover option selected at the time of construction).

Aquatic resources that could be affected by the proposed expansion include groundwater, surface water bodies, and wetlands. However, development of the proposed landfill expansion would be designed to maintain separation distances to groundwater table and surface water and to protect groundwater and surface water quality.

The proposed expansion would avoid impacting the wetland by maintaining a separation distance from the wetland boundary and limit impacts to its drainage area using storm water controls. The nearest wetland named W-2 delineated in 2021) identified as Shrub Carr wetland is approximately 1.2 acres and is located to the north of the proposed expansion.

Serval other wetland areas delineated in the area of the proposed expansion were deemed as artificial wetlands by the department. The artificial wetlands (including wetland W-3) are a result of the drainage ditches established along edge of the farmland and the landfill ancillary structures to control surface water runoff. The existing sedimentation basins onsite may be modified to effectively accommodate any increase in storm water discharge volumes from the proposed expansion and presented as part of the proposed expansion Plan of Operation. Based on the field work documented in the wetland and waterway evaluation, neither a wetland permit nor a chapter 30 waterway permit is required for the proposed expansion.

No natural waterways or water bodies are located within or near the proposed expansion area. The nearest

navigable stream or river is Hay Creek (WBIC 2367200) which is located approximately 825-feet from the proposed expansion limits of waste, at its nearest point. The currently permitted TTRDF limits of waste are approximately 400 feet from Hay Creek, at its nearest point.

Modifications to the existing sedimentation basins to effectively manage any increase in storm water discharge volumes could include increasing the size of the existing basin, enhancing flow distribution and sediment settling efficiency with changes to inlet and outlet structures. Appendix Q of the feasibility report compares the existing conditions to post development and evaluates the surface water balance.

The seasonal high groundwater table below the proposed subbase grades ranges from approximately 20 feet to greater than 50 feet. No groundwater control structures would be needed. Groundwater at the existing landfill is routinely monitored routinely since the landfill was sited in the early 1990s. Additional groundwater monitoring wells were installed in 2024 as part of the proposed expansion. Routine monitoring of these wells would continue with the proposed expansion to ensure the proposed and constructed landfill design is providing protection of groundwater quality.

Existing Environment

The site of the proposed expansion is situated between the base of the Blue Hills (to the northwest) and the Chippewa River (to the south). Within 1-mile of TTRDF, the elevation ranges from a maximum of approximately 1,730 feet above mean sea level (AMSL), located in the Blue Hills and a minimum of approximate 1,100 ft AMSL along the Chippewa River. The terrain gradually descends from the Blue Hills to the southeast toward the Chippewa River.

Based on the topographic survey of TTRDF completed in April 2025, the highest elevation of the existing landfill is approximately 1,340 ft AMSL in the capped and closed area and approximately 1,320 ft AMSL in the uncapped and active filling area. The elevation of areas across the property ranges from 1,143 feet AMSL at Hay Creek (west of the landfill) to 1,280 feet AMSL at the visual screening berm (east of the landfill). The maximum elevation of the proposed expansion would be approximately 1,244 ft AMSL once the proposed expansion has final cover.

The geology in the vicinity of TTRDF is characterized largely of Pleistocene sediments of various origins underlain by bedrock of Cambrian sandstone and Precambrian quartzite. The geology of the Upper Chippewa River Basin is underlain by the same geological formations. The primary aquifers for water supplies in the region include the St. Peter Sandstone and the Jordan Sandstone and the glacial origin, till and outwash, in areas where the sandstone aquifer is not present near the surface. These aquifers are hydraulically connected and the formations vary in thickness and permeability, affecting their capacity to store and transmit water.

Groundwater quality in the Chippewa River Basin is generally favorable for drinking water supplies. Levels of sodium, chloride, hardness, and sulfate are generally low. However naturally occurring iron and manganese concentrations may require treatment to be used as water supplies. Groundwater water quality from the sandstone is similar to the water quality of the unconsolidated sand and gravel of glacial origin; however, generally, the hardness levels may be lower and iron and manganese concentrations higher in the unconsolidated formation of glacial origin.

TTRDF and the proposed expansion is located within the Chippewa River Basin, and the Chippewa River is the major surface water feature. The Chippewa River flows south to southwest in this region, attaining a surface elevation of approximately 1,080 ft AMSL near the town of Bruce, at approximately 3 miles east of TTRDF. Hay Creek, the nearest creek to TTRDF and the proposed expansion, flows southeast through a lowland/wetland complex and joins Devils Creek, which eventually drains to the Chippewa River approximately two miles north of Bruce.

