GRAYMONT

August 18, 2025

Michigan Department of Natural Resources
Real Estate Services
Attn: Mr. Paul Johnson
P.O. Box 30028
Lansing, MI 48909

Re: Advance Notice for Designating an Operating Area – Eastern Quarry Tract C

Graymont is submitting this "Advance Notice" for designating the Eastern Quarry Tract C Operating Area. Included in this Advance Notice package are the documents required by Exhibit D to the Addendum to Land Transaction Agreement, dated March 19, 2015.

Standard Requirements

Description of Operating Area (map & legal)	Exhibit A
Mining Plan with outline of operations	Exhibit B
Mining Sequence	Exhibit B
Closing and Relocation of Trails	Exhibit B
Hydrology Report	Exhibit C
Archeology Report Desktop	Exhibit D
Reclamation Plan	Exhibit E
Estimate of Reclamation Costs	Exhibit F

If you have any questions please feel free to contact me at my office (906) 283-2350 or via my cell at (906) 450-0553. We look forward to continuing our operations in the Eastern UP.

Kind Regards,

Paul Stoll, Jr

Paul E. Stoll, Jr
Director of Operations, Central Region
GRAYMONT

Exhibit A
Tract C Designation Notice
Land Transaction Agreement
Graymont – Description of Operating Area

Graymont (MI) LLC
Mackinac County, Michigan

June 2025

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Graymont Eastern Quarry – Tract C Operating Area

The purpose of this document is to describe Graymont – Eastern Quarry Tract C portion as defined in the Land Transaction Agreement (See Figure A-1). Tract C is comprised of approximately 160 acres of which 120 acres or 75% of the Tract C parcel will be utilized for mining purposes. The 120 acres will be referred to as Tract C Operating Area. The remaining 40-acre parcel (Preserved Tract C Area) will be excluded from this designation notice process and will remain in a natural state.

Tract C Operating Area which will consist of the Eastern Quarry Plant is located within a parcel owned by Graymont (Parcel #: 005-324-001-02) that is approximately 119.82 acres and is described below (See Figure A-2):

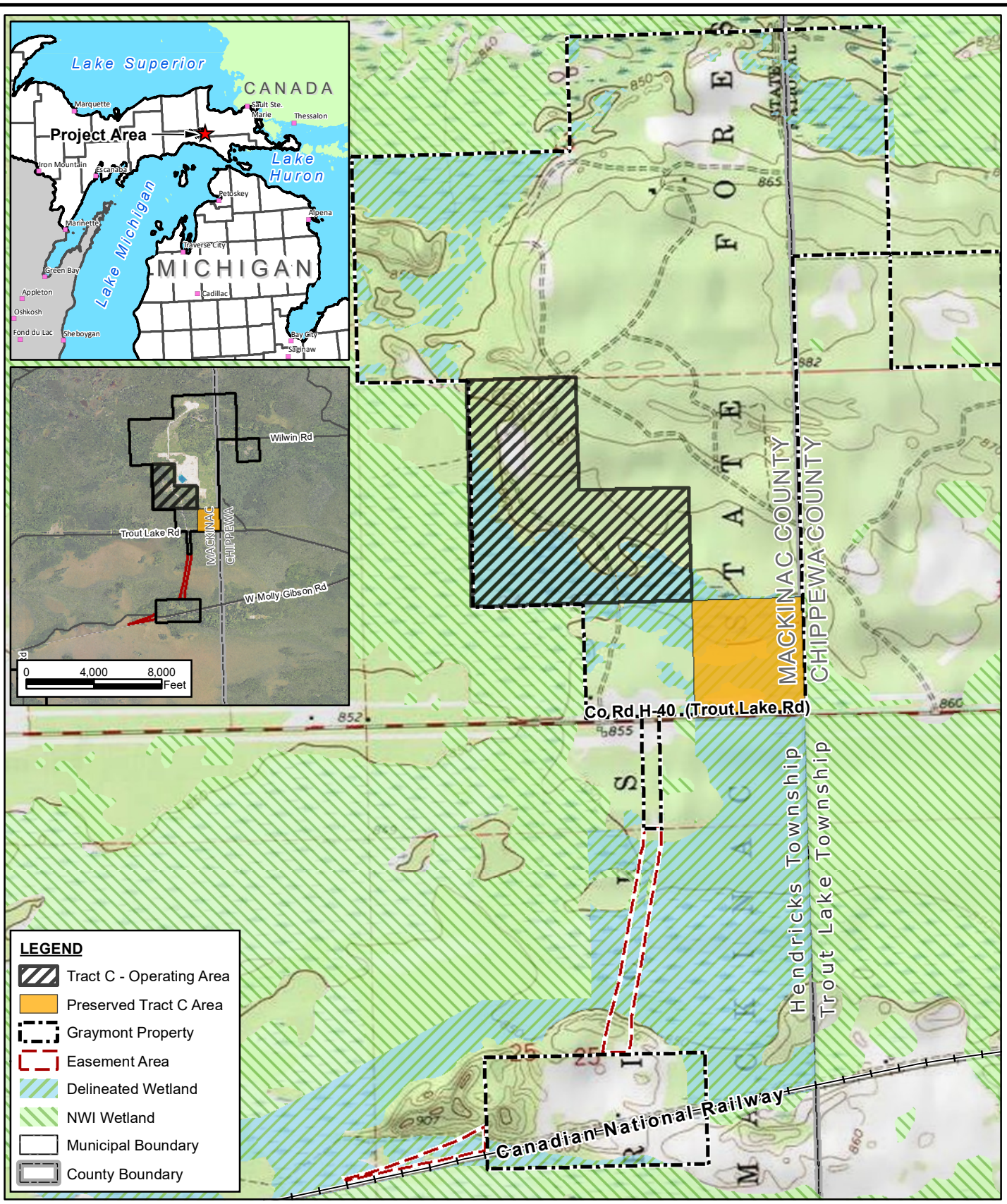
- SW/4 NE/4 of Section 24, T44N, R7W, Hendricks Township, Mackinac County, MI (approximately 39.88 acres).
- E/2 NW/4 of Section 24, T44N, R7W, Hendricks Township, Mackinac County, MI (approximately 79.94 acres).

The Preserved Tract C Area is a 40-acre parcel that will be preserved in its natural state. This parcel is located in the NE/4/ SE/4 of Section 24, T44N, R7W, Hendricks Township, Mackinac County, MI.

Attachment:

Figures

Figures



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Foth Infrastructure & Environment, LLC				
REVISED	DATE	BY	DESCRIPTION	
PREPARED BY:	BJW1		DATE:	JUL.'25
REVIEWED BY:	NMG1		DATE:	JUL.'25
APPROVED BY:	NMG1		DATE:	JUL.'25

GRAYMONT (MI) LLC

FIGURE A-1
SITE LOCATION MAP
GRAYMONT EASTERN QUARRY
TRACT C DESIGNATED NOTICE - EXHIBIT A
MACKINAC COUNTY, MI

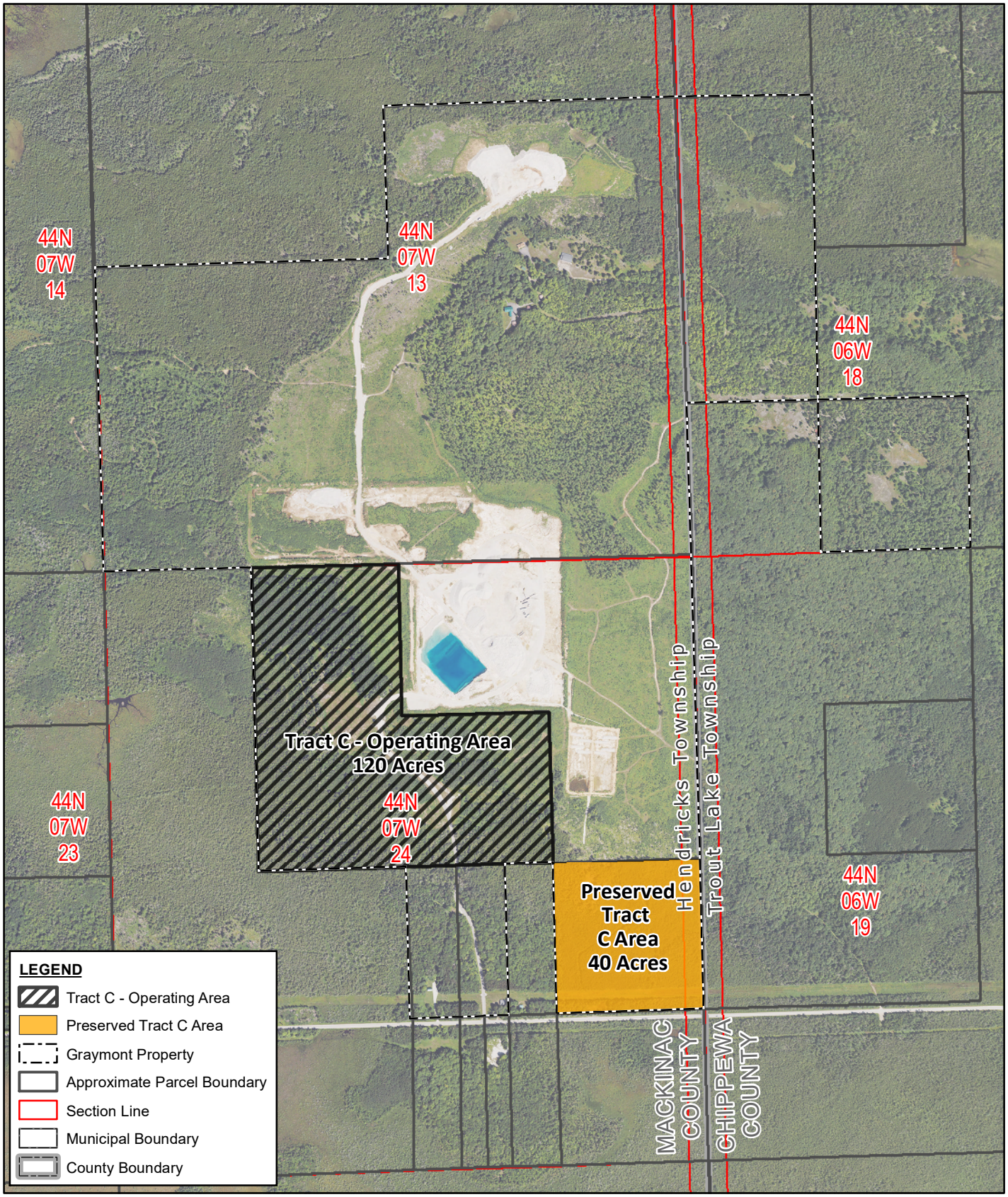
Scale: 0 800 1,600 Feet

Date: JULY 2025

Drafted by: BJW1

Project No: 14W777.24

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure A-1 - Site Location Map.mxd Date: 7/1/2025



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Foth Infrastructure & Environment, LLC				
REVISED	DATE	BY	DESCRIPTION	
PREPARED BY:	BJW1		DATE:	JUL.'25
REVIEWED BY:	NMG1		DATE:	JUL.'25
APPROVED BY:	NMG1		DATE:	JUL.'25

GRAYMONT (MI) LLC

FIGURE A-2
PARCEL MAP
GRAYMONT EASTERN QUARRY
TRACT C DESIGNATED NOTICE - EXHIBIT A
MACKINAC COUNTY, MI

Scale: 0 600 1,200 Feet		Date:	JULY 2025
Drafted by:	BJW1	Project No:	14W777

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure A-2 - Parcel Map.mxd Date: 7/1/2025

Exhibit B
Tract C Designation Notice
Land Transaction Agreement
Graymont Eastern Quarry – Mine Plan

Graymont (MI) LLC
Mackinac County, Michigan

June 2025

GRAYMONT

Graymont Eastern Quarry Mine and Operation Plan

The purpose of this document is to present the "Mine Plan and Mining Sequence, Construction and Plant Operations" for the limestone quarry, processing plant, storage and shipping facilities defined as Plant Area in the Designation Notice - Exhibit A. The Plant Area is located entirely in the Eastern Quarry Tract C (as defined in the Land Transaction Agreement).

The Plant Area is located on property owned by Graymont located in the township of Hendricks, in Mackinac County, Michigan. The Plant Area is comprised of approximately 120 acres. Figure B-1 – Mine/Operations Plan – Pre-Quarrying Conditions shows the existing quarry conditions and a general layout of the processing, storage, and shipping facilities at the Eastern Quarry Plant.

Designation Area Geology

The target limestone is part of the Hendricks Formation. This formation consists of gray and buff dolomitic and lime mudstone and wackestones. In the proposed 120-acre plant/quarry area defined as Tract C the target limestone is found at the top of the Hendricks Formation. It is characterized as buff to grayish buff colored, high calcium lime mudstones and wackestones with some calcite crystals and is targeted for its suitability for industrial mineral uses. In the plant and quarry pit vicinity the target limestone is either exposed at the ground surface or overlain by thin mantle of glacial till.

Restriction on Eastern Quarry Tract C

As per the Land Transaction Agreement, quarrying is prohibited unless the owner of parcel S/2 NE/4 and S/2 of Section 13 and the N/2 NE/4 and SE/4 NE/4 of Section 24, T44N R7W consents. Graymont now owns this parcel.

Eastern Quarry Sequence

Quarry development will occur mainly in the northernmost portion of Tract C Operating Area, though the southwest corner of the planned quarry will extend slightly into Tract C Operating Area. In total there will be approximately 29 acres of quarry development in Tract C Operating Area.

In 2019, a 7-acre test pit was developed on Graymont property north and east of Tract C. When mining commences this test pit will be enlarged and will enter Tract C Operating Area. Mining activities will utilize excavator, truck, and wheel loader operations. Overburden created during the quarrying will be used to construct sight/safety berms and/or stockpiled on site for reclamation activities. Figure B-2 - Phased Mining Sequence shows the progression of the mine plan. The mining sequence is proposed as follows:

- Phase 1: The initial quarrying phase will focus on the expansion of the quarry to the south and west.
- Phase 2: The quarry will continue south and west to establish a permanent ramp for access into the quarry. During this phase, Tract C Operating Area will first be impacted.

- Phase 3: Having reached the ultimate depth of the quarry, the mining will proceed northwest for approximately 345 feet and establish the full width of the quarry for this phase of mining. The quarry will consist of multiple benches. All benches may be active at any time.
- Phase 4: Mining will enter the northwest portion of Tract C and continue approximately 790 feet.
- Phase 5: Mining will turn to the west for approximately 690 feet. During this phase, mining will occur both inside and outside of the Tract C Operating Area. At the conclusion of Phase 5; there will be no further mining in Tract C.

Eastern Quarry Operations

Quarrying methods are expected to include drilling and blasting, and excavator/truck/wheel-loader material handling as follows.

- Removal of overburden from Tract C Operating Area.
- Transportation of overburden to construct safety/sight berms, or to material stockpiles for later use in reclamation. The sight/safety/runoff berms would be constructed prior to pit advancement as per accepted industry standards and best management practices and local, state, or federal requirements. Figure B-3 illustrates typical sight/safety/runoff berm construction.
- Sight/safety/runoff buffers will be employed as reasonable and practical along the boundaries of the quarrying operation.
- Drilling and blasting will be managed by a licensed blaster in compliance with federal, state, and local requirements. Blasting may be conducted up to several times per week and a blasting schedule will be posted at quarry entrance and electronically to a publicly accessible website.
- Excavation and transportation of blasted rock to the crushing and screening plant.
- Processed stone from screening plant fed by conveyors to stockpiles for further processing.
- Stone not suitable for sale and overburden may be used to construct safety/sight berms, mixed with overburden for quarry reclamation, or stockpiled outside of Tract C Operating Area.

Temporary overburden or product stockpiles may be located within Tract C Operating Area as required to facilitate material handling.

Eastern Quarry Equipment

Major quarrying equipment proposed for the Tract C Operating Area or Eastern Quarry Plant may include:

- Front end loader(s)
- Bulldozer
- Excavator
- Water truck(s)
- Drill(s)

- Off-road haul trucks
- Tractor double-trailer haul trucks or similar
- Service and supervisory vehicles

Blasting

Blasting activities will be conducted at the proposed quarry operation by a licensed blaster. The effects of blasting such as dust and fly rock generation will be minimized through proper blast design. All blasting activities will be controlled and monitored as required by MSHA regulations and per accepted industry standards and best management practices and local, state, or federal requirements.

Site Construction

The lime processing plant and support facilities will occupy the majority of the area in Tract C Operating Area. Figure B-1 shows the proposed area of the lime production plant and related processes. Overburden created during the construction sequence will be used for site/safety berms and/or stockpiled for reclamation activities. The amount of overburden coverage in the operation area varies from several inches to over 8 feet. In areas where construction will occur, the amount and area of overburden removal will be dependent on the type of construction. Construction may include some or all the following:

- Transportation infrastructure
- Crushing
- Processing and sizing
- Storage of raw materials
- A lime production facility
- Storage for products
- Load out facilities
- Support infrastructure.

Anticipated Construction Equipment

Major construction equipment required for plant construction may include:

- Mobile cranes
- Wheel loaders
- Excavators
- Bulldozers
- Rough terrain forklifts
- Over-the-road trucks
- Off-road haul trucks

Graymont Eastern Quarry Plant Operations

Once the overburden has been removed, the target limestone is drilled, blasted, and transported via wheel loaders or trucks to a crushing and screening plant to produce kiln feed sized material. During the sizing operation the stone will be washed to remove fines and clays. The clean, sized stone will be stockpiled. The water used in the cleaning

process will report to a settling pond(s) for removal of the fine material from the process water. The settling ponds will be in a closed loop system with the wash system to minimize the amount of makeup water required. The clean sized stone will be fed from the stockpile to vertical kilns. The kilns will produce high calcium lime which will be placed in storage bins for shipment or further processing. The on-site loading facilities will load either railcars or over-the-road trucks for shipment.

Major equipment required for plant operations may include:

- Wheel loaders
- Excavators
- Bulldozers
- Rough terrain forklifts
- Over-the-road trucks
- Off-road haul trucks
- Crushers
- Conveyors
- Kilns
- Locomotives
- Certified scales
- Dust collection equipment

Site Noise and Dust Controls

The location of and the type of quarry operation proposed will assist in the mitigation of noise and dust. Based upon the proposed depth of the operation, and through the construction of berm barriers, noise and dust will be primarily directed upward and contained within the quarry. During construction and plant operation, engineering and administrative controls will be used to mitigate noise and dust. If necessary, Graymont will utilize general controls to reduce potential fugitive dust emissions and noise at the site. Controls may include:

Truck Traffic Control – Vehicle speed may be reduced during dry weather periods to help minimize dust from equipment traffic within the operating area.

- Watering - If dust generation at the site is determined to be problematic, water, or an alternative dust suppressant, will be utilized to suppress roadway dust. Watering may be suspended during low temperatures as needed for safety (icy roadways).
- Back-up Alarm Noise Reduction – Equipment back-up alarms may be configured to reduce noise levels or use air puff audible technology.

Road Grading – Road grading will be performed as-needed to help minimize the potential for dust generation. When grading, water will be used if necessary to prevent excess dust generation.

- Processing Area Dust Suppression – The crushing and screening plants may utilize a water spray system to control fugitive dust as needed.

Named Trails, Site Access, and Access Management

Per the Land Transaction Agreement, Exhibit 1, there are no Recreational or Named Trails within Tract C area.

To preserve the Public Hunting, Fishing, and Recreational Rights as long as possible, Graymont proposes sequencing the closure of operating area. This would be done by closing only the areas which are being actively used. The closed areas would be delineated by signage on the perimeter of each area. Efforts will be made to schedule the sequence to keep the areas that remain open to Recreational Rights contiguous. Once closed, that area would be closed permanently. Timing of closures are controlled by the quarrying and the construction schedule.

The Preserved Tract C area is excluded from this designation process and will remain in its natural state and open to the public.

Egress and ingress to the site will be from the existing Eastern Quarry Access Road connected to County Road H-40. This entrance is gated and will be posted with signage regarding limitation of access, emergency contact information, operating hours, blasting schedule, and other appropriate information.

Toxic and Hazardous Materials Management

The target limestone and adjacent bedrock does not contain acid-forming materials or metals that can be released to the environment once exposed to oxidation. Conversely, limestone and dolomite products are typically used to purify drinking water, treat wastewater, and neutralize acidic conditions. During quarrying operations, only minor, localized spills of fuels or lubricants would be categorized as potential contaminants. Fuels and lubricants will be handled and managed as per industry standards, best management practices, and established regulatory requirements. In the event of a minor spill, impacts will be minimized due to the impermeable nature of the bedrock and the natural containment provided by the pit. Any spills will be promptly recovered to further reduce environmental risk. Blasting will be designed for complete ignition of all explosives.

Materials used for blasting will not be stored on site and will be completed by a certified outside entity.

Site Drainage

Significant surface water runoff emanating from undisturbed areas will be diverted around disturbed areas and allowed to flow naturally within established drainage systems. This “undisturbed water” routing will minimize changes to the natural drainage system.

Water emanating from disturbed areas will be contained and allowed to settle, directed through engineered energy dissipation zones to remove sediment, or captured and used for dust suppression/quarry operations.

The lack of horizontal and vertical permeability is anticipated to naturally limit groundwater inflows into the quarry, mitigate effects to local surface water/wetland features, and negate effects to local domestic water supply wells.

The water that does collect in the quarry will be pumped to existing settling ponds prior to discharge into surrounding wetland from one of four discharge points. This discharge is regulated under an existing National Pollution Discharge System permit MIG490331 v3.0. This permit is currently in the renewal process. The Eastern Quarry is currently covered by a Soil Erosion and Sedimentation Control (SESC) Permit PR-4430 from the Luce, Mackinac, Alger, Schoolcraft District Health Department. The permit expires May 9th 2028. The SESC Plan is part of the Storm Water Permit as required by the State of Michigan. Contact runoff from construction activities will be directed away from any surface water.

Public Utilities

The Eastern Quarry will be supplied with electrical power by the high voltage transmission lines that pass just south of Tract C. Overhead transmission lines will move power from the main transmission lines to a substation located in the southwest corner of Tract C Operating Area. A private liquefied natural gas pipeline will also service the plant.

Operational Schedule

The quarry may operate up to 12 months per year with product production dictated by market conditions. The quarry will operate up to 7 days per week, 24 hours per day. General hours of operation are anticipated to be from 7:00 a.m. to 8:00 p.m., however, certain conditions may require operational hours to be altered.

Figures

NOTES:
1. Imagery basemap from Esri.
2. Boundary data from Graymont.
3. Coordinate system is NAD 1983, Michigan State Plane North, units in international feet.

LEGEND

- Conveyor
- Water Pipeline
- Tract C - Operating Area
- Preserved Tract C Area
- Graymont Property
- AST
- Asphalt
- Basin/Pond
- Building
- Quarry Area
- Stockpile
- Substation

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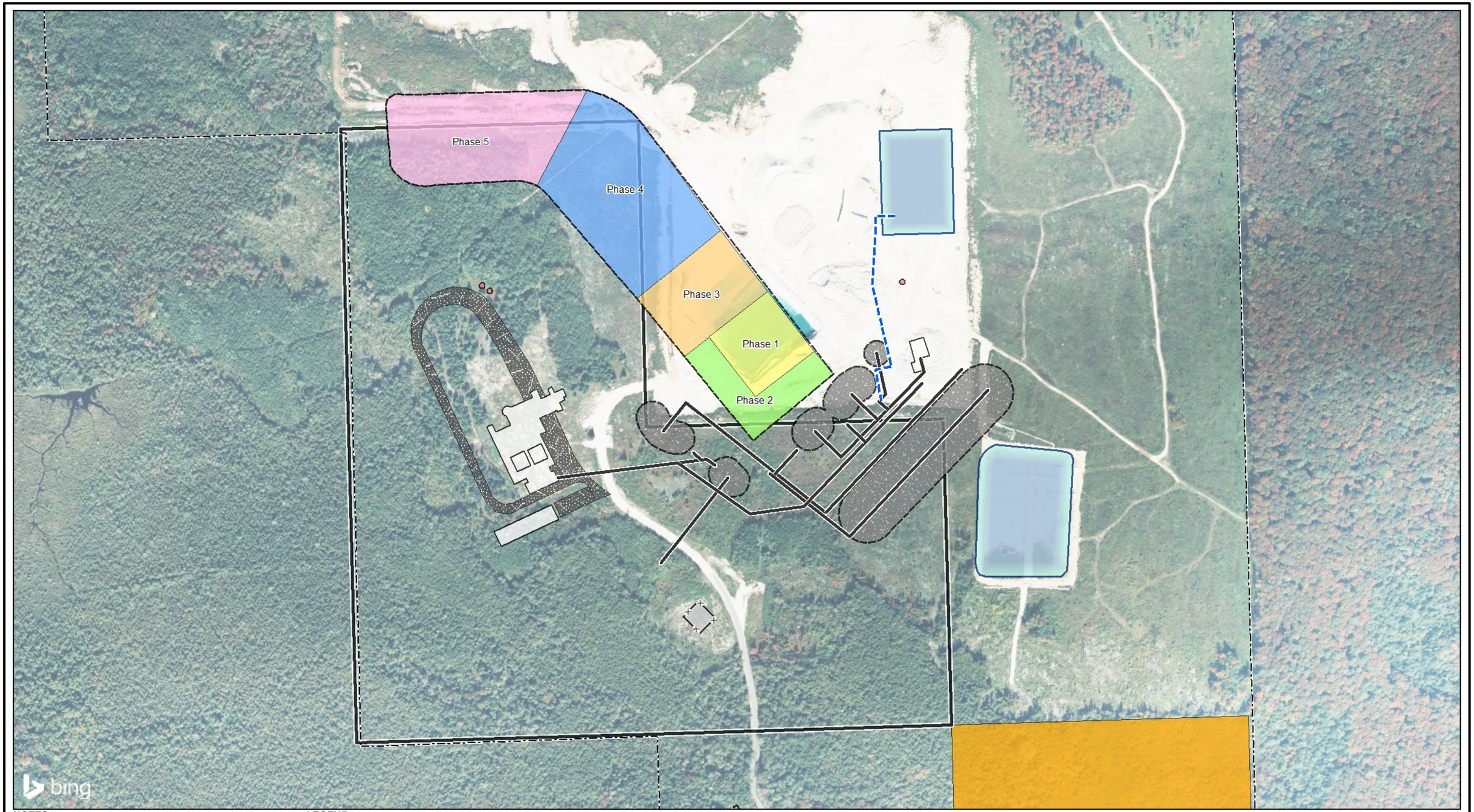
Foth Infrastructure & Environment, LLC			
REVISED	DATE	BY	DESCRIPTION
PREPARED BY:	BJW1	DATE:	JUL.'25
REVIEWED BY:	NMG1	DATE:	JUL.'25
APPROVED BY:	NMG1	DATE:	JUL.'25

GRAYMONT (MI) LLC

FIGURE B-1
MINE/OPERATIONS PLAN
- PRE QUARRYING CONDITIONS
TRACT C - DESIGNATED NOTICE - EXHIBIT B
MACKINAC COUNTY, MI

Scale: 0 200 400 Feet
Date: JULY 2025
Drafted by: BJW1
Project No: 14W777

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure B-1 - Pre Quarrying Conditions.mxd Date: 7/17/2025



NOTES:
1. Imagery basemap from Esri.
2. Boundary data from Graymont.
3. Coordinate system is NAD 1983, Michigan State Plane North, units in international feet.

LEGEND

- Conveyor
- Water Pipeline
- Tract C - Operating Area
- Preserved Tract C Area
- Graymont Property
- AST
- Asphalt
- Basin/Pond
- Building
- Quarry Area
- Stockpile
- Substation
- Phase 1
- Phase 2
- Phase 3
- Phase 4
- Phase 5

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Foth Infrastructure & Environment, LLC

REVISED	DATE	BY	DESCRIPTION

PREPARED BY:	BJW1	DATE:	JUL.'25
REVIEWED BY:	NMG1	DATE:	JUL.'25
APPROVED BY:	NMG1	DATE:	JUL.'25

GRAYMONT (MI) LLC

FIGURE B-2

PHASED MINING SEQUENCE
TRACT C - DESIGNATED NOTICE - EXHIBIT B
MACKINAC COUNTY, MI

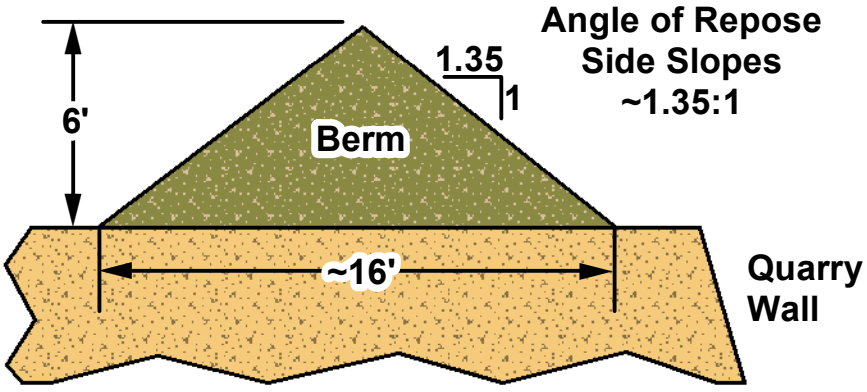
Scale: 0 200 400 Feet

Date: JULY 2025

Drafted by: BJW1

Project No: 14W777

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure B-2 - Phased Mining Sequence.mxd Date: 7/17/2025



Safety/Sight/Runoff Berm Detail

Not to Scale

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REVISED	DATE	BY	DESCRIPTION		
PREPARED BY:	BJW1			DATE:	JUL.'25
REVIEWED BY:	NMG1			DATE:	JUL.'25
APPROVED BY:	NMG1			DATE:	JUL.'25

GRAYMONT (MI) LLC

FIGURE B-3

SAFETY / SIGHT / RUNOFF BERM DETAIL
TRACT C - DESIGNATED NOTICE - EXHIBIT B
MACKINAC COUNTY, MI

Scale:	NOT TO SCALE	Date:	JULY 2025
Drafted by:	BJW1	Project No:	14W777

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure B-3 - Safety Sight and Runoff Berm Detail.mxd Date: 7/1/2025

Exhibit C
Tract C Designation Notice
Land Transaction Agreement
Graymont Hydrogeology/Hydrology

Graymont (MI) LLC
Mackinac County, Michigan

June 2025

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Regional Hydrology and Hydrogeology

Regionally, groundwater is comparatively shallow and found within a few feet of the ground surface to about 30 feet below the ground surface. Wells tapping deeper formations to the east and south of the Nominated Lands exhibited confined and flowing artesian characteristics. The topography of the region is relatively flat with subdued ridges exhibiting higher topography.

The region is poorly drained and is characterized by several wetland areas. As shown on the attached Figure C-1, surface quarrying operations, due to their higher elevation, would not be expected to materially affect the adjacent water table or the surrounding surface water features during quarrying. The post-quarrying topography will reflect an inland lake of approximately 95 acres. The anticipated elevation of the lake will be between 850 and 852 feet above mean sea level (AMSL).

Groundwater occurs at shallow depths commonly within a few feet of ground surface, with the exception of areas where the more resistant target limestone outcrops as topographic highs where groundwater may be deeper. Carbonate bedrock formations generally exhibit very low permeability due to the crystalline composition and the depositional bedding planes. Shallow bedrock beneath is composed of the Hendricks Formation within the Burnt Bluff group, from the Niagaran stage of the middle Silurian period. The Hendricks Formation is typically 60 to 120 feet thick and consists of gray and buff dolomitic and lime mudstone and wackestones. The bedrock in this group is approximately 450 million years old. The deposit is part of the larger Niagara escarpment which forms a continuous arc of carbonate rock from Wisconsin stretching northeast through the Upper Peninsula of Michigan. Bedrock in the Rexton, Michigan, area dips to the south at approximately 50 feet per mile resulting in bands of surface outcropping bedrock that are progressively older as one moves north. The joint systems are very irregular and poorly developed where the stone exhibits fractures. In the absence of secondary permeability (enhanced permeability caused after deposition by fracturing and solution expansion), the target limestone exhibits very limited horizontal permeability and virtually no vertical permeability. Although the wetland and shallow bedrock potentiometric surface may be connected locally, groundwater movement within the crystalline rock portion of the area limestones and dolomites and interactions with wetlands is very limited due to the lack of interconnected pore space. Wetlands primarily occur as a result of till-filled depressions in the top of the bedrock topography that contain precipitation due to the inability of the carbonate bedrock to transmit water. Other than redistribution within localized areas of the till, groundwater largely does not contribute to wetlands.

The flow predominantly occurs as irregular, non-continuous thin zones of low permeability rock. The majority of the limestone and dolomite rock sections display negligible permeability with virtually no vertical permeability due to bedding and crystalline deposition as illustrated on Figure C-2 (attached).

Eastern Quarry Groundwater and Surface Water Hydrology

The Tract C designated area is characterized as an area of shallow glacial till overlaying several sequences of carbonate bedrock. The general area contains some relatively expansive wetland areas and surface water features due to the presence of shallow groundwater overlaying comparatively impermeable, shallow bedrock. The system is recharged by significant quantities of annual precipitation; the majority of which is rejected by relatively impermeable bedrock to local wetlands and surface water features. Although the physical land relief is generally very low,

carbonate sequence outcrops can occur as subtle ridges and occur in the area of the Eastern Quarry. The Tract C area is positioned between outcrop areas and in low-lying areas of glacial till and weathered bedrock.

Groundwater occurs at shallow depths commonly within a few feet of ground surface, with the exception of areas where the more resistant target limestone outcrops as topographic highs where groundwater may be deeper.