The existing conditions of the site include the infrastructure associated with TTRDF such as the access and

perimeter roads surrounding the landfill along with soil stockpiles to be used for landfill purposes. Air emissions as permitted from the existing TTRDF and operations include methane, carbon dioxide and monoxide, sulfur dioxide, nitrogen dioxide, hydrocarbons, and nonmethane organic compounds (NMOCs), which are generated through the decomposition of organic refuse and the volatilization of organic compounds in the absence of oxygen. The gas generated by the existing TTRDF is controlled by an active gas extraction system. The gas extracted from a network of gas extraction wells is presently combusted by a flare or burned to generate electricity at an onsite facility.

Soil stockpiles are present on site that would be used as general fill and cover material for the proposed expansion. Soil excavated to construct the proposed expansion would also be used for general fill and as cover material. Clay soil to be used for liner and final cover construction of the proposed expansion would come from the offsite Czekalski Clay Borrow Source and is approximately 15 miles from the TTRDF entrance.

The presence of the existing landfill has no known impacts on any ethnic or cultural groups nor any special resources, including state or local natural areas, archaeological, historical, state or local natural areas, and prime agricultural lands.

Environmental Consequences

Emissions and Discharges

All landfills produce emissions and discharges. The proposed expansion is not expected to have significant impacts to human health or the environment. The proposed expansion would produce the emissions and discharges listed below, but is not expected to have significant additional impacts on people or the environment due to the relatively remote location, the design, and the existing operations of TTRDF.

Engine Exhaust

Engine exhaust from diesel and gasoline-powered vehicles and equipment would be released into the atmosphere. The amount of exhaust may fluctuate based on the number of vehicles or equipment in operation at a given time. To minimize vehicle emissions, TTRDF would ensure that all vehicles are maintained in optimal operating condition. Vehicular traffic is not anticipated to increase with the proposed expansion compared to those levels of the existing facility.

Dust

Dust may be generated from gravel access and haul roads, earthwork activities, and wind exposure across bare areas. The amount of dust produced would vary based on the number of vehicles or equipment in operation, prevailing weather conditions, and the extent of exposed surfaces. To mitigate dust generation, TTRDF would apply water or commercial dust suppressants as necessary to haul roads during dry conditions and promote vegetation growth in completed disturbed areas. A dust control plan has been developed for the existing landfill and would be updated in the plan of operation report for the proposed expansion if a favorable feasibility determination is issued.

Noise

Noise impacts from the proposed expansion are expected to be minimal and comparable to those generated by the existing landfill. Any potential noise disturbances would be mitigated through the proper maintenance of landfill equipment, and the remote location of TTRDF from residential and commercial areas would further reduce noise-related concerns.

Noise impacts associated with the proposed expansion would occur from scrapers, bulldozers, and other earth-moving equipment during liner and final cover construction. During operation, noise would be generated by waste-hauling trucks, compactors and other operational equipment. Operation noise would occur during the hours of operation and is not expected to increase over existing noise levels in the vicinity of the site. Hours of operation are determined in the local agreement with the host community.

Leachate

Leachate generated in the proposed expansion would be collected via collection lines on the base of the proposed expansion and then flow into sumps for lift stations and conveyed into a force main to one of three storage tanks. The leachate collected would be transported off-site to a wastewater treatment facility. The quality and characteristics of the leachate are not expected to change from the existing landfill due to similar waste types. Leachate is not expected to be discharged directly to the environment without having first gone through treatment at a wastewater treatment facility.

Landfill Gas

Landfill gas from the decomposition of waste primarily include methane, carbon dioxide, water vapor, sulfur dioxide, nitrogen dioxide, and nonmethane organic compounds (NMOCs). These are generated through the decomposition of organic refuse and through the use of operations equipment on site. Landfill gas would be generated during operation and after closure of the proposed expansion. The chemical characteristics of the existing landfill gas are not expected to change from existing landfill gas. The gas generated by the existing landfill is removed by an active gas extraction system. The gas, extracted from a network of gas extraction wells, is presently combusted at a flare or utilized in the gas plant located adjacent to the landfill. The gas collection and control systems would be permitted in accordance with Federal Title V of the Clean Air Act.

Surface Water Runoff

The proposed expansion and vertical overlay would be designed to adequately manage surface water run-off and erosion potential. Existing surface water controls would be evaluated to determine if it would adequately manage stormwater runoff from the vertical expansion area due to increased slope distances and modified drainage areas. Additional acreage associated with the horizontal expansion footprint would be evaluated to determine whether existing sedimentation basins and treatment basins would be modified as needed based on the additional drainage areas to each respective basin. Proposed sedimentation basins and treatment basins would be sized based on applicable department technical standards. Design features would be included in the plan of operation to include an evaluation of vertical distance between berms, flow length of ditches, reinforcement of ditch lines, inlet structures, outlet structures, basin sizing, slope vegetation establishment, and maintenance of these features.

Odors

While odors may occasionally occur, their duration and intensity are expected to be limited due to the implementation of daily cover, the minimization of the active waste disposal area, and the operation of an active gas collection and flare system (gas destruction). The increased height of the proposed expansion from the approved height may result in an increase in the travel distance of landfill odors or windblown waste. Putrescible waste may also attract birds to the existing landfill which may become a nuisance to neighbors at times. An odor control plan has been developed for the existing landfill and would be updated in the plan of operation report for the proposed expansion if a favorable feasibility determination is issued.