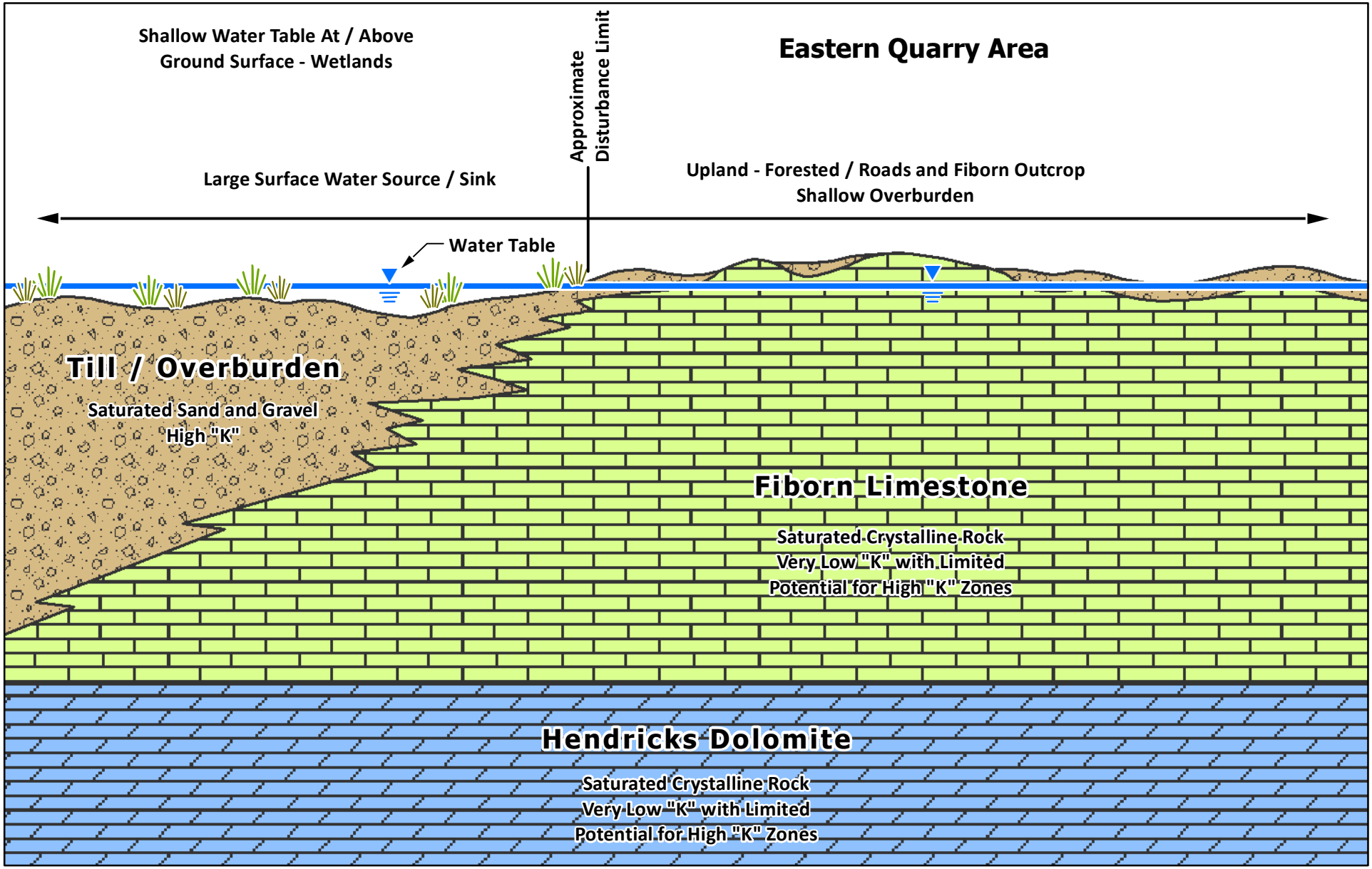
The surface water hydrology of the area is characterized by small, shallow lakes, creeks, and rivers which are predominantly caused by the lack of bedrock permeability and recharged by the large amount of annual precipitation. Surface water is poorly drained due to low topographical relief, shallow/impermeable bedrock, and high precipitation rates. The Tract C portion of the Eastern Quarry is located in the Tahquamenon Watershed and the Carp-Pine Watershed. The drainage basins and sub-watersheds are shown on Figure C-3. The Tahquamenon sub-basin drains surface water north primarily via the Tahquamenon River into Tahquamenon Bay in Lake Superior. The Carp-Pine sub-watershed drains surface water primarily via the Carp River south and east to Saint Martin Bay in Lake Huron using a series of rivers and creeks.

As shown on Figure C-4, wetland areas have been identified in the stretch characteristic of Quaternary glaciated zones. Both the shallow lakes and wetlands in the region are the result of relatively flat topography, very large amount of recharge from precipitation, and shallow, generally impermeable bedrock, which maintain a high elevation water table.

Given the natural characteristics that have created the surface water features and wetlands and the topographic position of the proposed limestone quarrying and mining activities, effects to the hydrologic system are not anticipated to be material.

Attachment:
Figures

Figures



NOTES

1. The Hendricks and Fiborn both typically exhibit significant porosity but very limited pore inter-connectiveness yielding very low permeability ("K").
2. Zones of enhanced permeability could locally occur as areas of increased fracture density or solutionized areas.

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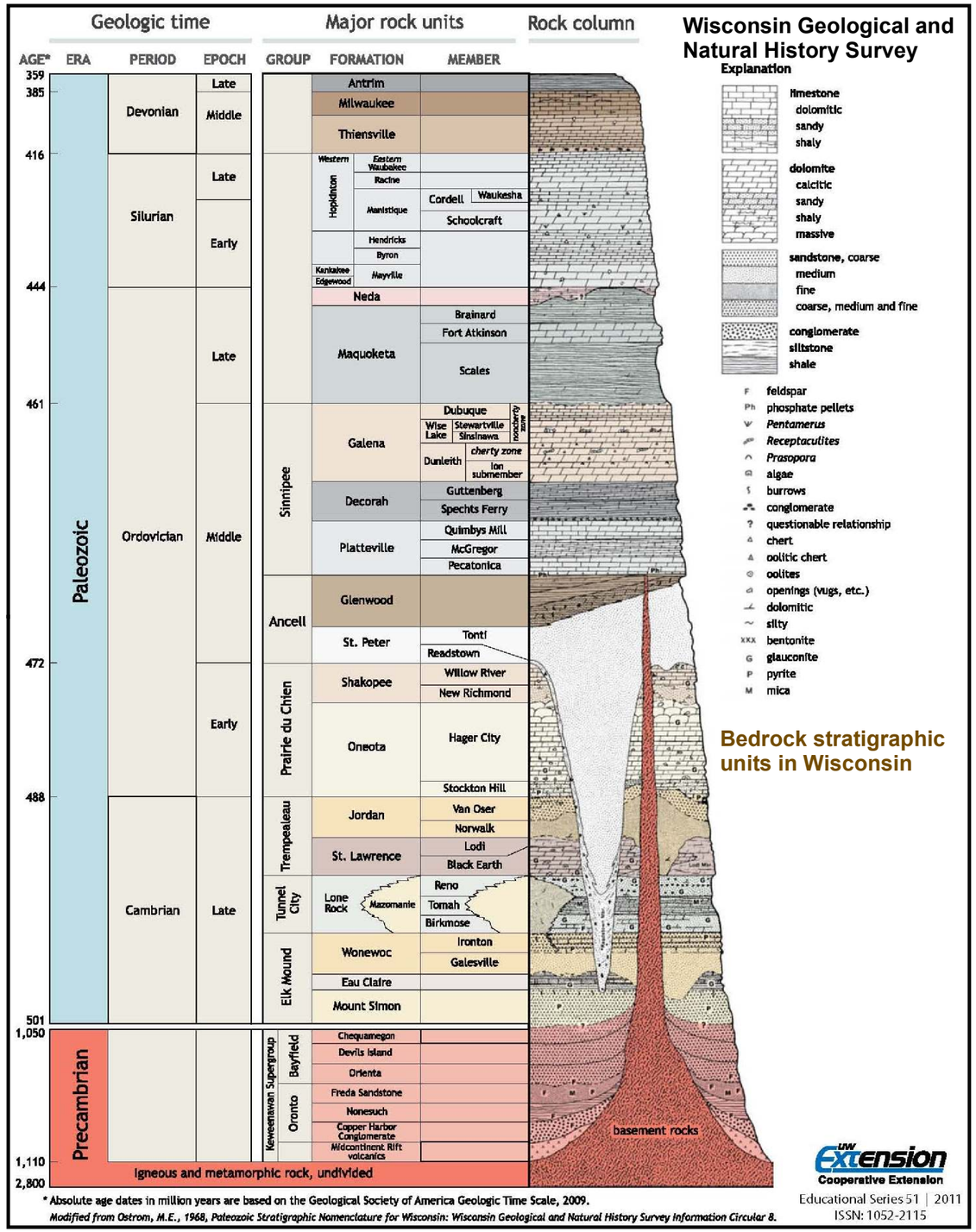
Foth Infrastructure & Environment, LLC				
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PREPARED BY:	BJW1		DATE:	JUL. '25
REVIEWED BY:	NMG		DATE:	JUL. '25
APPROVED BY:	NMG		DATE:	JUL. '25

GRAYMONT (MI) LLC

FIGURE C-1
CONCEPTIAL EASTERN QUARRY
HYDROLOGIC SECTION
TRACT C DESIGNATION NOTICE. - EXHIBIT C
MACKINAC COUNTY, MI

Scale:	NOT TO SCALE	Date:	JULY 2025
Drafted by:	BJW1	Project No:	14W777

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure C-1 - Conceptual Eastern Quarry Hydrologic Section.mxd Date: 7/1/2025



Wisconsin Geological and Natural History Survey

Explanation

- limestone
  - dolomitic
  - sandy
  - shaly
- dolomite
  - calcitic
  - sandy
  - shaly
  - massive
- sandstone, coarse
  - medium
  - fine
  - coarse, medium and fine
- conglomerate
- siltstone
- shale

- F feldspar
- Ph phosphate pellets
- *Pentamerus*
- *Receptaculites*
- *Prasopora*
- algae
- burrows
- conglomerate
- ? questionable relationship
- chert
- oolitic chert
- oolites
- openings (vugs, etc.)
- dolomitic
- silty
- XXX bentonite
- G glauconite
- P pyrite
- M mica

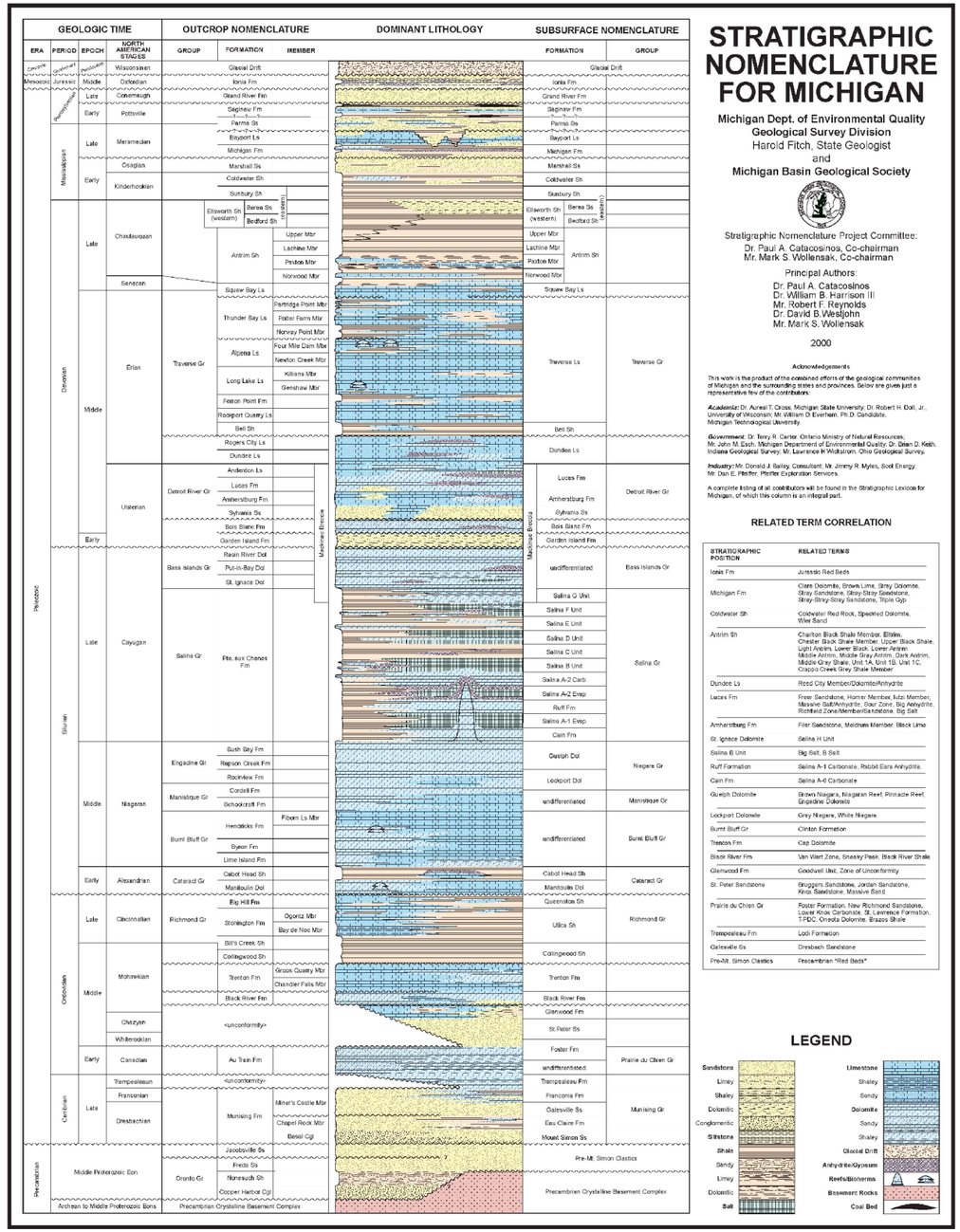
Bedrock stratigraphic units in Wisconsin

* Absolute age dates in million years are based on the Geological Society of America Geologic Time Scale, 2009.

Modified from Ostrom, M.E., 1968, Paleozoic Stratigraphic Nomenclature for Wisconsin: Wisconsin Geological and Natural History Survey Information Circular 8.

UW Extension Cooperative Extension

Educational Series 51 | 2011
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STRATIGRAPHIC NOMENCLATURE FOR MICHIGAN

Michigan Dept. of Environmental Quality
Geological Survey Division
Harold Fitch, State Geologist
and
Michigan Basin Geological Society

Stratigraphic Nomenclature Project Committee:
Dr. Paul A. Catacosinos, Co-chairman
Mr. Mark S. Wollensak, Co-chairman

Principal Authors:
Dr. Paul A. Catacosinos
Dr. William B. Harrison III
Mr. Robert F. Reynolds
Dr. David B.Westjohn
Mr. Mark S. Wollensak

2000

Acknowledgements

This work is the product of the combined efforts of the geological communities of Michigan and the surrounding states and provinces. Below are given just a representative few of the contributors:

Academia: Dr. Aureal T. Cross, Michigan State University; Dr. Robert H. Dott, Jr., University of Wisconsin; Mr. William D. Everham, Ph.D. Candidate, Michigan Technological University.

Government: Dr. Terry R. Carter, Ontario Ministry of Natural Resources; Mr. John M. Eash, Michigan Department of Environmental Quality; Dr. Brian D. Keith, Indiana Geological Survey; Mr. Lawrence H Wickstrom, Ohio Geological Survey.

Industry: Mr. Donald J. Bailey, Consultant; Mr. Jimmy R. Myles, Bost Energy; Mr. Dan E. Pfeiffer, Pfeiffer Exploration Services.

A complete listing of all contributors will be found in the Stratigraphic Lexicon for Michigan, of which this column is an integral part.

RELATED TERM CORRELATION

STRATIGRAPHIC POSITION	RELATED TERMS
Ionia Fm	Jurassic Red Beds
Michigan Fm	Clare Dolomite, Brown Lime, Stray Dolomite, Stray Sandstone, Stray-Stray Sandstone, Stray-Stray-Stray Sandstone, Triple Gyp
Coldwater Sh	Coldwater Red Rock, Speckled Dolomite, Wire Sand
Antrim Sh	Charlton Black Shale Member, Elmira, Chester Black Shale Member, Upper Black Shale, Light Antrim, Lower Black, Lower Antrim Middle Antrim, Middle Gray Antrim, Dark Antrim, Middle Gray Shale, Unit 1A, Unit 1B, Unit 1C, Crappo Creek Grey Shale Member
Dundee Ls	Reed City Member/Dolomite/Anhydrite
Lucas Fm	Freer Sandstone, Homer Member, Ilsley Member, Massive Salt/Anhydrite, Saxe Zone, Big Anhydrite, Richfield Zone/Member/Sandstone, Big Salt
Amherstburg Fm	Filer Sandstone, Meldrum Member, Black Lime
St. Ignace Dolomite	Salina H Unit
Salina B Unit	Big Salt, B Salt
Ruff Formation	Salina A-1 Carbonate, Rabbit Ears Anhydrite,
Cain Fm	Salina A-0 Carbonate
Guelph Dolomite	Brown Niagara, Niagaran Reef, Pinnacle Reef, Engadine Dolomite
Lockport Dolomite	Grey Niagara, White Niagara
Burnt Bluff Gr	Clinton Formation
Manitoulin Fm	Cap Dolomite
Cataract Gr	Van Wert Zone, Sneaky Peak, Black River Shale
Glenwood Fm	Goodwell Unit, Zone of Unconformity
St. Peter Sandstone	Bruggers Sandstone, Jordan Sandstone, Knox Sandstone, Massive Sand
Prairie du Chien Gr	Foster Formation, New Richmond Sandstone, Lower Knox Carbonate, St. Lawrence Formation, T-PDC, Oneota Dolomite, Brazos Shale
Trempealeau Fm	Lodi Formation
Galesville Ss	Dresbach Sandstone
Pre-Mt. Simon Clastics	Precambrian "Red Beds"

LEGEND

NOTES:

1. Michigan Stratigraphic Column supplied by MDEQ, Geological Survey Division.
2. Wisconsin Stratigraphic Column supplied by Wisconsin Geological and Natural History Survey.