Physical Impacts

Topography and Visual Impacts

The topography and drainage in the immediate vicinity of the proposed expansion would be altered by the landfilling activities associated with TTRDF. The construction, operation and closure of the proposed expansion would alter the topography by increasing the extent and height of TTRDF. The proposed expansion final cover would extend to a maximum elevation of approximately 1,434 feet AMSL, which is approximately 80 feet higher than the currently approved maximum final cover grade for the existing landfill. The perimeter berm with a ridge height of approximately 1,280 feet AMSL along Hutchinson Road, located along the east property boundary provides a visual screening berm. The relatively remote location of the existing landfill and the proposed expansion, the distance away from US Hwy 8 (to the south) and the wooded vegetation (to the west) help minimize the visual and nuisance impacts to neighbors and surrounding communities a relative remoteness of the landfilling activities.

Surface Water

Construction and operation of the proposed expansion is not expected to impact surface water. Water coming into contact waste would be contained by the landfill liner system and associated perimeter and phase delineation berms placed around active fill areas.

The current surface water management system includes diversion berms, downslope flumes, ditches, culverts, sedimentation basins, and treatment basins, which would be evaluated in detail and modified as necessary as part of the plan of operation for the proposed expansion. WMWI operates a surface water management system to remove sediment prior to discharge to Hay Creek.

The system consists of two sedimentation basins and two treatment basins. The sedimentation basins retain storm water for sufficient time for larger particles to settle out of suspension. Removal of suspended fine-grained particles with addition of flocculants is completed in the treatment basins.The treatment process is operated on a batch basis and treated storm water is discharged to Hay Creek when turbidity requirements have been reached and discharge release rate of 10% of the Hay Creek stream flow.

Any hydrological, ecological and water quality effects would be greatly reduced provided the stormwater runoff management system is designed and constructed to meet the minimum requirements of s. NR 504.09, Wis. Adm. Code, and Tier 2 WPDES storm water discharge permit requirements, which include on-site drainage ditches and sedimentation and treatment basins designed to capture and treat runoff before it discharges into Hay Creek.

Groundwater

Impacts on groundwater would not be expected with the design of the proposed expansion, which consists of a 4-foot compacted clay, a 60-mil thick HDPE geomembrane, nonwoven geotextile, and a 1-foot-thick aggregate fill leachate collection/drainage layer. The leachate collection system would prevent accumulation of leachate head on the base of the landfill by allowing leachate to drain into perforated HDPE pipes placed into sloped trenches to flow via gravity to sumps, where leachate would be recirculated and/or hauled to a waste water treatment plant. TTRDF would conduct routine monitoring of the groundwater during operation and after closure of the landfill in accordance with ch. NR 507, Wis. Adm. Code, requirements and the approved plans.

Air Quality, Windblown Paper and Dust

Significant impacts on air resources would not be expected to occur from the construction and operation of the proposed expansion. The design of the proposed expansion incorporates a final cover system equipped with an active gas extraction system, in conjunction with the existing and proposed liner systems, which are designed to effectively prevent subsurface gas migration. Additionally, gas monitoring probes would be installed along the perimeter of the proposed expansion to detect any potential gas migration in soil.

The gas extraction system would be managed through combustion via flaring or compressed for use in the offsite beneficial end use project. A detailed landfill gas management system design would be included with the plan of operation. Air quality would continue to be monitored in accordance with Federal Title V regulations.

Windblown paper and debris would be managed through effective landfill operational procedures, which include compaction, the application of daily cover, the installation of perimeter fencing, and the use of portable litter fencing. Waste delivery vehicles are mandated to prevent any discharge of waste during transport. Additionally, periodic litter collection would be conducted in areas adjacent to the landfill and along the access route.

Temporary increases in fugitive dust levels may occur intermittently due to truck traffic on unpaved road surfaces; however, these emissions would be effectively managed through various measures. During dry conditions, water or commercial dust suppressants would be applied to mitigate any fugitive dust issues that arise. Additionally, the prompt establishment of vegetative cover on completed work areas of the proposed expansion, along with the vegetation of long-term stockpiled soil, would further help to reduce dust emissions.

Biological Impacts

No significant adverse biological impacts are expected to result from the construction and operation of the proposed expansion. The department has determined that no endangered, threatened, or special concern species or natural communities, or state natural areas would be adversely impacted. The proposed expansion would occur primarily on land that has previously been used for agricultural purposes, and much of which has been further altered in connection with the soil stockpile associated with the landfilling activities. Therefore, most of the native flora and fauna have already been displaced. The final cover for the existing and proposed landfill, which would be constructed sequentially over the project life, would be vegetated, and maintained.