GRAYMONT

Foth

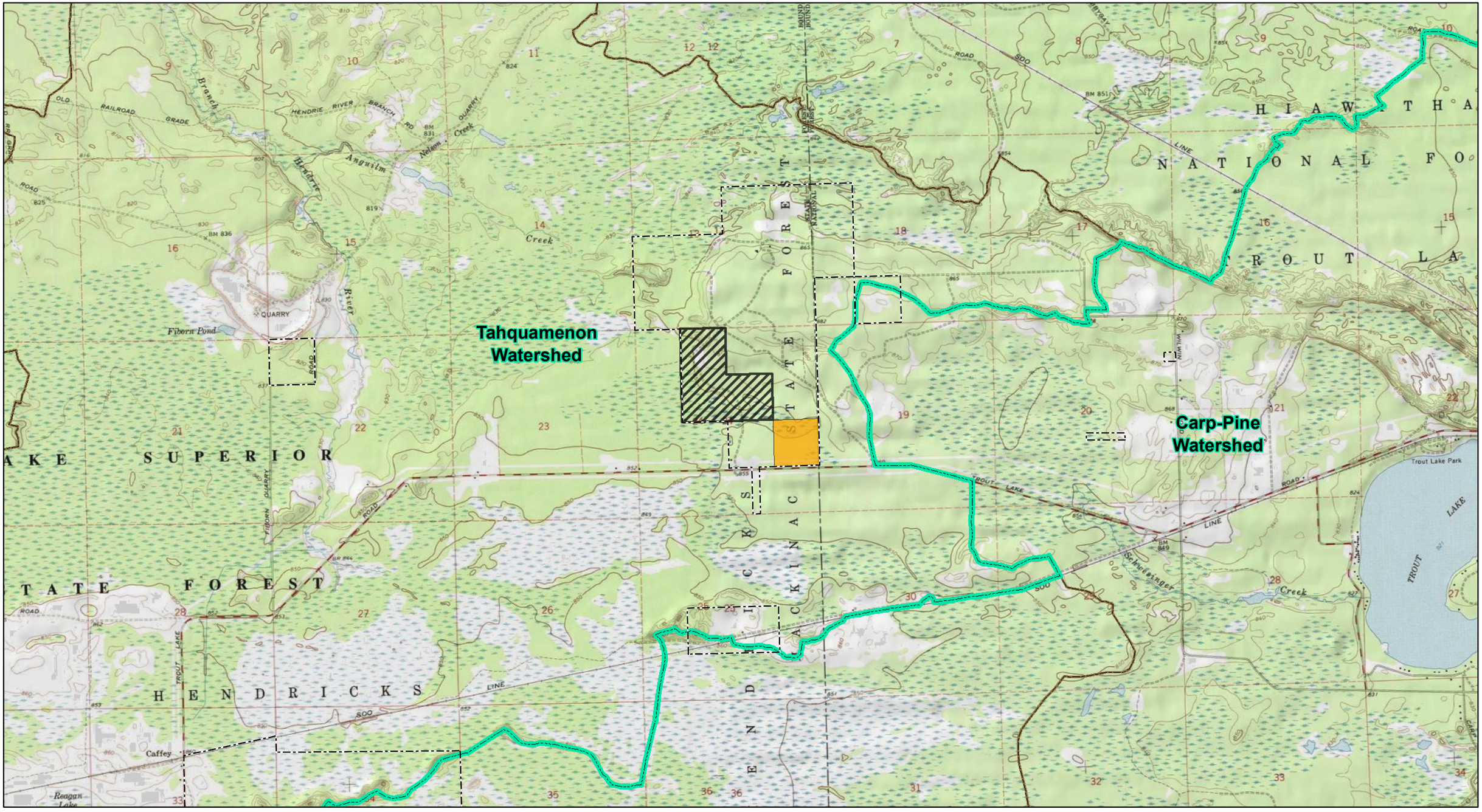
Foth Infrastructure & Environment, LLC					
REVISED	DATE	BY	DESCRIPTION		
CHECKED BY:	BJW1			DATE:	JUL.'25
APPROVED BY:	NMG1			DATE:	JUL.'25
APPROVED BY:	NMG1			DATE:	JUL.'25

GRAYMONT (MI) LLC

FIGURE C-2
WISCONSIN AND MICHIGAN
STRATIGRAPHIC COLUMNS
TRACT C - DESIGNATED NOTICE - EXHIBIT B
MACKINAC COUNTY, MI

Scale:	NOT TO SCALE	Date:	JULY 2025
Prepared by:	BJW1	Project No:	14W777

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure C-2 - Stratigraphic Columns.mxd Date: 7/1/2025



NOTES:

1. Watershed and hydrology features supplied by Michigan Geographic Data Library.
2. Only work will be completed on the connected 3-40's of Tract C, not the outlying area.
3. Coordinate system is NAD 1983, Michigan State Plane North, units in international feet.

LEGEND

- Tract C - Operating Area
- Preserved Tract C Area
- Graymont Property
- Primary Watershed Boundary
- Secondary Watershed Boundary

GRAYMONT

Foth

N

Foth Infrastructure & Environment, LLC

REVISED	DATE	BY	DESCRIPTION

CHECKED BY:	BJW1	DATE:	JUL.'25
APPROVED BY:	NMG1	DATE:	JUL.'25
APPROVED BY:	NMG1	DATE:	JUL.'25

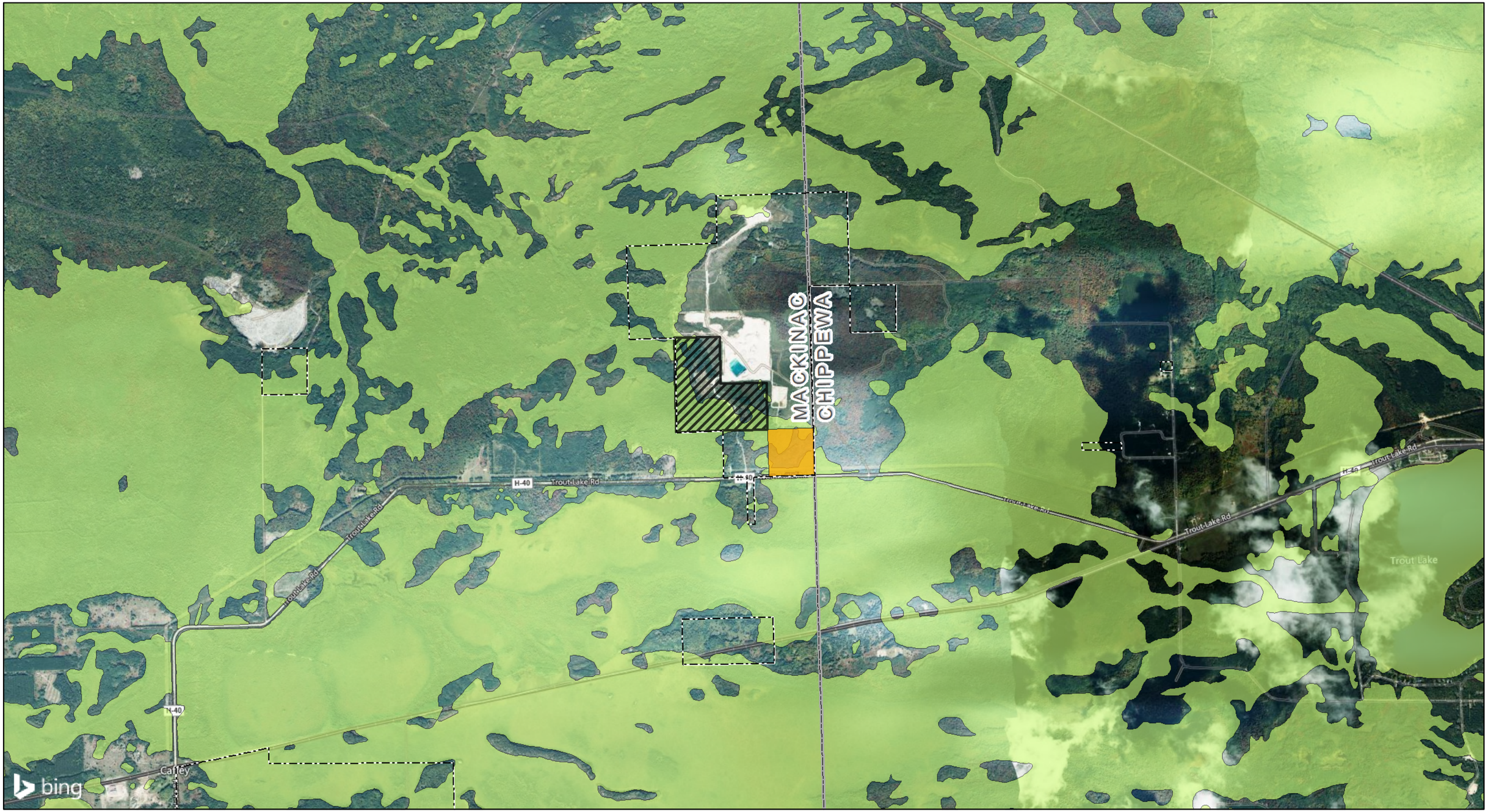
GRAYMONT (MI) LLC

FIGURE C-3

DRAINAGE BASIN
TRACT C DESIGNATION NOTICE. - EXHIBIT C
MACKINAC COUNTY, MI

Scale: 0 0.25 0.5 Miles		Date:	JULY 2025
Prepared by:	BJW1	Project No:	14W777-00

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure C-3 - Drainage Basins Surface Water.mxd Date: 7/1/2025



NOTES:

1. Wetlands supplied by Michigan Geographic Data Library.
2. Only work will be completed on the connected 3-40's of Tract C, not the outlying area.
3. Coordinate system is NAD 1983, Michigan State Plane North, units in international feet.

LEGEND

- National Wetlands Inventory Designation
- Tract C - Operating Area
- Preserved Tract C Area
- Graymont Property
- County Boundary

GRAYMONT

Foth

N

Foth Infrastructure & Environment, LLC					
REVISED	DATE	BY	DESCRIPTION		
CHECKED BY:	BJW1			DATE:	JUL.'25
APPROVED BY:	NMG1			DATE:	JUL.'25
APPROVED BY:	NMG1			DATE:	JUL.'25

GRAYMONT (MI) LLC

FIGURE C-4

NATIONAL WETLANDS INVENTORY MAP
TRACT C DESIGNATION NOTICE. - EXHIBIT C
MACKINAC COUNTY, MI

Scale: 0 0.25 0.5 Miles

Date: JULY 2025

Prepared by: BJW1

Project No: 14W777-00

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure C-4 - NWI Wetlands.mxd Date: 7/1/2025

Exhibit D
Tract C Designation Notice
Land Transaction Agreement
Graymont Eastern Quarry – Archeology Report

Graymont (MI) LLC
Mackinac County, Michigan

June 2025

GRAYMONT

106GROUP
Connecting People + Place + Time

ARCHAEOLOGICAL LITERATURE REVIEW AND ASSESSMENT FOR THE GRAYMONT LAND TRANSFER PROJECT

Rexton Township, Mackinac County, Michigan

August 2025



ARCHAEOLOGICAL LITERATURE REVIEW AND ASSESSMENT FOR THE GRAYMONT LAND TRANSFER PROJECT

Rexton Township, Mackinac County, Michigan

106 Group Project No. 1990

SUBMITTED TO:
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REPORT AUTHOR:
Claire S. Nelson, M.A., RPA

August 2025

MANAGEMENT SUMMARY

During July and August 2025, 106 Group conducted an archaeological literature review update and archaeological assessment for Graymont Land Transfer (Project) located in Rexton, Mackinac County, Michigan. The Project includes the activation of 120 acres (48.6 hectares [ha]) within the Upper Peninsula region of Michigan which had been previously transferred to the ownership of Graymont LLC (Graymont) from Michigan Department of Natural Resources [MI DNR] land holdings and remains subject to the land transfer agreement executed at that time. This study is being completed to comply with the terms of the Land Transfer Application between Graymont and MI DNR as set forth in Exhibit D Section 1.iv, which states that Graymont must seek out an archaeological review of any area proposed for operation to identify known archaeological sites within the area and to propose protections of those known sites.

106 Group previously completed a cultural resources literature review on behalf of Graymont in 2014 for a project proposing the transfer of 10,000 acres within the Upper Peninsula from the ownership of the Michigan Department of Natural Resources to Graymont. A portion of the 2014 study area is what is proposed for updated review and archaeological assessment in this 2025 study.

The project area is located in Section 24 of Township 44 N, Range 7 W, in Mackinac County, Michigan. An appropriate study area for archaeology includes the entire 120-acre (48.6-hectare [ha]) parcel. The archaeological investigation included a literature review and desktop assessment. The literature review consisted of a review of documentation recording previously identified archaeological sites within the study area and within one mile (1.6 km) of the study area, and of surveys previously conducted within the study area. Historical maps and aerial photographs were also reviewed to aid in the archaeological investigation. The desktop assessment identified whether the study area has the potential to contain unknown intact archaeological resources that may be potentially eligible for listing in the National Register of Historic Places (NRHP).

The results of the literature review indicated that no previously identified archaeological sites are within the study area, and no archaeological surveys have been previously conducted within the study area. Due to the proximity of portions of the study area to perennial wetlands, the patterns of site distribution within the watershed region, and the limited disturbance within the study area, 106 Group recommends that a total of 49 acres (20 ha) of the study area possesses moderate to high potential for intact archaeological resources. These portions of the study area possessing moderate to high potential may require further consideration, such as additional archaeological work to identify previously unknown archaeological sites. Should such efforts be deemed warranted by the appropriate agency or agencies, then Graymont intends to conduct those investigations prior to project-related ground disturbance within those locations.

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1.0 INTRODUCTION

During July and August 2025, 106 Group conducted an archaeological literature review update and archaeological assessment for Graymont Land Transfer (Project) located in Rexton, Mackinac County, Michigan. The Project includes the activation of a land transfer of 120 acres (48.6 hectares [ha]) (Project area) within the Upper Peninsula region of Michigan to the ownership of Graymont LLC (Graymont) from Michigan Department of Natural Resources (MI DNR) land holdings. This study is being completed to comply with the terms of the Land Transfer Application between Graymont and MI DNR as set forth in Exhibit D Section 1.iv which states that Graymont must seek out "a report prepared by a professional archaeologist identifying any archaeologically significant sites located on or in close proximity to the Easement Area and measures to be taken for the protection and/or preservation of any such sites and the culturally significant artifacts located on any such sites"(MI DNR 2015 Exhibit D, Section 1.iii: 23;).

106 Group previously completed a cultural resources literature review on behalf of Graymont in 2014 for a project proposing the transfer of 10,000 acres within the Upper Peninsula from the ownership of the MI DNR to Graymont (Halvorsen and Bring 2014; see Appendix A). This 2025 study area consists of a portion of the 2014 study area.

The Project area is located in Section 24 of Township 44 N, Range 7 W in Mackinac County, Michigan. An appropriate study area for archaeology includes the entire 120-acre (48.6-hectare [ha]) parcel. The archaeological investigation included a literature review and desktop assessment for the study area. The literature review consisted of a review of documentation recording previously identified archaeological sites within the study area and within one mile (1.6 km) of the study area, and of surveys previously conducted within the study area (Figure 1). Historical maps and aerial photographs were also reviewed to aid in the archaeological investigation. The desktop assessment identified whether the study area has the potential to contain unknown intact archaeological resources that may be potentially eligible for listing in the National Register of Historic Places (NRHP).

The following report describes literature review and assessment methodology, results, and recommendations for the Graymont Land Transfer project. Appendix A contains a copy of the cultural resources review completed by 106 Group in 2014 and Appendix B contains a list of project personnel.

Graymont Land Transfer Archaeological Literature Review and Assessment

Rexton, Mackinac County, Michigan

Study Area

One-Mile Context Area

0 400 Meters

0 1,000 Feet

1:18,000

106GROUP

Project Location and Literature Review Results

Figure 1

Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed

Source: 106 Group; Graymont

Map Produced by 106 Group 7/23/2025

2.0 OBJECTIVES

The primary objective of the literature review was to identify whether there are any known archaeological sites within the study area and one-mile context area, and to identify whether any portion of the study area may have been previously surveyed. The objective of the archaeological assessment was to gauge whether the study area has the potential to contain any unknown intact archaeological resources that may be potentially eligible for listing in the NRHP. The results of the literature review and assessment have been completed to fulfill the terms of the 2014 Land Transfer Application, Exhibit D Section 1.iv, between Graymont LLC and MI DNR, requiring archaeological review (Halvorsen and Bring 2014). All work was conducted in accordance with Michigan State Historic Preservation Office (MI SHPO) guidance and *The Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation* [48 Federal Register 44716-44740] (Michigan SHPO 2023; National Park Service [NPS] 1983).

3.0 METHODS

3.1 Literature Review

A literature review, including research through the MI SHPO, was completed for the project in July 2025 to obtain information regarding previously identified archaeological sites and previously conducted surveys within the study area. Information was gathered on archaeological sites within a one-mile (1.6-km) radius of the study area in order to provide a broader context of the study area and to provide a basis by which to assess the general potential for archaeological sites to be present within the vicinity of the study area. Reports of previous archaeological investigations were also reviewed to determine if any portion of the study area had been previously surveyed and, therefore, would not require further investigation. In addition, multiple documentary sources were consulted, including United States Geological Survey (USGS) topographic quadrangles, historic plat maps and aerial photographs, in order to identify portions of the study area that possess a higher potential for containing intact significant archaeological sites.

3.2 Archaeological Assessment

The assessment was based on the results of the background research only, and no site visit was conducted.

Areas generally assessed as having a greater probability to contain intact archaeological sites included undisturbed portions of the study area that are:

- located within 150 m (492 ft.) of an existing or former water source, including wetlands, of 40 acres (16 ha) or greater in extent or within 150 m (492 ft.) of a former or existing perennial stream;
- located on topographically prominent landscape features;
- located within 100 m (328 ft.) of a previously reported site; or
- located within 100 m (328 ft.) of a former or existing historical structure or feature (such as a building foundation or cellar depression); and

Areas assessed as having a relatively low potential for containing intact archaeological resources included inundated areas, areas within former or existing wetlands, poorly drained areas, areas with slope of 20 degrees or greater, and areas of extensive disturbance.

4.0 RESULTS

4.1 Literature Review

4.1.1 Previous Studies

Research indicates that no previous archaeological surveys have been conducted within the study area. In 2014, 106 Group conducted a cultural resources literature review of approximately 10,000 acres, including the entire 120 acres currently under review, for Graymont LLC (Halvorsen and Bring 2014). The results of the literature review indicated that no archaeological sites or historic properties existed within the study area that had been previously identified or inventoried as eligible or potentially eligible for listing on the National Register of Historic Places (NRHP) (Halvorsen and Bring 2014).

4.1.2 Previously Identified Resources

No archaeological sites are present within the study area or within one mile of the study area based on site and previous survey records available through MI SHPO (Figure 1).

4.1.3 Environmental History Overview

The study area is located within the Menominee-Drummon Lakeshore ecological region of Michigan (United States Environmental Protection Agency 2010). The nearest sources of perennial water are the South Branch Hendrie River and Anguilm Creek, which are both approximately 3 kilometers (km) (1.88 miles) from the study area boundaries. The majority of the study area, according to available USGS topographical maps, is located within a perennial wetland or within 150 m (492 ft.) of a perennial wetland (USGS 2025). The surrounding landscape is primarily flat, with elevation changes of up to 6 m (20 ft.) in places (USGS 2025).

Soils within the study area are predominantly Markey-Spot-Finch complex, characterized as outwash plains with minimal slope (0 to 3 percent), and Amadon-Longrie sandy loams, which are characterized by rocky soils and minimal slope (1 to 6 percent) (University of California Davis 2025).

4.1.4 Historical Research

A general historical context of the entire 10,000-acre land transfer area, including historic land use, can be found within the 2014 report provided by 106 Group, included below as Appendix A. This historic summary includes the 120 acres currently under review. The results of this 2014 report state that “very little development and change” occurred within the study area aside from unpaved access roads, which is corroborated by available maps and aerial images dating from 1840 to 2016 (Bureau of Land Management General Land Office [BLM GLO] 1854; Nationwide Environmental Title Research [NETR] 1955, 1975, 1986, 1998, 2009, 2016; Halvorsen and Bring 2014:8).

An aerial image from 2016 shows the removal of tree canopy, indicating some ground-disturbing activities begun between 2014 and 2016 within portions of the study area (NETR 2014, 2016). Aerial images from 2018 show no changes to the study area as compared to 2016 (NETR 2018). A 2020 aerial image shows some additional forest clearing and roadwork to connect the cleared area north of the study

area to Trout Lake Road (NETR 2020). This roadwork appears to be just the widening of the previous access roads; no excavation of roadbeds or paving is apparent. Aerial images from 2020 to present show no further expansion of the cleared area (NETR 2020, 2022; Google 2025).

4.2 Archaeological Assessment

As indicated by the research conducted for this 2025 study, and the previously completed 2014 cultural resources review, there are no previously identified archaeological sites within the study area, or within one mile of the study area. There have been no previously conducted archaeological surveys within the study area. Portions of the study area are located within wetlands or within 150 m (492 ft.) of the perennial wetlands which make up the South Branch Hendrie River watershed. The study area is not located in proximity to a topographically prominent landscape feature.

Post-contact development within the study area has been recent, within the last 10 years, and concentrated in the north and east portions of the study area. This development has taken the form of the clearing of vegetation, as well as the development of an established unpaved access road bisecting the study area. There are no historically mapped structures or features within, or within 100 m (328 ft.) of, the study area.

Portions of the study area border wetland environments. Additionally, there has been minimal disturbance within the study area. Due to these indicators of moderate to high potential, and based on the patterns of site distribution within this watershed, portions of the study area within 150 m (492 ft.) of the wetland (but outside the wetland itself) are assessed as possessing moderate to high potential for intact archaeological resources (MI SHPO 2025). All other portions of the study area lack these indicators, and are therefore assessed as possessing low potential for intact archaeological resources (Figure 2).

Graymont Land Transfer Archaeological Literature Review and Assessment

Rexton, Mackinac County, Michigan



Study Area

Moderate to High Potential for Archaeological Resources

Low Potential for Archaeological Resources

0 100 Meters

0 300 Feet

1:6,000

106GROUP

Archaeological Assessment Results

Figure 2

Source: 106 Group; Graymont

Map Produced by 106 Group 8/4/2025

5.0 RECOMMENDATIONS

The results of the literature review indicated that no previously identified archaeological sites are within the study area, and no archaeological surveys have been previously conducted within the study area. Due to the proximity of portions of the study area to perennial wetlands, the patterns of site distribution within the watershed region, and the limited disturbance within the study area, 106 Group recommends that a total of 49 acres (20 ha) of the study area possesses moderate to high potential for intact archaeological resources. These portions of the study area possessing moderate to high potential may require further consideration, such as additional archaeological work to identify previously unknown archaeological sites. Should such efforts be deemed warranted by the appropriate agency or agencies, then Graymont intends to conduct those investigations prior to project-related ground disturbance within those locations.

REFERENCES CITED

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1854 Township No 44 N Range No 7 W Mer. Mich. Electronic document, https://glorecords.blm.gov/ConvertedImages/MI190440N0070W00001.PDF, accessed July 17, 2025.

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2015 *Land Transaction Agreement, Exhibit J: Archaeological Plan for Unanticipated Discovery of Cultural Resources or Human Remains During Operations*: 45-46. On file with Graymont (MI) LLC, Grand Rapids, Michigan.

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2023 Archaeological Standards: Technical Guidance for Archaeologists in the State of Michigan. Electronic document, https://www.miplace.org/historic-preservation/archaeology/, accessed July 17, 2025.

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Walling, H.F

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APPENDIX A: CULTURAL RESOURCES LITERATURE REVIEW FOR THE REXTON PROJECT MDNR LAND TRANSACTION (HALVORSEN AND BRING 2014)

106GROUP

CULTURAL RESOURCES LITERATURE REVIEW FOR THE REXTON PROJECT MDNR LAND TRANSACTION

Luce and Mackinac Counties, Michigan

December 2014



CULTURAL RESOURCES LITERATURE REVIEW FOR THE REXTON PROJECT MDNR LAND TRANSACTION

Luce and Mackinac Counties, Michigan

106 Group Project No. 1990-1655

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SUBMITTED BY:
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PRINCIPAL INVESTIGATOR:
Anne Ketz, MA, RPA

REPORT AUTHOR(S):
Peer Halvorsen, B.A.
Jennifer Bring, B.A.

December 2014

MANAGEMENT SUMMARY

During June, July, and November of 2014, The 106 Group Ltd. (106 Group) conducted a cultural resources literature review for Graymont (MI) LLC (Graymont), which has proposed limestone quarrying and mining operations in the Rexton, Michigan vicinity (the Rexton Project). Graymont is currently proposing to complete a land transaction with the Michigan Department of Natural Resources (MDNR) in order to conduct limestone quarrying and mining operations within Luce and Mackinac counties, Michigan. The information from this literature review will inform MDNR's review concerning the land transaction and aid in complying with any applicable state laws.

The MDNR land transaction area encompasses approximately 10,000 acres (4,047 hectares [ha]). To provide a broader cultural context and guide future planning, previously identified archaeological sites and architecture/history properties located in and within one mile of the land transaction area were also identified (Study Area). This cultural resources literature review is intended to provide a preliminary understanding of what previously recorded cultural resources may be within the Study Area, and is a tool with which to inform further archaeological and architecture/history surveys, if deemed necessary. The cultural resources literature review consisted of background research to identify any known archaeological sites or architecture/history properties within the Study Area, and to determine if any portions of the MDNR land transaction area have been previously surveyed. In addition, historical maps and aerial photographs were reviewed to provide a general historical context/land use history for the land transaction area.

Should the area subject to the land transaction with the MDNR for the Rexton Project be altered from the present proposal, the Study Area for archaeological and architecture/history resources should be adjusted, as appropriate.

The results of the literature review indicated no archaeological sites have been recorded (confirmed) or reported (not field checked), and no architecture/history properties have been previously inventoried within the Study Area. One archaeological survey has been conducted within the MDNR land transaction area, but no architecture/history surveys have been conducted within that area.

Research indicates that the first potential human presence within Michigan's Upper Peninsula might be as early as the Late Paleo-Indian/Early Archaic period (9,000 years before present [B.P.]). However, most precontact period sites within the region likely date from the Woodland Period. Precontact sites from this time in the Upper Peninsula are located along rivers, lakes, and wetlands in inland areas, which most likely consist of smaller camps during the winter and early spring seasons. Land use in the region during the contact/post-contact period may have started with the arrival of the French in the seventeenth century. Fur traders frequented the missions and forts in the Upper Peninsula, including the mission at St. Ignace located approximately 40 miles from the land transaction area. However, based on historical maps and aerial review, it appears that the land transaction area was primarily used for logging and rock quarrying, with very few homesteads.

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1.0 Introduction

During June, July, and November of 2014, The 106 Group Ltd. (106 Group) conducted a cultural resources literature review for Graymont (MI) LLC (Graymont), which has proposed limestone quarrying and mining operations in the Rexton, Michigan vicinity (the Rexton Project). Graymont is currently proposing to complete a land transaction with the Michigan Department of Natural Resources (MDNR) in order to conduct limestone mining operations within Luce and Mackinac counties, Michigan. The information from this literature review will inform MDNR's review concerning the land transaction and aid in complying with applicable state laws. The MDNR land transaction area is located in Luce and Mackinac counties, Michigan (Figure 1, Table 1).

Table 1. Legal Description of Sections Crossed by the Rexton Project MDNR Land Transaction Area

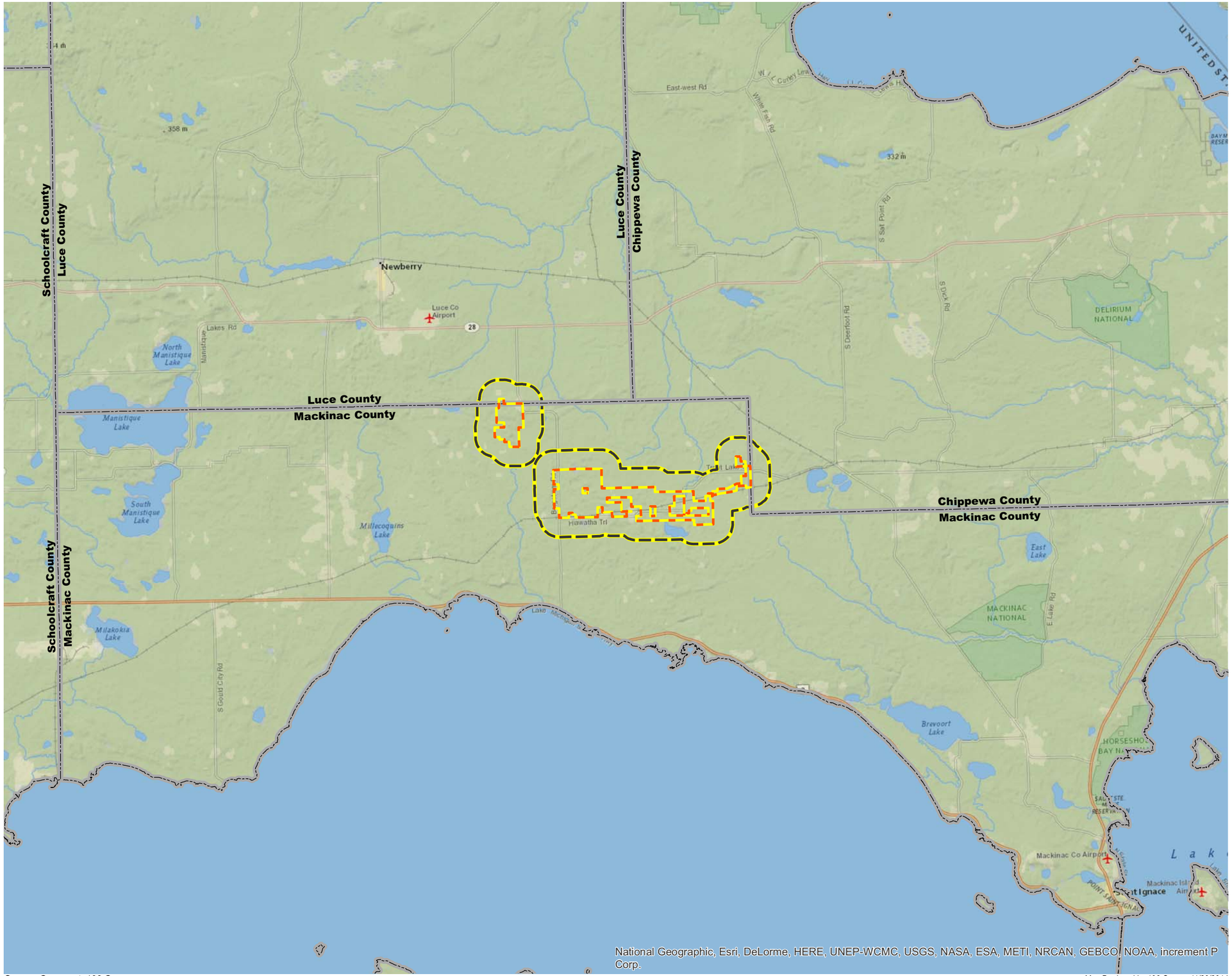
County	Township	Range	Sections
Luce	45N	9W	36
Mackinac	43N	7W	3, 4, 5, 6
	44N	7W	24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34
		8W	6, 7, 20, 21, 22, 23, 25, 26, 27, 28, 29, 32, 33, 34, 35, 36
		9W	1, 2, 11, 12, 13

The MDNR land transaction area encompasses approximately 10,000 acres (4,047 hectares [ha]). To provide a broader cultural context and guide future planning, previously identified archaeological sites and architecture/history properties located in and within one mile of the land transaction area were also identified (Study Area). This cultural resources literature review is intended to provide a preliminary understanding of what previously recorded cultural resources may be within the Study Area, and is a tool with which to inform further archaeological and architecture/history surveys, if deemed necessary. The cultural resources literature review consisted of background research to identify any known archaeological sites or architecture/history properties within the Study Area, as well as determine if any portions of the MDNR land transaction area have been previously surveyed. In addition, historical maps and aerial photographs were reviewed to provide a general historical context/land use history for the land transaction area.

Should the area subject to the land transaction with the MDNR for the Rexton Project be altered from the present proposal, the Study Area for archaeological and architecture/history resources should be adjusted, as appropriate.

Rexton Project MDNR Land Transaction Area Cultural Resources Literature Review

Luce and Mackinac Counties, Michigan



MDNR Land Transaction Area

Study Area

0 5,900 Meters

0 14,000 Feet

1:320,000

106GROUP

Project Location

Figure 1

Source: Graymont; 106 Group

Map Produced by 106 Group 11/20/2014

2.0 Methods

2.1 Background Research

On June 24th and 25th , 2014, background research was conducted using the Michigan State Historic Preservation Office (SHPO) and Office of the State Archaeologist (OSA) site files for information on previously identified archaeological sites and architecture/history properties, and on cultural resources surveys previously conducted within the MDNR land transaction area. In addition, to provide a broader context for the area, previously identified archaeology sites and previously inventoried architectural properties located within one mile (1.6 kilometers [km]) of the land transaction area (Study Area) were also reviewed (see Figure 1). In addition, historical maps and plat maps, historical aerial photographs, and historical and archaeological literature were reviewed to provide an understanding of the historical context and past land use for the land transaction area. No site visit was undertaken.

2.2 Study Area

To provide a broader cultural context for the MDNR land transaction area and guide future planning, the Study Area encompasses the land transaction area and a one-mile radius around it (see Figure 1).

3.0 Literature Review Results

3.1 Archaeology

3.1.1 PREVIOUS STUDIES

Research indicated that no archaeological surveys have previously been conducted within the land transaction area (Figure 2).

3.1.2 PREVIOUSLY RECORDED ARCHAEOLOGICAL SITES

No archaeological sites have been recorded (confirmed) and no sites have been reported (not field checked) within the Study Area.

3.2 Architecture/History

3.2.1 PREVIOUS STUDIES

Research indicated that no architecture/history surveys have been conducted within the land transaction area.

3.2.2 PREVIOUSLY RECORDED ARCHITECTURE/HISTORY PROPERTIES

No properties have been previously inventoried within the Study Area.

Rexton Project MDNR Land Transaction Area Cultural Resources Literature Review

Luce and Mackinac Counties, Michigan

MDNR Land Transaction Area

Study Area

0 1,800 Meters

0 4,900 Feet

1:100,000

106GROUP

Literature Review Results

Figure 2

Source: Graymont; 106 Group

Copyright:© 2013 National Geographic Society, i-cubed

Map Produced by 106 Group 11/26/2014

4.0 Historical Context and Land Use

4.1 Historical Context of Michigan's Upper Peninsula

4.1.1 PRECONTACT PERIOD

Portions of the Upper Peninsula of Michigan remained glaciated longer than the lower part of the state (Larsen 1999). As such, the earliest known site in Michigan's Upper Peninsula is the Gorto Site in Marquette County, which is situated in the Deer Lake basin approximately 100 miles to the northwest of the current land transaction area. The Gorto Site is thought to be from the Late Paleo-Indian/Early Archaic period and consists of small, but dense concentrations of Eden-Scottsbluff bifaces dating to as recently as 9,000 years before present (B.P.) (Shott 1999). Detailed studies on land use during this time are lacking, but what is known is that people seemed to have subsisted primarily on large game, small game, plant products, and fish. Reliance on fish also seems to have increased during the Middle to Late Archaic periods (Shott 1999).

Relatively few archaeological sites have been identified from the Middle Archaic period in Michigan. It has been argued that water levels were lower during this time period such that current shoreline was in actuality an interior region. Site densities are generally lower in interior regions during the precontact period and, therefore, it is likely that the largest, most dense sites from the Middle Archaic period would be located underneath the water of the Great Lakes (Robertson et al. 1999). There are more identified sites from the Late Archaic period (5,000 B.P to 2,500 B.P.) in the Upper Peninsula than from earlier periods. This is likely because water levels during this time were more likely to be similar to current water levels. Subsistence in the Archaic period is marked by a greater emphasis on diverse sources of food and a shift away from large game hunting, which characterized the Paleo-Indian period. The Archaic Period is also notable for increased mining, trade, and use of native copper from the Upper Peninsula (Robertson et al. 1999).