Artificial wetlands were identified within the proposed expansion area that include stormwater ditches described as "excavated marsh/wet meadow swales" constructed approximately 20 years ago for managing storm water from the currently permitted TTRDF. Another wetland (1.23-acres) named Wetland W-2 is an isolated wetland classified as "Shrub Carr/Sedge Meadow" located north of the proposed expansion and has a watershed drainage area approximately 5.7 acres that is immediately adjacent to the watershed drainage area for the proposed expansion.

Wetland W-2 is hydrologically isolated from other surface waters and is surrounded by farmland. Indication of impacts from farmland are documented in the wetland delineation study dated October 1, 2021 by Heartland Ecological Group. Potential secondary impacts to Wetland W-2 include siltation from runoff during construction of the proposed expansion and/or surface water diverted from the watershed drainage area as a result of the proposed expansion encroaching the drainage area. The proposed expansion would encroach an area approximately 3,845 square feet or 1.5 % of the 5.7-acre watershed of Wetland W-2 and

would redirect drainage for that area away from Wetland W-2. By providing a buffer as well as implementing best management practices (BMPs) during construction such as installing silt fences or straw bales between the wetland and construction areas would limit any measurable impacts to wetland W-2.

Wetland W-2 is surrounded entirely by agricultural fields and may provide some ability to protect water quality given it receives runoff from the surrounding agricultural practices. Wetland W-2 does support some animal and plant life habitat. However, W-2 does not appear to be critical in sustaining animal and plant life habitat for the area given its isolation, relatively small size (1.23 acres) and proximity to nearby larger tract of woodlands, forest and surface water bodies.

Wetland W-2 is small and isolated and not within a floodplain and likely does not provide any significant flood protection or storm water storage. Wetland W-2 is located at approximately 1,230 feet AMSL, which is approximately 90 feet above the water table. The soil profile description on the "Wetland Determination Data Form" for sampling point P5 (located within W-2) lists "mucky loam/clay" and "silt loam" for upper two feet of soil. The substantial depth to groundwater, the finer-grained soils in the upper two feet of the wetland W-2 and small area indicate wetland W-2 does not provide a source of groundwater recharge or discharge through the wetland.

Impacts on Land Use

The proposed expansion is consistent with the existing land uses in the surrounding area and is not anticipated to cause significant adverse impacts on land use. The existing landfill operation has occurred on this property since the early 1990s and this site has a long history of waste disposal activities. The Town of Stubbs landfill located across Hutchinson Road was exhumed and the waste placed in the existing landfill.

Land use adjacent to the landfill property include agricultural activities and forested and grassland areas, to the east of Hutchinson Road and north of Tyman Road, and south of the landfill gas processing facility. The development of the proposed expansion would occur on the property intended for landfill activities and on property owned by WMWI, thereby eliminating the need for resident displacement, public land withdrawal, or condemnation. Any impact of the proposed landfill operations on land use around the proposed expansion would likely be the same as the current operation of the existing landfill.

Social and Economic Impacts

The proposed expansion is anticipated to have no significant adverse social or economic impacts. Waste disposal activities have been conducted in the vicinity for over 30 years. The proposed expansion is expected to positively enhance the economic foundation of the community by providing cost-effective and environmentally responsible waste disposal capacity for the region. Furthermore, it would create employment opportunities for local residents and contractors, as well as stimulate local businesses through the procurement of necessary goods and services.

Historically, no adverse social or economic impacts have been observed, and none are expected from the proposed expansion. The operation of the proposed expansion would serve as a vital source of local employment, contributing significantly to the local economy through tax payments and host community fees. WMWI is committed to paying real estate taxes on its property, and the proposed expansion would continue to deliver these economic benefits throughout the life of the landfill.

Consistent with the existing landfill, the proposed expansion would be effectively screened from public view. The hauling traffic would be the same as that of the existing landfill, with operational hours remaining unchanged.

The proposed expansion would not result in significant changes in the waste-filling operations. Therefore, impacts on adjacent neighbors would be similar to those of the existing landfill with the exception of any additional impacts resulting from the increased height. The proposed expansion is consistent with local planning and zoning.

Wisconsin landfill siting law gives local municipalities that are located within 1,500 feet of the proposed limits of waste the right to negotiate an agreement between the affected municipality and the existing landfill applicant which gives authorities in the affected municipality some input and say in landfill operations and the ability to receive some compensation for the impact the existing landfill causes on the local municipalities and residents.

The local negotiation and agreement process should help address concerns raised by local residents. The proposed expansion should not exacerbate the concerns of local residents. Nuisances can be minimized when the existing landfill owner monitors site conditions and is proactive in preventing issues from arising and by taking corrective actions as soon as a potential nuisance is identified. Some nuisances, such as noise from equipment would be minimized through proper maintenance of landfill equipment.