The Woodland Period in Michigan is characterized by the creation of ceramics, domesticated plant use, and the appearance of various earthworks or "mounds" (Garland and Beld 1999; Brose and Hambacher 1999; Martin 1999). In the Upper Peninsula, ceramic technology was developed at a later stage (circa 1 Common Era [CE]) than further south and the Late Archaic adaptation continues longer in this region (Robertson et al. 1999). There is also evidence of Upper Mississippian cultures in the Upper Peninsula dating between 1200 – 1400 CE. The evidence is scant, but is primarily found in the presence of shell-tempered pottery. However, few major Upper Mississippian sites have been found in the Upper Peninsula. Therefore, it is likely that northern Michigan represents a region of cultural contact between Upper Mississippian cultures and Woodland cultures. Moreover, the environment of the Upper Peninsula likely made large-scale agriculture, which is characteristic of Mississippian cultures, impossible (Halsey 1999).

The Hiawatha National Forest has created a model for finding precontact period sites (particularly Woodland Period) in the Upper Peninsula, which provides a starting point for predicting the type and

location of late precontact period sites within the region. This model has generally identified that late prehistoric sites will overall include:

- large multi-family summer and fall season fishing villages near the Great Lakes; and
- smaller winter and early spring sites in the inland areas (usually along rivers, interior lakes and the edges of wetlands) (Franzen, 1986).

4.1.2 CONTACT/POST-CONTACT PERIOD

The Contact/Post-Contact Period marks the arrival of Europeans to the Upper Peninsula and the archaeological record not only contains the activities of Native peoples during this time, but the activities of these immigrants as well. This period begins with the arrival of French fur traders, explorers, and priests in the seventeenth century and is marked by the establishment of various missions, forts, and villages alongside Native American villages, such as the mission at St. Ignace and the adjacent Fort de Buade located approximately 40 miles southeast of the land transaction area (Heldman 1999). The French and Indian War (1754-1761 CE) effectively ended the French influence in this region. This period is followed by a relatively short period of British involvement in Michigan until the Americans took control of Detroit in 1794 (Piling and Anderson 1999).

Michigan's first state geologist, Douglass Houghton, brought national attention to the state's copper deposits in 1841. The copper mining industry took off in the 1840s with the first successful mines opening near Eagle River in Keweenaw County and Rockland in Ontonagon County. Copper mining in Michigan declined in the twentieth century as competition from mines in Montana and Arizona, as well as workers strikes contributed to a decrease in Michigan's share of the national total. The last operating copper mine in Michigan closed in 1997 (Michigan Department of Natural Resources 2014a). Keweenaw and Ontonagon Counties are located approximately 180 miles to the northwest of the land transaction area.

Iron Mining also played a significant role in the Upper Peninsula with some of the first specimens of magnetic ore discovered in 1844. By 1890, Michigan's iron mines produced 80 percent of the nation's ore but Michigan lost its lead to Minnesota's more easily mined Mesabi Range in 1900. However, production increased during World War II with new methods of processing low-grade ore in open pit mines, which continues today (Michigan Department of Natural Resources 2014b). As with the copper mines in the Upper Peninsula, the iron ranges are located to the west of the current land transaction area, the nearest being the Marquette Iron Range, which is approximately 100 miles northwest.

Large-scale alteration of the landscape in the Upper Peninsula did not start until the logging industry spread to the region in the 1870's and 1880's, when the industry's focus shifted away from the valleys of the Saginaw and the Muskegon (Franzen 1999; Karamanski 1984). The logging industry declined sharply after 1900 as the massive deforestation and a series of devastating wildfires diminished yields. However, policies enacted in the early twentieth century stabilized the forest products industry in the local economy (Karamanski 1984).

4.2 Historical Land Use

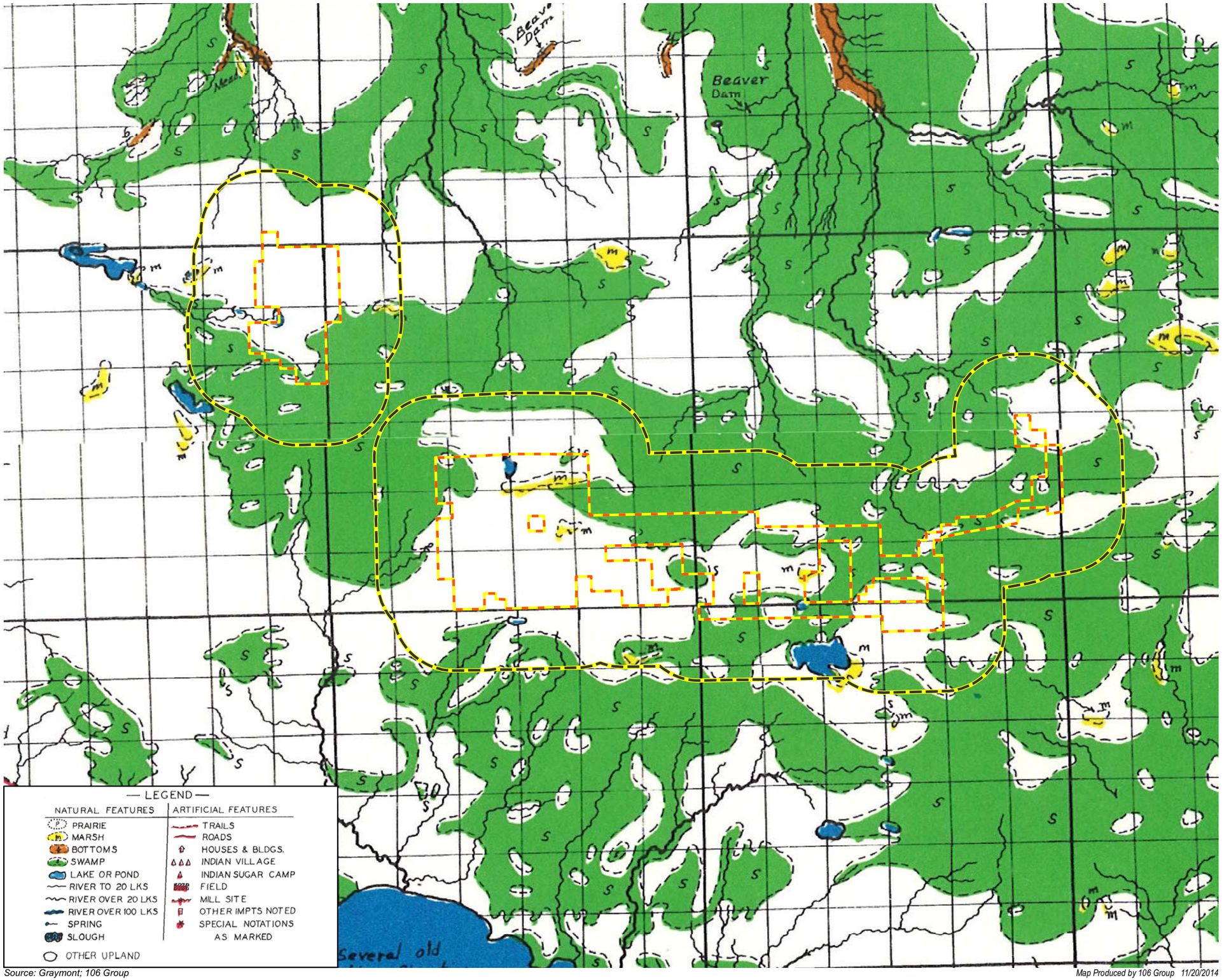
The original General Land Office plat maps for Garfield, Hendricks, and Hudson Townships in Mackinac County and Pentland Township in Luce County date from 1840-1845. They do not indicate any homesteads or any other structures so it is likely that European settlement in the land transaction area did not occur until after 1845. Mackinac County, originally named Michilimackinac, was laid out in 1818, but was later organized as Mackinac County in 1849 (Clarke Historical Library 2014a). Luce County was organized in 1887 (Clarke Historical Library 2014b). Review of Trygg (1964) historical maps (Figure 3) does not indicate any historical features within the current land transaction area.

Review of Hinsdale's Archaeological Atlas of Michigan (1931) shows four potential historical features within or near the Study Area. Two are the Hendricks and Fiborn Quarries, and the other two are the unincorporated communities of Rexton and Garnet. The Fiborn Quarry was a limestone mine that operated from 1905 to 1936. The quarry was later purchased by the Michigan Karst Conservancy in 1987, which established the Fiborn Karst Preserve and manages it as a natural area open to the public (Michigan Karst Conservancy 2012). The Hendricks Quarry was also a limestone mine that opened circa 1915. Historically, limestone was shipped to the Union Carbide Company plant in Sault Ste. Marie, Michigan in order to produce calcium carbide (Johnson and Sorensen 1978). According to information provided by Graymont, which currently has a limestone mineral lease with the MDNR for the Hendricks Quarry, currently the quarry is active with relatively small volumes of stone extracted in recent years (personal communication with Graymont, November 18, 2014). Current satellite imagery indicates that there are approximately two to three buildings on the site. The community of Garnet was originally called Welch in 1891 and was a stop on the Minneapolis St. Paul and Sault Ste. Marie Railway. It was later renamed to Garnet in 1904 (Romig 1986). The community of Rexton was the headquarters for the D.N. McLeod Lumber Company and a post office opened in the town in 1901 (Romig 1986).

Review of historical aerial photographs obtained from Michigan State University and dating from 1939, 1953, 1983, and 1993 shows very little development and change within the land transaction area as compared to current satellite imagery. The land transaction area currently consists of mostly forest and wetland, along with a few homesteads along roadways, as well as what appears to be four to five limestone quarries in varying stages of operation. Based on the historical context and known trends in the logging industry, it is likely that most, if not all, of the project area was previously logged in the late nineteenth century. Land use trends in the logging industry shifted during the early twentieth century towards less intensive logging and sustainable forest management. Current satellite imagery indicates that approximately 30 percent of the land transaction area appears to be maintained as tree farms for the lumber industry, as indicated by visible rows of standing pine trees. Review of the historical aerial photographs indicates that these areas have consistently been maintained as tree farms since 1939 at the earliest. Most of these farms appear to have been cleared in the 1939 photographs and become visible as standing tree farms in the photographs from 1983, which persist today as indicated by current satellite imagery.

Rexton Project MDNR Land Transaction Area Cultural Resources Literature Review

Luce and Mackinac Counties, Michigan



MDNR Land Transaction Area

Study Area

0 1,800 Meters

0 4,900 Feet

1:100,000

106GROUP

Trygg Historical Map

Figure 3

Source: Graymont; 106 Group

Map Produced by 106 Group 11/20/2014

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APPENDIX A: PROJECT PERSONNEL

LIST OF PERSONNEL

Project Manager	Jennifer Bring, B.A.
Principal Investigator	Anne Ketz, M.A., RPA
Researcher	Peer Halvorsen, B.A.
Graphics and GIS	Nathan Moe, B.A.

APPENDIX B: PROJECT PERSONNEL

LIST OF PERSONNEL

Project Manager	Kat Keljik, M.A.
Principal Investigator	Madeleine Bray, M.A., RPA
Researcher and Report Author	Claire Nelson, M.A., RPA
Graphics and GIS	Josh Peterson, B.S.

Exhibit E
Tract C Designation Notice
Land Transaction Agreement
Graymont Reclamation Plan

Graymont (MI) LLC
Mackinac County, Michigan

June 2025

GRAYMONT

Introduction

The purpose of this document is to present the "Reclamation Plan" for the limestone quarry defined as Tract C Operating Area for the Designation Notice. Tract C Operating Area is located adjacent to and partially contained within the existing Eastern Quarry as defined in the Land Transaction Agreement.

Tract C Operating Area is located on property owned by Graymont located in the townships of Hendricks, in Mackinac County, Michigan. Tract C Operating Area is comprised of approximately 160 acres; however, only 75% of the 160 acres will be used for the, quarry, lime processing plant, lime storage, and shipping facilities as detailed in Exhibit A.

Reclamation and Hydrologic Maintenance

All quarry infrastructure assembled and used by Graymont will be removed after permanent completion of quarrying and processing activities within Tract C Operating Area. The plant area equipment and associated structures are illustrated on Figure E-1. Safety/sight berms will be employed throughout the quarrying process as sections of the quarry advance to restrict public access to the active quarry areas for public safety. Safety/sight berms, where appropriate, will be left in place and allowed to naturally and passively re-vegetate.

Graymont will place an average of at least 12 inches of overburden or rock not suitable for processing or sale to serve as a growth medium. Overburden placement/reclamation will occur both during active quarrying operations and as a final step once all limestone is extracted. The placement of rock and overburden will be designed to minimize erosion and slope instability by utilizing appropriate slopes and sufficiently sized materials. Other Best Management Practices (BMPs) designed to reduce erosion may be applied to facilitate the establishment of natural vegetation.

Measures will be taken to reduce the introduction of invasive plant species including avoiding the use of imported fill. In addition, mining equipment will be required to be inspected and cleaned prior to entry onto the site to minimize introduction of invasive plant species.

Hydrologic conditions are not expected to materially change during the operation or post-quarrying period due to the relative upland position of Tract C Operating Area, the relatively shallow depth of the quarry, the regional recharge to the adjacent till from precipitation, and the hydrologic characteristics adjacent to the quarry operation. Surface hydrologic characteristics are expected to return approximate pre-quarrying characteristics and functions. The quarry pit will return to a man-made lake setting. The anticipated 95-acre quarry will be filled with meteoritic water and groundwater to create an in-land lake to an elevation approximately equivalent to current water table levels.

Overburden Management

The overburden may be stockpiled on site. Overburden will also be deposited on those areas that are no longer required for processing, transportation, limestone stockpiling, or as start points of future expansion. Fines and off specification limestone may be mixed with stripped overburden and used as backfill or sight/safety/runoff berm construction. Silt fencing or other runoff control BMPs will be installed as necessary to minimize erosion.

Phase 1: The initial quarrying phase will focus on the expansion of the quarry to the south and west.

Phase 2: The next quarrying phase will proceed west and south to establish a permanet ramp for access to the quarry. During this phase, Tract C Operating Area will be first to be impacted by the quarry expansion.

Phase 3: Having reached the ultimate depth of the quarry, mining will proceed northwest for approximately 345 feet and establish a full width of the quarry for this phase of mining.

Phase 4: Mining will enter the northwest portion of Tract C Operating Area and continue approximately 790 feet. During the latter portion of this phase, all mining will occur as Tract C Operating Area.

Phase 5: Similar to Phase 4, mining will turn west for approximately 690 feet. During this phase, mining will occur on both inside and outside of Tract C Operating Area. At the conclusion of Phase 5, there will be no further mining within Tract C.

Final Site Topography and Water Features

The reclaimed surface configuration at completion of Tract C Operating Area quarry activities is expected to be graded and contoured to meet the surrounding topography using the overburden stockpiles. Figure E-2 depicts the post reclamation site view.

Surface Water

Tract C Operating Area is situated in the upper portions of the drainage basin in a very flat topographical setting, so changes in watershed morphology are not expected. The proposed quarry in Tract C Operating Area does not come into contact with any wetlands or shallow lakes/ponds. The nearest surface water feature is a National Wetlands Inventory (NWI) mapped freshwater emergent wetland is discussed in Exhibit C. Site-specific wetland delineation studies conducted in 2014.- Downstream channels and surface water basins are not expected to change as the surface quarry area does not materially influence the contributing drainage basins. The nearest lake to the mine boundary is over 1,750 feet to the north and 4,395 feet from the Tract C Operating Area (see Figure E-3).

Groundwater

As previously described, the local groundwater table is expected to seep into the quarry within Tract C Operating Area. The groundwater table will help fill the quarry pit to create a man-made inland lake upon completion. The post-quarrying topography will reflect an inland lake of approximately 95 acres with the pit floor being approximately at 810 feet above mean sea level (AMSL). The anticipated elevation of the lake will be between 850 and 852 feet AMSL.

Toxic and Hazardous Materials Management

The target limestone and adjacent bedrock does not contain acid-forming materials or metals that can be released to the environment once exposed to oxidation. Conversely, limestone and dolomite products are typically used to purify drinking water, treat wastewater, and neutralize acidic conditions. During quarrying operations, only minor, localized spills of fuels or lubricants would be categorized as potential contaminants. Fuels and lubricants will be handled and managed as per industry standards, BMPs, and established regulatory requirements. If a spill were to occur, the spills will be minimized by the impermeable nature of the bedrock and the natural containment offered by the pit. Blasting will be designed for complete ignition of all explosives.

Reclamation Timetable

All Eastern Quarry Tract C Operating Area infrastructure and equipment will be removed after completion of all quarrying, processing, and transportation activities. Graymont will provide the State of Michigan “Confirmation” of the boundaries and acreage for “Reclamation Area(s) within Tract C Operating Area“ in which Graymont has completed all quarrying, processing, and transportation activities within an operating area. Reclamation will be initiated within two years of Confirmation of a Reclamation Area. Reclamation of the Reclamation Area will be completed within four years of the corresponding Confirmation Notice. All reclamation designation definitions and time frames are set forth in the Land Transaction Agreement.

Attachment:

Figures

Figures

Water Storage
Quarry
Diesel AST
Gasoline AST
Diesel AST
Stockpile
Stone Dump & Crusher
Plant
Paved Plant Roads
Stockpile
Settling Basin
Vertical Kilns
Parking
Conveyors
Office/Shop/Maintenance
Electrical Substation
bing

NOTES:
1. Imagery basemap from Esri.
2. Boundary data from Graymont.
3. Coordinate system is NAD 1983, Michigan State Plane North, units in international feet.