The nearest residence is located approximately 0.5 to 1 mile from the proposed expansion. Nearby residences should not experience increased truck traffic as the fill rate is expected to remain similar to the existing landfill. The entrance and routes would be the same as already approved for the existing landfill. In addition, operation activity would occur during normal business hours, not during evening hours. No impacts to ethnic or cultural groups are anticipated.

The proposed expansion would continue in an area already used for solid waste disposal. The cost and land disturbance for an expansion are significantly less than for a new landfill located away from the existing facility. The proposed expansion provides efficient disposal capacity in an environmentally acceptable manner and the current customers of the existing landfill can continue using the service without interruption.

Agriculture is present in the area of the proposed expansion. There would be an impact to the agricultural use as a result of the expansion as the land would no longer be available as use for farmland. Approximately 10 acres of land currently used as agricultural land would be removed from the overall farmland adjacent to the proposed expansion.

Special Resources

No special resources, including state or local natural areas, archaeological or historical areas, would be impacted by the proposed expansion. There's potential for the current agricultural land or farmland within the footprint of the proposed expansion to be considered as prime agricultural land or prime farmland.

According to the Natural Resources Conservation Service (NRCS), prime farmland, as defined by the U.S. Department of Agriculture, is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses. This could include cultivated land, pastureland, forestland, or other land, but not land that is urban or built-up land or water areas. The soil quality, growing season, and moisture supply are those needed for the soil to economically produce sustained high yields of crops when proper management, including water management, and acceptable farming methods are applied. Prime farmland generally has an adequate and dependable supply of moisture from precipitation or irrigation, a favorable temperature and growing season, acceptable acidity or alkalinity, an

acceptable salt and sodium content, and few or no rocks. Prime farmland is permeable to water and air and is not excessively erodible or saturated with water for long periods, and it is either not frequently flooded during the growing season or is protected from flooding. Slope ranges mainly from 0 to 6 percent.

For the farmland within the proposed expansion, the soil type is Magnor (Map ID 3456B) and could be considered as prime farmland if adequately drained. A series of drainage channels exists surrounding a portion of farmland currently in use that is within the footprint of the proposed expansion This network of drainage channels may provide some ability to drain the farmland immediately adjacent to it; however, the purpose of this drainage system is to convey stormwater runoff to the sedimentation basins and outfalls located on the west side of the existing landfill – directing runoff from those areas used for ancillary landfill operations such as the area of soil stockpiles north of the existing landfill. This drainage network was not likely intended for use as drainage of the adjacent farmland.

Probable Adverse Impacts that Cannot be Avoided

Certain environmental impacts from the proposed expansion cannot be completely avoided. These impacts would be minimized to the maximum extent practicable through the proposed engineering design and the use of good management practices in the construction and operation of the facility. The proposed expansion would extend the period of time landfilling activities would occur; thus noise, odor, dust, and truck traffic associated with landfilling activities would also be extended.

Potential adverse impacts that cannot be avoided include the following:

- After the existing landfill is closed, there would be limitations on the use of the site. For example, construction of buildings on the existing landfill may be prohibited.
- Truck traffic dust, noise, and engine emissions would exist to some degree at and around the site. However, these conditions can be minimized using good operational practices. These impacts are expected to be similar to the impacts from the current landfilling activities. Furthermore, although development of the proposed expansion may extend the period of time these impacts would occur, it is not expected to result in a significant increase over impacts from current landfilling activities.
- The appearance and topography of the site would be altered during operation of the existing landfill and after the proposed expansion landfill is closed. The alteration would be consistent with the current land uses on the property.
- Odors can periodically occur, but with the use of daily cover, minimizing the active waste disposal area, and operation of an active gas collection and control system, these issues could be limited in duration and intensity.
- Birds attracted to the putrescible waste in the existing landfill may present a nuisance at times. Daily and intermediate cover over waste can help minimize the number of birds.
- Some local plant and animal populations would be disturbed; however, there are sufficient areas of similar habitat adjacent to the existing landfill and new habitat would be created following various elements of construction and following closure of the site.

Potential emissions and discharges from the proposed expansion are expected to be similar to those from the existing landfill and would include landfill gas (from active areas), odors, storm water runoff discharge, dust, and windblown waste. An exception is the increased height of the vertical component of the proposed expansion may increase the extent to which nuisances affect people in the surrounding community. For example, placing waste at a higher elevation, odors and windblown waste may travel farther than that of the exiting landfill. Management of these discharges would be prescribed in the plan of operation, if a favorable

feasibility determination is issued. No significant impacts on air resources would be expected to occur due to the construction and operation of the proposed expansion.

The control of odors would be achieved by cover soil placement and by the installation of the gas extraction system. Windblown litter would be controlled by proper landfill operational procedures including compaction and the placement of daily cover, the perimeter fencing, and the use of portable litter fencing.

Waste delivery vehicles are required to prevent the discharge of waste. Periodic collection of litter would occur adjacent to the existing landfill and along or near the access route. Temporary increases in fugitive dust levels could occur periodically due to site truck traffic traveling on unpaved road surfaces, but these emissions would be controlled in several ways. During dry periods, water or commercial dust suppressants would be utilized to mitigate fugitive dust conditions that may occur. The quick establishment of vegetative cover on completed work areas of the expansion and the protection of any stockpiled soil would be planned to reduce dust emissions. A dust control plan is in place for the existing landfill.

Project Significance

The physical changes to the landscape that would occur in the site area of the proposed expansion by its construction, operation, and closure would become a permanent feature of the landscape. WMWI would be perpetually responsible for the care and maintenance of the existing landfill as well as any releases from the existing landfill and proposed expansion. The existing landfill enclosure and extraction systems would need to be operated and be maintained for a significant period of time and environmental monitoring would need to continue for a significant period of time to ensure that environmental pollution from the existing landfill is prevented and minimized. The following summarizes the project significance for those features specific to the proposed expansion:

1. WMWI is requesting an alternative final cover for two of the proposed cover design options. Soil proposed to be used in the two-foot soil barrier layer beneath the GCL is readily available onsite. Soil to be used for the lower one-foot may be less stringent than the minimum code requirement and the soil for the upper one-foot layer substantially meets the minimum code requirement. The significance of utilizing an alternative final cover, in this case, utilizing soil based on the average overall consistency to be equivalent to the specification, is that soil at any one point may not meet the specification to be used for the lower one-foot soil barrier layer, but would overall. The lower one-foot soil barrier layer is only a single component of the final cover system design that includes the major components that would substantially meet minimum code requirement including the GCL, geomembrane, and remaining cover soil layers.

   In its review of the feasibility report, the department is considering whether the currently approved cover design would be allowed for use as an alternative final cover for the expansion as well as the remaining portion to be covered for the existing landfill. WMWI is currently approved to utilize soil available onsite (till) for the lower one-foot soil barrier layer of the final cover for their existing landfill as approved by the department in 2002. Since then, the department has not required WMWI to modify its final cover design. Essentially, the thickness of the grading layer beneath the soil barrier layer would increase from 12 inches to 18 inches and utilize the same soil (till) as proposed for the lower one-foot soil barrier layer.

   Final cover increments A and B were constructed using onsite soil meeting the USCS soil type ML, CL, SM, or SC or dual-symbol classifications of these soils to be used in the soil barrier layer. Soil to be used in upper one-foot layer is derived from the loess unit (windblown silt) which is homogenous. Soil to be used in the lower one-foot layer is derived from the till unit (glacial drift), which is heterogenous. The consistency of the till is variable with areas of sand with minimal amount of clay to pockets of clay

with minimal amount of sand; however, the overall consistency of the material would be considered in its use as the lower one-foot soil barrier layer.

The department has the authority to approve an alternative final cover when the applicant has demonstrated that the design is equivalent to the minimum code requirement. In determining this, the department considers the circumstances provided by the applicant in explaining how the alternative final cover would be in substantial conformance with the minimum design requirements for final cover. The department acknowledges that proposed alternative final cover option is also the currently approved final cover design for the existing landfill.

While each decision is made on a case-by-case basis, the department has approved very similar final cover designs, including the existing TTRDF, and other landfills in Wisconsin, to utilize a soil barrier layer to include soil classification that is slightly different from the specification as required by code but would provide equivalent protection as a final cover system overall. Therefore, the alternative final cover in this case would not establish precedent. One benefit of using available onsite soils is the reduced hauling of soil from another location and associated environmental impacts.

2. WMWI is requesting leachate collection lines of approximately 1,250 feet in length in the phases for the proposed expansion. Section NR 512.09 (6), Wis. Adm. Code requires additional geotechnical requirements for leachate collection lines longer than 1,200 feet to physically characterize subbase conditions for landfill foundation assessment of stability and settlement. The additional requirements include installing soil borings to a depth of 50 feet in at least one location in the area of each proposed landfill phase or cell. Standard penetration testing and collecting soil samples for laboratory consolidation testing is also required. Section NR 504.06 (6), Wis. Adm. Code, requires specific engineering design considerations, such as necessary minimum collection line slopes, based on the geotechnical information collected for the settlement assessment. Attempts made to collect Shelby Tubes for laboratory consolidation testing at each of the soil borings in the area of the proposed landfill footprint were unsuccessful. Either the samples from the Shelby tubes could not be retrieved for collection or the tubes were collected but could not be analyzed for various reasons including damaged tubes. Standard penetration testing (SPT) also was not performed during the subsurface investigation because of the drilling method used.