LEGEND

- Conveyor
- Water Pipeline
- Tract C - Operating Area
- Preserved Tract C Area
- Graymont Property
- AST
- Asphalt
- Basin/Pond
- Building
- Quarry Area
- Stockpile
- Substation

GRAYMONT

N

Foth

Foth Infrastructure & Environment, LLC					
REVISED	DATE	BY	DESCRIPTION		
PREPARED BY:	DAT			DATE:	JUL.'25
REVIEWED BY:	NMG1			DATE:	JUL.'25
APPROVED BY:	NMG1			DATE:	JUL.'25

GRAYMONT (MI) LLC

FIGURE E-1

SITE LAYOUT
TRACT C - DESIGNATED NOTICE - EXHIBIT E
MACKINAC COUNTY, MI

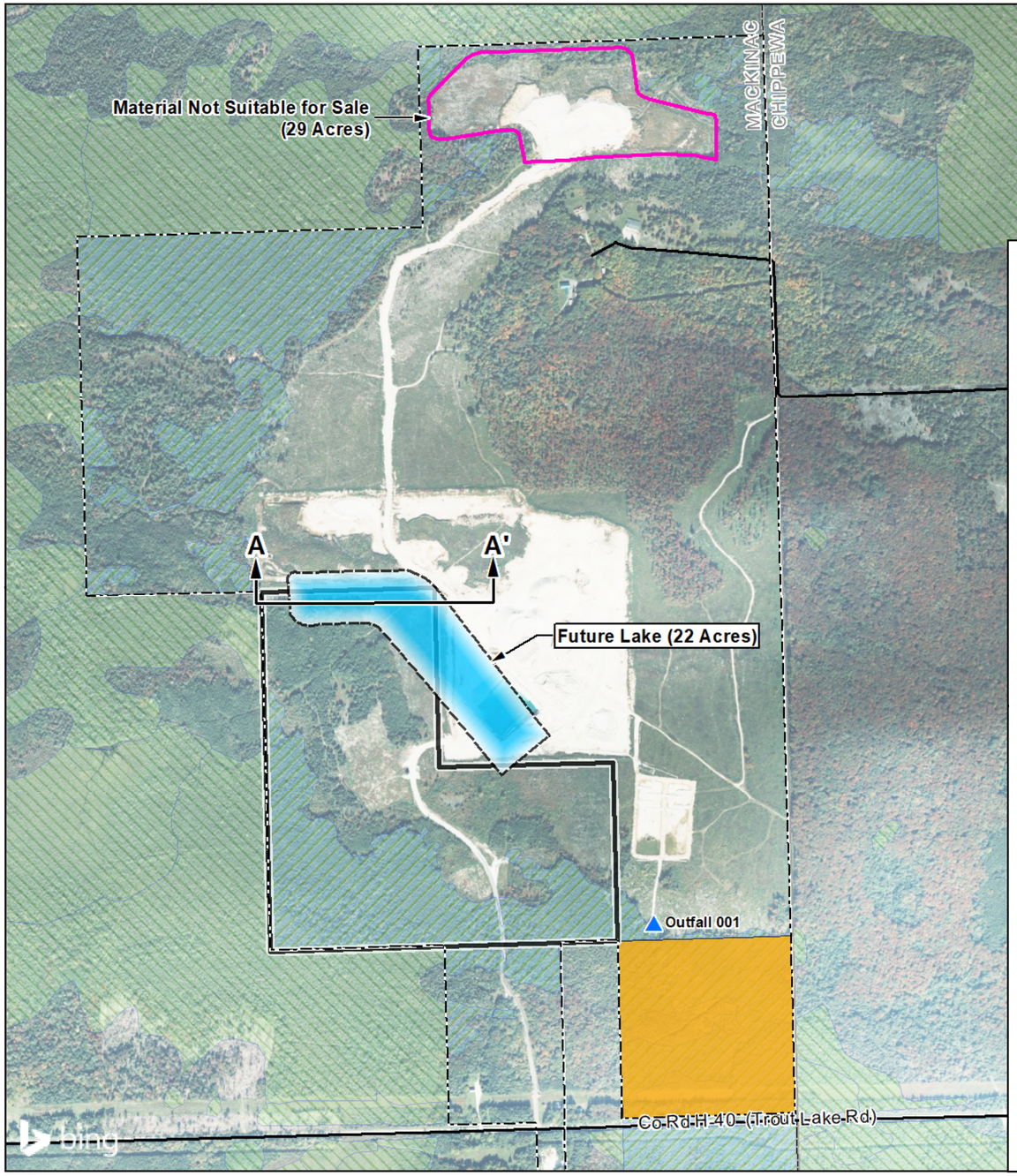
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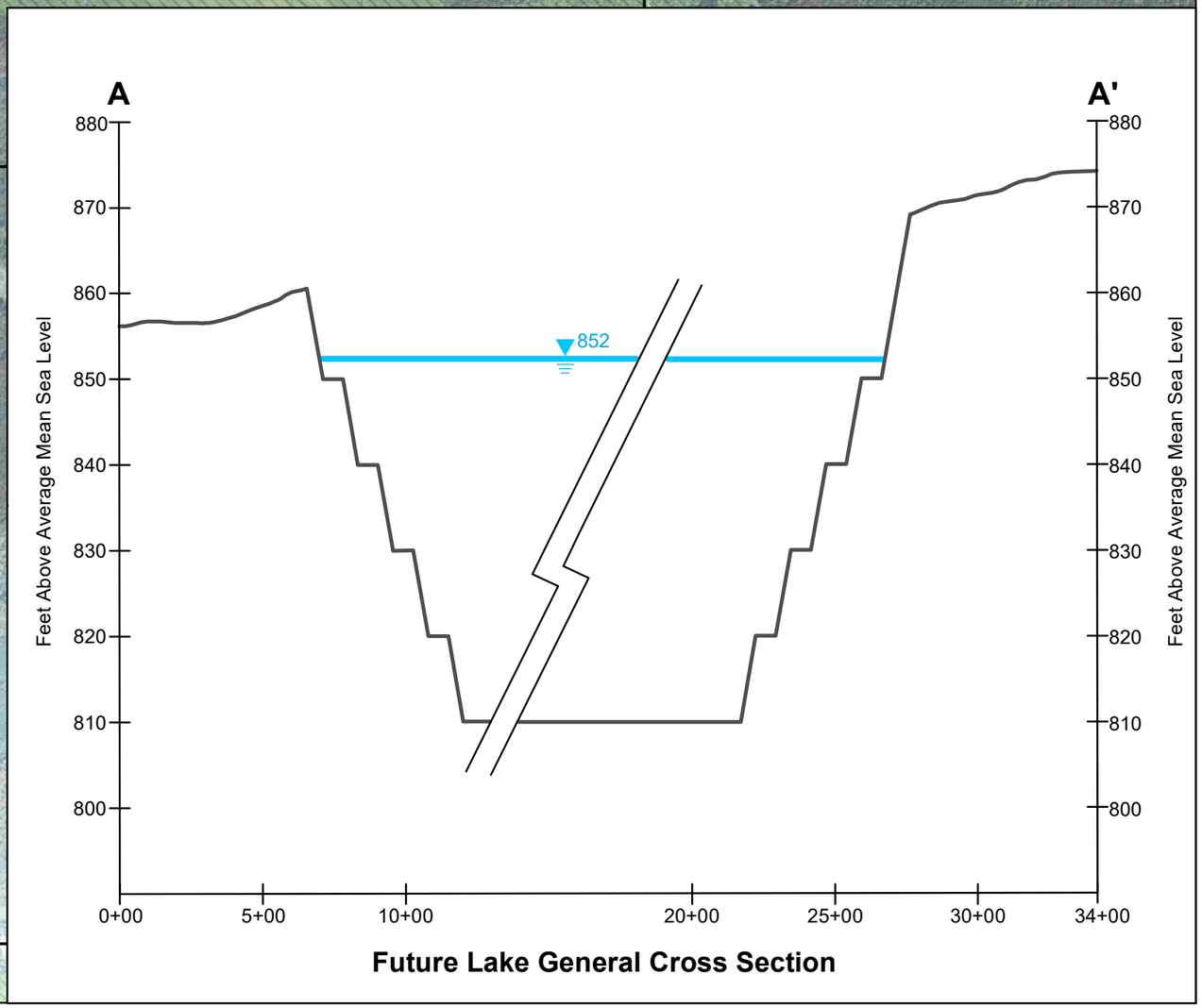
Date: JULY 2025

Drafted by: DAT

Project No: 14W777

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure E-1 - Site Layout Map.mxd Date: 7/17/2025





Future Lake General Cross Section

NOTES:
1. Imagery basemap from Esri.
2. Boundary data from Graymont.
3. Coordinate system is NAD 1983, Michigan State Plane North, units in international feet.
4. Wetland data outside project area from U.S. Fish and Wildlife Service.
5. Delineated wetland data from ASTi.

LEGEND

- Outfall Location
- Road
- Future Lake
- Material Not Suitable for Sale
- Tract C - Operating Area
- Preserved Tract C Area
- Graymont Property
- Delineated Wetland
- NWI Wetland

GRAYMONT

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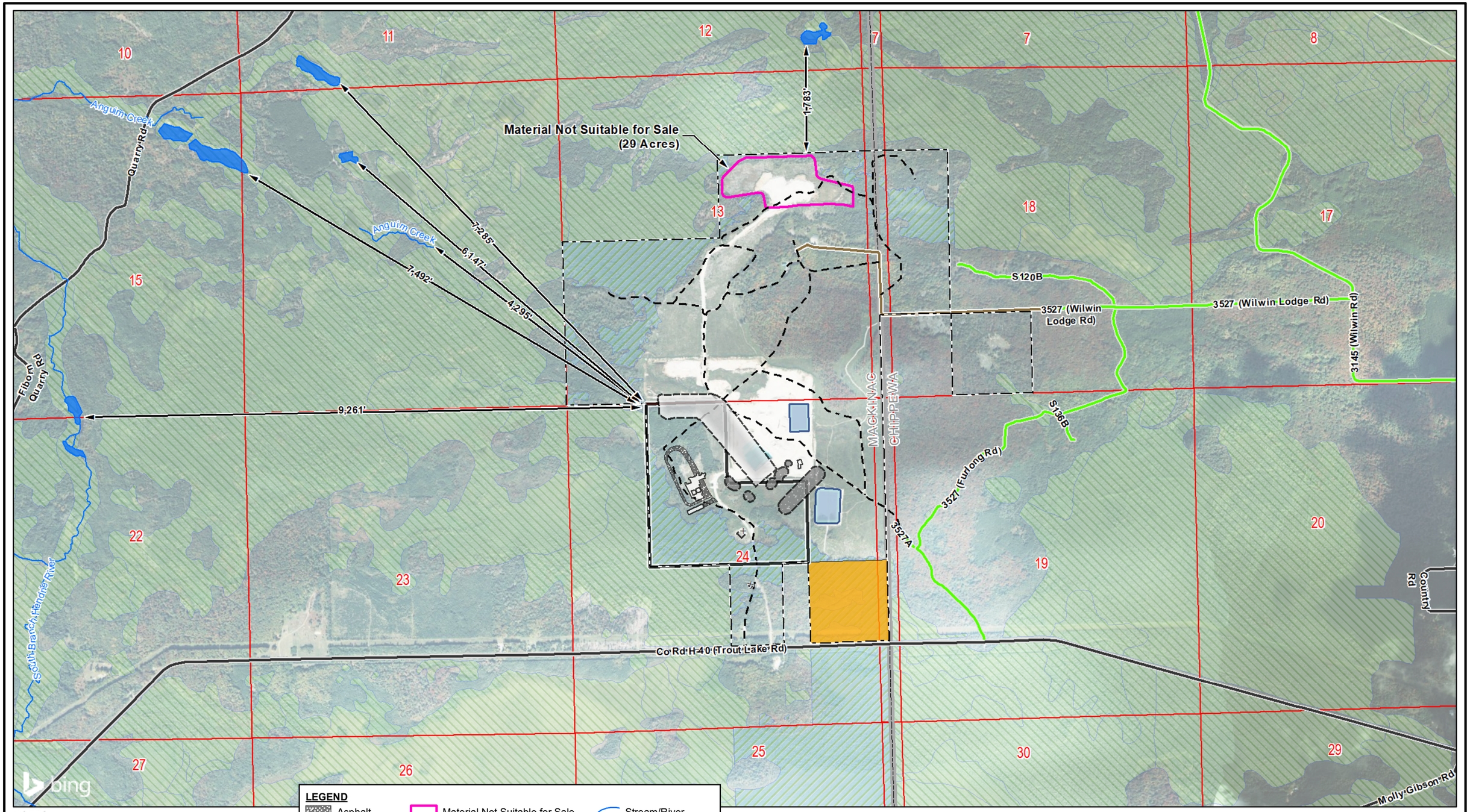
Foth Infrastructure & Environment, LLC					
REVISED	DATE	BY	DESCRIPTION		
PREPARED BY:	BJW1			DATE:	JUL.'25
REVIEWED BY:	NMG1			DATE:	JUL.'25
APPROVED BY:	NMG1			DATE:	JUL.'25

GRAYMONT (MI) LLC

FIGURE E-2
POST RECLAMATION SITE PLAN
GRAYMONT EASTERN QUARRY
TRACT C DESIGNATION NOTICE - EXHIBIT E
MACKINAC COUNTY, MI

Scale: 0 500 1,000 Feet
Date: JULY 2025
Drafted by: BJW1
Project No: 14W777

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure E-2 - Post Reclamation Site Plan.mxd Date: 7/17/2025



NOTES:
1. Imagery basemap from Esri.
2. Boundary data from Graymont.
3. Coordinate system is NAD 1983, Michigan State Plane North, units in international feet.
4. Wetland data outside project area from U.S. Fish and Wildlife Service.
5. Delineated Wetland data from ASTi.

LEGEND

- Asphalt
- Basin/Pond
- Building
- Quarry Area
- Stockpile
- Substation
- Material Not Suitable for Sale
- Public Road
- USFS Road
- Private Road
- Two Track
- Tract C - Operating Area
- Preserved Tract C Area
- Graymont Property
- Stream/River
- Lake/Pond
- Delineated Wetland
- NWI Wetland
- Section Line
- County Boundary

GRAYMONT

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Foth

Foth Infrastructure & Environment, LLC

REVISED	DATE	BY	DESCRIPTION

PREPARED BY:	BJW1	DATE:	JUL.'25
REVIEWED BY:	NMG1	DATE:	JUL.'25
APPROVED BY:	NMG1	DATE:	JUL.'25

GRAYMONT (MI) LLC

FIGURE 1-5

ADJACENT SURFACE WATER FEATURES
TRACT C - DESIGNATED NOTICE - EXHIBIT B
MACKINAC COUNTY, MI

Scale: 0 750 1,500 Feet

Date: JULY 2025

Drafted by: BJW1

Project No: 14W777

Path: X:\GB\IE\2014\14W777-00\GIS\mxd\Eastern Quarry - Tract C June 2025\Figure E-3 - Adjacent Surface Water Features.mxd Date: 7/17/2025

Exhibit F
Tract C Designation Notice
Land Transaction Agreement
Graymont Financial Assurance Assessment

Graymont (MI) LLC
Mackinac County, Michigan

June 2025

GRAYMONT

Graymont Transportation and Utility Corridor – Wetlands

This Exhibit presents an estimate of the cost ("Reclamation Cost") that the State of Michigan would incur to complete reclamation as prescribed in the Land Transaction Agreement (LTA) and in accordance with the Reclamation Plan (Exhibit E) for Tract C Operating Area at the point in the quarrying sequence at which those costs would be the highest. The Graymont Eastern Quarry is located near Rexton, Michigan and is on property owned and operated by Graymont (MI) LLC (Graymont). Utilizing standardized reclamation cost estimate templates and applicable references, the reclamation costs have been calculated and result in a bond requirement of $5,193,000 as presented in Table 1.0

The evaluation and calculation of reclamation liabilities associated with Tract C Operating Area of the Eastern Quarry presented herein are based on the current configuration and proposed advances of Tract C Operating Area as shown in Exhibit B.

Reclamation costs were calculated based on the completion of phase 5 to complete reclamation activities as described in the Reclamation Plan (Exhibit E).

The following subsections summarize the reclamation activities and associated costs as required by the LTA and typically required for a third party Reclamation Plan financial assurance calculation.

Eastern Quarry Reclamation Model Plan

The Eastern Quarry Tract C operation parcel is approximately 120 acres in total, of which approximately 29.5 acres will be reclaimed. The quarry pit will become a man-made inland lake upon post mining operations.

The quarrying and associated reclamation will be conducted as described in the Mine Plan (Exhibit B) and the Reclamation Plan generally consisting of:

- Phase 1: The initial quarrying phase will focus on the expansion of the quarry to the south and west.
- Phase 2: The quarry will continue south and west to establish a permanent ramp for access into the quarry. During this phase, Tract C Operating Area will first be impacted.
- Phase 3: Having reached the ultimate depth of the quarry, the mining will proceed northwest for approximately 345 feet and establish the full width of the quarry for this phase of mining. The quarry will consist of multiple benches. All benches may be active at any time.
- Phase 4: Mining will enter the northwest portion of and continue approximately 790 feet.
- Phase 5: Mining will turn to the west for approximately 690 feet. During this phase, mining will occur both inside and outside of the Tract C Operating Area. At the conclusion of Phase 5; there will be no further mining in Tract C.

The Reclamation Plan for Tract C Operating Area 1 is presented in Exhibit E and generally consists of:

- All equipment and infrastructure (mobile and structural) will be removed at completion of quarrying activities.
- An average minimum of 12 inches of overburden will be laid over disturbed Tract C Operating Areas (excluding the quarry pit).
- Sight / safety berms along Tract C Operating Area edges will be left in place for to discourage access and promote public safety.
- Vegetation of backfilled overburden and sight / safety berms will be allowed to occur naturally.

Costs have been calculated based on the completion of Phase 5.