   The leachate collection lines are being proposed to be sloped at 1%, which is greater than the minimum of 0.5% percent post settlement calculation. However, the minimum design slope shall be selected following computation of 100% of the primary consolidation settlement and the secondary consolidation settlement of the compressible materials beneath the facility, which includes, as applicable, in-situ soil, added geologic material, structural fill material, and compacted clay liner. Secondary settlement shall be calculated using a 100-year time frame. The geotechnical data collected used in the analysis consists of samples taken from a clayey portion of the till formation which represents only a small fraction of the overall geology beneath the proposed expansion.

   In the absence of consolidation and standard penetration test data, WMWI provided pocket penetration data, Atterberg limits and conservative settlement calculations. The significance of using limited geotechnical data (pocket penetrometer, Atterberg limits, etc.) is that the values used in calculations for the settlement analysis for the soils beneath the proposed collection lines is that the values are based on conservative assumptions rather than compilation of robust field data. The department has recently learned that SPT data can be collected using the type of drilling method at the site and the department may require additional soil borings in attempt at collecting consolidation testing data and/or SPT data.

   The department has the authority to approve or conditionally approve a landfill design with or without the extended leachate collection lines. In determining this, the department considers the circumstances

provided by the applicant in explaining how the geotechnical requirements are met. The department also considers the overall design proposal including the total length of the collection lines and the geology encountered during the geotechnical investigation as well as the prospect of being able to collect additional geotechnical data with the drilling technology that is currently available.

3. WMWI is proposing to continue the active management of the stormwater system which consists of drainage ditches, culverts, sedimentation basins, and treatment sedimentation basins for the addition of flocculants to assist with settling out fines suspended in water. However, because the proposed expansion would preclude the use of the current system of drainage ditches and culverts that are intentionally dammed to pond water and require modification to those systems, the department may require an evaluation of whether the existing stormwater management system would be sufficient to meet the regulatory standards in managing the runoff during storm events in those areas with soil disturbance as a result of constructing phases of the proposed expansion. The significance of this is that the stormwater management system may not be adequate in its performance to meet technical standards or stormwater regulation. The potential exists that additional sedimentation basins or other stormwater control features as part of the proposed expansion may need to be redesigned which could require additional soil disturbance areas beyond what is currently being proposed.

Potential Cumulative Effects

The increased waste volume associated with the proposed expansion would add to the overall landfill gas and leachate generated from the site over the lifetime of the existing landfill. If properly collected and treated, the gas and leachate should not have a significant impact on the surrounding environment. However, gas collection systems are not 100% efficient and human error or mechanical/infrastructure failures can lead to both fugitive gas emissions and leachate releases. Upgrades and repairs can be made to the gas collection and destruction (flare) systems, and some leachate infrastructure can be repaired or upgraded if problems arise. The vertical component of the proposed expansion could exacerbate nuisance odors or windblown waste, which could be carried farther than that of the existing landfill. However, engineering controls and best management practices, as previously discussed, can be implemented to mitigate the potential cumulative effects.

Alternatives Analysis

There are several alternatives to landfilling; however, the alternatives do not eliminate the need for solid waste landfills. As outlined in the feasibility report, alternatives to the proposed vertical expansion include: taking no action; enlarging or reducing the project to mitigate impacts; and considering other locations or other landfills, another location on the property, or other waste management methods.

Alternative: No Action

This alternative assumes that the proposed expansion would not be developed. The existing landfill is expected to reach capacity in 2032. If the proposed expansion is not constructed, approximately 200,000 cy per year of waste currently received and expected to be received would have to be disposed of at other landfills. This may require some waste to be hauled longer distances to be disposed of responsibly, resulting in increased emissions, higher disposal costs for residents and businesses. This would also shorten the life of other landfills and increase the need for additional waste disposal facilities in the area. There would be additional cost for transportation to the facilities, as well as wear on the roadways.

Alternative: Enlargement Reduction or Modification of the Project

The proposed expansion has been designed to maximize disposal capacity while adhering to site specific conditions, regulatory mandates, and environmental constraints. This design strategically utilizes the land owned by WMWI by incorporating an approved footprint that features state-of-the-art design elements, while also facilitating a contiguous horizontal expansion. This approach allows adequate space for essential landfill operational support features.

The proposed expansion footprint was already reduced from that proposed in the 2022 initial site report (ISR) in order to avoid impacting Wetland W-2 while still maintaining the necessary additional waste capacity for future waste disposal. The design of the proposed expansion is focused on optimizing available disposal volume within the established site conditions and regulatory frameworks.

To enlarge the project by creating additional volume capacity within the proposed expansion footprint, the design would exceed the maximum allowed final cover slopes for a landfill expansion. If the proposed size is reduced, resulting in a reduced site-life of the proposed expansion, another landfill or landfill expansion elsewhere would have to be developed sooner; however, the estimated site-life of the proposed expansion will be evaluated as part of the needs and site-life review.

Alternative: Other landfills, Locations or Methods

Developing the same amount of landfill capacity in an undeveloped location would increase the costs and forgo the efficiencies of using the same liner, leachate and gas handling systems, access roadways, monitoring network, and would also create entirely new impacts at the alternative location. This alternative would involve developing a new landfill at another location or providing equivalent expansion capacity at another landfill in the service area.

The Wisconsin landfill waste tonnage reports document a steady and consistent stream of MSW and industrial waste accepted at the existing landfill for more than a decade. This indicates the existing landfill is used and relied upon by many people and businesses. The location and geological setting of the existing landfill have satisfactorily supported landfill operations since the 1990s with minimal to no environmental impacts.

If landfill operations were moved to another location or expanded at another landfill that may provide service the existing landfill service area, it is not clear what environmental impacts may result at the other location and how impacts would compare to impacts from the existing landfill. It is also not clear if an alternative location would satisfy the waste disposal needs of the existing landfill service area.

Landfills are generally developed and operated to satisfy the waste disposal needs present in an area and are largely market driven. This option would be similar to the “No Action” alternative described above and may result in little environmental benefit and as well as negative environmental or economic consequences compared to the proposed expansion. Over time, as land is developed, it is becoming increasingly difficult to find suitable land for waste disposal that would not result in some impacts to the environment, such as direct impacts to wetland areas, or socio-economic impacts to people and communities.

Analysis of Alternatives to Land Disposal

Waste reduction, reuse and recycling are alternatives to land disposal, and these activities have already reduced the volume of waste in the service area that requires disposal at a landfill. Other alternatives to landfilling, such as incineration, at the Barron County waste to energy facility, is limited operationally to an

average daily tonnage intake of 150 tons per day.

If the proposed expansion is not developed, the waste that is disposed of at the existing landfill would have to be disposed of at another existing or new facility. The increased hauling distance and diminished competition and capacity may result in rising costs for waste disposal in the service area.

There are costs and benefits that need to be weighed for each technology and method available to best manage society's solid waste. In time, as suitable landfill space becomes scarcer and waste disposal costs increase, it is likely that the market would be a catalyst to increase recycling and improve other waste management technologies to handle waste disposal needs. At this time however, engineered landfills remain the most economical way to dispose of non-recyclable solid waste in a manner that prevents environmental pollution.

Need and Design Capacity Analysis

The department continues to review the needs analysis and make a determination of need as part of the feasibility determination compared to pre-development conditions in accordance with s. NR 512.17, Wis. Adm. Code. Factors that the department considers include the available waste disposal capacity in the existing landfill service area and overlapping service areas of other viable landfills, the time it is projected to consume the available waste disposal capacity, and the time it may take to site a new landfill that would meet the needs of the existing landfill service area. There may be additional considerations, such as potential additional environmental benefits or additional waste disposal needs that the existing landfill would address.

Using a method of calculating the available waste capacity for the service area, the average per-capita disposal rate, and population-adjusted total disposal rates per year, the feasibility report estimates that without the proposed expansion the available waste disposal capacity for the existing landfill service would be depleted by 2027 as shown in Table 11-4 of the feasibility report.

Through experience, the department has found it typically takes 5 to 7 years to complete the siting process for a new landfill or expansion. Therefore, if the waste disposal capacity for the proposed landfill's service area would be depleted within that time, then the proposed landfill would be needed. Although the needs analysis indicates that the available waste disposal capacity will be depleted in 2027, the existing landfill provides capacity for industrial and special waste along with contaminated soil.

WMWI anticipates receiving out-of-state waste volume (primarily from the Twin Cities Metro area) beginning in 2026, which historically has been less than 0.5 % out-of-state waste. The overall design capacity of the proposed expansion accounts for a significant influx of waste coming from Minnesota due to concerns with limited capacity for the part of the service area that includes those counties that make up the Twin Cities Metro.

Wisconsin Environmental Policy Act (WEPA) Compliance

Pursuant to s. NR 150.35, Wis. Adm. Code, the department has determined that the landfill feasibility review and public input process for the proposed landfill expansion meets the requirements of the Wisconsin Environmental Policy Act (WEPA) under s. 1.11(2)(c), Wis. Stats., and s. NR 150.20, Wis. Adm. Code. Pursuant to s. NR 150.20(2)(a)7, Wis. Adm. Code, a solid waste feasibility approval is an integrated analysis action, meaning department programmatic procedures provide for public disclosure and include an

environmental analysis that provides sufficient information to establish that an environmental impact statement (EIS) is not required. This project summary contains an environmental analysis of the proposed landfill expansion. Pursuant to s. NR 512.06(3), Wis. Adm. Code, the department has made a preliminary determination that an environmental impact statement EIS is not required for the proposed facility.

The landfill feasibility review process will provide for a 30-day public comment period, in which the public may submit written comments on the feasibility completeness determination, the environmental analysis, including the preliminary decision on the need for an EIS, and on the feasibility report. Members of the public may also request a public informational hearing on the proposed project during the 30-day public comment period.

Date Signed: April 21, 2026

Evaluators:

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