Cost Estimate Spreadsheets

The cost estimate worksheets are presented in a standardized format as outlined in 49 CFR 3601 used to calculate the financial assurance required for third party reclamation on public lands associated with mineral extraction.

Standardized direct cost estimate worksheets have been used to develop the cost of demolition, earthwork, and other support activities associated with site reclamation as required in the LTA. Table 1-0 summarize the direct costs for reclamation and then applies various indirect cost and escalation factors to determine the surety bond (or other approved financial assurance instrument) amount.

Demolition and Miscellaneous Costs

Tables 2.0 - Summary of Demolition and Miscellaneous Costs, present the cost for demolition of the various infrastructure located in the Tract C Operating Area. Tables 2.1 through 2.8 presents the detailed demolition for each area. The production rates were determined using the Caterpillar Performance Handbook Edition 47. The pricing for the labor / operator rates was determined using Michigan's 2024 Prevailing Wage Rate Schedule. Pricing for demolition and equipment used the 2024 RS Means Estimator.

The cost for demolition and miscellaneous activities is approximately $8,500.

Earth Work Costs

An Earth Work Spreadsheet was completed for reclamation cost post Phase 5. The Earth Work Spreadsheet follows the scope of work as described above and itemizes the earthwork associated with placing and grading overburden as generally outlined above.

Tables 3.1 Summary of Earth Work present the reclamation cost build-up for each reclamation phase. The production rates were determined using the Caterpillar Performance Handbook Edition 47. The pricing for the labor / operator rates was

determined using Michigan's 2024 Prevailing Wage Rate Schedule. Pricing for demolition and equipment used the 2024 RS Means Estimator.

Total Reclamation Costs

The total cost using the build-up of the Demolition / Miscellaneous and Earth Work Spreadsheets in 2025 dollars is totaled for post- Phase 5 work. After the application of 5 years of escalation, the Bond Amount (rounded to the nearest one thousand dollars) was plotted for each reclamation phase, the reclamation scenario occurs after Tract C Operating Area.

Attachments:

Table 1.0 Bond Calculation – Phase 5
Table 2.0 Summary of Demolition Cost
Table 2.1 Office & Warehouse Demolition Cost
Table 2.2 Plant & Rail Loadout Areas Demolition Cost
Table 2.3 Plant Kilns Demolition Cost
Table 2.4 Paved Roads and Parking Lot Demolition Cost
Table 2.5 Gasoline Fuel Tank Demolition Cost
Table 2.6 Diesel Fuel Tank Demolition Cost
Table 2.7 Conveyor Bent Lines Demolition Cost
Table 2.8 Powerlines and Substation Demolition Cost
Table 3.0 Summary of Earth Work Cost

Attachments

Table 1.0

Financial Assurance Calculation

2025 Reclaimation Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, LLC.
July 2025

Reference	Cost Element	Cost	Factor
1	**Direct Costs**		
2	Subtotal Backfilling and Grading	$169,889.00	
3	Subtotal of Demolition and Miscellaneous Cost	$3,669,063.00	
5	Subtotal Direct Costs	$3,838,952.00	
6	**Indirect Costs**		
7	Mob/Demob	$383,895.00	10.0%
8	Contingency	$191,948.00	5.0%
9	Engineering Redesign	$95,974.00	2.5%
10	Main Office Expense	$261,049.00	6.8%
11	Project Management Fee	$95,974.00	2.5%
12	Subtotal Indirect Costs	$1,028,840.00	26.8%
13	**Total Cost 2025**	**$4,867,792.00**	
14	**Escalation**		
15	Number of years		5
16	Escalation factor		0.013
17	Escalation	$324,741.00	
18	Reclamation Cost Escalated	$5,192,533.00	
19	**Bond Amount (rounded to nearest $1,000) 2025 Dollars**	**$5,193,000.00**	

Table 2.0
Summary of Demolition Costs
2025 Reclamation Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Reference	Description	Notes	Cost
1	Office Builidng & Shop Warehouse		$436,428.00
2	Plant & Rail Loadout Area (excluding Kilns)		$1,093,475.00
3	Kilns (2)		$1,633,650.00
4	Paved Roads and Parking Lot		$140,876.00
5	Gasoline Fuel Tank & Containment		$3,531.00
6	Diesel Fuel Tank & Containment		$3,531.00
7	Conveyor Belts		$258,411.00
8	Powerline and Substation		$10,139.00
9	Natural Gas Pipeline		$22,651.00
10	Rail Spur		$66,371.00
	Total		**$3,669,063.00**

Prepared by: NMG1

Table 2.1

Office & Warehouse
2025 Demolition Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
1	**Office & Warehouse**																			
	Structure's Demolition Cost	Mixed Material, Wood, Masonary Block	02411.613.0100	$0.59	C. F.	166	69.5	35		11537	403795							573097	C. F.	$236,689.06
	Deduct 30% for No Interior Walls		02411.613.0750	$0.41	C. F.	116	69.5	21		8062	169302									
	Truck's Capacity	18 CY																		
	Haulage (additional mileage)	Mixed Material, Wood, Masonary Block	31232.320.3414	$5.37	C.Y.						21225.815							21225.815	C.Y.	$113,982.63
	Disposal Cost Non Steel	Mixed Material - Wood, Masonary Block	02411.919.0950	$91	Ton							424.5163								$38,630.98
	Subtotal																			$389,302.67
	Dumpster for Plant Area - Misc. Items																			
	Dumpster Delivery Cost	30 CY Roll-off Dumpster	02411.919.0910	$82.50	Ea													3	Ea	$247.50
	Dumpster Monthly Rental Cost		02411.919.0940	$80	Ea													3	Ea	$240.00
	Dumpster - Disposal Fee		02411.919.0950	$91	Ton							270								$24,570.00
	Subtotal																			$25,057.50
	Concrete Demolition																			
	Demolition Cost	Concrete flooring	02411.617.0280	$1.02	S.F.															
	Add 10% for reinforcement		02411.617.2200	$1.12	S.F.	283	69.5	0.83		19668.5	138.33							19668.5	S.F.	$22,068.00
	Subtotal																			$22,068.00
	Total																			$436,428.00

Notes:

C.F. - Cubic Feet

C.Y. - Cubic Yard

Ea. - Each

S.F. - Square Foot

Prepared by: NMG1

GRAYMONT

Table 2.2
Plant & Rail Loadout Areas
2025 Demolition Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Foth

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
2	**Plant & Rail Loadout Area**																			
	Structure's Demolition Cost	Steel	02411.613.0020	$0.55	C. F.															
	Deduct 30% for No Interior Walls		02411.613.0750	$0.39	C. F.					56780	851700							851700	C. F.	$327,904.50
	Truck's Capacity	18 CY																		
	Haulage (additional mileage)	Mixed Material, Wood, Masonary Block	31232.320.3414	$5.37	C.Y.						31544.44							31544.44	C.Y.	$169,393.67
	Disposal Cost Non Steel	Mixed Material - Wood, Masonary Block	02411.919.0950	$91	Ton						6308.89							6308.89	Ton	$574,108.89
	Subtotal																			$1,071,407.06
	Dumpster Delivery Cost	30 CY Roll-off Dumpster	02411.919.0910	$82.50	Ea													3	Ea	$247.50
	Dumpster Monthly Rental Cost		02411.919.0940	$80	Ea													3	Ea	$240.00
	Dumpster - Disposal Fee		02411.919.0950	$91	Ton							270								$24,570.00
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete flooring	02411.617.0280	$1.02	S.F.															
	Add 10% for reinforcement		02411.617.2200	$1.12	S.F.	283	69.5	0.83		19668.5	138.33							19668.5	S.F.	$22,068.00
	Subtotal																			$22,068.00
	Total																			$1,093,475.00

Notes:
C.F. - Cubic Feet
C.Y. - Cubic Yard
Ea. - Each
S.F. - Square Foot

Prepared by: NMG1

GRAYMONT

Table 2.3
Kilns
2025 Demolition Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Foth

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
3		**Kilns**																		
	Structure's Demolition Cost	Steel	02411.613.0020	$0.55	C. F.															
	Deduct 30% for No Interior Walls		02411.613.0750	$0.39	C. F.	180	43	83		7740	642420							642420	C. F.	$247,331.70
	Truck's Capacity	18 CY																		
	Haulage (additional mileage)	Mixed Material, Wood, Masonary Block	31232.320.3414	$5.37	C.Y.						23793.333							23793.333	C.Y.	$127,770.00
	Disposal Cost Non Steel	Mixed Material - Wood, Masonary Block	02411.919.0950	$91	Ton						4758.67							4758.67	Tons	$433,039.00
	Subtotal																			$808,140.70
	Dumpster Delivery Cost	30 CY Roll-off Dumpster	02411.919.0910	$82.50	Ea															
	Dumpster Monthly Rental Cost		02411.919.0940	$80	Ea															
	Dumpster - Disposal Fee		02411.919.0950	$91	Ton															
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete flooring	02411.617.0280	$1.02	S.F.															
	Add 10% for reinforcement		02411.617.2200	$1.12	S.F.	180	43			7740	7740.00							7740.00	S.F.	$8,684.00
	Subtotal																			$8,684.00
	Total																			$1,633,650.00

Notes:
C.F. - Cubic Feet
C.Y. - Cubic Yard
Ea. - Each
S.F. - Square Foot

Prepared by: NMG1

Table 2.4
Paved Roads and Parking Lot
2025 Demolition Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
4	**Asphalt Roads and park lot**																			
	Structure's Demolition Cost	Remove Pavement (to be buried)	02411.317.5050	$7.52	S.Y.					18733.5								18733.5	S.Y.	$140,875.92
																				$0.00
																				$0.00
	Subtotal																			$140,875.92
	Subtotal																			
	Subtotal																			
	Total																			$140,876.00

Notes:
S.Y. - Square Yard

Prepared by: NMG1

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Table 2.5
Gasoline Fuel Tank
2025 Demolition Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Foth

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
5	**Gasoline Tank and Containment - Eastern Quarry**																			
	Structure's Demolition Cost	Steel Tank - Gasoline Fuel - 5,000 gal.	13050.575.0530	$2,773.58	Ea.													1	Ea.	$2,773.58
	Truck's Capacity	18 CY																		
	Haulage (additional mileage)	Mixed Material, Wood, Masonary Block	31232.320.3414	$5.37	C.Y.														C.Y.	$0.00
	Disposal Cost Non Steel	Mixed Material - Wood, Masonary Block	02411.919.0950	$91	Ton														Tons	$0.00
	Subtotal																			$2,773.58
	Hazardous Waste's Disposal Cost	Disposal - Vaccuum Truck for Fuel	02812.010.3120	$225	HR													3.8	HR	$855.00
	Hazardous Waste's Disposal Cost	Contaminated Soil to landfil	02651.030.1110	$140	Ton													6.7	Tons	$938.00
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete flooring	02411.617.0280	$1.02	S.F.															
	Add 10% for reinforcement		02411.617.2200	$1.12	S.F.	15	15			225	675							675	S.F.	$757.00
	Subtotal																			$757.00
	Total																			$3,531.00

Notes:
C.F. - Cubic Feet
C.Y. - Cubic Yard
Ea. - Each
S.F. - Square Foot

Prepared by: NMG1

Table 2.6

Diesel Tank and Containment
2025 Demolition Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
9	**Diesel Tank and Containment - Eastern Quarry**																			
	Structure's Demolition Cost	Steel Tank - Diesel Fuel - 5,000 gal.	13050.575.0530	$2,773.58	Ea.													1	Ea.	$2,773.58
	Truck's Capacity	18 CY																		
	Haulage (additional mileage)	Mixed Material, Wood, Masonary Block	31232.320.3414	$5.37	C.Y.															
	Disposal Cost Non Steel	Mixed Material - Wood, Masonary Block	02411.919.0950	$91	Ton															
	Subtotal																			$2,773.58
	Hazardous Waste's Disposal Cost	Disposal - Vaccuum Truck for Fuel	02812.010.3120	$225	HR													3.8	HR	$855.00
	Hazardous Waste's Disposal Cost	Contaminated Soil to landfil	02651.030.1110	$140	Ton													6.7	Tons	$938.00
	Subtotal																			
	Concrete Demolition																			
	Demolition Cost	Concrete flooring	02411.617.0280	$1.02	S.F															
	Add 10% for reinforcement		02411.617.2200	$1.12	SF	15	15			225	675							675	SF	$757.00
	Subtotal																			$757.00
	Total																			$3,531.00

Notes:
C.F. - Cubic Feet
C.Y. - Cubic Yard
Ea. - Each
S.F. - Square Foot

Prepared by: NMG1

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Table 2.7
Conveyor Belts
2025 Demolition Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Foth

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
14	**Conveyor Bents**																			
	Structure's Demolition Cost	Steel	02411.613.0020	$0.55	C. F.															
	Deduct 30% for No Interior Walls		02411.613.0750	$0.39	C. F.	10271	4	5			205420							205420	C. F.	$79,086.70
	Truck's Capacity	18 CY																		
	Haulage (additional mileage)	Mixed Material, Wood, Masonary Block	31232.320.3414	$5.37	C.Y.						7608.1481							7608.1	C.Y.	$40,856.00
	Disposal Cost Non Steel	Mixed Material - Wood, Masonary Block	02411.919.0950	$91	Ton							1521.6						1521.6	Tons	$138,468.00
	Subtotal																			$258,410.70
	Subtotal																			
	Subtotal																			
	Total																			$258,411.00

Notes:

C.Y - Cubic Yard

C.F. - Cubic Foot

Prepared by: NMG1

Table 2.8
Powerlines and Substation
2025 Demolition Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
15	**Powerlines and Substation**																			
	Structure's Demolition Cost	Wood poles -200 ft apart	26050.510.0465	$48	Ea													50	Poles	$2,400.00
	Substation			$7,150	Ea.													1	Ea	$7,150.00
	Truck's Capacity	18 CY																		
	Haulage (additional mileage)	Mixed Material, Wood, Masonary Block	31232.320.3414	$5.37	C.Y.						25.0							25.0	C.Y.	$134.25
	Disposal Cost Non Steel	Mixed Material - Wood, Masonary Block	02411.920.0100	$91	Ton							5.0						5.0	Tons	$455.00
	Subtotal																			$10,139.25
	Total																			$10,139.00

Notes:
Ea. - Each
C.Y - Cubic Yard

Prepared by: NMG1

Table 2.9
Natural Gas Pipeline
2025 Demolition Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
15	**Natural Gas Pipeline**																			
	Structure's Demolition Cost	Natural Gas Pipeline (6-inch)	24113.510.100	$15.45	L.F.	1450												1450	LF	$22,402.50
	Truck's Capacity	18 CY																		
	Haulage (additional mileage)	Mixed Material, Wood, Masonary Block, Steel	31232.320.3414	$5.37	C.Y.						10.5							10.5	C.Y.	$56.60
	Disposal Cost Non Steel	Mixed Material	02411.920.0100	$91	Ton							2.1						2.1	Tons	$191.82
	Subtotal																			$22,650.91
	Equipment 's Cost	Excaavation of Trench	31231.614.2600	1.82	L.F.	1450												1450	L.F.	$2,639.00
	Dismantling Cost																			
	Equipment 's Vol. Demolished																			
	Loading Costs																			
	Transport Costs																			
	Disposal Costs																			
	Subtotal																			
	Subtotal																			
	Total																			$22,651.00

Notes:
Ea. - Each
C.Y - Cubic Yard
L.F. - Linear Foot

Prepared by: NMG1

Table 2.10
Rail Spur
2025 Demolition Cost Calculation
Eastern Quarry - Tract C Operating Area
Graymont, Inc.
July 2025

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost
15	**Rail Spur**																			
	Structure's Demolition Cost	Railtoad Track Removal (Ties & Track)	02411.333.3500	$21	L.F.	2130												2130	L.F.	$45,177.30
		Ballast	02411.333.3600	$7.72	C.Y					12780	473.3							473.3	C.Y	$3,654.13
	Truck's Capacity	18 CY																		
	Haulage (additional mileage)	Mixed Material	31232.320.3414	$5.37	C.Y.						182.0							182.0	C.Y.	$977.34
	Disposal Cost Non Steel	Mixed Material - Wood, Masonary Block	02411.920.0100	$91	Ton							182.0						182.0	Tons	$16,562.00
	Subtotal																			$66,370.77
	Subtotal																			
	Total																			$66,371.00

Notes:
Ea. - Each
C.Y - Cubic Yard
L.F. - Linear Foot

Prepared by: NMG1

Table 3.0

Summary of Earth Work Reclamation Cost

2025 Reclaimation Calculation
Eastern Quarry - Tract C Operating Area
Graymont, LLC.
July 2025

Ref.		Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
	Phase 5 - Backfilling & Grading															
1	Dozer D-9T	$36,049.35	$164.25	0.1	$82.61	$488.59	1	$488.59	$/HR	43,560.00	CY	354	CY/HR	123.1	HR	$60,121.00
2	962K Loader	$10,555.02	$65.50	0.1	$82.61	$220.63	1	$220.63	$/HR	21,780.00	CY	150	CY/HR	145.2	HR	$32,035.00
3	Dump Truck 6x4 18 CY	$5,704.91	$61.57	0.1	$69.30	$172.68	2	$345.36	$/HR	21,780.00	CY	150	CY/HR	145.2	HR	$50,146.00
	Phase 5 - Grading Overburden Stockpile															
1	Dozer D-9T	$36,049.35	$164.25	0.1	$82.61	$488.59	1	$488.59	$/HR	5.00	Ac	0.25	Ac/HR	20.0	HR	$9,772.00
	Phase 5 - Seeding															
1	Seeding w/ Tractor Spreader		$64.84	0.1	$82.61	$153.93	1	$153.93	$/HR	752,292.00	SF	6500	SF/Hr	115.7	HR	$17,815.00
	Subtotal															$169,889.00